

Handbook of Research on Smart Territories and Entrepreneurial Ecosystems for Social Innovation and Sustainable Growth

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The concept of a smart city has emerged with the help of developing technologies against population growth, increasing urbanization rates, and rapidly depleting resources. The integration of information and communication technologies, which are the basis of the concept of a smart city, with the urban planning processes and effective use of region-specific resources are essential for the sustainability of cities. The creation of the Smart Territories, which will be the lead of smart, sustainable cities, is also directly linked to such intelligent solutions to urban problems and smart citizens. Because it is vital to be a self-sufficient structure that does urban planning by considering climatic data and develops solutions with data mining within the framework of local needs, the importance of solving the priority urban problems such as environmental management, efficient use of resources, and sustainable urban transportation with the help of rapidly developing information technologies should be emphasized on the road to smart territories.

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The rapid advance in the technology sector in the last decades has ignited smart city initiatives all over the world, which aim to provide solutions to current urban problems related to energy, waste management, traffic, and security, among others. However, although smart territories have been studied from different approaches, there seems to be a gap in the relationship between smart cities and businesses. Private entities have the knowledge, experience and in most cases, the resources to contribute to the synergy between governmental agencies and entrepreneurs. Three case studies from successful smart cities are

presented together with an additional case study using original research in order to study the smart city under a business model framework, where each actor generates and captures value. Results indicate that private organizations play a key role in the innovation ecosystem, and they are crucial for collaboration with universities to encourage civil society participation in the smart city.

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Quality is a significant issue to consider when thinking about optimizing processes, improving the quality of services and products, increasing customer or client satisfaction, or just reducing costs that are related to waste or non-optimization in processes. E-environments and smart territories are not an exception, so, quality is a key success factor when considering and developing them. Quality has always been considered a part of the management system and processes in a company. Quality stands for the required perspective in the strategy of an enterprise and leads to accomplishing all quality requirements and goals previously defined in the company. There are several reasons why quality should be considered in an e-environment or a smart city.

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By aiming at improving social welfare and well-being, social policies, social innovation, and smart territories are closely related to each other. Local authorities are in direct contact with citizens and regional needs, which makes them an important actor in overcoming challenges ranging from housing, spare-time activities to education to improving democratic standards. There are many successful examples of social innovations, including FixMyStreet.com, participatory budgeting, and Open Government Vienna, which are supported by local governments that can contribute to the formation of smart cities and territories. By elaborating related examples from various perspectives, this chapter highlights the relation between social policy, social innovation, and smart cities.

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The historical periods of disruptions for almost every field of life underlines the necessity of bottom-up development, which requires citizens to realize its potential and take the responsibility to make a change. Social innovations are believed to play the role that technological innovation did during the industrial development one century ago. Proven experiences suggest that there is an immense need of cultivation of an ‘innov-active’ society which is sensitive to the challenges around them, capable of analyzing the situation, determining the point of action, developing alternatives and providing necessary resources in an innovative and collaborative manner without awaiting or expecting the intervention of others. Unlocking the potential of the people necessitates taking advantage of collective intelligence; a participatory design approach, improving the community feeling and level of trust; developing necessary tools for action; and improving the active citizenship mindset, which eventually contributes to an entrepreneurship spirit and thus creates a risk-taker and resilient society.

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In the knowledge economy era, the importance of intellectual capital as the source of value creation has been well recognized in theory and practice. Only those countries, regions, organizations, and individuals who understand the significance of intellectual resources can improve their performances in the long run. Hence, this chapter aims to investigate the importance of intellectual potentials for the sustainable development of regions. The main contribution of this chapter is the presented methodological framework for measuring the intellectual performance of regions. Additionally, this study provides empirical research regarding regions in the Republic of Serbia. The obtained results can be a good starting point for policymakers in designing regional development strategies and policies.

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The Information and Communication Technologies (ICT) applied to territories leads to the phenomenon of “Smart City.” The goal of a smart project is to use technology to manage all of the issues of a city (mobility, heritage, environmental, safety, and health services) in a more sustainable, livable, and efficient way, which will result in improving the citizens’ quality of life. To know how the individuals perceive and evaluate these smart initiatives, we surveyed 525 citizens of Santander, a city in Spain that has developed a smart city project. As a result, we found that the citizens who are more familiar with smart cities are more likely to perceive that these types of projects have positive economic, cultural, environmental, and reputational impacts for the towns. This group of citizens also has a more positive attitude toward smart cities, assesses more favorably the brand equity of the smart project under investigation, and shows higher support for it.

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The small and medium-size business activities (SMEs), coming from different commercial sectors, are generally found in Italian small towns and municipalities. Recently, SMEs are characterized by negative economic cycles. Factors negatively affecting commercial and tourism activities are historical centers’ de-population phenomena, productive delocalization, business transfer, and changes in service delivery processes and logistics. To overcome these negativities the promotion of cultural assets, the use of new technologies for economic development, co-operation through networks and clusters, and the involvement and integration of different local stakeholders are crucial. The aim of this research was to identify key

performance indicators and hotspots of business networks created for smart tourism development. The analysis was conducted through the compilation of a mapping of potentially usable technologies and through the analysis of the results of four case studies on the application of a business network in the Italian Lazio Region.

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Smart cities are a new scheme for urban planning and management, in which smart destinations become key points for tourist attraction. The objective of the present study is to determine through the theoretical review, the most appropriate technological tools to be used in fairs and turn them into smart spaces. The Raíces International Gastronomic Fair of the city of Guayaquil and its satisfaction / dissatisfaction indexes are taken as an example case in order to propose a technological management system that improves its performance, in which the use of Big Data, georeferencing, IoT, and augmented reality are key pieces to guarantee the security, experience, and promotion of the event.

Chapter 10

Smart Territories, Collaborative Entrepreneurship, and Eco-Friendly Tourism for Development: El Boalo-Cerceda-Mataelpino (Madrid, Spain) Case 172

José Manuel Saiz-Alvarez, EGADE Business School, Tecnológico de Monterrey, Mexico & Mexican Academy of Sciences, Mexico

Zero Waste Europe has awarded the village of El Boalo-Cerceda-Mataelpino (7,090 inhabitants) as the first Zero Waste Municipality of Spain. This chapter analyzes how a smart city has applied environmental conservation policies with the participation of a large number of residents in a public-private collaboration scheme to increase their quality of living, complemented with the application of circular economy and sustainable tourism policies focused on economic growth. Strategies that could be imitated by other small municipalities wishing to increase the quality of life of their population through sustainability.

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María de Carmen Gutiérrez-Diez, Universidad Autónoma de Chihuahua, Mexico

José Luis Bordas-Beltrán, Universidad Autónoma de Chihuahua, Mexico

Ana María de Guadalupe Arras-Vota, Universidad Autónoma de Chihuahua, Mexico

In the last years, a sense of urgency for cities to become more livable and sustainable has arisen due to the expected increase in their population. This chapter describes different initiatives taking place in the city of Chihuahua in Mexico, using the framework developed by the Inter-American Development Bank (IDB), with four dimensions: 1) Infrastructure for connectivity; 2) Sensors; 3) Integrated command and operations center; and 4) Communications technology. For each one of them, a description of the activities or projects is provided, along with a final SWOT (strengths, weakness, opportunities, and threats) analysis.

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Qualitative Analysis of Learning Territorial Planning: The Case of Management of a Local Plan of Territorial Laws in Chile 213

Christian A. Quinteros Flores, Universidad de Chile, Chile

This chapter addresses the management process of the Regulator Program of Melipilla district in Chile in 1988–2016. Evidence indicates that territorial planning processes are rare in decision-makers, as they are in favor of a technocratic logic focused on quantitative metrics, rather than in qualitative or processional analyses, such as organizational learning. To this end, the qualitative analysis in this study sought to capture the perceptions of some of its actors regarding issues such as citizen participation, technical management, and political management of this instrument. The fieldwork consisted of the application of in-depth interviews of actors involved at different stages of their implementation from a multi-level approach. It is concluded that the process of updates to this planning instrument was strongly associated with political issues with little strategic vision for the future, precarious levels of citizen participation, and an absolute shortage of organizational learnings into the process.

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Neeta Baporikar, Namibia University of Science and Technology, Namibia & University of Pune, India

M. V. Deshpande, Independent Researcher, India

Entrepreneurs and entrepreneurship have always been highlighted for overall development. This chapter aims to understand the entrepreneurs' multi-perspective approach as a catalyst for regional development in India. It reviews SMEs' policies and multi-perspective approach adopted by the auto component sector/cluster for regional growth by including a broader range of human resource and leadership-related aspects than is normally found in the SME and entrepreneurship literature. The methodology adopted is exploratory study with the open-ended approach of grounded theory, complemented by secondary data analysis with a focus on entrepreneurs of a particular sector/cluster and limited to Pune region development. The findings hope to provide insights on a multi-perspective approach and suggest that successful entrepreneurial firms that operate as clusters create entrepreneurial leaders who then act as "integrating forces" on two levels: integrating the elements of entrepreneurship and mediating between the regional development and entrepreneurship development.

Chapter 14

Regional Impact of Innovation: The Case of an H2020 Project in Central and Western Europe 254

José R. Gutierrez, ESIC University, Spain

Since the 1980s, a great deal of research has been carried out regarding endogenous economic growth. The focus has been specially put on the triangle of relationships among growth, territories, and innovation, and concepts as means of technological innovation have been extensively studied. In this context, this chapter does not pursue to enhance theoretical knowledge on this topic, but, on the contrary, it intends to remark conclusions previously reached by contrasting them with the implementation of a specific innovation

policy program. To achieve this objective, an analysis is made of the European Union programme to foster R&D called Horizon 2020 (H2020). Also, it shows the case of an H2020 Project from the 2015 call, applying an impact assessment analysis.

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Open Social Innovation: An Approach to Public Organizations 271

Amaya Erro-Garcés, Public University of Navarre, Spain

Maria Elena Aramendía-Muneta, Public University of Navarre, Spain

Three public European case studies are presented as an evaluation of a preliminary test of an adapted questionnaire to measure open social innovation. Findings include the differences and similarities between public and private performance. Public practitioners integrate these experiences later than private. The reasons for engaging in open innovation are different: whereas improving citizens' relationships is the major public reason, creating partnerships is the private driver. Finally, technologies help open innovation in both public and private cases. Furthermore, it may be concluded that there is a lack of open social innovation professionals that leads to a barrier in the development of these policies in the public sector.

Chapter 16

Coworking Spaces and the Transcendence of Social Innovation Knowledge in the Smart Territory 287

Guillermo J. Larios-Hernandez, Universidad Anahuac Mexico, Mexico

Alberto Borbolla-Albores, Universidad Anahuac Mexico, Mexico

Smart territories favor social entrepreneurship, which develops in a collaborative effort requiring networking and skilled facilitation. Coworking spaces (CWS) advance as mediating organizations that bring together entrepreneurial communities in smart territories. This chapter develops a practical framework for knowledge dissemination in CWS. It bases this framework on the analysis of three spatial characteristics that allow for the assessment of the knowledge transcendence originating in CWS, namely, physical, social, and informational spaces. To test this framework, the authors analyze the Roma-Norte corridor in Mexico City, whose results indicate the presence of two models: one constituted of private organizations that place collaboration as a secondary value, subject to their office rental services, and an umbrella model that clusters other social innovation facilitators that transcend their territorial strip. This latter meta-space model expresses positive effects in terms of knowledge spillover, suggesting the concentrated bottom-up construction process of a smart territory.

Chapter 17

Are There Really Differences Between Social and Commercial Entrepreneurship in Developing Countries? An Institutional Approach 306

Luis F. Hidalgo, Universitat Autònoma de Barcelona, Spain

Josep Rialp, Universitat Autònoma de Barcelona, Spain

David Urbano, Universitat Autònoma de Barcelona, Spain

The objective of this chapter is to determine the probability of starting social or commercial entrepreneurship in developing countries using the institutional approach as the theoretical framework. The study tests the hypotheses through a binomial logistic regression based on a sample of 10,598 entrepreneurs obtained from the Global Entrepreneurship Monitor (GEM). The main findings demonstrate that a higher level of education (formal institution) and a positive perception of personal values (informal institution) increase the probability of being a social entrepreneur. Also, the study shows that the interaction between informal

institutions causes changes in the likelihood of being a social or commercial entrepreneur. This research advances the discipline by providing new information on the institutional environmental factors that influence social entrepreneurial activity.

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To Examine Women Social Entrepreneurial Ecosystems: Opportunities and Challenges 326
Suja Ravindran Nair, Educe Micro Research, India

In the past few decades, the concept of social entrepreneurship has emerged as a popular area of research study and practice. However, despite women social entrepreneurs showing great potentials through a reduced gender gap in social entrepreneurship unlike commercial entrepreneurship where the gender gap is found to be high, not much literature is available on women's social entrepreneurial ventures. This study is an attempt to fill up this gap through a review of prior literature on the field of social entrepreneurship. By reviewing the existing literature, the author draws a comparison between social entrepreneurship and women social entrepreneurship, then examines the success factors in women's social entrepreneurship and also discusses the challenges. To build-up the link between the literature and practice two real case studies are presented in support of the discussed theoretical inputs. Finally, limitations and future research areas are discussed.

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Challenges in the Informal Sector: A Tale of Four Successful Entrepreneurs in the Makola Market in Ghana 346
Abena Owarewaa Koramoah, University of Ghana, Ghana
Grace Abban-Ampiah, Ghana Institute of Management and Public Administration, Ghana

Owing to the highly competitive and volatile business environment, companies in the West African markets face significant challenges. This study was conducted to examine the challenges faced in the marketplace in Ghana by successful entrepreneurs. Accra was intentionally sampled for the analysis of four successful entrepreneurs from the Makola market. Findings revealed that access to finance, high competition, instability in macroeconomic indicators, poor management competences, lack of skilled labor and deficiencies in marketing strategies are the major factors confronting the survival of entrepreneurs in the marketplace. The results provide insights into the important and current challenges facing entrepreneurs in the informal sectors. Recommendations were made to help overcome the challenges faced by business people in their operations.

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Sustainable Entrepreneurship in Indigenous Communities in Colombia 378
Omar Alonso Patiño, Universidad EAN, Colombia
Catalina Lucía Ruiz Arias, Universidad EAN, Colombia
Paula Echeverry Pérez, Universidad EAN, Colombia

Indigenous communities in Colombia have been characterized by an economy of subsistence, influenced by the nomadic population that has allowed them to take advantage of the abundance of the environment in which they live and by the cultural context of these communities. The authors document a project initiative to co-create a sustainable entrepreneurship model for indigenous communities, to identify sustainable income alternatives adjusted to the culture and living conditions of indigenous people. First experiences of this project took place in La Fragueta Community in the Department of Caquetá at

the south of Colombia, where a social entrepreneurship incubation process was deployed, identifying different productive activities, selecting grounded organic chili pepper as a pilot for the implementation of a culture-based and local product income alternative, with added value provided by the community.

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Steps to Success: Competitive Advantage of Modern Enterprises in Poland..... 399

Emilia Kijanka, School of Economics, Law, and Medical Sciences in Kielce, Poland

Katarzyna Lipska, School of Economics, Law, and Medical Sciences in Kielce, Poland

Nowadays, successful companies are those that build their adaptability by improving business processes, optimizing costs, increasing customer satisfaction, and responding quickly to their customers' needs. The company can choose two ways: keep its status quo, without going forward or backward, or to act on the opportunities that appear in the market. The reality consists of opportunities that the entrepreneur faces, and also, there are barriers, limitations, and disappointments that arise. Still, if they use innovative solutions, they gain a competitive advantage. In the modern world, the necessary resource is knowledge, which allows entrepreneurs to improve the position of the company in the market. This chapter presents the results of a study among economics and management students, who defined their way of understanding entrepreneurship, and indicate motives of starting-up a business and ranked the features that they believed are the attributes of a successful businessperson.

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Foreword

Given the current process of digitalization of the most developed countries on the planet in an environment framed within Industry 4.0, smart territories are of increasing importance. The fusion of smart territories with entrepreneurship, within a scheme based on the triple helix (union between the HEI, the company, and the public administrations), is generating the breeding ground for the creation and development of startups that must be directed towards achieving a change in the economy with social improvement.

In the case of developing countries, many of which are in the states of Latin America and the Caribbean, the solution to their poverty involves the combination of quality education and the promotion of an entrepreneurial spirit in new generations. Developing countries need entrepreneurs focused on leading the double creation of employment and wealth in their countries of origin to achieve social change through the eradication of poverty. These socioeconomic goals are being performed in conjunction with substantial protection of the environment with the adoption of the necessary corrective measures to achieve sustainable economic growth.

In this changing process, the smart territory has a crucial role to play, as it is a geographic and human-centered context defined by sustainability and considered as an example of clean managerial practices based on economic sustainability and efficiency. As a result, when a smart territory is reinforced with innovation and entrepreneurial ecosystems, the impact caused is even stronger and more sustained.

This book combines a joint effort made by specialists from different countries and continents with the ultimate goal of achieving more just and solidarity societies defined by their respect for the environment and the creation of employment and socioeconomic wealth for the whole community. In this book, different experts analyze different concepts related to citizen-led social innovations, smart tourism destinations, smart rural initiatives, analysis of the informal sector, R&D plus innovation, intellectual capital, territorial planning, and open social innovation to have a holistic view on smart territories and innovation.

Although this process of social change has to be mainly driven from now on, this route of social transformation has to be carried out primarily by the arrival of the new generations formed by millennials, centennials, and the alpha-generation. I hope that the future readers of this outstanding book will enjoy learning from it, and I congratulate the authors and publishers for the excellent work done.

Walter Mera Ortiz
Universidad Católica de Santiago de Guayaquil, Ecuador

Preface

The notion of a smart territory implies a sustainable and efficient use of resources where the integration and interconnectivity of digital, social, and physical spaces in cities or regions are given. Thus, fostering a higher quality of life through optimal resource management. Research on smart territories is an emerging concept, as can be seen in the number of interdisciplinary publications on this topic from different areas of knowledge related to territorial management, climate, nature, security and crime, energy sustainability, infrastructures, and waste management. However, there is a gap in the relationship between smart cities and businesses. The significant advances in Information and Communications Technologies (ICT) surrounded by the globalization, urbanization, and climate change derive in challenges to foster a knowledge-based opportunity context where the synergy between information, innovation and technology, and entrepreneurial initiatives are essential for smart territorial development. The development of smart territories is linked to smart specialization, a term adopted in the European Union 2020 Agenda outlining smart, sustainable, and inclusive growth objectives. Smart specialization is a regional bottom-up policy framework for innovation-driven growth endowing entrepreneurial discovery. An increasing interest in smart specialization is arising as a way of supporting innovation-lead/knowledge-intensive territorial development by leveraging regional dynamism.

Smart territories development conveys social innovation, understood as an emerging phenomenon tied to the social processes that enable a society to find solutions to social problems more efficiently, effectively, and sustainably. Therefore, governmental initiatives based on smart territories should seek to enhance collaboration networks within ecosystems of innovation, where quadruple helix actors, entrepreneurs, public and private institutions, and governmental agencies meet social demands sustainably. Decisions in strategic planning, vocational regions, and smart specialization policies involving the sustainable and optimal use of resources must become top priorities in legislative agendas worldwide.

Much remains to be known about smart territories initiatives, legislation, practices, and cases worldwide, as well as their practical implications for sustainable development in different communities and regions. Thus, a better understanding of the various smart territorial developments across different contexts to assess their impact on social innovation and inclusion through the effective and efficient use of resources is needed. Also, how smart territories provide better positioning of the regions on an international scale while generating contact networks at public and private levels that could, in turn, seed further sustainable projects.

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The authors of this book debate on how smart territorial cooperation and specialization strategy implementation favors the exchange of best practices and the acquisition of an integral vision that will undoubtedly be valuable for all the actors involved, motivating social innovation and inclusion, sustainable growth and facilitating the development of entrepreneurial initiatives and cooperation projects. Thus, developing a greater synergy and interest of various stakeholders in the different regions, including legislative initiatives.

ORGANIZATION OF THE BOOK

This Handbook of Research is divided into two main sections. The first section (Chapters 1 to 12) is related to smart territories, cities, and regions, and the second section (Chapters 13 to 21) deals with entrepreneurial ecosystems and initiatives for innovation, regional development, and growth. Both parts comprise conceptual and empirical studies, including various cases and experiences related to essential topics for smart territorial development in four different continents.

Regarding Section 1, Chapter 1 is entitled “The Role of Smart City Solutions on the Road to Smart Territories: Smart Solutions to Urbanization Problems,” and written by Múcella Ates from the Information Technology and Communication Authority (Turkey). This opening chapter examines the concept of a smart city, which has emerged with the help of developing technologies against population growth, increasing urbanization rates, and rapidly depleting resources. Besides, the integration of Information and Communication Technologies (ICT), which are the basis of the concept of a smart city, with the urban planning processes and effective use of region-specific resources are essential for the sustainability of cities. The author discusses how the creation of smart territories, which is the lead of smart, sustainable cities, is also directly linked to such intelligent solutions to urban problems and smart citizens. Because it is vital to be a self-sufficient structure that does urban planning by considering climatic data and develops solutions with data mining within the framework of local needs, in this context, the importance of solving the priority urban problems such as environmental management, efficient use of resources, and sustainable urban transportation with the help of rapidly developing information technologies should be emphasized on the road to smart territories.

In this line of discussion, Chapter 2, entitled “The Role of Business in the Innovation Ecosystem: The Case of Smart Cities as Business Models,” and written by Manuela Gutiérrez-Leefmans from Universidad de las Américas Puebla (Mexico), addresses the rapid advance in the technology sector in the last decades, which has ignited smart city initiatives all over the world, and aim to provide solutions to current urban problems related to energy, waste management, traffic, and security, among others. However, although smart territories have been studied from different approaches, there seems to be a gap in the relationship between smart cities and businesses. Based on the author, private entities have the knowledge, experience, and in most cases, the resources to contribute to the synergy between governmental agencies and entrepreneurs. As a result, three case studies are presented from thriving smart cities together with an additional case study using original research to study the smart city under a business model framework, where each actor generates and captures value. The author concludes that private organizations play a crucial role in the innovation ecosystem, and they are essential for collaboration with universities to encourage the participation of civil society in smart city efforts.

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Quality is a significant issue to consider when thinking about optimizing processes, improving the quality of services and products, increasing customer or client satisfaction, or just reducing costs that are related to waste or non-optimization in processes. In Chapter 3, entitled “Quality in e-Environment Development and Sustainability of Smart Cities,” and written by Beatriz Olalla-Caballero from the Pontifical University of Salamanca (Spain), the author exposes the implications of quality as a critical success factor for developing e-environments and smart territories. Quality stands for the required perspective in the strategy of an enterprise and leads to accomplishing all quality requirements and goals previously defined in the company. Thus, the authors discuss several reasons why quality should be considered in an e-environment and a smart city.

By aiming at improving social welfare and well-being, social policy, social innovation, and smart territories are closely related to each other. The author in Chapter 4, entitled “Social Innovation as a New Social Policy Tool for Regional Government Institutions in Smart Territories,” developed by Muradiye Ates from Haci Bayram Veli University (Turkey), discusses how local authorities are in direct contact with citizens and regional needs, which makes them an important actor in overcoming challenges ranging from housing, spare-time activities to education to improving democratic standards. For this reason, the author in this chapter presents successful examples of social innovations, including FixMyStreet.com, participatory budgeting, and the Open Government Vienna, which are supported by local governments that can contribute to the formation of smart cities and territories. By elaborating related examples from various perspectives, this chapter highlights the relation between social policy, social innovation, and smart cities.

In Chapter 5, called “How to facilitate citizen-led social innovations: Designer-, Maker- and Funder Society as Building Blocks,” the author, Seyithan Ahmet Ates from Ankara University of Social Sciences (Turkey), stresses that the historical periods of disruptions for almost every field of life underlines the necessity of bottom-up development, which requires citizens to realize its potential and take the responsibility to make a change. For the author, social innovations are believed to play the role that technological innovation did during the industrial development one century ago. In addition, proven experiences suggest that there is an immense need of cultivation of an ‘innov-active’ society which is sensitive to the challenges around them, capable of analyzing the situation, determining the point of action, develop alternatives and provide necessary resources innovatively and collaboratively without waiting or expecting the intervention of ‘others.’ The author concludes that to unlock the potential of the people requires taking advantage of collective intelligence; participators design approach, improving the community feeling and level of trust; developing necessary tools for action; improving the active citizenship mindset, which eventually contributes to entrepreneurship spirit and thus creating a risk-taker and resilient society.

In the knowledge economy era, the importance of intellectual capital as the source of value creation has been well recognized in theory and practice. In Chapter 6, entitled “The Importance of Intellectual Capital for the Sustainable Growth of Regions: Evidence from the Republic of Serbia,” and written by Tamara Rađenović, and Bojan Krstić, both from the University of Niš (Serbia), the authors pose that only those countries, regions, organizations, and individuals who understand the significance of intellectual resources can improve their performances in the long run. Hence, this chapter aims to investigate the importance of intellectual potentials for the sustainable development of regions. The main contribution of this chapter is the presented methodological framework for measuring the intellectual performance of regions. Additionally, the authors provide empirical research regarding regions in the Republic of Serbia. The obtained results can serve as a good starting point for policymakers in designing regional development strategies and policies.

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The ICT applied to territories leads to the phenomenon of a smart city. The authors in Chapter 7, called “Citizens’ Perceptions and Support for Smart City Projects: The Case of ‘Smart Santander,’ developed by Héctor San Martín, M^a Mar García-de-los-Salmones, and Ángel Herrero, all from Universidad de Cantabria (Spain) discuss that the goal of a smart project is to use technology to manage all of the issues of a city (mobility, heritage, environmental, safety, and health services) in a more sustainable, livable, and efficient way, which will result in improving the citizens’ quality of life. To know how the individuals perceive and evaluate these smart initiatives, the authors surveyed 525 citizens of Santander, a city in Spain that has developed a smart city project. As a result, they found that the citizens who are more familiar with smart cities are more likely to perceive that these types of projects have positive economic, cultural, environmental, and reputational impacts for the towns. This group of citizens also has a more positive attitude toward smart cities, assess more favorably the brand equity of the smart project under investigation, and show higher support for it.

An additional discussion into ICT Innovation is presented in Chapter 8, entitled “The Development of Smart Tourism Destinations through the Integration of ICT Innovations in SMEs of the Commercial Sector: Practical Experiences from Central Italy,” developed by Olimpia Martucci, and Alessia Acampora, both from Roma Tre University (Italy), and Gabriella Arcese, and Stefano Poponi, both from Niccolò Cusano University (Italy). This chapter explores the situation of small and medium-size business activities (SMEs) from different commercial sectors, in Italian small towns and municipalities. Recently SMEs are characterized by negative economic cycles. Factors negatively affecting commercial and tourism activities are historical centers’ de-population phenomena, productive delocalization, business transfer, changes in service delivery processes, and logistics. To overcome these negativities, the promotion of cultural assets, the use of new technologies for economic development, co-operation through networks and clusters, and the involvement and integration of different local stakeholders are crucial. This chapter aims to identify key performance indicators and hotspots of business networks created for smart tourism development. For the analysis, the authors conducted a compilation of a mapping of potentially usable technologies and through the analysis of the results of four case studies on the application of a business network in the Italian Lazio Region.

Smart cities are a new scheme for urban planning and management, in which smart destinations become critical points for tourist attraction. In Chapter 9, with the title “System and Environment for Tourism 4.0: How does a digital system work for the promotion and evaluation of gastronomic tourism fairs?,” the authors, Danny C. Barbary-Montoya, César A. Vélez-Del Hierro, and Nathaly Y. Arroba-Hurtado, all from Universidad Espíritu Santo (Ecuador), determine through a theoretical review, the most appropriate technological tools to be used in fairs and turn them into smart spaces. The Raíces International Gastronomic Fair of the city of Guayaquil and its satisfaction/dissatisfaction indexes are taken as an example case in order to propose a technological management system that improves its performance, in which the use of big data, georeferencing, IoT and augmented reality are key pieces to guarantee the security, experience, and promotion of the event.

Another interesting case study is provided in Chapter 10, called “Smart Territories, Collaborative Entrepreneurship, and Eco-Friendly Tourism for Development: El Boalo-Cerceda-Mataelpino (Madrid, Spain) Case,” and written by José Manuel Saiz-Álvarez from EGADE Business School-Tecnológico de Monterrey (Mexico) and the Mexican Academy of Sciences. Zero Waste Europe has awarded the village of El Boalo-Cerceda-Mataelpino (7,090 inhabitants) as the first Zero Waste Municipality of Spain. This chapter analyzes how a smart city has applied environmental conservation policies with the participation of a large number of residents in a public-private collaboration scheme to increase their quality of

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living, complemented with the application of circular economy and sustainable tourism policies focused on economic growth. Strategies that could be imitated by other small municipalities wishing to increase the quality of life of their population through sustainability.

Chapter 11 is entitled “Smart Territory Initiatives in an Emerging Economy: The Case of Chihuahua City in Mexico,” and developed by María de Carmen Gutiérrez-Diez, José Luis Bordas-Beltrán, and Ana María de Guadalupe Arras-Vota, all from Universidad Autónoma de Chihuahua (Mexico). This chapter describes different initiatives taking place in the city of Chihuahua in Mexico, using the framework developed by the Inter-American Development Bank (IDB), with four dimensions: 1) Infrastructure for connectivity; 2) Sensors; 3) Integrated command and operations center, and 4) Communications technology. For each one of them, a description of the activities or projects is provided, along with a final SWOT (Strengths, Weakness, Opportunities, and Threats) analysis.

To conclude the first section of this book, a final case study is presented in Chapter 12, called “Qualitative Analysis of Learning Territorial Planning: The Case of Management of a Local Plan of Territorial Laws In Chile,” written by Christian Andrés Quinteros from Universidad Tecnológica de Chile INACAP (Chile). This chapter addresses the management process of the Regulator Program of Melipilla district in Chile in 1988–2016. Evidence indicates that territorial planning processes are rare in decision-makers, as they are in favor of a technocratic logic focused on quantitative metrics, rather than in qualitative or processional analyses, such as organizational learning. To this end, the qualitative analysis in this study sought to capture the perceptions of some of its actors regarding issues such as citizen participation, technical management, and political management of this instrument. The fieldwork consisted of the application of in-depth interviews of actors involved at different stages of their implementation from a multi-level approach. The author concludes that the process of updates to this planning instrument was strongly associated with political issues with little strategic vision for the future, precarious levels of citizen participation, and an absolute shortage of organizational learnings into the process.

Section 2 of this book relates to entrepreneurial ecosystems and initiatives for innovation, regional development, and growth. The chapters in this section provide enriching entrepreneurial experiences from four different continents. Chapter 13 is called “Regional Development via Entrepreneurs Multi-perspective Approach,” and written by Neeta Baporikar from Namibia University of Science and Technology, Namibia & University of Pune, and Mukund Vasant Deshpande, an independent researcher (India). This chapter aims to understand the entrepreneurs’ multi-perspective approach as a catalyst for regional development in India. The authors review SMEs’ policies and multi-perspective approach adopted by the auto component sector/cluster for regional growth by including a broader range of human resource and leadership-related aspects than usually is found in the SME and entrepreneurship literature. The methodology adopted is exploratory with the open-ended approach of grounded theory, complemented by secondary data analysis with a focus on entrepreneurs of a particular sector/cluster and limited to the Pune region development. The findings hope to provide insights on a multi-perspective approach and suggest that successful entrepreneurial firms that operate as clusters create entrepreneurial leaders who then act as “integrating forces” on two levels: integrating the elements of entrepreneurship and mediating between the regional development and entrepreneurship development.

Since the 1980s, a great deal of research has been carried out regarding endogenous economic growth. The focus has been specially put on the triangle of relationships among growth, territories, and innovation, and concepts as a means of technological innovation have been extensively studied. Chapter 14, called “Regional Impact of Innovation: The Case of an H2020 Project in Central and Western Europe,” developed by José R. Gutierrez from ESIC Business School (Spain), intends to remark conclu-

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sions previously reached by contrasting them with the implementation of a specific innovation policy program. To achieve this objective, an analysis is made of the European Union program to foster R&D called Horizon 2020 (H2020). Also, it shows the case of an H2020 Project from a 2015 call, applying an Impact Assessment analysis.

In a related line of research on innovation, Chapter 15, entitled “Open Social Innovation: An Approach to Public Organizations,” written by Amaya Erro-Garcés, and Maria Elena Aramendía-Muneta, both from Public University of Navarre (Spain), present three public European case studies as an evaluation of a preliminary test of an adapted questionnaire to measure Open Social Innovation. Their findings include the differences and similarities between public and private performance. Public practitioners integrate these experiences later than their private counterparts. The reasons for engaging in open innovation are different: whereas improving citizens’ relationships is the major public reason, creating partnerships is the private driver. Finally, technologies help open innovation in both public and private. Furthermore, it may be concluded that there is a lack of open social innovation professionals that leads to a barrier in the development of these policies in the public sector.

Smart territories also favor social entrepreneurship, which develops in a collaborative effort requiring networking and skilled facilitation. Chapter 16, entitled “Coworking Spaces and the Transcendence of Social Innovation Knowledge in the Smart Territory,” and developed by Guillermo J. Larios-Hernandez, and Alberto Borbolla-Albores, both from Universidad Anahuac Mexico (Mexico), stress that coworking spaces (CWS) advance as mediating organizations that bring together entrepreneurial communities in smart territories. This chapter develops a practical framework for knowledge dissemination in CWS. It bases this framework on the analysis of three spatial characteristics that allow for the assessment of the knowledge transcendence originating in CWS, namely, physical, social, and informational spaces. To test this framework, the authors analyze the Roma-Norte corridor in Mexico City, whose results indicate the presence of two models: one constituted of private organizations that place collaboration as a secondary value, subject to their office rental services, and an umbrella model that clusters other social innovation facilitators that transcend their territorial strip. This latter meta-space model expresses positive effects in terms of knowledge spillover, suggesting the concentrated bottom-up construction process of a smart territory.

In the past few decades, the concept of social entrepreneurship has emerged as a popular area of research study and practice. Chapter 17, called “Are there really differences between social and commercial entrepreneurship in developing countries? An institutional approach,” written by Luis Hidalgo, Josep Rialp, and David Urbano, all from Universitat Autònoma de Barcelona (Spain), determines the probability of starting social or commercial entrepreneurship in developing countries using the institutional approach as the theoretical framework. The authors test the hypotheses through a binomial logistic regression based on a sample of 10,598 entrepreneurs obtained from the Global Entrepreneurship Monitor (GEM). The main findings demonstrate that a higher level of education (formal institution) and a positive perception of personal values (informal institution) increase the probability of being a social entrepreneur. Also, the authors show that the interaction between informal institutions causes changes in the likelihood of being a social or commercial entrepreneur. This research advances the discipline by providing new information on the institutional environmental factors that influence social entrepreneurial activity.

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Despite women social entrepreneurs showing high potentials through a reduced gender gap in social entrepreneurship, unlike commercial entrepreneurship where the gender gap is found to be high, not much literature is available on women's social entrepreneurial venturing. Chapter 18, entitled "To Examine Women Social Entrepreneurial Ecosystems: Opportunities and Challenges," by Suja Ravindran Nair, Educe Micro Research (India), is an attempt to fill up this gap through a review of prior literature on the field of social entrepreneurship. By reviewing the existing literature, the author draws up a comparison between social entrepreneurship and women's social entrepreneurship, then examines the success factors in women's social entrepreneurship and also discusses the challenges in women's social entrepreneurship. To draw the link between the literature and practice, two real case studies are presented in support of the discussed theoretical inputs. Finally, limitations and future research areas are discussed.

Owing to the highly competitive and volatile business environment, entrepreneurs face significant challenges. Chapter 19, entitled "Challenges in the Informal Sector: A Tale of Four Successful Entrepreneurs in the Makola Market in Ghana," written by Abena Owarewaa Koramoah from the University of Ghana, and Grace Abban-Ampiah from Ghana Institute of Management and Public Administration (Ghana), examines the challenges faced in the marketplace in Ghana by successful entrepreneurs. Accra was intentionally sampled for the analysis of four successful entrepreneurs from the Makola market. Their findings revealed that access to finance, high competition, instability in macroeconomic indicators, poor management competences, lack of skilled labor, and deficiencies in marketing strategies are the significant factors confronting the survival of entrepreneurs in the market place. These results provide insights into the essential and current challenges facing entrepreneurs in the informal sectors. Recommendations are made to help overcome the challenges faced by businesspeople in their operations.

The topic of sustainable entrepreneurship is further developed in Chapter 20, entitled "Sustainable Entrepreneurship in Indigenous Communities in Colombia," and written by Omar Alonso Patiño, Catalina Lucía Ruiz Arias, and Paula Echeverry Pérez, all from Universidad EAN (Colombia). Indigenous communities in Colombia have been characterized by an economy of subsistence, influenced by the nomadic population that has allowed them to take advantage of the abundance of the environment in which they live and by the cultural context of these communities. The authors document a project initiative to co-create a sustainable entrepreneurship model for indigenous communities to identify sustainable income alternatives adjusted to the culture and living conditions of indigenous people. First experiences of this project took place in La Fragueta Community in the Department of Caquetá at the south of Colombia, where a social entrepreneurship incubation process was deployed, identifying different productive activities, selecting grounded organic chili pepper as a pilot for the implementation of a culture-based and local product income alternative, with added value provided by the community.

In addition to the challenges, barriers, limitations, and disappointments the entrepreneurs face, opportunities are also relevant for startup initiatives. To conclude, Section 2, Chapter 21 is called "Steps to Success: Competitive Advantage of Modern Enterprises in Poland," and developed by Emilia Kijanka, and Katarzyna Lipska, School of Economics, Law and Medical Sciences in Kielce (Poland). This chapter presents the results of a study among economics and management students, who defined their way of understanding entrepreneurship, and indicate motives of starting-up a business and ranked the features that they believed are the attributes of a successful businessperson.

Preface

To conclude, this Handbook of Research constitutes an outstanding compilation of studies by 39 specialists and practitioners across 11 nations and four continents in the fields of smart territories, entrepreneurship, innovation, and regional development. The combination of conceptual and empirical studies, enriched by cases and experiences, represents an asset to building new knowledge in the corresponding fields of research. We expect that this Handbook of Research will be of your interest, and you find it enjoyable, valuable, and applicable to your professional and personal life.

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Section 1

Smart Territories, Cities, and Regions

Chapter 1

The Role of Smart City Solutions on the Road to Smart Territories: Smart Solutions to Urbanization Problems

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ABSTRACT

The concept of a smart city has emerged with the help of developing technologies against population growth, increasing urbanization rates, and rapidly depleting resources. The integration of information and communication technologies, which are the basis of the concept of a smart city, with the urban planning processes and effective use of region-specific resources are essential for the sustainability of cities. The creation of the Smart Territories, which will be the lead of smart, sustainable cities, is also directly linked to such intelligent solutions to urban problems and smart citizens. Because it is vital to be a self-sufficient structure that does urban planning by considering climatic data and develops solutions with data mining within the framework of local needs, the importance of solving the priority urban problems such as environmental management, efficient use of resources, and sustainable urban transportation with the help of rapidly developing information technologies should be emphasized on the road to smart territories.

INTRODUCTION

The world population, which is around 7 billion today, and expected to reach 9.7 billion in 2020 and 7.8 in 2020. The increase is expected to be higher due to the developing countries. In parallel with this, the population of the city increased rapidly and exceeded 3 billion and the ratio of the total population to 47%. The number of cities in the world and the number of people living in cities increased more than

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doubled from 1975 to today. In 1950, 30% of the world's population lived in cities, while in 2010, 52% of the world's population was living in cities. However, the number of metropolitan cities in the world is expected to reach 36%. According to the surveys, it is predicted that the rate of people living in cities will be doubled every 38 years (Ateş, 2019, p. 42).

With these rapid advances, the needs of cities emerged to invest in information and communication technologies with the aim of creating smart solutions by using their limited resources efficiently and to restructure their spatial planning processes by reducing the carbon footprint of the cities with sustainable transportation and energy policies (Ateş, 2018, p. 12).

This process, defined as the smartization of cities, requires the inhabitants to adapt to the process and a quality of life that meets their expectations. This goal will be achieved by looking at the city holistically and producing smart solutions to problems and needs. In this context, the formation of smart territories based on interconnected and integrated territories has become a serious necessity.

This situation reveals how important technically equipped smart cities connect socially and provide information exchange between them. The main impulsions of smart cities are human capital/education, social and relational capital, and environmental interests. In this context, developing social learning and knowledge transfer capabilities and territorial innovation systems should also be integrated. The interaction between these actors and forces determines the success of a city on its path to intellectual development (Lombardi, Giordano, Farouh, & Yousef, 2012).

The establishment of territorial governance mechanisms in the process of building smart cities for the future of cities and countries is a crucial point. Therefore, the obstacle to be overcome is to transform the concept of the smart city into the idea of a more extensive smart zone, thus, to provide transforming these isolated actions into an integrated system of action. In this context, this study aims to present the roadmap of sustainable smart territories through redefining the concept of the smart city as a process that feeds on urban solutions that are sensitive to local features, not reductionist.

The chapter, which was put forward by primary and secondary resource research, field analysis, and evaluation method, emphasizes the importance of the social connection of physical spaces with this aspect.

The study explores the complementary aspects of smart city strategy. It explains how environmental management, efficient use of resources, sustainable urban transport, and social participation tools can be used to achieve urban innovation. By developing these sub-concepts, in which context they will contribute to the formation of interconnected smart territories has been discussed. The main argument here is that the innovation opportunities offered by the policies and practices under the concepts of intelligent environment-smart life will have a positive effect on the formation of smart regions.

BACKGROUND

Today, the changing structure of the cities has brought a new flow of information. Every person and all kinds of institutions located in the city have become structures that provide continuous data to this information flow. Rapidly developing technology has supported this high information flow and started mediating to transform it into urban benefit and developed the necessary infrastructure and applications. These infrastructure and applications increase the innovation potential of cities that offer better areas of communication and collaboration, real-time information, and information management tools. Correct directing of this evolution, determining the needs by collecting data, creating solutions in which the

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existing resources are used efficiently necessitated the high-level security of the emerging applications and large amounts of data.

This process, which means a transformation in planning paradigms, was founded under the name of 'New Urbanism' with the principles laid down in a congress held in California in 1991 and summarized in ten articles in 1993, hence, how the changing and transforming conditions can integrate with the planning discipline has been questioned (Steuteville, 2004).

In this regard, after the city visions discussed from 1990, the concept of "Smart City," which aims not only the physical condition of the city but also a different perspective and transformation process in social terms, emerged in the early 2000s.

Smart cities aimed at revealing new ways of coping with advancements in cities and territories within the scope of innovation and smart infrastructure. Strategies in the context of smart cities focus on the creation of innovative solutions for the problems of the spreading of digital technologies that mobilize communities, competitiveness, social adaptation, security, energy conservation, environmental sustainability, and governance issues. Smart cities are expected to be the source of more productive cities and more competitive innovation ecosystems, enabling global expansion of collaboration networks and new solutions created by users and citizens. (Komminos, 2015). There are various explanations for the concept of smart city, which means building a stronger society and better public services mainly supported by information technologies, efficient use of all resources, and citizens who have a high level of awareness for the use of less waste (Kroes, 2013).

Since the last quarter of the twentieth century, developing technologies and the concept of innovation have merged to lead a new social structure. This new information has brought about transformations in terms of social, technological, and environmental terms. Within this framework, technological developments and innovations in smart cities will have a more prominent place in the city and territorial developments and the future (Komminos, 2002, pp. 2-10).

On the other hand, the concept of smart city has also been described as a system in which technology takes up a large part in science, industry and trade, and the integration of intelligent physical spaces and infrastructures (Odendaal, 2003, pp. 585-607).

Later, the concept was divided into groups as smart people, smart living, smart energy, smart environment, smart governance, and smart economy. In this context, smart cities are considered as "awareness." All stakeholders living in the city must be involved in the processes through high awareness. From this point of view, it is possible for smart cities whose technological aspects are emphasized to reach a holistic approach by becoming socially strong (Giffinger, 2007, pp. 10-13).

In the light of these developments, it can be said that smart city adventure is a structure including process management in cities. Telecommunication and the rapidly developing internet have brought a process that needs to be designed very smartly. In this sense, steps towards sustainable urban development in line with the approach can be taken (Bullinger & Röthlein, 2012, pp. 227-229).

The organizational structure of smart cities is considered essential for smart growth and the formation of smart territories. Technology, organization and policy in the outer ring; in the second ring, a structure that includes the concepts of natural environment, infrastructure, economy, governance, human communities can be used to examine and determine the success factors of smart city initiatives or projects (Chourabi et al., 2012, pp. 2289-2294).

For the sustainability of smart cities, it is important to take the location-specific spatial parameters into account. This is also the basis for the sustainability of the smart territories shaped by integrated smart cities.

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On this ground, each city has unique contexts in terms of intelligent city formation, and the way they design their strategy can be unique. In this case, the establishment of these cities' policies independent of its characteristics hinders the sustainability of these policies (Odendaal, 2003, pp. 585-607).

From this point of view, the development of geographically emphasized that user-centered solutions will be an approach that will facilitate smart cities to constitute smart territories.

With this approach; Societies that care about high technology will form the basis of balanced and sustainable regions by increasing their capacity to share information and innovation.

Smart cities (Garcia-Ayllon, 2015) connected each other at critical points such as energy efficiency, information technology, transport infrastructure, resource consumption, or environmental impacts pioneer the path of smartization in wider geographic areas (pp. 3-11).

The concept of a smart city, which is considered in many fields such as architecture, urbanism, engineering, technology, geography, economy, social innovation, governance, has had a strong theoretical philosophy. In practice, it tends to perform singular and unrelated actions, and there is a risk that it would not be able to use its potential. At this point, it should be ensured that the concept of the smart city develops towards a broader and comprehensive concept of smart territories. With the infrastructure policy to be established, processes such as urban growth of cities, sustainable use of land and energy resources should be optimized, and priorities should be determined (Saiz-Álvarez & Palma-Ruiz, 2019). In a large-scale integration, it is also important to note that all of these areas are affected by a large number of interrelated economic, political, or social parameters. Nowadays, the implementation of smart city applications has been introduced in many protocols around the world. In this context, the main challenge for the future is to leap from city to regional scale and to distribute these policies in an integrated way called "smart territories." The importance of this integration is based on greater improvement and implementation studies in wider areas concerning related matters such as managing resource consumption, transport, or regional management projects without being limited to building or neighborhood scale. With intent to overcome the disintegration of disconnected smart city applications, the importance of the integration of actions at different levels, as well as the smart solutions, require to be in a way that meets the needs in their geographical context in harmony with nature (Garcia-Ayllon, & Miralles, 2015, pp. 3-11).

In this context, with this in hand, another important issue for the future of cities and countries is the effective implementation of regional governance mechanisms in the process of building smart cities (Thite, 2011, pp. 623-631).

One aspect that needs to be addressed in the processes of regional integrated smartization is generally the issue of compliance with regional legislation in sectoral arrangements that are not limited to the geographical area of a neighborhood or a city (O'Connell, 2009, pp. 281-291).

Therefore, action plans and strategies have become very important to develop the concept of smart city, which is an obstacle to be overcome, according to the idea of a wider smart zone, thus transforming these isolated actions into an integrated system of action. Within this scope:

- Each city should establish a common and transferable methodology to provide standards for assessing regional management and to guide decision-making according to its regional strategy.
- Each city should ensure economic growth, employment, social and territorial adaptation, and should increase competitiveness in the territories.
- Thus, it should have a positive impact on public policies included in sustainable and balanced development.

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While constructing smart city strategies, this qualitative leap, which is put forward on a larger scale, enables the concept to be developed and considered within a more comprehensive framework such as smart territories. It is possible to say that the smart regions formed in this way are more consistent in terms of sustainability and efficiency. Based on data such as regional climatic and geographic data, ecological assets, energy potentials, and accessibility, this broad perspective is a step to facilitate the progression from smart cities to systems for the production of smart areas (Garcia-Ayllon, Miralles, 2015, pp. 3-11).

Performing a strategic analysis of these steps regarding the region's high-tech and digitalization becomes crucial. In this case, it is possible to say that this concept, which was developed for a smart city or territory and supported by technological infrastructures, is based on the matters relied on sustainable regional planning, strategic spatial planning and the role of all sectoral elements (Barbosa, Oliveira, Coelho, 2018).

Another important point to consider in the context of smart cities is urban sprawl. Increasing population and high urbanization have made it necessary to get smarter of cities on the one hand. On the other hand, they have to cope with the urban sprawl that arises in the face of growing and expansion.

With the spatial overgrowth of cities and the development of rural character into the urban area, there are some structural changes and transformations in the urban fringe (Brueckner, 2000, pp. 160, 171). In this way, it grows uncontrollably, affecting the rural areas around them and affecting the structural changes and transformations of these areas, causing the destruction of natural resources and cultural values through the exposure of these areas to settlements. With this, cities that develop by swallowing rural areas and form eaves lead to the destruction of agricultural areas, which have primary importance in the face of increasing need for effective use of local resources and problems in the self-sufficiency of rapidly growing cities (Kara, 2004).

The failure of conventional development strategies and improvement policies to cope with increasing urbanization rates has become the most common trend of urban growth. Urban Sprawl is expressed as a scattered tendency of horizontal spatial urban growth, making vehicle dependence necessary in transportation. (UNICEF, 2012).

From an environmental point of view, such growth has resulted in excessive use of non-renewable resources and high energy consumption. Longer traffic congestion routes between targets have threatened the wildlife of rural areas, as well as increased levels of air pollution along with continuous horizontal spread. In addition to adversely affecting the environment, which is one of the problems caused by rapid urbanization, rapid urbanization puts excessive pressure on ecological assets and infrastructure. This also brings about common problems such as the growth of informal settlements, increased social discrimination, and unfair distribution of resources. Most attempts to control urban fringing by traditional methods have failed. In this case, more intelligent and holistic strategies should be developed (Khodeir, Elsisy, & Nagy, 2016, pp. 245-257).

Cities that are able to apply balanced urban solutions at every point of the urban borders by controlling the urban fringing tendencies appear as 'smart growing' cities. The fact that smart cities give importance to smart growth strategies in this direction and that the boundaries of one metropolitan area are based on another will contribute to the sustainability of the smartness in such territories.

Smart Growth is a proactive development approach initiated by the American Planning Association in 2002 to limit urban sprawl of metropolitan areas and achieve urban sustainability goals. It aims to improve the quality of life of communities and to ensure environmental justice and social welfare in general (Khodeir, Elsisy, & Nagy, 2016, pp. 245-257).

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In this respect, it can be said that the smart growth approach is an attempt to manage the growth of urban communities and to limit their unplanned expansion. It promotes integration between policy-making and social inclusion to promote more sustainable development, as well as to promote urban development that emphasizes compact regions, mixed-use, and walkability. This compact development is essential for limiting the spread in rural areas. This means that the growing cities implement mixed land use planning to provide access to various public transport, facilitate access for different social classes, and provide accommodation. This strategy is significant in forming balanced settlements that are by local participation and contribute to the economic, social, and environmental improvement of sustainable development (Davies, 2015).

The smart growth paradigm aimed at minimizing vehicle travel in the face of urban growth to reduce environmental resource consumption and to maintain ecological balance while reducing air pollution (Smart Growth Network, 2002).

On the other hand, for the effective implementation of Urban Facility Management, a smart growth model that supports information acquisition and resource management should be supported by smart city strategies.

The importance of creating smart city strategies and applications in the axis of site-specific needs and potentials should be taken into consideration in the axis of smart growth. In this context, the United Nations Habitat Sustainable Cities Planning Report underlines the need for cautious implementation of Smart Growth policies for different local contexts. It also indicates that the smart growth approaches discussed within this framework increase sustainability and encourage integrated communities (UN-Habitat, 2009).

In light of this information, it can be said that; expressing smart cities as cities where resource management and networks are used with maximum efficiency in limited time within rapid urban flow points out the potential of integrated smart territory formation. Urbanization, which has an important role in regional empowerment, can only turn into an advantage when it is managed smartly. Smart cities have also been seen as a part of modernization. It is emphasized that in this modernization process, which is guided by information technology, cities are not isolated, but the importance of learning from each other and revealing the right practices (Metcalf, 2014, pp. 40-59).

The Smart Cities Era is an inquiry into the construction of smart cities, the management of spaces, strategic planning processes, and strategies for all city actors. It should be questioned how human vision, the capacity of knowledge, collaborative innovation, the vision of creating smart territories through information networks and digital agendas, and which strategies will make this vision a reality. (Kominos, 2015, p.5)

Besides, it is possible to say that cities which provide effective smart city solutions in the context of embedded spatial intelligence within their central boundaries will play a fundamental role in the formation of smart territories that can avoid uncontrolled urban sprawling and thus harness uncontrolled urban growth through 'smart growth' strategies.

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MAIN FOCUS OF THE CHAPTER

Solutions to Urbanization Problems, Issues, Controversies, Problems

The main discussion topic of this study is to reveal the significance of digital, social, and physical integration of the practices of ‘environmental management, efficient use of resources, sustainable urban transport and social participation’ in terms of the formation and sustainability of smart territories.

On the other hand, it is emphasized that the applications in this context should be structured within the framework of an embedded spatial intelligence based on site-specific embedded codes, which is necessary for user-oriented and sustainable smart territories. The study includes inferences and suggestions on what local codes and concepts can be for creating smart territories in the context of sustainable urban planning and the environment. It also includes the premise of “the integration of location-specific qualities and architectural features with information processing technologies are the main factors that make a city smart.”

Future strategies to be established in this context in regional administration will enable the optimization of development policies of cities, synergies in transportation infrastructures, and sustainable planning of field and other resources. All these processes will be integrated at the regional level with an innovative methodology based on the analysis of regional changes through regional geographic information systems (GIS) (Garcia-Ayllon, & Miralles, 2015, pp. 3-11)

Environmental Management and Land Use

Intelligent environmental management in smart cities is defined by appropriate natural conditions (climate and green space), pollution, resource management, as well as efforts to protect the environment. In the face of increasing urbanization rate, concerning “smart environment” approach solutions, which can be defined as producing smart using resources efficiently, policies are being put forward focusing on reducing harmful gases and waste production (Dash, 2016, pp. 1-3).

The smart city requires a broad vision and long-term planning with innovative, practical, and effective approaches. From a smart environmental perspective, it should be a source of social orientation to enable a low ecological footprint. For this purpose, it is important to develop policies on land use planning, green buildings, and energy conservation, disaster risk-focused strategies, water efficiency, waste management, and biodiversity.

Land use planning in smart cities can be carried out with sustainable concepts based on proper urban planning practices. This means improving the quality of life through proper planning of living spaces, protection of private environmental areas and ecological assets, successful integration with existing transport links, and preparation of the ground for sustainability with an emphasis on development in the local context. As for green buildings and energy, the main goal of smart cities is to minimize the use of fossil fuels and to reduce carbon emissions. In this context, passive building design and the promotion of renewable energy use make the highest contribution to reducing greenhouse gas emissions. Another important element for smart environmental management is the policies to deal with disaster risks. The main objective here is to ensure that optimum measures against natural disaster risks such as floods, overflows, fires and earthquakes are included in the scope of early warning systems and that the city is prepared for such threats (Ministry of Environment, Sustainable Development, and Disaster and Beach Management, 2015).

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On the other hand, land use planning, which is another important phenomenon in terms of space formation of environmental management, requires to be done by taking into account urban and regional population development and parallel energy and resource consumption considering the urban heat island formations. Land use to be organized in line with technological developments and spatial uses that may change is the most important point from smart cities to smart territories. At this point, it has been stated that different functions in cities should be designed together without being separated from each other with definite lines, attention should be paid to decrease the distance to both each other and transportation systems and thus the energy consumption, which is a growing problem, can be reduced (Commission of The European Communities, 1990).

In the land-use planning to be made within the frame of smart city concept, data such as energy and resource consumption increased with population growth, technological developments, and changing space usage, local architectural features of the planning area should be taken into consideration. In this way, spatial sustainability will be possible in cities; thereby, sustainable areas will be supported. In this connection, big data, one of the main pillars of the concept, should be evaluated in geographical and climatic terms, and sustainable land management strategies should be put forward for the future. In this way, it will be possible to determine due diligence for ecological assets that will shape land use in the future of smart territories to identify climatic risks and advantages and to take measures against land destruction.

Regarding this subject, the following studies are expected to serve smart land use planning;

- Analyzing the development, change, and transformation of urban and regional areas and revealing the limitations and opportunities for the future in the field,
- Evaluating the climatic data, considering the future energy needs of the intended land planning and future changes of the plan functions, designing in harmony with characteristics of the region, climate, and topography.
- Providing physical and visual integration with the environment by revising the existing plans in line with the rising population and increasingly changing needs,
- Assessment and effective use of regionally important ecological assets (e.g., rivers, wetlands, lakes, forests),

However, it is one of the most important aspects of the concept that the proposed studies should be conducted with the participation of all stakeholders on a regional basis beyond the urban boundaries.

Efficient Use of Resources

Nowadays, considering the alteration of actors affecting lifestyles with developing technology, high urbanization rates and an increase in resource consumption, the emergence of the urban environment, natural environment, and energy problems, innovations are also foreseen in the urban design process.

Resource management, which is one of the important indicators in terms of sustainability in smart cities, the usage of existing resources and the discovery of alternative energy sources, increasing awareness on energy consumption, the energy obtained from fossil sources and the parallel pollution rates and carbon footprint reduction, policies related to energy efficiency based on these sensitivities, can be considered among the crucial points in the process of the smartization of the city. In this regard, the use of renewable energy sources and water efficiency are vital in terms of future strategies to be established both at the municipal and regional level.

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Use of Renewable Energy Resources and Green Buildings

It is obvious that the energy obtained from the depletable energy sources primarily causes high levels of air and water pollution and also leads to environmental problems in the generation of noise and electromagnetic pollution. In this context, the smart city approach envisages the use of renewable clean energy sources and attaches importance to the spread of this with high technological opportunities. Since the beginning of the 2000s, the search for alternative energy has shown significant progress, and the studies on the use of renewable energy resources have started to increase. Therefore, the smart city approach envisaged the use of renewable clean energy resources and gave importance to the widespread use of such energy resources with high technological facilities. For this reason, with its smart ‘energy vision’ it envisages the most efficient use of site-specific resource potential.

Resource management, which is one of the important indicators in terms of ensuring urban sustainability, the use of existing resources and the discovery of alternative energy sources, increased awareness on energy consumption, the energy obtained from fossil sources and the decrease of pollution rate and carbon footprint, making policies related to energy efficiency based on these sensitivities can be considered among the important points in the smartization process of that city (Ateş, 2018, pp. 75-76).

The efficient use of natural resources through sustainable methods and proper strategic planning and implementation of mechanisms for resource management have great importance. However, the need to support R&D and technology activities towards the creation of clean technologies that will ensure the effective use of natural resources and prevent environmental pollution, and to determine the economic values of natural resources by evaluating the supply and demand conditions are vital (Ministry of Development, 2017).

In the process of self-sufficient smart cities that use their resources effectively and create energy-efficient smart zones;

- Heating and cooling of buildings should be adjusted accordingly, and energy consumption should be reduced.
- Bioclimatic design of buildings should be considered by combining technology, aesthetics, durability, and energy-saving.
- Cross ventilation and natural light conditions should be provided according to climate and topography.
- Effective use and insulation of roofs should be ensured.
- The use of site-specific natural materials should be facilitated by developing technology.
- For buildings responsible for 40 percent of carbon dioxide emissions, the main objective should be to minimize the use of fossil fuels and to reduce CO₂ emissions.
- The use of solar panels or photovoltaic panels in public spaces should be encouraged.
- It is also imperative to create a technological infrastructure in order to design public spaces with the participation of citizens from all segments within the scope of participation.

Water Resources Management

Water is an essential element for the life of a living being and an indispensable source of ecological balance. In addition to the increase in industrialization, population, and parallel with urbanization, wastewater, inadequate infrastructure, and erroneous water policies in agriculture paved the way for a “global

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water crisis.” It has been predicted that climate changes associated with global warming will have a 20 percent effect on the “global water crisis” phenomenon. The data published by the UN on the state of water resources provide information on future situations and emphasize the importance of policies for the efficient use of water resources, which are considered as unlimited assets.

Furthermore, it was emphasized that the amount of agricultural production in developing countries would increase to 67 percent between 2000 and 2030, and this rise could not be met with the existing water potential and usage methods. It was underlined that water use in agriculture should be created more intelligently (United Nations, 2003). At this point, ICT-supported environmental solutions should be produced for the efficient use of water resources, and smart ways of coping with this problem globally should be put forward. Regardless of urban boundaries, especially for efficient water use, which is important for territorial smartization (Çakmak, 2015):

- Wastewater usage policies should be developed.
- The use of gray water should be promoted in irrigation.
- Groundwater resources data must be transferred to the digital media correctly, and the potential should be known.
- Stormwater should be harvested and collected in suitable areas, and systems should be established to ensure that it can be used later.

However, according to future climatic forecasts in buildings, rainwater collection systems can be considered within the scope of building designs.

Sustainable Urban Mobility

The concept of a smart city is perceived as an essential strategy to overcome some severe urban problems such as traffic, pollution, energy consumption, and waste increase in the accelerating population, and therefore develops very swiftly. In this context, with the rise in urbanization rates, the importance of transportation has augmented. In order to meet the transportation needs of the growing cities and the growing population, both times saving and clean and energy-efficient solutions are required.

This has led to a sustainable mobility paradigm that strengthens the links between land use and transport (Banister, 2008). In the next stage, the paradigm of “city as a place” has taken place, and the city and transport system have to be described as firstly experienced on a small scale by looking at the quality of urban areas in small contexts to create productive and livable communities (Gehl, 2013). Today, with the development of a smart city approach, smart policies are also emphasized in the fields of transportation and urban movement, and the concept of smart transportation/movement is being developed.

Local accessibility, international accessibility, ICT infrastructure, sustainable transport systems vision to decrease pollution, reducing traffic congestion, increasing traffic safety, reducing noise pollution, rising transfer speed, taking transfer costs down, use of renewable energy sources, including to generalize the use of bicycle common, it is aimed to increase the quality of life with smart citizens who can use multiple transportation solutions. The smart city is, therefore, a complex, long-term vision of a better urban area aimed at reducing environmental footprints and creating a better quality of life for citizens. In this sense, transportation is one of the most difficult issues in cities. Intelligent transport aims to utilize advanced technology in both backward and forward-looking applications to support the optimization of traffic flows, as well as to improve the quality of service by interviewing citizens’ views

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on urban viability or the quality of local public transport services (Banister, 2008, pp. 73-80; Benevolo, Dameri, & D'Auria, 2016, pp. 13-28).

Transportation and urban mobility are some of the most important factors supporting urban space to function. Due to the serious adverse effects of a movement system that is not managed smartly on the quality of life, smart transport is an important factor in developing more sustainable transport systems (Staricco, 2013).

Within the framework of smart cities, the concept of smart transportation is in close connection with “the Internet of Things,” which will enable improvements in order to provide faster and smarter transportation and urban movement solutions and increase efficiency in parallel with the increasing population and urbanization. Real-time traffic management, real-time energy consumption management, integrated public transport networks, and data acquisition sensors are examples of intelligent technologies that contribute to the efficiency of the modern city. These technology-based networks produce high amounts of data that are analyzed and used in real-time decision-making, which can be said to be the source of improving urban service quality by evaluating them under “Big Data” (Lee-Archer, & Mc Keon, 2017).

In some studies, it is stated that there are gaps between transportation, sustainability, and quality of life in both cases, although the smart transportation approach has technology-oriented and consumer-oriented aspects. From this point of view, it is emphasized that there is a need for a new approach that focuses both on the quality of life and the quality of life that should be provided by the integration of smart transportation concept between technological and social innovation, and that the concept of “smarter movement” is required (Dash, 2016). In this sense, it is possible to say that smarter innovation in transportation passes through practices that will reduce vehicle dependence and prioritize public transport. With a combination of planning strategies in this direction, cities will be designed on a personal scale to achieve both high-quality accessibility and high environmental quality. The aim is primarily to design high-quality and sustainable smart cities on a scale that does not require cars. This alternative approach entails clear and innovative thinking about such roles that transport can play in the intelligent cities of the future and in the integrated smart zones of each other (Banister, 2008, pp. 73-80) because the cities in which public transport operating with clean energy and implementing smart solutions with walkability will be areas that integrate with integrated transportation systems in terms of energy efficiency and accessibility by public transportation.

Social Participation Tools and Sustainability

Cities divided into various categories according to population density, effects, and development stages. However, the concept of ‘smart’ has been discussed in the last 20 years. Such a process requires new forms of human cooperation with ICT systems. At this point, city managers who produce urban solutions should understand that technological infrastructure alone will not make a city smarter. For total regional development, smart cities need to focus on a multi-participatory process approach and public values (Meijer, & Bolivar 2015).

Although the issue of communities and governance as a part of smart cities is critical, this point has been ignored in the context of urban and regional studies (Chourabi et al., 2012). Social infrastructure (intellectual capital and social capital) is the main building block on the road to smart cities. For the sustainable development of smart cities, education/training, culture/art, and business/trade should be considered as holistic (Bartlett, 2005). The smart city is a humanitarian city that offers many opportunities to take advantage of human potential and lead a creative life.

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From this point of view, the concept of intelligent human being stands out. Lifelong learning, including social and ethnic pluralism, flexibility, creativity, cosmopolitanism, or open-mindedness and participation in public life, means intelligent life, which is the assimilation of innovations and practices in smart cities. In smart cities trying to fill the concept of intelligent life and human, this new creative culture emerges as a driving force for urban development. More progressive smart cities, on the other hand, prefer to integrate human capital into this system rather than thinking that technology will transform a city automatically. The governance that emerged within this framework means the inclusion of residents in public services. With the developing technologies, citizens who are responsible for meeting the urban needs play a role in the innovation process in order to improve the quality of life (Hollands, 2008; Monfaredzadeh, & Krueger, 2015).

This public learning creates intelligent dynamics of life and feeds smart cities socially. On a larger scale, it should be studied for regions consisting of cities that share their collective minds. It will be possible to talk about a balance for the territories where are the basis of the cities that learn from each other. Cities that transform social capital with governance tools will lead to sustainable smart regions

SOLUTIONS AND RECOMMENDATIONS

On the other hand, within the scope of smart growth, which has a substantial place in the process extending from smart cities to smart territories, taking the following necessary smart city steps will contribute to smart territorial formations (Niglia, 2013).

Within the framework of smart growth, which has ten basic principles, each principle contains basic strategies or policies for implementation. While the main principles are clear, sub-implementation policies are constantly being developed to adapt to the changing nature and needs of urban communities. Based on this, it is possible to list smart policies as follows (Khodeir, Elsisy, & Nagy, 2016).

1. **Mixed Land Use:** This principle is based on the integration between different aspects of life and ensuring livability and heterogeneity. Mixed zoning of different functions provides access to different services for different social classes as well as improving social inclusion and interactions.
2. **Compact Structure Design:** The compact design must follow the design standards that provide privacy and comfort for families. Also, buildings and street scales should be designed on a scale that improves quality of life and a sense of security.
3. **Encouraging Citizens who have a Strong Perception of Space:** Urban spaces are critical in creating a sense of identity on citizens. This interaction makes it possible for citizens to exist effectively in order to improve the quality of life and to protect the assets of that place. Therefore, spatial planning should be based on site-specific data axis.
4. **Protection of Open Space, Farmland, Natural Beauty, and Critical Environmental Areas:** Open spaces and Farmlands are largely environmental, economic, and social assets. In this sense, smart growth strategies should provide various solutions to support investments to protect agricultural areas. These processes should be supported by demonstrating the awareness that ecological systems and social interactions affecting social sustainability are important tools to improve the quality of life.

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5. **Direct Development Support in the Social Sense:** Making public investments in areas with bad infrastructure will be an application that improves the quality of life of local people with different social classes. This points out that information technology should also be used in smart cities in a balanced way.
6. **Citizen-Stakeholder Cooperation in Development Decisions:** Citizens have the most accurate information about their habitat and can offer innovative solutions for complex problems that respond to increasing urban needs taking into account local capacity. On the other hand, the stakeholders who will implement these solutions should establish processes with high social participation through capacity building programs. This will be an important step in transferring social sustainability in smart cities to wider areas
7. **Providing Different Solutions in Transportation:** In this context, it should be essential to examine and analyze the daily journey times carefully and to design and integrate the routes, different transportation modes appropriate to these needs, and to provide ease of use and access to the users. The objective is to provide citizens with equal access to services, jobs, and housing, and finally to increase social equity.

FUTURE RESEARCH DIRECTIONS

The light of all these evaluations, it can be said that the vision and awareness level of the smart cities in the strategy and policy formation stages is crucial for the emergence of smart territories by supporting smart growth. For this reason, site-specific assets and needs of cities should be analyzed correctly. Initially, effective smart city solutions should be introduced in the fields of environmental management and land use planning, efficient use of resources, and sustainable urban mobility.

The light of all these evaluations, it can be said that the vision and awareness level of the smart cities in the strategy and policy formation stages is crucial for the emergence of smart territories by supporting smart growth. For this reason, location-specific assets and needs of cities should be analyzed correctly. Initially, effective smart city solutions should be introduced in the fields of environmental management and land use planning, efficient use of resources, sustainable urban mobility, and strong social participation and interaction.

The smart territories discussed in a way that integrates with the general framework of this book are examined from the perspective of smart cities. Based on this, it is possible to say that smart cities with infrastructure and social strength are the basis of future smart territories. Sustainable, equitable development can only be mentioned in territories that will only be formed by cities that learning from each other. In this case, local governments and policymakers have important duties. First, the vision of a smart zone should be adopted. Strategies should be developed to reveal cities that share their technological equipment and knowledge and attach importance to citizen participation. It is also essential for future studies to prepare solutions to improve the quality of life in the face of acute problems of cities by making implementation plans in the categories previously mentioned in the study.

The road map that will emerge with the stages included in the study will have significant importance in transforming smart cities into sustainable smart territories. Based on the concept of smart city, which is becoming more and more important, it will also guide the direction of the studies to be carried out on the axis of smart territories. It will be a guide for defining the potential that can be developed for policymakers and future research.

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Regarding all these, the following suggestions should be taken into consideration in the formation and sustainability of future smart cities and territories researches (Khodeir, Elsisy, & Nagy, 2016).

Within the scope of land planning strategies;

- Regaining or of industrial or commercial functions within the framework of land control policies and smart urbanization development,
- Taking environmental problems into consideration by making environmental assessments in urban planning,
- Making arrangements for the implementation of public participation procedures,
- To list these proposals within the context of environmental management;
- The integration of circular economy and efficient energy approaches into real estate projects is very important. Renewable energy contracts, waste management methods, waste status, analysis of sub-products, and sustainability labels (HQE, SNB, Effinergie) are required.
- Making the necessary arrangements regarding the sale of industrial zones and the termination of industrial activities,
- Conducting studies for the identification and protection of ecological assets,
- To reduce environmental pollution and harmful gases with smart and clean energy solutions.
- The points to be considered in the management of smart cities will be at the cornerstones of smart territories. These must include:
 - Supervision and preparation of technology contracts related to information systems.
 - Identification, protection, and valuation of intellectual property assets.
 - Legal management of science and technology projects.

CONCLUSION

This chapter focuses on the definition of information technology architectures and the role of smart city ecosystems (Komminos, 2015) that provide a governance model for user-oriented innovations and urban solutions in smart regions formation accordingly. In general, chapter emphasizes the fundamentals of smart city strategy, the factors that make up spatial intelligent, the smart city solutions that need to be put forward based on this, the strategies that offer sustainability in the context of smart growth in the face of increasing competitiveness and urbanization, and ultimately the various steps of the road to smart regions.

The smart city approach offers strategy and vision for the future of cities. However, before this vision of planning is transformed into urban reality, many steps need to be taken, as outlined above. Within this scope, it is essential that smart cities, where knowledge, collective intelligence, and creativity, bring together fully interconnected and integrated communities, which enable citizens to address individual or social problems (Kroes, 2013) to take these steps.

The most significant point of this process is regional interoperability. To ensure urban innovation and a high quality of life, it is necessary to increase the level of interoperability. This new type of partnership should focus on areas where smart regions integrate with urban solutions.

In this context, besides environmental, transportation, and energy issues, on a global scale, issues of health, education, and the adoption of fundamental human rights should be among the top priorities. What is essential at this point is to build an information society for all and to initiate balanced regional development from the local level (Floridi, 2001).

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This balanced development requires smart cities to connect and transfer knowledge and innovation. On the one hand, with cities without extensive internet access, it is not possible to talk about information sharing covering all regions. On the other hand, there are also information differences between citizens with different quality of life and consciousness about the use of new technologies. The key point here is to provide balancing smart cities within the framework of equality of social opportunity and to focus on sustainable territorial intelligence (Graham, 2002).

While this process is not easy, it requires an accurate analysis of potential and needs in these areas and the involvement of relevant stakeholders. Strategies designed in this way will prepare the basis for wider applications in wider areas by comparing experiences with stakeholders from different sectors, sharing experiences, and learning from each other. Also, cities sharing data and supporting open data may pave the way for smart territorial applications.

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KEY TERMS AND DEFINITIONS

Governance: Participation of citizens in city administrations in smart urbanization processes.

Land Use Planning: Planning approach, which aimed using the land given the changing population structure and decreasing resources in the face of increasing population and rapid urbanization.

Smart Environment: Effective use of public natural resources means avoiding fossil fuels, reducing carbon footprint, meeting energy needs from alternative energy sources, and using clean energy in transportation to manage the environment.

Smart Growth: Properly establishing the relations between urban planning, economy, and space usage, determining the future needs and priorities in the development of urban growth strategies.

Smart Living: It is the quality of life rising with effective solutions against the changing needs in the information and technology age.

Social Participation: Participating in voluntary service activities as an independent or a member of a group, actively working for the benefit of the community.

Sustainability: Examined in three parts: Economic, social, and environmental, are examined in three parts. Within the scope of these three areas, solutions, and applications that will be put forward by considering future conditions and needs.

Chapter 2

The Role of Business in the Innovation Ecosystem: The Case of Smart Cities as Business Models

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ABSTRACT

The rapid advance in the technology sector in the last decades has ignited smart city initiatives all over the world, which aim to provide solutions to current urban problems related to energy, waste management, traffic, and security, among others. However, although smart territories have been studied from different approaches, there seems to be a gap in the relationship between smart cities and businesses. Private entities have the knowledge, experience and in most cases, the resources to contribute to the synergy between governmental agencies and entrepreneurs. Three case studies from successful smart cities are presented together with an additional case study using original research in order to study the smart city under a business model framework, where each actor generates and captures value. Results indicate that private organizations play a key role in the innovation ecosystem, and they are crucial for collaboration with universities to encourage civil society participation in the smart city.

INTRODUCTION

The advances in the information and communications technologies in the last decades, together with the globalization, urbanization, and the rapid growth in the population density in urban cities, demands that services and infrastructure be provided to meet the needs of city inhabitants (Rathore & Rho, 2016). Some authors have focused on the use of big data analytics (Al Nuaimi, Al Neyadi, Mohamed, & Al-Jaroodi, 2015) to provide solutions that enable better decision-making in certain territories, while others have focused on the security and crime (Catlett et al., 2019), privacy and protection (Li, Dai, Ming, &

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Qiu, 2016), governance (Meijer & Bolívar, 2015) and the citizen (Cardullo & Kitchin, 2019). However, although smart territories have been studied from different approaches, there seems to be a gap in the relationship between smart cities and businesses (Palma-Ruiz, Saiz-Álvarez, & Herrero-Crespo, 2019). The role of the business is a significant one, as private entities have the knowledge, experience, and in most cases, the resources to contribute to the synergy between governmental agencies and entrepreneurs to create smart territories that derive in social innovations.

The research here presented aims to answer the following question: How does the cooperation between actors in particular businesses, need to be articulated in order to generate value for all actors within an innovation ecosystem?

Business models can help to understand such articulation in the smart city context. Business models explain the logic and functioning of a business. A way of viewing an innovation ecosystem is to see it as a business and to understand the different agents, roles, and activities that make the model work. That is, generating value for users and capturing value for the company (Teece, 2010).

This chapter begins presenting a review of the most recent literature on smart cities and innovation ecosystems that leads to a review of business model literature. The purpose of this is to make the reader understand the relationship between innovation ecosystems and the business model concept, emphasizing the role of the business. Three case studies from successful smart cities based on smart city rankings and regional differences are presented with a brief discussion of their innovation ecosystems. An additional original case study using primary data is presented. Four main elements, which are common in business model literature, are taken to base the analysis of all case studies. The chapter ends with a proposal, discussion, and conclusions that point out policy implications.

LITERATURE REVIEW

Smart Cities

The concept of a smart city has become the spotlight in the last few decades, due to dramatic urbanization all over the world (Silva, Khan, & Han, 2018). Others define a smart city as an advanced modern city that utilizes ICT (Information and Communication Technology) infrastructure to improve quality of life, among other factors.

Besides the concept of modern city, it is important to highlight that the efforts of creating a smart city or territory within a country, aim to provide solution to some of the issues that have been identified by earlier researchers, such as the drastic urbanization, deterioration of energy sources, population growth, environmental pollution, traffic congestion, adverse human health effects and infrastructure aging (Silva et al., 2018; Toppeta, 2010; Washburn et al., 2009). According to Khan et al. (2017), the objective of smart cities is to improve outcomes that are connected to people, systems, and processes of businesses, government, and other public and private-sector entities, and their main goal is to improve the quality of life of all residents.

Smart city rankings according to the Cities In Motion Index (CIMI) cover ten dominant categories in urban life such as economy, technology, human capital, social cohesion, international outreach, environment, mobility and transportation, urban planning, public management and governance (Berrone & Ricart, 2016). Such rankings place cities such as London, San Francisco, Barcelona, Santander, Paris, Boston, Chicago, Seoul, and Geneva among the top. It is then visible that most of the cases come either

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from North America, Europe, or Asia. Sydney, Australia, is an exception. Nam and Pardo (2011) list smart cities per region, finding that it is in Africa and Central/South America where fewer examples are found. In less developed countries or emergent ones, we find initiatives in cities such as Medellin, Sao Paulo, Montevideo, Bogota, Buenos Aires, Guadalajara, and San Jose. However, although in the last decade, more Latin American cities have launched projects to become smart, studies show that these territories are not as mature in terms of smartness as others.

The challenge of these territories is the requirement for efficient, effective and reliable infrastructure (such as energy, ICT, water, waste treatment, and management) since an appropriate infrastructure is essential for cities' attractiveness for companies and people alike and therefore for their economic development (Lombardi et al., 2012).

Cities prioritize their urban innovation ecosystems from their traditional urban character to innovative "green," "smart," "open," "intelligent," and "innovating," aiming towards environmental and social sustainability (Zygaris, 2012). This is where, according to the author, high exposure of the term "smart city" fits as a generic one to describe IT-based innovative urban ecosystems.

Innovation Ecosystems

More recently, smart cities are viewed as ecosystems which are generally defined as communities of interacting organisms and their environments and are typically described as complex networks formed because of resource interdependencies (Gretzel et al., 2015). This makes it possible to see the ecosystem as a business model, where different actors interrelate in order to generate value.

Ecosystems are comprised of elements, interconnections, and a function/purpose, but are particular types of systems in that their elements are intelligent, autonomous, adaptive agents that often form communities and also because of the way they adapt to elements being added or removed (Anthopoulos et al., 2019). Similarly, business models have crucial activities that constitute a linchpin, that is, if such activity or actor is removed, the system can collapse (Gutiérrez-Leefmans & Holland, 2019).

The main actors of the national innovation system are the government, industry, and universities. Lombardi et al. (2012) introduced civil society as a fourth agent within the innovation system (the Quadruple Helix). The role of entrepreneurship is also highlighted as it is considered that a high degree of entrepreneurial activities and a constant flow of new firm creation are prerequisites for finding a new role within the new global economic landscape (Saiz-Álvarez & Palma-Ruiz, 2019; Lombardi et al., 2012). This stresses the role of innovation and creativity, where entrepreneurs can be a motor of new firms that contribute to the smartness of a territory. This way, also entrepreneurial ecosystems are formed, a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory (Sussan, 2017).

Lombardi et al. (2012), in their study, showed the analysis to baseline the development of smart cities in terms of their dual roles as generators of intellectual capital, creators of wealth and regulators of standards (university, industry, civil society and government), as well as supporting the social learning and knowledge-transfer abilities that are needed to meet the requirements of their regional innovation systems. That is, the system has inputs from each actor, and there are also outputs generated by the system.

Innovation ecosystems evolve from national innovation systems models. Innovation systems can be governed by the policies that affect the institutions. Innovation ecosystems are dynamic structures, cannot be determinately governed by public policies, but they evolve according to changing market conditions (Mercan & Götkas, 2011). This is similar to research that defines innovation ecosystems as loosely in-

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terconnected networks of companies that co-evolve capabilities around innovation or platform and thus depend on one another for their overall effectiveness and survival (Almirall & Casadesus-Masanell, 2010).

Ecosystems were initially considered an economic community where participant organisms are suppliers, manufacturers, rivals, and other actors that go beyond a firm's boundaries. The value produced, and services for consumers are also components of such an ecosystem. That is, ecosystems take the demand side of the innovative process (Moore, 1993). This is key if we think of the role that the user or citizen has nowadays (a more active one) in the smart city, and the innovation ecosystem itself. Innovation ecosystems and how they are organized give birth to new ventures and stimulate different entrepreneurial activities (Zahra & Nambisan, 2011).

Jackson (2011) analyzed how there is a virtuous cycle depicting how R&D resource investments are replenished through increased profits in the commercial economy in a thriving innovation ecosystem. That is, R&D investment encourages technological breakthroughs, which in turn generate more new products and processes. These eventually generate sales and profits, which can be reinvested into more R&D resources. The author emphasized how small companies play an essential role in terms of technological breakthroughs, as they do the technology demonstration and development. This particular view leads to the analogy between innovation ecosystems and business models.

Business Models

Although a vast amount of literature has emerged in the last two decades on business models, the more recent approach calling for a focus on the customer (Zott & Amit, 2017) is crucial for social innovation. In the case of smart territories, the citizen is the customer, and the creation of smart territories and entrepreneurial ecosystems should aim to satisfy such customer's needs. If we focus on this definition and see a country like a business, then business model theory seems to be a perfect fit to study smart territories. Business models are formulas, architectures, or systems that represent how value is created for the customer and how value is captured for the company (Teece, 2010).

A business model can explain how the ecosystem works in order to foster entrepreneurship, where not only the government but private businesses, universities, and citizens play important roles. In this chapter, the role of private companies is highlighted in search of a business model that explains the necessary activities in order to make the system work. There are two primary business model elements: the value proposition and the revenue model. Diverse authors refer to a more significant number of elements, such as the business model canvas from Osterwalder and Pigneur (2012), which includes nine elements, among them partnerships. As mentioned before, recent literature from the same authors also includes the customer in the center of the model. This is the user to whom the product or service is addressed. Following this trend, we can summarize four main elements which are defined below:

1. **Value proposition:** Defined as a product or service (Horowitz, 1996; Dubosson-Torbay et al., 2002) or a value offering (for example, Gordijn & Akkermans, 2001; Afuah & Tucci, 2000). The value proposition is also defined as the benefits customers can expect from products and services (Osterwalder & Pigneur, 2015).
2. **Revenue model:** How the firm will earn revenue, generate profits and produce a superior return on invested capital (Laudon & Traver, 2013). Some of the most common models are advertising, subscription, sales, transaction fee, and affiliate.

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3. **Partnerships:** Understood as associations with key organizations, in order to derive benefits for both parties. Defined as alliances as part of a value chain or net (Pateli & Giaglis, 2004; Turban et al., 2002); or a 'value architecture' (i.e., partners and suppliers within the value chain and value network) (Moingeon & Lehmann-Ortega, 2010; Shafer et al., 2005; Dubosson-Torbay et al., 2002).
4. **User:** To whom the value proposition is directed to. It is the consumer of the product or service. Usually referred as 'customer' (Weill & Vitale, 2001; Afuah & Tucci, 2000; Osterwalder & Pigneur, 2002; Hedman & Kalling, 2003) or 'consumer' (Morris et al., 2005; Chesbrough & Rosenbloom, 2002; Teece, 2010).

Based on the elements above, the initial proposal of looking at an innovation ecosystem as a business model then translates into the following:

1. **Value proposition:** The benefits citizens can expect from products and services offered by a smart city.
2. **Revenue model:** There are two approaches here. The government is not pursuing a profit. However, somehow a return on the invested capital (ROI), followed by universities and industry, which does expect to earn a revenue or some ROI.
3. **Partnerships:** Associations the smart city projects have done with key organizations, in order to derive benefits for both parties.
4. **User:** The citizen whom the value proposition is directed to. It is the consumer of the product or service of the smart city. In many cases, it is an active participant and not only a consumer.

The Role of Business

Some of the challenges identified by researchers are the design, implementation, and operation stages of a smart city project, including costs of design and operation, data collection and analysis, information security and sustainability and, on a later stage, optimization costs (Silva et al., 2018). Governments usually lead and fund smart city projects. However, not only high costs but the knowledge and expertise of private businesses make them a very relevant actor within the ecosystem, as they can provide the initial funding and infrastructure required for the project.

Vanolo (2014) set a precedent by giving Italy's example of the relationship between government and the private sector. In some Italian cities, new smart city associations and foundations have been created by emerging coalitions. Genoa is an example where funding was not 'won' only by the Municipality but by a partnership with massive involvement by private supra-local actors, including ENEL, an Italian energy giant. Another example is Milan Smart City strategy, which includes active participation by Cisco. On Vanolo's (2014) view, Italy was lagging as in other parts of Europe; the public-private mix works well. However, he contemplates the risk that private requests dominate the arena and public sectors are merely co-opted in a marginal position or the risk that the public sector subsidizes the private. Following Graham and Marvin (2001), the provision of technological infrastructures by private actors pursuing profit may enhance urban fragmentation, as in many cases, it has led to the functional separation between sealed-off technological enclaves and unused marginalized spaces. Others have considered the role of the private companies investing in smart city projects as an adherence to a new 'spirit of capital-

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ism' that increases their soft power, prestige and the social justifiability of their businesses (Boltanski & Chiapello, 1999; Thrift, 2005) or see a danger behind the view of urban development policies based on a single model, applicable everywhere and linked only to the application of technological solutions (Vanolo, 2014). However, there is more recent literature that shows that smart cities exceed technological and urban characteristics. Smart cities have not been limited to ICT, and they shifted to 'smart people' and their corresponding creativity (Anthopoulos et al., 2019).

In terms of the industry role as part of the quadruple helix, Lombardi et al. (2012) studied the funding provided by companies, foundations and institutes, together with scholarships, employment rate generated in different sectors as well as in knowledge-intensive sectors, patent applications, enterprises adopting ISO standards, people undertaking industry-based training, energy generation and proportion of recycled waste produced. These are all essential actions that the private sector performs. Therefore, there are also many positive activities in charge of businesses within the ecosystem. It is, however, necessary to balance the scope of action of the private sector, recognizing the significant role it plays but making sure that the social goal of the smart city is achieved.

CASE STUDIES

To describe and explain how the business model framework operates in a real context, we use a multiple case study approach. Case studies help to uncover aspects and inter-relationships of complex phenomena in an organizational setting and to show that we are establishing correct operational measures (Yin, 2009). Multiple cases are effective because they enable the collection of comparative data, and so are likely to yield more accurate, generalizable theory than single cases (Eisenhardt, 1989). For Eisenhardt (1989), the ideal number of cases is between four and ten. In this case, four cases are analyzed. This way, the likelihood of valid theory is high because the theory-building process is so intimately tied with evidence that the resultant theory will likely be consistent with empirical observation (Eisenhardt, 1989).

This study explores three different successful and well-known cases by using secondary data: one from Europe (Amsterdam), one from Asia (Singapore), and one from Latin America (Santiago de Chile). The objective is to be able to identify similarities and differences among each initiative.

A fourth case is the case study from Puebla, Mexico. An in-depth interview was conducted with one of the businessmen from Puebla, owner of a company involved in the pilot project. This type of interview makes it possible to ask respondents about the facts of a matter as well as their opinions about events (Yin, 2003). The interview conducted followed a line of inquiry as reflected by a study protocol (i.e., questionnaire). However, there were also conversational questions in an unbiased manner, which also serve the needs of the line of inquiry (Yin, 2003).

This case was chosen due to convenience, being the city where the researcher and author of this chapter are located. However, the city of Puebla is unique as there is not only industry and vast cultural heritage, but it is also a university-hub due to all the higher education institutions located in the city. Therefore, although this case is still in an early stage (on pilot mode), one can derive exciting insights from it. A within-case analysis was done, and the case was sent to the interviewee, who provided feedback on any omissions or erroneous information. The researcher later analyzed data collected from the interview in order to detect patterns seen in the other three cases (the different business model elements).

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Amsterdam

This smart city project engages citizens via their partners, as they belong to very different sectors, and they are well-established firms, which can target users easily. The project's online platform connects the different stakeholders, which creates an ecosystem. Stakeholder engagement increases public acceptance of the smart city venture and elevates the 'smartness' of the city to a whole new level, leveraging human capital, and collective intelligence (Angelidou, 2014). An important part of the ecosystem is the technical talent that is outside universities, corporations, government institutions, or incubators. This is the reason why Amsterdam is a well-known example of open and user-driven innovation. The platform has currently more than 4,000 innovators (Amsterdam Smart City, 2019) registered.

Among the core values of Amsterdam's smart city project are: a) cooperation, to create public value and work from a social, economic and ecological perspective; b) engagement, through a program with offline activities to encourage more people living in the city to be more involved in the community and smart city initiatives; c) openness and transparency, as it has made its City Data open-source and; d) learning by doing, emphasizing the constant learning about how transitions develop (MacPherson, 2017).

To make sure that value is generated for different actors within the ecosystem, in very short time the project team established: a) a corporate network, b) created Launchpad Meetups to connect corporates and startups, c) initiated Amsterdam Capital Week to connect startups to capital, d) launched Startup Academies including BSSA (B. Startup School Amsterdam), and the Growth Tribe Academy, e) co-organized international startup boot camps, and f) introduced coding classes into school curricula (MacPherson, 2017).

Amsterdam's innovation ecosystem places government initiatives in the center, with a necessary fund from the EU interacting with a vast number of companies that act as partners. The funding and the marketing provided by such companies keep the project running. Entrepreneurship is also well supported by industry, and the smart city's online platform has become key for innovators connections. It is the citizens' active role, which is crucial in this smart city, as there are co-creation and co-development processes where residents, developers, academics, and the general public participate. Universities and research centers are crucial for research collaborations, to form academies and provide training (e.g., coding classes) to citizens. This has created educated and active citizens who participate in the initiative and living labs.

Singapore

The key pillars that support the smart city initiative in Singapore are a) digital economy, as talent and businesses are considered critical in a digital economy that will continue to keep Singapore vibrant and competitive. This includes the "Data Sandbox Programme" for companies and agencies to exchange and analyze big data; b) digital government, by using data, connectivity and computing decisively to transform the way citizens and businesses are served, and the way public officers are enabled to contribute fully to their work; and c) digital society, ensuring all Singaporeans have access to technology that can enhance their everyday lives and equipping people with the skills and know-how to use technology safely and confidently (Smart Nation, 2018). Through clustering of the growth sectors, the project aims to bring together high-value digital services in PDD, as well as create an ecosystem with conducive test-bed environments that enable businesses and the community to thrive in a digital economy.

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Singaporean economic system has been described as ‘state-directed capitalism’ where the state participates directly in business sector growth through the government-linked corporations (GLCs) (The Japan Research Institute, 2016). Singapore has also incorporated competition principles in its public policies to stimulate market-driven innovations and provide a conducive environment for sustainable economic growth (Tan & Ming Jie, 2016). It is a well-known example of open innovation.

Among the four critical enablers of digitalization, through which the Government works to augment Singapore’s foundation are: a) Talent: programs are in place in schools to equip young students with a strong base of digital skills, to prepare them with the necessary digital skills and training for the future, b) Research and innovation: to power Singapore’s AI (artificial intelligence) efforts, \$150 million over five years has been granted to AI Singapore for research. c) Policy, Regulations, and Standards such as Singapore’s Personal Data Protection Commission (PDPC) and d) Physical and Digital Infrastructure: the Government regularly plans to ensure the resilience of its networks and boost connectivity and infrastructure as technology continues to evolve (SGD, 2018).

Singapore’s innovation system is one where the government-industry relationship is critical. An example is the creation of government-linked corporations (GLCs). The government has created competition principles and regulations that stimulate innovation besides the necessary infrastructure. The international talent was attracted to the city, and this has fueled research activities in the local universities; funding has also helped universities to provide scholarships and first-class courses. The industry is vital to transform knowledge from universities and research centers into new products and services and commercialize innovations. Venture funding and government regulations have successfully encouraged entrepreneurship.

Santiago de Chile

The development of Chile as a relevant country of innovation has been possible thanks to secure support from the State to the entrepreneurial activity. In Santiago de Chile, the private and public sectors are improving and developing the start-up’s generation by creating hubs, which can provide this new business with knowledge and financial aid. Government and private organizations are working together with an initiative called ‘Start-up Chile’ (Virgin, 2016). The government invites entrepreneurs around the world to go to Santiago and use all their resources to create and develop their projects, and it has attracted entrepreneurs from 79 countries (Echeverría, 2017). Although these people may leave the country, according to Echeverría (2017), there is intangible value. There is a community of entrepreneurs living mainly in Santiago (1,500 people work on startups located in the country) and highly internationally connected.

The country has a cluster of top business schools such as the Universidad Adolfo Ibáñez (UAI) and the Universidad del Desarrollo (UDD), which facilitates an educated human capital and talent (Echeverría, 2017). Santiago also has a group of engineers educated in top Latin American universities, such as the Universidad de Chile and the Universidad Católica de Chile. Universities play an active role, such as the accelerator of social enterprises promoted by the Social Innovation Laboratory of the Pontificia Universidad Católica de Chile: ‘Alto Impacto.’ This program seeks to promote and consolidate social innovation ideas that are in the stage of development, generating a positive socio-environmental impact in the community and, at the same time, creating value in a sustainable way through innovative products and services (Gatica, 2012). However, the economist Carlos Budenvich, assures that Chile needs a closer collaboration between companies and universities, in such a way that the research carried out

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at the university serves to improve concrete production processes (Mujica, 2018). Although Chile has emphasized the individual effort and the entrepreneur genius, the problem is that the knowledge economy requires more collaboration and networking (Echeverría, 2017). For example, the energy cluster is one with considerable innovation potential in Chile (use of nontraditional renewable energies) due to legislative reforms. However, its success is thought to depend on its capacity to collaborate.

Chile's smart city strategy has focused on increasing entrepreneurship with the use of a peer-to-peer and teaching mentality. Startup Chile is the primary governmental institution behind this initiative providing funding, training, and mentoring for citizens. The relevance of this successful strategy is the encouragement of self-employment. A characteristic of this strategy is the general approach, as many foreign entrepreneurs have been attracted to the city. The government plays a crucial role as it has simplified processes and regulations. Industry collaborates with knowledge and financial aid for research centers. This way, new technologies have emerged that improve both public and private processes.

Puebla

Puebla is a city located in the eastern region of Mexico. There are more Smart City initiatives in the country, which include Mexico City, Jalisco, and Querétaro. The area chosen in Puebla for a smart city pilot project is a polygon within the Barrio de Santiago. This pilot project has been stopped for about a year now since there was an interim state government in place. The current challenge nowadays is to convince the new local government to support the initiative.

There are many enterprises involved in the pilot project. Among them are:

- A technological company in charge of doing all the mapping of the area (before and after the project) by using very specialized equipment that can provide an accurate measurement of the changes the project will bring. However, the technology is expensive, and therefore, the company has created partnerships with other companies.
- A company that provides transport with GPS technology. This company maps the path and provides data that makes possible the schedule determination to let people know precisely when the garbage will be picked up. The mapping also helps with traffic as it maps all the streets in the polygon area chosen for the project.
- A company that provides lights with intelligent cameras. Such cameras have movement sensors that are very useful for security in neighborhoods.
- A company in charge of doing aerial mapping using drones.
- A company that provides a kit with an alert button to be used in case of robbery.
- A company formed by young entrepreneurs who developed an app where cyclists can communicate and share information on any particular troublesome areas in order to make cyclists feel safer around the city.
- Moreover, an intelligent parking company, which recently joined the project.

Finally, a company from Barcelona is in charge of providing an international approach to the project. Other companies may also join the project. An important local businessman owns a technology that eliminates carbon dioxide. This businessman has other several initiatives, among them the use of deep crossings within the city.

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Among the benefits that the project will bring are security, improvement in the quality of life, pollution reduction, and traffic coordination. That is, the project aims to solve some of the current problems in the community, not only to create a modern area within the city. However, according to the businesswoman interviewed, education and training are necessary, so that citizens are conscious of the technology available and the way to use and take care of it.

The UPAEP (Universidad Popular Autónoma del Estado de Puebla) began with this project in 1995. The participation of academia in this project is significant as the university provides training on mechanics and other several jobs, together with workshops related to culture, art, and cooking, intending to increase the quality of life of people in the city.

This pilot project would generate data, which is valuable for many of the companies involved as it can be used to develop more technology. For example, some of the variables included in the initial data gathering included satisfaction and happiness, which were collected through a survey. Companies not only have the technology but the expertise to collect and analyze data on routes, lightning, public transportation, and signaling.

Entrepreneurs play a significant role, and they are very interested in collaborating in the project. Until now, they have received funding from different local business people and angel investors and incubators.

A proposal that may work for this smart city is to have the industry in the center of the innovation system, as recent austerity policies in the country make difficult government cooperation for this type of initiative. However, the cooperation between industry and universities works well. The former providing funding for the project, and the latter the necessary training. Although some specialized institutions to support entrepreneurship have disappeared, there are still government initiatives that keep encouraging the activity in the country.

The key in this ecosystem is the access to data, which attracts many companies as they know this will help develop more new products and services. If such databases are free for companies to use, and fiscal incentives are provided to industry, the leadership of this initiative could go beyond a pilot project. Companies already use our data for marketing purposes. However, data protection regulations should be created in order to protect the citizen/consumer. This would allow a project that is looking to increase security, reduce pollution, and increase the quality of life in many ways, to keep alive and to extend to other areas of the city.

THE BUSINESS MODEL APPLICATION

Table 1 shows a cross-case analysis based on the business model framework.

From such an analysis, we can tell that there are some commonalities:

1. **Value proposition:** The benefits citizens expect from products and services offered by the smart city initiative. These seem to be similar in all four cases: security, lightning, traffic coordination, energy saving, health, education, waste management, and internationalization. All of them seeking to improve the citizen's quality of life.
2. **Revenue model:** The industry will expect to earn a revenue or some benefit for participating in the project. It is known that currently, smart building construction companies receive fiscal incentives in Mexico, as they are required to comply with specific environmental regulations. Therefore, it would be attractive for companies involved in Puebla's project to have a similar benefit. Most cases

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Table 1. Smart cities as business models

City	Value Proposition	Revenue Model	Partnerships	User / Citizen
Amsterdam	Six societal transitions: Energy, Digital City, Circular City, Mobility, Governance and Education, and Citizens and Living. Openness and transparency, as it has made its City Data open-source and learning by doing (MacPherson, 2017).	An important fund from the EU interacting with a vast number of companies that act as partners. The funding and the marketing provided by such companies keep the project running. Entrepreneurship is also well supported by industry.	A partnership among government authorities, universities, businesses, and citizens. iCapital prize in 2016 allowed the creation of partnerships (currently over 100 partners, including companies like CISCO, Oracle, and Dell).	Users are active participants and not only consumers. Amsterdam is a well-known example of open and user-driven innovation, leveraging human capital, and collective intelligence (Angelidou, 2014).
Singapore	Among its initiatives are the Strategic National Projects, Urban Living, Transport, Health, Digital Government Services, and Startups and Businesses. The Punggol Digital District (PDD) aims to bring together high-value digital services to the area.	Start-up accelerators a strong presence of venture capitalist (VC) and MNCs (multinational companies). The initiative ensures citizens have access to technology that can enhance their everyday lives and equipping people with the skills and know-how to use technology safely and confidently (Smart Nation, 2018).	Cross-border collaboration through the ASEAN Smart Cities Network. "Data Sandbox Programme" for companies and agencies to exchange and analyze big data. SGInnovate supports Singapore's start-up ecosystem by connecting technopreneurs with industry mentors (Smart Nation, 2018).	Talent and businesses are considered critical in a digital economy. The PDD attracts the best tech companies and talents and fosters their growth. Using data, connectivity, and computing to transform the way citizens and businesses are served and the way public officers are enabled to contribute fully to their work.
Santiago de Chile	Human capital, internationalization, environment, mobility, and security (SéSantiago, 2019). The initiative has introduced new technologies that favor everything related to energy, photovoltaic generation, telemetering, and intelligent public lighting (EMB, 2014).	The private and public sectors are improving and developing start-ups by creating hubs, which can provide new businesses with knowledge and financial aid. Startup Chile is the leading governmental institution providing funding, training, and mentoring for citizens.	Government and private organizations are working together on "Start-up Chile" (Virgin, 2016). There is strong support from the State to entrepreneurial activity. Industry collaborates with knowledge and financial aid for research centers.	The government invites entrepreneurs around the world to go to Santiago and use all their resources to create and develop their projects, and it has attracted entrepreneurs from 79 countries (Echeverria, 2017). Around 1,500 people work on startups located in the country and highly internationally connected.
Puebla	The benefits citizens expect from the smart city initiative. This includes security, lightning, traffic coordination, energy-saving, and waste management.	The industry will expect to earn a revenue or some benefit for participating in the project. Until now, the pilot project has not required this, but if the project was to be carried on, this is a crucial element to be considered.	Associations with key private organizations, many of them who have the technology to operate the smart city project.	Active participants and not only consumers would need to be encouraged. This can be done through marketing campaigns from the government and key organizations.

Source: Own elaboration

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receive governmental funds in collaboration with companies. Singapore's case is one where there is a strong presence of venture capitalists and MNCs.

3. **Partnerships:** Associations with key private organizations, many of them who have the technology to operate the smart city project. The benefit these companies would derive in the case of Puebla is the interest in the access to data. That is, the data generated by one company (for example, street mapping) is handy for other companies. This is true for all cases as large MNCs and also smaller companies benefit both from this activity and brand exposure. A thriving technological ecosystem in Singapore is an excellent example of partnerships and collaboration.
4. **User:** The citizen from Puebla to whom the value proposition is directed to. It is the consumer of the product or service of the smart city. As in Amsterdam's case, active participants and not only consumers would need to be encouraged in Puebla. This can be done through marketing campaigns from the government and key organizations. Universities such as the BUAP (Benemérita Universidad Autónoma de Puebla, ITESM (Instituto Tecnológico de Estudios Superiores de Monterrey, UDLAP (Universidad de las Américas Puebla), UPAEP (Universidad Popular Autónoma del Estado de Puebla), located in the city would be key players here, by emphasizing the role of students, young entrepreneurs and families to embrace the project. In Santiago de Chile, universities have played a key role in the smart city initiative to motivate and educate users. The government has done its part by inviting foreign entrepreneurs to the project. Singapore is a case where the government has been the key actor via regulations and infrastructure, encourages users to participate.

An essential aspect of the business model is the loops that are found in any system. Once the product or service is produced, there is a reinvestment in the critical factors in order to keep the system working. Both citizens and companies pay taxes, so it is expected that such local government earnings are reinvested in the project. If the tax exemption for companies were established, this amount would decrease. However, there are other types of capital, such as social, human, and intellectual capital. All actors can contribute time, contacts, and knowledge.

These projects may already be generating new jobs. Therefore, there is value not only for the citizen who will improve its quality of life but for governments that will find solutions for many of the problems the city faces. Universities and research centers will have access to data that will help them develop more research to advance knowledge. Entrepreneurs with technological propositions will see their project become real. Finally, companies would make use of the data generated to develop new products and services.

DISCUSSION AND CONCLUSION

One can cite many countries where differences among territories in terms of development is vast. It is, therefore, vital to increase the development of specific areas, and smart territories seem to be a way to achieve this by increasing people's quality of life.

An analysis of the different smart city cases presented allows the distinction of specific patterns: a user-centered system, Amsterdam's case. Without the citizen's participation, this project would not be as successful as it is. The engagement that the project has managed to generate among users is probably the key to its success. Although all of these initiatives come from the government, Singapore is a clear example where the government has taken an active role and has gone beyond the regular activities, to a generation of regulations and support that encourage innovation and create the path to a thriving smart

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city. The case of Santiago de Chile is one where good coordination between government and industry has highly encouraged entrepreneurship. The openness and change of mind from citizens towards entrepreneurial activities, has made the innovation ecosystem flourish, and Santiago Smart City is part of that.

Puebla's case shows a high participation of businesses, who aim to provide innovative solutions and encourage entrepreneurs. A good relationship with universities in the area is similar to that observed in Santiago de Chile. This makes it clear that universities should play an essential role in filling the gap between innovation and entrepreneurship.

The study confirmed that collaboration and talent are essential in the models, as had been pointed out by previous researchers. The internationalization factor, both seen in Singapore and Santiago, is also a factor to be taken into account for further studies. Also, collaboration among cities within the same territory could be an exciting research path. For example, suppliers and ideas that are being used in a city are certainly of help for the development of the smart city project in another city within a territory.

Regarding the business model approach, one can tell that the cases share the same value proposition. They have all created partnerships with key organizations and have the user/citizen as an integral part of the system. This confirms the need to include civil society as a key element of the innovation ecosystem (Lombardi et al., 2012). The revenue model understood as value generation for all actors, although not always as earning a revenue, helps to see how different actors can engage in this type of project. Could companies interchange data and base their ROI on this? What would be the role of the government facing this approach?

Finally, the government is the initiator of the smart city/territory projects. However, can there be a different approach to this? The proposal here presented has implications for policymakers as regulations related to business incentives would need to be discussed. Also, regulations regarding data privacy would need to be revised by the government in collaboration with the industry. Database marketing is already a common practice in the industry. However, when it comes to citizen data, some aspects of this may be sensitive.

Other Latin American countries may derive useful ideas from the cases presented, in particular from Santiago de Chile and Puebla's initiatives.

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KEY TERMS AND DEFINITIONS

Business Model: An architecture, formula, or system to generate value for the user of a product or service, and to capture value for the business owner (such as profit generation).

Innovation Ecosystem: Innovation system with a large number of actors and resources from different natures, which interrelates to generate innovation. It may go beyond a national innovation system.

Innovation System: System where the flow of ideas and communication between actors (usually the government, industry, and universities) are key to innovative products, services, or processes.

Quadruple Helix: Innovation system model where not only the government, industry, and universities intervene, but the citizen himself is another crucial actor within the system.

Smart Territory: City or region of a country where the use of ICT (information and communication technologies) enables a better quality of life for its citizens. Its goal is to increase efficiency by reducing waste and energy consumption, improve security, and ease governmental processes.

Social Innovation: A product, service, paradigm, or position innovation with a social goal. It includes all those innovations that are addressed to a community by generating value for its inhabitants.

Value generation: Actions that increase the value of goods or services. An actor within an innovation ecosystem participates in it, as it can help to generate value for others.

Chapter 3

Quality in E–Environment Development and Sustainability of Smart Cities

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ABSTRACT

Quality is a significant issue to consider when thinking about optimizing processes, improving the quality of services and products, increasing customer or client satisfaction, or just reducing costs that are related to waste or non-optimization in processes. E-environments and smart territories are not an exception, so, quality is a key success factor when considering and developing them. Quality has always been considered a part of the management system and processes in a company. Quality stands for the required perspective in the strategy of an enterprise and leads to accomplishing all quality requirements and goals previously defined in the company. There are several reasons why quality should be considered in an e-environment or a smart city.

INTRODUCTION

A smart city is a concept that is becoming more and more popular nowadays. Thus, we must take it into account when thinking about developing new cities or improving those that already exist. There are lots of definitions of this concept, and each of them includes issues, factors, and features of smart cities that may be considered when analyzing them. The European Union is making efforts towards the definition of sustainable strategies for smart urban growth for its metropolitan areas (Caragliu, del Bo, & Nijkamp, 2009; Piro, Cianci, Grieco, Boggia, & Camarda, 2014).

Nevertheless, there is an issue that must be taken into account, and that is the sustainability of smart cities because this becomes an important requirement when designing cities or developing them. It is a key point to consider due to the increase in the number of projects developed related to smart cities and the increasing interest in them. These cities are usually defined attending to a set of objectives and goals,

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which are related to the future, competition, efficiency, quality of the services offered, effectiveness, and resources optimization of these cities, together with other features. These cities must be designed or adapted to achieve these aims.

There are lots of factors that might influence smart cities' development and sustainability; for example, new Information and Communication Technologies (ICTs), Big Data features and evolution, human factors, knowledge management, or human capital. All these factors must be managed in order to control the evolution of the smart city and guarantee the proper integration of all the systems involved. That is not an easy task and requires to understand the aims of the city and plan to build the new city or rebuild it successfully.

On the other hand, there are a lot of issues and data that a smart city may monitor and integrate to get the required information to be able to decision make and to manage properly the smart city, including all the plans and projects related to it. The management of these data is very important and should be considered carefully so that we can get all the value needed to be associated with these data. However, sometimes, it is not taken into account when developing a project in a smart city.

In this scenario, the success and sustainability of smart cities is a complex responsibility, and the quality of the services delivered in the smart city to citizens is a key issue that may help to succeed. In this chapter, this perspective will be analyzed trying to identify issues that impact on the success of a smart city and all the projects developed in it, and the steps and actions to achieve them, assigning a proper weight to all of them. This chapter also highlights the role of quality in smart cities regarding the sustainability and success of it; it will be explained, together with a mechanism and proposal to measure this quality of the services of a smart city. This proposal will help to understand how these factors work together to assure the success of a project related to a smart city and help to increase its sustainability.

FEATURES TO BE CONSIDERED IN A SMART CITY

Cities nowadays have detected several problems related to their sustainability during the next years (Lazaroïu & Roscia, 2012) and the shortage of natural resources (Pellicer et al., 2013). A sustainable urban model is incentivized by the European Commission using the strategic energy technology plan. Moreover, that is because cities are accommodating a huge part of the world population (Perera & Zaslavsky, 2014), creating pressure on every aspect of urban living, and there is an increasing concern about the shortage of natural resources. Recent changes in service environments have changed the conditions of their production and consumption (Anttiroiko, Valkama, & Bailey, 2014).

A city may be considered smart if it has intelligence functions that allow it to integrate and synthesize this data to some purpose (Batty et al., 2012): improving efficiency, equity, sustainability, and quality of life. There are several issues and areas to be considered when managing a smart city: infrastructure integration (Batty et al., 2012), data collection, and mechanisms that allow this, data mining, and services delivery in a new city concept. According to Harrison and Donnelly (2011), application of information technology can support the goals and challenges of cities in both developed and emerging economies, thanks to the new progress in technologies, such as digital sensors or digital control systems, wireless networks, semantic models for data, computing power and new algorithms. Government and private sector businesses are investing in ICTs to implement solutions to solve these issues and reach these goals (Perera & Zaslavsky, 2014). ICTs play a key role in interconnecting all systems and actors in a smart city (Piro et al., 2014).

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One of the reasons for such recent concern about the opportunities of smart cities and how to use technologies to afford all the challenges of these cities is that there are many projects to build new cities or improve existing ones. There are a lot of governments and private businesses interested in these projects and in taking part in these adventures. Smart cities are significant regarding the increase of the world population and migration from rural areas to urban centers (Pellicer et al., 2013).

This changing technology and new knowledge created imply to develop the proper change management in the smart city so that it may assume and implement new technology and expertise quickly and adequately to afford all the challenges of the city. According to Olalla and Mata (2016), knowledge management is one of the factors that contribute to creating value in a network economy, even if it is not a big company (Saiz-Alvarez & Olalla, 2010) or project.

There are several definitions of 'smart cities,' according to Albino, Berardi, and Dangelico (2015). However, that of Fernando, Velosa, Anavitarte, and Tratz-Ryan (2011) is a definition that considers that a smart city involves intelligent exchanges of information between its many different subsystems. Because of this, information and information management are key factors when analyzing smart cities. Besides information, a smart city involves many issues, components, and infrastructures, such as (Chourabi et al., 2012): roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings.

All the value created through technology and new mechanisms is significant for smart cities and the sustainability of these cities. Other features to be considered in smart cities are knowledge-intensive and creative strategies enhancing the competitive performance of cities, human capital, infrastructural capital, social capital, and entrepreneurial capital (Kourtit & Nijkamp, 2012).

Dameri and Ricciardi (2015) analyze the role of Intellectual Capital (IC) in smart cities and the relationships that they have. According to this analysis, IC may have implications in smart city management, and a traditional IC framework should be extended for: expected outcomes, categories of key resources, units of analysis, and key managerial challenges implied.

In the vision of Batty et al. (2012), smart cities should consider the building of a global knowledge resource, which aims to guarantee the flow of high-quality information, and a system for data acquisition, querying, and mining. These issues involve several features and activities and requirements related, according to Batty et al. (2012), such as the following ones, among others: data multiple sources, heterogeneous data, data transformation, simulation and prediction methods, and mining strategies.

Currently, new Information and Communication Technologies are linked to the development of the often referred 'knowledge-based economy' (Antonelli, 2000). Nowadays, innovation is another critical factor for competition in some markets, and it involves the creation of new knowledge (Keeble & Wilkinson, 1999) generated from the collective interaction of many people (suppliers, customers, and research institutions). Yigitcanlar, O'Connor, and Westerman (2008) introduce the concept of Knowledge City (KC), as a fundamental role in knowledge creation, economic growth, and development. In those KCs, firstly, there must be a knowledge basis, and on the other hand, there has to be a development of human capital and the development of knowledge industries.

There is a group of functions and activities related to a smart city that may be considered grouped in a few areas: economy, people, governance, mobility, environment, and quality of life (Batty et al., 2012). These and other activities always focused on efficiency, equity, and quality of life. Human capital has effects on the quality of life and productivity of smart cities (Shapiro, 2006). Albino et al. (2015) proposed a set of components that define a smart city: economy, people, governance, mobility, environ-

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ment, and living. Lazaroiu and Roscia (2012) explain how technology is in service to the person and his economic and social life quality improvement.

Besides that, it is important to understand how to create value in the nowadays economy, also named the network economy (Olalla & Mata, 2016). We also have to consider that the development of the network economy creates new models for cooperation in production, delivery, and consumption of services (Anttiroiko et al., 2014). A network economy or new economy (Castells & Cardoso, 2006) may be understood as a new and efficient form of organization of production, distribution, and management aimed to increase the rate of productivity growth. Smart cities can offer advanced and innovative services to citizens in order to improve the overall quality of their life (Piro et al., 2014).

Some concepts, such as Big Data, may allow new opportunities for social interaction and more efficient decision making. Thanks to Big Data, the emphasis is shifting from long-term strategic planning to short-term thinking about how cities can be managed (Batty, 2013). Big Data allows for developing new focussed tools for dealing with short-term changes and long-term changes (Batty, 2013). Tang et al. (2015) propose a hierarchical distributed Fog Computing architecture to support the integration of a huge number of infrastructure devices and services in smart cities, taking into account a natural characteristic in big data generated by massive sensors: geo-distribution. According to Tang et al. (2015), there may be the employment of many advanced artificial intelligence algorithms or the combination of several of them, including density distribution modeling, supervised and non-supervised machine learning algorithms, and sequential data learning.

Besides that, the Internet of Things (IoT) also allows connecting a big number of sensors to the Internet, in order to effectively manage resources in Smart Cities. Regarding this issue, Perera, Zaslavsky, Christen, and Georgakopoulos (2014) introduce sensing as a service model as a solution based on IoT infrastructure for smart cities, that consists of four layers: sensors and sensor owners, sensor publishers, extended service providers, and sensor data consumers. The Internet of Things is expected to support the sustainable development of smart cities (Vlacheas et al., 2013).

Other authors highlight the importance of resilience in urban systems in smart cities, considering factors such as complexity, redundancy, robustness, and fragility (Batty, 2013). Alternatively, even Biswas and Muthukkumarasamy (2016) propose how to secure smart cities using blockchain technologies, explaining a security framework that includes several layers: physical, communication, database, and interface layer.

PERSPECTIVES OF QUALITY TO BE CONSIDERED IN SMART CITIES

According to Batty et al. (2012), a requirement in smart cities is the measurement or evaluation of the quality of the models and patterns extracted.

Berry, Parasuraman, and Zeithaml (1994) explained how excellent delivering services is a winning strategy in the market, and hence, also in the IT market, because sustaining customers' confidence is a vital issue to achieve a competitive advantage. This might be extrapolated to smart cities; the quality of the services offered in a smart city may be a differential factor among smart cities.

Quality is an important issue that may help to reduce costs and optimize a service, analyzing different types of costs depending on the point in which a defect or failure in service is detected. Olalla (2011) explains how the later failure is detected, the higher cost, due to all the consequences there may

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be when a service offered has no quality or does not fit the requirements and expectations of the citizens or users. Following this idea, it is better to invest in planning a city, taking into account the quality levels required in a medium and large term of a service than to assume costs related to a non-quality service.

Service quality may be enhanced by taking into account some issues and developing some actions (Gill, 2002):

- Listen to the client instead of expanding and investing in matters that are not important or are insignificant for customers.
- Design the proper service in which all the parts work together to achieve a high-quality service: environment, people working in the service, and even the equipment to offer the service.
- Define and develop a suitable procedure to give a response to claims and complaints from customers in order to solve situations when the service fails to be good.
- Teamwork is a critical success factor when difficult situations happen in service, because sometimes work is demanding and stressful in service, depending on the features and requirements of it.
- Servant leadership; means that leaders believe in the capacity of people to achieve and view their role as setting a direction and giving people the tools and enough freedom to perform. Maguad and Krone (2009) explain how moral leadership is an important and very critical variable for long-term business success.

It is important to consider that technologies should ensure the participation of people throughout the city (Batty et al., 2012). This perspective is very important regarding the quality of data that proper management requires decision making. Batty et al. (2012) propose a few channels for interactivity: portals with information, any software that allows citizens to interact and engage with other users online, systems that allow citizens to respond to queries, and decision support systems, based upon all this data and information.

Harrison and Donnelly (2011) introduce an information model (the Urban Information Model) to structure and classify the different types of information contained or flowing in the networks of a smart city. These types are listed below, inside these different layers (Harrison & Donnelly, 2011):

- Natural environment: information related to topography, fauna, and flora.
- Infrastructure: roads, bridges, trains, boats, and others.
- Resources: water, air, oil, and others.
- Services: building services, transport, energy, and others.
- Social Systems: people, commerce, culture, policy.

Several types of data should be gathered from all these layers, and probably the format of these data is different depending on the type of data (images, maps, text, and video). The analysis and treatment of these data may also be different. This differentiation must also be taken into account when the plan and strategy of analysis of the data are being designed. Quality controls and management may also differ depending on the type of data to analyze. A proper quality plan is very useful to manage this analysis according to the requirements identified. Actual and future orientations and strategy depend on several factors and elements, and these issues affect policies, processes, and briefly, the management of the smart city.

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As explained when identifying the objectives of a smart city, the quality of the services offered by this city is one of the main objectives. The quality of these services will depend on several factors. After analyzing this dependence, the following list of factors involved associated with every stage is proposed. Next to every factor, a brief description is included:

- The identification of all the points in which information might be gathered. It is very important and involves a strategical vision and plan, taking into account different issues such as long-term objectives in the smart cities, and of course, understand what information the decision making and the city management require at this, currently and in the future.
- The quality of the information gathered. This is related to the capacity of every sensor and the technical infrastructure that transfers and delivers this information. At this point, it is important to consider all the benefits and options of ICTs to offer a proper solution. It is also important to deploy sensors in very large numbers, and all of them should be interconnected (Hancke, Silva, & Hancke, 2013). There needs to be a communication infrastructure in place for these sensors to communicate with each other, according to (Hancke et al., 2013). At this point, there is a challenge to extract useful information from a complex sensing environment at different spatial and temporal resolutions (Tang et al., 2015).
- The results of the analysis of all the information previously gathered, so that user feedback and conclusions may be available for decision making. Systems integration plays an important role in this factor or stage, so that the analysis may offer complete information. Hancke et al. (2013) suggest the existence of a central information system. Applications and systems may help to complete this stage successfully. Even Piro et al. (2014), introduce an Information-Centric Network (ICN) paradigm. Different data quality mechanisms may also be involved in this stage to guarantee that all the information gathered has a quality high enough to be useful.
- Finally, and after an exhaustive analysis has been completed, and all the results are available, proper decision making might be executed, according to the information received.

Once all the factors that are involved in the quality of the services offered by a smart city have been detailed, we must understand that these stages and factors involve that citizens participate actively, sometimes giving their opinion about the services received through the available channels, and other times just living their lives in the smart city (in this case, citizens are not conscious about the information about their routines, habits, and life that is gathered to be considered when designing and offering the services in the smart city).

There is also a very important factor when talking about the quality of something, and it is that this service, product, or project must always be focused on users. In the opinion of Schaffers et al. (2011), users and citizens have a central role in defining the services of smart cities. The services offered in a smart city must be citizen-focused. To afford this idea, the following steps should be completed:

1. Identify all the services that could be potentially consumed by citizens and evaluate if services that already exist continue being useful for citizens.
2. Understand the citizens' profile of use of every service or potential service.
3. Identify and understand the requirements of citizens currently or potentially using the services.
4. Analyze all the requirements and features of them in order to establish a plan to implement each of them.

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5. Define new services in the smart city or improve the existing ones, always from the perspective of the citizen.

According to Castells and Cardoso (2006), society shapes technology according to the needs, values, and interests of people who use technology. This is one of the key points of success in a smart city is that all the services offered must be citizen-oriented when they are designed and developed. This fact is an important feature that has some consequences to be taken into account in the design, creation, and improvement of smart cities. This is the human factor and change management. Citizens should be able to:

- Understand their role in the smart city.
- Collaborate with city management and improvement, giving feedback when required.
- Participate actively in city communications and programs.
- Integrate themselves properly with all the systems and mechanisms available in the city.

This behavior and functions or responsibilities required in the citizens may be achieved by adopting a proper culture inside the city in which there is a collaboration and information culture that enables these issues. Citizens should evolve towards this new culture of interaction, and obviously, governments and private sector businesses participating in projects related to smart cities should manage all this change and evolution. From a technical point of view, some technologies may help to establish this connection and integration among citizens and the government of the smart cities, commonly used in public services provision: communication and short messaging, content sharing, social networking, or crowdsourcing (Anttiroiko et al., 2014).

Gill (2002) shows that change must be well managed, and it requires adequate leadership to be successfully introduced and sustained in a company. Macdougall (2017) explains how a change into an organization needs to be carefully transitioned into the organization for its successful adoption. According to Orlikowski and Hoffman (1997), there are two critical success factors when developing a change: aligning essential dimensions of the change process (technology, organizational context including culture, structure, roles and responsibilities, and the change model used to manage change), and dedicating resources to provide ongoing support for the continuous change process.

Change management has to work on those factors and enablers in a smart city, which help to achieve all of these points:

- Create communication channels creation in the business and among all the citizens, areas, or groups, and try to streamline its usability among them.
- Remove barriers to change among citizens.
- Identify levers to speed up and boost the organizational change in the city.
- Design and develop a communication plan to establish the communication actions required.
- Identify critical success factors to speed up a change in the city, and requirements from citizens regarding information and communication.

Nevertheless, it is not an easy task for a smart city because most of the changes required in this evolution involve people and intangible assets, such as knowledge, information, ideas, and values. Trying to manage all these factors and issues may result in a challenging project for a smart city because,

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in most cases, there is a significant internal change for the smart city behind all this management. The government or private sector business has to manage all of these factors, but there is also a substantial organizational change hidden behind them.

One key point to be considered is people's natural ability to adapt the knowledge they possess in a new environment (Argote & Ingram, 2000). That means they could adjust the knowledge they have from one context, area, department, or whatever structural division into another new one. This point may be significant in order for a company to implement any change naturally.

Orlikowski and Hoffman (1997) present an alternative way of thinking about technological change in organizations, motivated by a recognition that traditional models for managing technological change are not particularly useful given the more variable, flexible, and uncertain organizational situations that many companies face nowadays. Besides, these authors suggest a model of managing the technological change that includes iterative experimentation, use, and learning over time. This fact may also enable cities to get a better adaptation to the new changing environment and to take advantage of the capabilities and emerging practices.

Another key issue in smart cities is the possibility of reducing costs. Real-time monitoring systems may help to achieve this aim, avoiding periodical scheduled inspections (Hancke et al., 2013), and intelligent systems, such as Intelligent Transportation Systems (ITS). Quality is an important issue that may help to reduce costs and optimize a service, taking into account different types of costs depending on the point in which a defect or failure in service is detected. According to Olalla (2011), the later failure is detected, the higher the cost we have to assume. It may be very interesting to try to define a quality plan to identify all the criteria to be taken into account at every time in the delivery of a service. That is the reason why the quality of the services may be a success factor in smart cities. Cost-effectiveness and innovation may be two of the main features to overcome great competitive pressures (Anttiroiko et al., 2014).

SMART CITIES SUCCESSFUL MANAGEMENT AND SUSTAINABILITY

The strategies defined and implemented in a smart city depends on the city and how the relationship between locality, innovation, and the information society is organized and implemented (Kominos, 2009). However, not only the strategical layer, and decisions are important regarding smart cities. Technology Roadmapping (TRM) is presented by Lee, Phaal, and Lee (2013) as a strategic decision process framework that supports enterprise innovation activities. This is a framework for supporting research and development of future technologies and products that may support a competitive advantage. This framework establishes interconnections between services and devices and between devices and technologies.

Dirks and Keeling (2009) highlight the importance of an integration of a city's various systems such as transportation, energy, education, health care, buildings, physical infrastructure, food, water, and public safety. Albino et al. (2015) explain how, in a dense environment, no system operates isolated. Hancke et al. (2013) also highlight the importance of advanced systems to improve and automate processes, so that it may be considered a success factor in smart cities; for example, intelligent control systems to monitor infrastructures autonomously. Technology applied to sensors also might enable several benefits and improvements.

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There are some challenges, according to Chourabi et al. (2012), in a smart-city project: the project size, the manager's attitudes and behavior, users or organizational diversity, lack of alignment of organizational goals and project, multiple or conflicting goals, resistance to change and conflicts.

Recently there have been several successful cases of practices to make cities better for living for new city development strategies (Nam & Pardo, 2011). According to Chourabi et al. (2012), there are several success factors in projects related to smart cities: management and organization, technology, governance, policy, people and communities, the economy, built infrastructure, and the natural environment. According to Olalla, San José, and Mata (2012), human factor may be a key success factor when looking for efficiency in projects.

One of the most important success factors may be the smart city management model or government model. According to Hamel (2008), what ultimately constrains the performance of an organization is not its business model, nor its operating model, but its management model. Moreover, the same may apply to smart cities. Besides that, and according to Fernando et al. (2011), all this information flow should be based on a smart governance operating framework designed to make cities sustainable. Smart governance needs to adopt a set of principles expressing how to control and guide city growth and what principles should apply in internal and external stakeholder relations (Anttiroiko et al., 2014).

All the information management in a smart city requires proper analysis and translation (Albino et al., 2015). Thus, high-quality information and practices are essential to make successful decision making based upon that information. Nam and Pardo (2011) explain how this information may be used to improve and facilitate mobility in the smart city, to add efficiencies, conserve energy, improve the quality of the environment, identify problems and solve them or even recover from disasters. The collection and treatment of this data and information make possible all this decision making. One key point in smart cities, according to Piro et al. (2014), is that technological platforms and infrastructures must be information-centered instead of host-centered. Anttiroiko et al. (2014) propose some functions in service platforms: integration, access, creativity, and sharing.

Vlacheas et al. (2013) propose a cognitive management framework for the Internet of Things with the objective of transition from the current concept of the Internet to the concept of the Internet that smart cities require. This framework consists of virtual representations of real objects that can be dynamically created and destroyed. There are several potential problems that this framework tries to afford: the huge number of objects and their heterogeneity, the unreliable nature and complexity of these objects. This proposed framework has many benefits, such as a reduction in operational costs, reduction in capital expenditures, and time to market decrease.

Another critical success factor is to take into account that there may be lots of sensitive applications, and smart cities have to manage this properly. That is the case of the Fog Computing framework proposed by Tang et al. (2015) is that scale and latency-sensitive applications run near the edge. The layers considered in that framework are: sensing networks on critical infrastructures, edge computing nodes, intermediate computing nodes, and finally, data centers.

Another key point in a smart city is knowledge, and how to manage the amount of knowledge that is involved is a challenge. According to Yigitcanlar et al. (2008), despite the making of a KC is a long and complicated process, it is a path to follow for the most sustainable urban development. Santoro, Vrontis, Thrassou, and Dezi (2018) propose a new and inventive knowledge management system to make information flow in IoT environments. This pattern could also enhance the development of internal knowledge management capacity. This idea may facilitate the creation of open and collaborative ecosystems and the exploitation of internal and external flows of knowledge.

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When talking about knowledge management, nowadays, it is important to think not only about the creation, sharing, and storage of knowledge. That is because the emerging and increasing technologies, IoT, and other trends and innovations make it possible to face other challenges and introduce a change in strategies to gain the competitive advantage that is required nowadays and building digital ecosystems that are so necessary for smart cities.

According to Komninos (2009), to create these innovation environments, it is required the balanced development of human creative skills, innovation institutions, broadband networks, and virtual collaborative spaces to succeed. Dameri and Ricciardi (2015) propose a Smart City Intellectual Capital (SC-IC) framework to manage all issues related to intellectual capital in smart cities.

Albino et al. (2015) explain that in an assessment, it should be considered that cities have different visions and priorities for achieving their objectives. Hancke, Silva, and Hancke Jr. (2013) suggest that smart metering implies a new generation of technologies. For example, Stewart, Willis, Giurco, Panuwatwanich, and Capati (2010) propose a Web-Based Knowledge Management System (WBKMS) for urban water metering and planning.

There are lots of issues to be measured in a smart city regarding natural resources (water, energy, and others). However, some other features and issues should be metered, such as issues related to security and resilience, sustainability, economy, and environment. To measure smart cities' performance, Albino et al. (2015) propose a list of indicators for smart cities assessment in some rating systems for every component identified in a smart city: economy, people, governance, environment, and living.

Considering the services offered by a smart city should be citizen-focused, as explained before, it is also important to analyze those indicators related to quality of the services offered by the smart city, to understand what to measure relating to this issue in an intelligent city and how to propose and plan corrective or improvement actions to fit the citizens' requirements.

Besides these indicators, other indicators could be defined, measure the quality of the services in that smart city for every quality perspective identified because quality may be a differential factor of a smart city. Thus, indicators defined and implemented to cover this requirement may help to understand the effectiveness of a smart city and how it may be competitive among other cities.

It is important to define and establish a group of indicators to be able to measure the service quality level of the smart city, and the goals of the quality management system, to understand the current position of the services, and to detect the point of improvement to develop corrective and strategic actions.

There are many options when identifying indicators and ratios that may help to follow the quality levels of service in a smart city. At this point, it may be important to develop an adequate balanced scorecard that allows the management of the smart city to check and control some indicators periodically to guarantee that it is following the appropriate direction. That scorecard should gather all the important and required indicators to complete and success in that goal. It is a vital issue if a smart city plans to improve its services: before developing, the smart city requires to measure, to understand what to improve previously.

Sometimes it is difficult to try to measure overall satisfaction of service or service quality perception or the quality expectation or performance levels of service. Ennew, Reed, and Binks (1993) give us several indicators related to performance, expectations, and overall satisfaction: business knowledge, industry knowledge, market knowledge, helpful advice-giving, range of services offered, and speed of decision, among others.

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PROPOSAL TO MEASURE AND INCREASE SUCCESS AND SUSTAINABILITY

After the analysis carried out, taking into account different projects related to smart cities, there are seven points or key steps to be taken into account in a project related to smart cities to be completed successfully:

1. Design and offer excellent services aimed at the quality of life of citizens.
2. Define citizens-centered services.
3. Identify suitable technology to be implemented and used in the project depending on the requirements of the project and city, interconnecting all applications and systems required.
4. Design the proper collection and treatment of data and knowledge involved.
5. Establish a mechanism to obtain the feedback of the citizens related to their perception of the services.
6. Create a proper culture of collaboration in the project and a smart city to allow them to succeed.
7. Define a framework of key performance indicators to measure different perspectives and goals in the project and smart city, after the project has been completed.

These points should be taken into account and developed in any project related to a smart city because they are focused on the following five results (considering a three-scale weight for every point):

- Improving quality of services offered: through point 1 (high), 2 (medium), 3 (low), 4 (medium), 5 (high) and 7 (high).
- Increasing sustainability of this city: point 2 (medium), 3 (high), 4 (high), 5 (low) and 7 (high).
- Optimize costs and reduce waste: point 3 (high), 4 (high), 5 (low), 6 (medium) and 7 (high).
- Gain confidence of citizens: point 1 (high), 2 (high), 4 (low), 5 (high) and 6 (high).
- Increase the value perceived by citizens: point 1 (high), 2 (high), 3 (low) and 6 (medium).

Regarding the indicators to be considered in projects related to smart cities, several indicators of the quality of the services offered in a smart city are proposed in this proposal, some of them related to the implementation of a service and others related to the maintenance of a service once it is implemented in a smart city:

- Indicators related to the implementation of new services:
 - Percentage of implementation of a service.
 - Percentage of the implementation project that is on-time (versus initial plan).
 - Percentage of use of resources versus those initially planned.
 - The ratio of readiness-to-use of citizens to the new service (knowledge of the service, understanding of the service, among others).
 - The ratio of readiness of infrastructures, platforms, and devices related to the new service.
 - Percentage of requirements covered by the new service.
- Indicators related to the maintenance of a service:
 - The ratio of satisfaction with the service of citizens.
 - The ratio of involvement of citizens in the service.
 - Percentage of citizens sending any feedback on the service.
 - Percentage of use (consumption) of the service versus initially planned use.

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- The volume of new requirements to be considered in the service.
- The volume of complaints regarding service.

Other indicators might be added to this list to be able to discover other improvement points after evaluating the services available in a smart city. The more control there is in a smart city, the better the quality of services offered to its citizens.

Other indicators may be considered to measure some of the results identified before to guarantee the achievement degree of these results.

- Improving the quality of services: quality level of service, quality level trends, the volume of actions related to any improvement plan, satisfaction level.
- Increase sustainability: trends in the use of resources, reduction of waste in any perspective of it, optimization level, efficiency, actions related to sustainability that are developed.
- Optimize costs and reduce waste: percentage of reduction of costs in any issue or area in the city, costs trends.
- Confidence of citizens: trends of the use of services, level of interaction of citizens with services, volume of complaints.
- Value perceived by citizens: satisfaction level of citizens, recommendations of citizens, the popularity of the city, awards.

Apart from these indicators related to the quality of the services offered, the indicators proposal should be completed with a set of indicators for every area of the smart city (economy, people, governance, mobility, environment, and quality of life) to understand and know how the smart city is positioned regarding to these perspectives. This strategy based on layers of indicators may help a smart city in a quick and successful decision making to focus on sustainability, optimization, and value creation.

CONCLUSION

Building smart cities is a challenging project that involves proper risk management. Those are social, technological, security, resilience, and financial risks. Governments and private sector businesses involved must consider those risks to try to establish the proper strategy to mitigate, avoid, transfer, or accept them.

Project plan to build a new city or to improve an existing one must consider all these risks, together with the requirements of the services offered by that smart city to citizens, and the quality levels required in those services. These projects are not easy, taking into account the complexity of these projects considering the environmental variables, the changing technology and mechanisms, the human factor, the amount of stakeholders in such projects, the sustainability of the smart city, and obviously, one of the key factors: that is, the design of services that really fit the requirements of citizens. Quality must guarantee this point.

Quality of services must be analyzed and defined according to citizens' needs and requirements and have to be based on the feedback received from the citizens of the perception of the services received. These services must be citizen or user-focused. There are several issues and perspectives described in the present chapter related to the quality of the services offered in a smart city that have to be analyzed when improving a smart city or designing a new one. Quality controls should be established, and indicators

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should be defined and implemented to control the quality levels of services in a smart city, to guarantee that they fit the requirements of citizens.

A proposal with seven steps or points is defined to afford any challenge in a project related to smart cities; this proposal focus on five key success factors: improving quality of services offered, increasing sustainability of this city, optimize costs and reduce waste, gain confidence of citizens, and increase the value perceived by citizens. These issues are key to succeed in a smart city, and measuring these issues may support the information required to manage any project in a smart city properly.

This chapter details this information to understand the situation a smart-city project may face and how to afford all these issues to succeed. Further studies and analysis may be developed to complete the present one to fit any other requirement to any smart-city project with specific environmental conditions.

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KEY TERMS AND DEFINITIONS

Citizen-Centered Service: A service that is oriented to the citizen of a city; that kind of services are designed and implemented focused on the citizen of a city, trying to deliver the value the citizens require.

City Management Model: Government model of a smart city that gather the procedures to manage the city.

Confidence of Citizens: Trust of citizens in the city where they live, related to the wellness they feel when they receive the service they require and demand to that city.

Critical Success Factors: Factors that are very important to achieve an objective, and they are key issues in the process of achievement of that objective.

Knowledge City: A city based upon knowledge and structured taking into account knowledge management to increase the value of the services offered by the city to citizens.

Quality of Services: Level in which services fit the requirements of a service that is offered to citizens.

Sustainability of a City: Challenge of many cities that try to be autonomous and to respect environment and future life and conditions, avoiding the impact of current actions in future wellness.

Systems Integration: Connection and management of a group of systems in which data, information and periodical operation are connected to optimize their performance getting the advantage offered by their synergies.

Chapter 4

Social Innovation as a New Social Policy Tool for Regional Government Institutions in Smart Territories

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ABSTRACT

By aiming at improving social welfare and well-being, social policies, social innovation, and smart territories are closely related to each other. Local authorities are in direct contact with citizens and regional needs, which makes them an important actor in overcoming challenges ranging from housing, spare-time activities to education to improving democratic standards. There are many successful examples of social innovations, including FixMyStreet.com, participatory budgeting, and Open Government Vienna, which are supported by local governments that can contribute to the formation of smart cities and territories. By elaborating related examples from various perspectives, this chapter highlights the relation between social policy, social innovation, and smart cities.

INTRODUCTION

The terminology of “social problem” points out the fulfillment challenge of the basic needs of individuals and groups. The concept of the social problem has become more evident with the Industrial Revolution, which led to serious class divisions and increased polarization. In this context, many developed and developing countries started to pay attention to the generation, implementation, evaluation, and dissemination of innovative ideas in fulfilling unmet social needs and tackle profound social challenges.

In recent years, there has been an increasing interest in the concept of social innovation through civil society, the private sector, and government institutions (Saiz-Álvarez & Palma-Ruiz, 2019). As a consequence, different types of products and services, new collaborations, and new policy tools emerged.

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In this regard, social innovation can be regarded as a useful social policy tool for the governments at the local, regional, and national levels.

Given the accelerating urbanization, cities should now be designed more smartly since the management processes of the complexity in urban life require new innovative methods and solutions. The concept of smart city thrived together with the improvements in the field of information and communication technologies, enabling effective and sustainable management design to improve the quality of life of a citizen innovatively. On the other hand, existing literature on smart cities mainly focuses issues on Information and Communication Technologies (ICT) rather than “a mindset toward creating more holistic community” that improves the individual’s well-being and ensures involving all actors in the process (Capolupo, D’arco, Marino, & Pellicano, 2018).

The creative development of cities promises hope for the eradication of poverty, inequality, and unemployment as well as efficient management of energy resources (Eremia, Toma, & Sanduleac, 2017).

Taking together the common and ultimate aim of social policy, social innovation, and the concept of a smart city is to improve the well-being of citizens. Social innovation, defined as finding new ways of solving social problems, can be used as a new policy instrument by local governments and authorities, which are the leading actors in developing smart cities and territories.

Given that the existing paradigms lack in solving complex social problems, this study attempts to show that a new perspective is needed to increase social welfare and human well-being. Additionally, the study also argues that this might be possible through a social innovation approach and by the development of smart cities. In this sense, this chapter provides new insights into the field in which the social innovation concept can be considered as a valuable policy tool for the development of smart cities and territories. Within the scope of the study, the links between the concepts of smart city, social innovation, and social policy are discussed in terms of local public institutions with a particular emphasize on continental Europe. Some government-led social innovation implications such as FixMyStreet.com, participatory budgeting, and Open Government Vienna supported by local government institutions can contribute to the creation of smart cities and territories.

LINKS BETWEEN SOCIAL POLICY, SOCIAL INNOVATION, AND SMART CITIES AND TERRITORIES

The developments and changes in social life have significant impacts on evolving social needs and challenges. Thus, social problems are constantly changing and becoming more complex. In the eighteenth century, not only economic life but also social and political structures were significantly affected by the industrial revolution. The social problems have become more evident with serious class divisions and increasing polarizations, which gave birth to new research fields. As a result, the notion of social policy has come to light, and the concept of welfare state emerged (Ateş, 2017).

The concept of social policy was considered as a tool to tackle with contradictions and challenges of the capitalist system and to ensure the legitimacy of the state (for example, the Bismark social security law of 1878). With the emergence of changing social needs and the diversified problem areas have broadened the meaning of social policy in the context of a globalized world. Additional to that, the development of civic, political, and social rights covering all citizens gradually began to enter the field of social policy (Marshall, 2006). Social challenges imposed by World War II triggered a growing interest in the social welfare and welfare regimes. In many countries, the sustainability of the states and,

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ultimately, the burden of social welfare have swiftly spread the belief that the responsibility should be shared between the market and the private sector. As a result of the declining effectiveness of the state in providing social services, civil society and the market are now expected to take more “responsibility” for social welfare issues (Saiz-Álvarez & Palma-Ruiz, 2019).

Social innovation is considered as a key concept in providing solutions to those social needs that social needs, which cannot either be fulfilled by the state or the market. There is no clear definition of the concept of social innovation in the literature. Nevertheless, it is possible to talk about the existence of some common characteristics in order to exemplify social innovation. The features of social innovation, which are not definite and complete, can be listed as follows (Murray, Mulgan, & Caulier-Grice, 2009):

- Cross-sectoral
- Enabling open collaborative
- Grassroots or bottom-up
- Co-production
- Mutualism
- Establishing/creating new roles and relationships
- Allowing for better use of capital and resources
- Ensuring that skills and capital are developed and increased

The characteristics mentioned above differentiate social innovation from other concepts such as social responsibility, public sector innovation, and voluntary work can be considered as an indication of a unique concept. The main point is that central administration, rather than delivering one-way service, is enabling applications and solutions to contribute to the creation of sustainable processes in line with the needs from the base of society (Saiz-Álvarez & Palma-Ruiz, 2019; Ateş, 2017).

Social innovation is defined as a concrete form (product or technology), process, a collaboration between different actors in different forms, knowledge production, and collective learning processes, of which some include the inclusion of the target group in all these processes in the production and implementation of social innovation. Various definitions formed by scholars who assessed social innovation from different perspectives are provided in Table 1.

Over the last century, quality of life and its duration along with access to services and products have changed dramatically. With the speed of industrialization and urbanization, management, architecture, and urban planning became the main areas of concern in cities. At this point, the concept of smart city, which can play a significant role in settling these problems, is based on the application of efficient and sustainable criteria in the development and planning of cities (Garcia-Ayllon & Miralles, 2015). Moreover, smart cities and territories respond to various fields such as energy efficiency, information technology, transportation infrastructure, resource consumption, or environmental impacts today (Garcia-Ayllon & Miralles, 2015; Neirotti, De Marco, Cagliano, Mangano, & Scorrano, 2014). The concept of a smart city has gained increasing importance on the agenda of policymakers as a means to enhance the quality of people’s life (Neirotti et al., 2014).

Information and communication technologies (ICT) take an active role in the creation of sustainable smart cities and territories. Since 2009, the concept of “smart city has begun to replace the concept of “digital city” as a new concept. Apart from the smart city “eco-city, future cities, compact cities, garden cities, livable city, innovative city, green city, and sustainable city, all conceptualizations increase the living standards of people while underlining the limitations of the world to take into account (Moir,

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Table 1. Definitions of social Innovation from various perspectives

	Author	Definition
Sociological Perspective	(Heiskala, 2007, p. 52)	"....social innovations that would transform the regulative, normative, and cultural aspects of social systems, and their interplay with each other..."
	(Howaldt & Schwarz, 2010, p. 54)	"[Social innovation is] intentional, targeted recombination or reconfiguration of social practices based on specific actors or groups of actors."
	(Nicholls & Ziegler, 2017, p. 4)	"The development and delivery of new ideas and solutions (products, services, models, modes of provision, processes) at different socio-structural levels that intentionally seek to change power relations and improve human capabilities, as well as the processes via which these solutions are carried out."
User-led Perspective	(Hochgerner, 2012, p. 91)	"Social innovation may be considered any activity that expands the capability to act (of parts or the whole of society), and enables or leads to concrete action."
	(Pol & Ville, 2009, p. 881)	"...an innovation is termed a social innovation if the implied new idea has the potential to improve either the quality or the quantity of life."
	(Mulgan et al., 2007, p. 8)	"...innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly developed and diffused through organizations whose primary purposes are social."
	(Hubert et al., 2010, p. 9)	"...social innovations as new ideas (products, services, and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. They are innovations that are not only good for society but also enhance society's capacity to act."
Creativity Perspective	(Mumford, 2002, p. 253)	"[Social innovation] refers to the generation and implementation of new ideas about how people should organize interpersonal activities, or social interactions, to meet one or more common goals."
	(Marcy & Mumford, 2007, p. 123)	"New ideas about social systems and social interactions, while rare, can have a tremendous impact on our lives and our world."
Entrepreneurship Perspective	(Phills et al., 2008, p. 36)	"Social innovation is a novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals."
	(Westley, 2008, p. 1)	"Social innovation is an initiative, product or process or program that profoundly changes the basic routines, resource, and authority flow or beliefs of any social system."

Source: (Ateş, 2017)

Moonen, & Clark, 2014). In this context, the concept of smart territories may take a more inclusive approach (Eremia et al., 2017). In accordance, infrastructure policies, urbanization, and sustainable use and optimization of resources are also issues that should be considered in smart cities.

The concept of smart territory is more consistent with productivity and sustainability goals (Garcia-Ayllon & Miralles, 2015). Moreover, the true "intelligence" in the definition of the smart territory lies in the spirit of a community rather than the role played by ITC. Therefore, the term-smart territory appears to be focused on the widespread presence of computer technologies to provide services that will make a major impact and support the daily activities of citizens (D'Angelo, Ferretti, & Ghini, 2017).

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SOCIAL INNOVATION AND REGIONAL GOVERNMENT INSTITUTIONS

Local administrations (municipalities in particular) are perhaps the most important institutions in promoting social innovations, especially at the local level, as literature review and related fieldwork conducted by some scholars illustrate. Having direct relation to citizens enables local administrations to identify, analyze, and develop appropriate solutions to the needs and problems of the citizens. In this respect, local governments can play a key role in determining the problem and in collaboration with respective bodies (NGOs, universities, local citizen initiatives). Besides, having other advantages such as faster processing and more accessible communication with society than those of the bureaucratic central government strengthens the role of local governments.

While addressing unsolved problems and needs specific to their region, local governments need to adopt a strategic approach that connects products, services, and innovations in the social domain and improve their decision-making capacities.

According to Bencardino and Greco (2014), a smart city should support building public, private partnerships, enable citizens to involve in decision-making in public policy, focus increasingly on participatory processes such as online consultations and deliberations and promote participated creativity workshops. Here, other structural elements of the society, universities, in particular, should take responsibility for having critical roles in tackling social challenges. Raising awareness of local social innovations by the mapping is also crucial in terms of making the necessary efforts to disseminate good examples, maximizing the social impact with fewer financial resources.

On the other hand, city councils can pursue an innovative method in the implementation of principles such as developing the vision of the city, advocating the rights of the citizen, and achieving sustainable development. Furthermore, they can play an assistive role in considering environmental sensitivity, social work and solidarity, transparency, accountability, participation, and decentralization of governance system. Hence, city councils' function of guiding local governments is crucial.

Briefly, municipalities as one of the strongest actors in the provision of social goods and services across local governments, attach importance to the participative approaches such as co-creation and co-design of the services with the collaboration of the citizen. Having the active role of non-governmental actors in city councils both during the decision-making process and in the preparation of strategic plans and performance programs makes them a potential contributor in the development of social innovation and the smart city notion. However, promoting the functionality of these existing structures in the legislation and the well-functioning of other participation mechanisms are also crucial for the common interest posed by social innovation.

The flexible regulative/legislative structures of local governments give them a chance to facilitate the development, implementation, and dissemination of existing social innovations as well as to realize innovative solutions at the local level. Better / smarter governance and effective resource utilization, along with the active collaboration of all actors, appear to be essential to develop this potential. In this context, local social innovation practices need to be institutionalized in order to manage and direct them according to their needs.

It may be suggested to establish a unit or lab to carry out works in many specific areas. This unit focuses on the development of services provided in the social field through an innovative perspective, implementation of pilot schemes, and even through measurement of its social impact.

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Designing this unit as a supreme council in direct contact with the president will allow all services to be evaluated with a holistic social innovation approach. In achieving maximum social impact and capacity, several municipalities in some European countries build networks (e.g., Social Innovation Network of Denmark) where innovative methods are developed for efficient services, new ideas are exchanged and flourished, and good practices are disseminated at the national level.

Besides, there is no doubt that the role of local governments in institutionalizing social innovation closely linked to access to financial resources. To ensure local governments' financial flexibility while maintaining the existing administrative structure, arrangements that increase their sources of income and strengthen local financial autonomy should be given increased importance.

The significant role of local governments in promoting socio-economic development has inevitably augmented the importance of qualified human resources. To build up the innovation capacity of local governments, the central government should provide an opportunity for the employment of experts in the fields they needed. The central government should also support the institutions (local universities, social enterprises, cooperatives, and NGOs) that will provide the municipalities service for expertise. Thus, local governments can play an active role in supporting smart cities and regions.

Contributing Smart Cities and Territories: Social Innovations as a Policy Instrument in Regional Government Institutions

Besides taking part in the development of smart cities and territories, ICT also takes an active role in both supporting and enabling digital social innovations. For instance, digital technologies possess two main characteristics of social innovation. First, ICT supports the development of existing social innovations. On the other hand, ICT makes it possible to implement social innovations, which can sometimes lead to entirely new types of social innovations. ICT, for example, offers a new social, business, and management model that allows individuals to find jobs without needing extra intermediaries. In larger cities and around universities, social innovations draw on modern technologies, including interactive ICT tools, as encapsulated in "Smart City" projects. In this regard, leading Nordic actors include Gothenburg and Århus (water management), Copenhagen and Stockholm (port projects), and Oulu (Arctic City). With the development of ICT-based "Ideation platforms" and using open data, Helsinki has positioned itself as a pioneer in improving public services through citizen engagement (Oeij, Dhondt, Solley, & Hill-Dixon, 2018).

The world gradually becomes digital in every field of life. Cities, management systems, economy, social life, environment, and many others are all affected by this transformative progress and involved in digital ecosystems. Digital ecosystems redefine how cities interact and generate value. They may have a significant impact on various parameters of the quality of life, such as safety, time and convenience, health, environmental quality, social connection and civic participation, jobs, and cost of living (Poyakov, 2019). These parameters are also driving factors of smart cities and innovation. Smart digital solutions become an effective tool for the long-term sustainability of cities and promote "digital welfare" around the world. Therefore, today's governments provide a range of infrastructure and welfare services digitally to citizens. These can be conceptualized as "digital social innovation" in public sectors. Both digital innovations in the public sector and the smart city concept contribute to the prosperity of digital citizenship and digital inclusion. In other words, digital social innovation is countering the corporate-based brand of smart city development. It seeks to empower people both individually and collectively with the use of new technologies. Besides these, digital social innovation changes the way how people

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live together, using technological devices and data as a contribution to a better life.¹ In this sense, smart cities are based on collaboration networks among people, communities, innovation ecosystems, digital infrastructure, applications, and e-services. They provide more effective means of addressing urban challenges of sustainability, competitiveness, and participation (Kominos, 2013).

Smart applications that can be considered as digital social innovation are underpinned and implemented not only at the national level but also through local governments who are more acquainted with the problems of citizens in consultation on-site. This section includes some examples of digital social innovation that can contribute to the development of smart cities and territories.

Participatory Budgeting (Co-Create, E-Participation In Policymaking Processes)

As it is known, social change and transformation shape public administration forms and policy-making processes. Nevertheless, advancements in the field of information and technology require citizens and non-governmental organizations to be included in the decision-making processes of managers. As a result, many social enterprises have begun forming in many countries with increased emphasis on participating in this process, questioning and following the decisions taken, and analyzing investment decisions with respect to the inclusion of citizens and NGOs in their activities. These developments, which are also called as participatory development, are more widespread in developed countries and have started to spread to developing countries. Some municipalities have already begun to decide by asking residents how to spend a certain portion of their budget. Boston (USA), Porto Alegre (Brazil), Rome, and Venice (Italy), Berlin-Lichterfeld (Germany) are only some of the cities that determine a specific portion of their budget with the participation of the public (Burns, 2014).

Many studies have been carried out to develop and implement different mechanisms in which citizens can decide how to use the budget and to make this approach, which is called Participatory Budgeting, more widespread (Sintomer, Herzberg, & Röcke, 2012). In another example, an Icelandic initiative enables citizens to discuss, approve, and, if necessary, provide financial support to municipal decisions.² From a global perspective, the growth of such initiatives has been considerable. Such initiatives also grow considerably at the aggregate level provided that 1,269 and 2,778 participatory budgets have been executed worldwide in 2013, of which around 200 cases were in Europe. In Latin America, between 626 and 1138, participatory budgets exist; in Europe between 474 and 1,317; in Asia between 58 and 109; and in Africa between 110 and 211 (Nelson, 2014).

In order to manage the system of participatory budgeting, institutions use different civic engagement programs or platforms. CitizenLab is one of these platforms on which citizens co-create their city and enhance the quality of their daily life. Their solution is not only limited to run a participatory budgeting program but also can be regarded as a medium for municipalities and all types of governments to make decision-making processes more democratic, more transparent, and more collaborative. It aims to make tomorrow's governments and cities more citizen-centric through user-friendly cloud software, insightful data analytics.

FixMyStreet (Co-Creation, Participatory Citizens)

One of the most important criteria for the sustainability of the city is that the people living in that city should be able to make their voices heard and their discomforts and desires conveyed to the administrations readily. This criterion has started being realized by citizens and administrations with increased

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importance attached to it. Technology and mobile applications are now used in many cities to ensure this participation. Today, various online/offline platforms enable citizen participation in public policies and management. Some of them are based on a one-way communication of complaints and requests directed to public authorities from citizens, while others actively involve the citizen in local public processes and see them as part of the solution. Thanks to free, open-source software, citizens can access public information with fewer obstacles and report the troubles they face. One of the technology uses within this framework is the emergence of platforms where problems such as potholes, broken pavements, vanishing road lines, broken traffic, or street lights are reported at the local level. These platforms are either run by non-profit institutions, private companies, or even local governments.

FixMyStreet.com can be regarded as a great example of such platforms that enable citizens to easily and rapidly communicate with officials. It is an application designed by mySociety resident located in the United Kingdom (UK) as free and open-source software. FixMyStreet received government funding the UK for a couple of times and won the prestigious New Statesman/New Media award in 2007 (Baykurt, 2011). This achievement of the Fixmystreet.com proves its significant contribution to the smarter management of cities. To elaborate on the usage of the application, citizens can take photos of the problems they come across on the streets and sidewalks of the city or region. They can easily report them to the public authorities through the online system, which also allows for following up the processes afterward. Marking daily life problems on the city map and allowing all citizens to observe the updates put pressure on the responsible authorities to find fast and effective solutions towards the reported problems. This structure, organized by Fixmystreet.com, can be seen as an example of a changing state-individual relationship.

Moreover, this free and open-source software framework by mySociety enables to run a website for aggregating and reporting street problems, similar to FixMyStreet.com. Consequently, such technical tools, which were not available previously, now encourage citizens to act more responsibly towards their local environment and authorities to act more attentively towards the needs and wishes of the citizens. Such digital social innovations make considerable contributions to the formation of sustainable cities and territories.

Open Government Wien (Transparency, Accountability, Participation, Collaboration)

With the advancements in information and communication technologies, information has started to be produced hastily. This has caused, in a sense, a “data deluge,” which could be interpreted in a meaningful or a meaningless way. The fact that data has become increasingly complex has led to the development of information management systems and the concept of “big data,” which has applicability in many areas. Local governments, which are one of the major producers of big data in cities, have to deal with continuous data collection, integration, and interpretation. Decision-makers are well aware that proper management of this flow of data can be an incredibly powerful tool for making better decisions and increasing the attractiveness and effectiveness of political actions.

On the other hand, some of this data should also be returned to their original owners, i.e., citizens, because it is considered as a form of democracy and an opportunity for the development of business opportunities. In this context, big data in any “smart” city helps all stakeholders better participate in the processes of policy-making and decision-making. Additionally, the same stakeholders (mostly citizens) provide added value through these open data sources (Molinari, Maltese, Vaccari, Almi, & Bassi, 2014).

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For this reason, in “smart” cities, local administrations (particularly municipalities) incline to open their data to the public to perform management processes more effectively in a participatory way.

Open Government Data (OGD) refers to the idea of enabling public data collected by the administration, which is not subject to data protection, freely accessible. Examples include geo-data, traffic data, environmental data, budget data, or statistical data of government. Following this line of thought, the city of Vienna provides part of its data free of charge for further use within the city network. The city in 2015 provided 249 data sets and, 156 apps in total that can also be visualized according to the user’s preferences. To illustrate, “Allryder” provides information on trains, trams, buses, taxis and car-sharing services such as Car2Go and DriveNow. Another initiative is “Story Hunter,” which offers a selection of lesser-known, but extraordinary places that are worth a visit (Lebhart, 2015). All these are made available to people in machine-readable form so that they can also be used automatically in third-party applications. Open standards at the interfaces enable more transparency, participation, and collaboration.³

In addition to Vienna, smart cities such as Barcelona, Chicago, Manchester, Amsterdam, and Helsinki have also triggered novel innovations that are developed by the help of open data. To put forward some examples, iCity in Barcelona which aims to foster co-creation of digital public services by third parties (developers and businesses) based on utilizing available open data; and Apps for Amsterdam uses open data to develop apps related six themes-safety, mobility, vacancy, energy, tourism & culture, and democracy (Ojo, Curry, & Zeleti, 2015) are some of these.

The Role of Regional Governments as a Social Innovator in Supporting Smart Regions and Territories

Grassroots (bottom-up) social innovations generated by the community mostly benefit from top-down supports and policy interventions (Lee, 2014). Thus, community-based social innovation needs versatile support from the state during all stages of innovations. In this direction, the state should adopt an integrated strategy towards social innovation by including other sectors into the process to achieve increased social well-being.

The rapid increase of the urban population in the world brings forth diversified many problems related to many areas such as transportation, energy, water, health, environment, and security. At this point, innovative solutions supported by information and communication technologies display high potential for solving these problems, and thus opportunities for providing better public services, and improving the quality of life of citizens.

Although central governments and local administrations in many countries use Geographic Information System (GIS)-based solutions in smart cities as a tool what kinds of fundamental objectives and strategies should be put forward in the usage of this tool have not been established yet. Accordingly, states play a dual role in developing new social innovation policies. They can support other social innovation actors in promoting social well-being and social welfare while they can also themselves implement innovative solutions. These signify both the “supportive” and the “executive” roles of the public sector. Keeping in mind this dual role, the state should design national social innovation strategies and execute them through evidence-based policies. Undoubtedly, digital technologies used in all stages of these processes irreplaceably help build efficient governance systems.

For both developed and developing countries, it is essential to form a social innovation ecosystem in order to ensure social and human development in parallel with economic development. Additionally, it is noteworthy to establish multidimensional mechanisms that include I&T infrastructure, reorganized

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legal regulations, and increased financial support in empowering the capacity of social innovators (individuals, associations, cooperatives, foundations, and social enterprises). Some countries play a catalyst role, particularly in sustaining and disseminating social innovation practices at the national level. They are also assigned several functions such as pioneering, implementing, resource-providing, and regulating in the institutionalization process of social innovation worldwide. In recent years, social innovation has been considered as a useful tool in social policy processes and practices (Borzaga & Bodini, 2012).

In this respect, recently emerging concrete social innovations carry the potential and promise to fill the gap that has been left unfulfilled due to lacking public-private dynamics. These practices can be “policies for social innovation” or “policies as social innovation.”

CONCLUSION AND RECOMMENDATIONS

As the related literature implies, concepts of social policy, social innovation, smart city, and smart region are closely associated with each other concerning the objectives they all carry. There is a growing body of literature that recognises the importance of social innovation concept in contributing to the smartness of regional governmental institutions and their operations in providing public services. Additionally, the role of social innovation in tackling social problems has received increased attention across several disciplines in the past thirty years. This chapter has argued that social innovation possesses a great potential of offering a significant contribution to the formation of effective social policies and the development of smart cities.

On the one hand, smart cities and territories are being criticized for not taking into account a holistic view of humanity worldwide. On the one hand, they are also regarded as an improvement of cities for increased ease in access to services thanks to the digitization.

This perspective coincides with the idea of social innovation, which is considered as “new ways of solving social problems” and contributes to the development of regional welfare. For this reason, social innovations implemented and supported by local administrations can play key roles in the development of smart cities and regions. Since conventional methods and tools no longer provide comprehensive solutions, they should be replaced by new ones. Therefore, social innovation should be used as a new policy tool by local public institutions throughout the formation and development processes of smart cities and territories.

To this end, the following recommendations need to be taken into consideration:

- Addressing social innovation, smart city, and smart territory concept holistically, identifying priorities by making customized definitions for cities or regions,
- The development of the smart territory concept should not only consist of the digitization of the services and the development of the city but should include a broader and comprehensive smart territory plan
- Scaling up the paradigm of social innovation from small communities to wider ones, i.e., smart territories,
- Based on social innovation and the smart city concept, municipalities can carry out innovative projects, set up local exclusive service designs, redesign and scale up existing ones,

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- Promoting innovative practices that address social challenges/problems/issues the best. This will, in turn, both inspire potential local and regional social innovation actors and raise beneficiaries' awareness about social innovation and its applications,
- Building physical spaces for citizens by regional governments such as incubation centers, labs, and maker studios which facilitate generating, testing, implementing and scaling local and digital social innovations for better cities,
- Providing financial support to smart and innovative applications developed locally (such as competitions for social innovation ideas and awards related to specific problems)
- Local public institutions can take a leading role in building cooperations and networks among local actors (NGOs, community groups, private and public institutions),
- The role of local public authorities (municipalities, development agencies and others) in the promotion of socially innovative ideas and the development of smart territories should be explored comprehensively,

Moreover, the role of municipalities as the closest local actor in supporting social innovation and the development of smart cities and territories is a considerable issue. It is essential to establish national and regional outlines and analytical frameworks to disseminate the notions of social innovation and smart territory that will contribute to improving the social welfare of the country or region. A prospective framework would include insights about how to develop social projects innovatively and also expose previous successful social innovations to be used as a framework to work on.

Furthermore, this approach will also leave room for the contextual aspects of a country's culture, religion, morality, welfare regimes, and the political system. In this context, it is important to make precise determinations and recommendations for the dissemination of successful examples and to develop the future perspective of social innovation, smart cities, and regions. Another important issue is emphasizing on social innovation notion in official strategy documents and policy papers by prioritizing some specific areas of countries. In other words, it is proposed to develop an integrated policy of the state in terms of structuring an innovation policy or agenda to include the social dimension of the smart city approach in each social area and to prepare and implement socially innovative *smart region action plans*.

It should not be overlooked the fact that the characteristic of all processes mentioned above has a dynamic nature. According to Ezio Manzini, all successful innovations move from the "enormous destructive beginning" towards the phase of maturity, which can be regarded as the "new normal" (Manzini, 2016). As innovation becomes *casual* after a certain period, changing and developing structures, need yet another innovation. Similar to what observed on innovation in general, standardization of both terms smart city and social innovation would limit their content and potential as well as their application areas, thus damage the dynamic spirit inherently embedded in these concepts. In this respect, it is important to take into consideration the temporal and situational effects in the determination of social innovation practices and strategies within the framework of building social development and welfare.

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KEY TERMS AND DEFINITIONS

Digital Social Innovation (DSI): DSI is a social and collaborative innovation in which innovators, users, and communities collaborate using digital technologies to tackle social challenges and change people's lives.

Digital Welfare: Digital welfare means the digitalization of public policies and services, making them efficient and effective that promotes citizens' prosperity.

Smart City: A smart city is a city that provides a high quality of life with the effective use of Information and Communication Technologies (ICT) applied to critical infrastructure components and services sustainably.

Smart Territories: The idea of the smart territory makes the smart city concept from the urban scale to the regional scale and deploying these policies in an integrated and holistic manner.

Social Innovation (SI): SI is new ideas that meet social needs create social relationships and form new collaborations which can be products, services or models addressing unmet needs more effectively (by European Commission)

Social Policy: Social policy primarily refers to guidelines and interventions for the changing, maintenance, or creation of living conditions that are conducive to human welfare. Social policy is education, health, housing, employment, and nutrition for all people.

ENDNOTES

- ¹ <https://smartcityhub.com/collaborative-city/digital-social-innovation/>
- ² For more information, please visit <https://betrireykjavik.is/?locale=en>
- ³ <https://www.wiengestalten.at/open-government-data-wien/>

Chapter 5

How to Facilitate Citizen– Led Social Innovations: Designer–, Maker–, and Funder– Society as Building Blocks

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ABSTRACT

The historical periods of disruptions for almost every field of life underlines the necessity of bottom-up development, which requires citizens to realize its potential and take the responsibility to make a change. Social innovations are believed to play the role that technological innovation did during the industrial development one century ago. Proven experiences suggest that there is an immense need of cultivation of an ‘innov-active’ society which is sensitive to the challenges around them, capable of analyzing the situation, determining the point of action, developing alternatives and providing necessary resources in an innovative and collaborative manner without awaiting or expecting the intervention of others. Unlocking the potential of the people necessitates taking advantage of collective intelligence; a participatory design approach, improving the community feeling and level of trust; developing necessary tools for action; and improving the active citizenship mindset, which eventually contributes to an entrepreneurship spirit and thus creates a risk-taker and resilient society.

INTRODUCTION

“Another world is not only possible; she is on her way. On a quiet day, I can hear her breathing” (Fisher & Ponniah, 2003). Arundhati Roy put it well when illustrating the emergence of a new civilization and the potential of citizen-led social innovations.

Evidence in many places around the world suggests that citizens are increasingly taking an active part in shaping this ‘new civilization’ through socially innovative solutions (Ates, Ateş, & Yülek, 2019). People across systems, sectors, and cultures have a shared sense of living in a historical period of dis-

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ruption: something is ending that we all can define in similar ways, and something new is beginning to emerge that we cannot yet fully comprehend (Scharmer, 2015).

This historical period of disruption underlines the necessity of a bottom-up development, which requires citizens to realize its (their?) potential and take the responsibility to make a change. Social innovations are believed to play the role that technological innovation did during industrial development around one century ago.

A growing number of countries realize that there is an immense need to move from the Gross Domestic Product (GDP) driven development paradigm to development thinking, which focuses more on social progress. This is simply because plain economic activity measured by GDP alone is not enough to represent the well-being of citizens. Achieving a prosperous society as a whole is more complicated than increasing GDP since it necessitates considering several other elements besides robust GDP growth, such as peace and happiness, economic and financial well-being, and individual freedoms and liberties (Urama & Acheampong, 2013).

As the previous president of the European Commission, Manuel Barroso put it well, “we cannot face the challenges of the future with the tools of the past, that is why innovative solutions are necessary to face the challenges of today and future” (European Commission, 2009).

Social innovation is defined as new ideas, products, services, and models that simultaneously meet social needs and create new social relationships or collaborations (Lettice & Parekh, 2010). There is a growing number of socially innovative services, products, or models around the world. Some examples of such recent social innovations are sharing economy practices, time banking, local currency movements, serious games, participatory budgeting, community energy hubs, social cooperatives, new ownership methods, blockchain for social good, citizen labs, citizen science, do-it-yourself movements, cross-sectoral open innovations, repair cafes. The concept of social innovation itself, its drivers, necessary social structures that facilitate it, and the power of social innovation have been gradually explored around the world. Social innovations have the potential to transform society to tackle newly emerging societal problems, thus making society more resilient against current or unprecedented challenges.

Nicholls and Murdock (2012) went so far to label the social innovation as “a sixth wave of macro-innovation following more technology-based predecessors: the industrial revolution; steam and railways; steel, electricity, and heavy engineering; oil, automobiles, and mass production; and information and telecommunications.”

Given the rapid urbanization and its associated challenges, the present time entails creative and proactive societies, a new community of leaders to introduce citizen-led innovative responses by thinking, innovating, and working together to improve social and individual well-being.

There are several challenges today's societies are confronted with: socio-ecological transformations, a democracy that fails to provide for all persons within a country, an aging society, unequal distribution of wealth, and exclusive growth (Ates et al., 2019). Given its complex nature and the interdependencies of today's challenges, achieving social and human progress requires new tools, new approaches, collaborative actions, and a 'maker' mindset. Tackling these challenges requires not only top-down actions from the government but also bottom-up engagement and innovative local actions taken by citizens and community groups. In creating a smart city or a territory, citizens and community groups have more responsibility than ever in creating, catalyzing, and implementing actionable solutions to the societal challenges in a time of constantly transitioning and evolving world.

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As Allmendinger, Wyatt, Veugelers, Caball, and Burmanjer (2013) highlight, the challenge is “to capture the creativity of these local solutions and their potential opportunities, both from a social and a market perspective, including the potential for sustaining diverse and alternative economies.”

There is a glaring gap between the size of the demand or need for citizen-led social innovation, and the solutions on offer. What is more, is that the number of socially innovative solutions and citizens engaging in social innovation as ‘initiator’ or ‘user’ changes greatly from city to city and from country to country. Related studies highlight that social innovations are more concentrated in some countries and cities than elsewhere based on social capital, infrastructure, and other domains (Akçomak & Ter Weel, 2009; Berliner, 2002). The geographical density of citizen-led social innovation also reveals that the number of socially innovative initiatives are scarce in countries in which they would prove to be of a greater need.

In this vein, the main aim of this chapter is to elaborate on the enablers of citizen-led social innovations in cities: designer society, maker society, and funder society. These building blocks are supposed to provide a new lens to understand the structure of socially innovative societies better.

Along with that, this chapter envisions to address the following questions: what are the characteristics of ‘maker’ societies? Is there any chance to move from ‘taker’ to ‘maker’ society? How do we build up creative and proactive societies? What are the implications that we derive from best practices around the world?)

How to promote society to be more proactive and creative? What are the main building blocks of the so-called ‘innov-active society’? Are there models, tools, and concepts that can facilitate an innov-active society?

Designer society, funder society, and maker society concepts will be investigated from various angles to shed light on the structure of an innov-active society.

MOVING FROM ‘TAKER’ TO ‘MAKER’ SOCIETY: DYNAMICS OF THE NEW ERA

The quest towards understanding how to increase the role of civil society in solving social problems, sustaining, and improving the wellbeing of the people beyond increasing the monetary term welfare has triggered the interest in so-called ‘maker society’ (Ates et al., 2019).

The growing number of citizen-led initiatives and their impacts make us believe that citizen-led initiatives are capable of increasing the social wellbeing, challenging the status quo and triggering change on a large scale in almost every area of life. It is imperative now to explore the power of society and to promote best practices that provide socially innovative solutions. Among these socially innovative solutions that have been built/adopted/created relatively recently are including time banks, local currencies, self-help health groups, new kind of cooperatives, platform cooperatives, do-it-yourself movements, neighborhood gardens, participatory budgeting systems, Wikipedia and the Open Universities, micro-credits, charity shops, fair trade movements, community energy farms, community courts, repair cafes and sharing economy practices.

All these examples demonstrate the substantial shift in the conventional understanding of the power structures between citizens, NGOs, public institutions, and corporations. According to the conventional understanding of individuals and citizen groups, policymakers, government authorities, or political leaders are supposed to carry out the ‘necessary’ works on behalf of the citizens. By this line of thought, citizens are considered to be passive stakeholders who only express their needs and wait for the decision-

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Table 1. Disruptive changes and citizen-led solutions

Area of Disruptive Change	Citizen-led Solutions	Impact
New Economy	Grassroots innovations, community-led business, a new type of business entities, sharing economy, new kind of production and consumption systems, community currencies	• The democratization of 'profit.' • Replacing the status quo • Creating a new social economy – in which different economies coexist, and everybody wins.
Education 2.0	Creative afterschool activities, cross-sectoral collaborations between NGOs and schools, active community involvement in school development, facilitating activities relating 21st-century skills	• Helping kids to be equipped with 21. Century skills- collaboration, empathy, and creativity. • Enable the transition into the new era of education by building up the necessary education environment
Community 2.0	Cohousing systems, sharing economy practices, mutual help communities, new forms of exchange of 'things' -ideas, tools, materials, time etc.-, time bank, repair café, local money, community currencies	• Improving social well-being through innovative solutions • Enhancing the sense of community by enabling people to help each other and see the other as complementary, not a rival. • Mobilizing untapped resources
Democracy 2.0	Participatory budgeting, various kind of idea collection platforms, crowdsourcing of ideas, open government initiatives	• Improving the capacity of democracy • Enabling citizens to become much more involved in the policymaking, application, drafting of policy, and legislation.

Source: Own elaboration

makers to fulfill those needs, which we call 'taker society.' Fortunately, there is a growing consensus on the obsolescence of conventional development policies and the immense need for the emergence of a 'maker society,' which brings about their solutions to the challenges they face.

Small size social innovations driven by the member of the respective 'maker society' are making and will make incremental changes in our daily life. On top of that, small but steady improvements that incorporate minute activities from daily life bring society closer to the idea of collective wellbeing and suit human nature better than radical changes.

As proven by the promising examples of grassroots initiatives, without taking the society on board, and without challenging the current conventional understanding of development, there is a limit of economic or social development that can be achieved. That can also be seen as a distinctive feature of this new era.

There are various kinds of untapped resources, workforce, physical infrastructure, limited but enough funds on the one hand, and immense need for innovative solutions to the challenges we face with as the society on the other hand.

One of the characteristics of today's world is a rapid change in almost every area of life, which entails prompt, customized, proper, innovative, and sustainable solutions (see Table 1). In this sense, resilient societies that are capable of adapting themselves to the changing environments by introducing permanent solutions are seen as a key component of the new era.

There are several challenges today's societies are confronted with: socio-ecological transformations, a democracy that fails to provide for all persons within a country, an aging society, unequal distribution of wealth, and exclusive growth. Given its complex nature and the interdependencies of today's challenges, achieving social and human progress requires a new mind-set, new approaches, collaborative actions, and a 'maker' mindset. Tackling these challenges requires not only top-down actions from the government but also bottom-up engagement and innovative local actions from a country's citizens.

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Researchers and practitioners are convinced that the public services and top-down solutions we inherited from our grandparents, in which people are considered as passive consumers of those services, are unsuitable and unsustainable given the context of the challenges ahead (Gerometta, Haussermann, & Longo, 2005). This fact highlights the need for a shift from a ‘taker’ to ‘maker’ society where citizens take an active role by directly participating in developing different forms of socially innovative actions, institutions, and social relations.

Participatory budgeting, various kinds of idea collection platforms, crowdsourcing of ideas, open government initiatives, and other initiatives enable citizens to become much more involved in the policymaking, application, drafting of policy and legislation.

Building Blocks of an Innov-Active Society

Three main features characterize an Innov-active (innovative and proactive) society: designing, funding, and implementing (making). Lack of either one of these three components, either designing, funding, or implementing, would hinder the effective functioning of an innov-active society. Innov-active society refers to societies that are taking an active part in either designing, implementing, or funding processes of social innovation. In order to achieve that, citizens individually or collectively, institutionally or non-institutionally, take a proactive stance in developing socially innovative solutions in order to cope with the challenges they face at the local or global level. Notwithstanding, societies are failing to address the challenges they face and are not eager to participate in developing innovative solutions, lacking the feeling of responsibility, in expectation of top-down solutions and actions from the public sector, which we call ‘taker societies.’

Traditional forms of innovation, including organizational, business, or technological information, have been investigated from many angles to understand which context (local environment and economy, culture, and history) is more conducive to the formation and success of these traditional innovations. However, so far, not much attention has been paid to particular dynamics that facilitate or hinder the emergence of socially innovative responses in different cultures.

In this vein, it is necessary to examine the enablers of innov-active societies under which social innovations take place, unpack and develop state-of-the-art concepts that are associated with this phenomenon, and also crucial to explore the variety of processes that take part in such innov-active societies.

Kirwan et al. (2013), Moulaert et al. (2007), and Mulgan et al. (2007) considered social innovation as “a process of collective action and social transformation that pursues the development of new forms of governance, community formation, participation, empowerment, and capacity building.” When it comes to a socially innovative service, product or process, determining required ‘hot-points’ of the innovative solutions, asking the right question, understanding the need thoroughly, properly identifying the challenge at hand, exploring the necessary resources and forming a process structure are considered key elements of the first step of social innovation: Design.

Citizens identify their own needs and propose alternatives (Designer Society), co-create the future through new solutions and implement (Maker Society) and provide necessary resources (Funder Society) that have the potential to increase social well-being by ensuring sustainability, participatory governance, openness and transparency in policies, respect to the rule of law and social cohesion.

Policymakers and citizens admit that many of the solutions to major social challenges –need to be far more local as it has been proven that citizen-led local solutions are generally more useful since they consider the needs of the respective community and engage citizens in taking action.

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A well-known scholar in the field of social innovation and design (Manzini & Coad, 2015) considered social innovations as building blocks that generate, gradually, small ‘islands’ of a ‘new civilization.’ He expects that, soon, the number of these islands will be growing and generating a wide archipelago that could be seen as the emerging dry land of the rising continent: The already visible expression of a new civilization.

Given these challenges, greater civilian involvement in collaborative and participative problem solving, as well as their direct participation in developing state-of-art solutions, are becoming crucial more than ever.

While the concept of social innovation is becoming increasingly popular in the social sciences, empirical evidence on it is still rather scarce and fragmented (von Jacobi & Chiappero-Martinetti, 2017). It is also recognized that the pace of socially innovative initiatives is still too slow in many countries, and these small rising ‘islands’ of a new civilization risk being hit and submerged by the waves generated by the old existing civilization and its multiple crises (Saiz-Álvarez & Palma-Ruiz, 2019).

There is a glaring gap between the size of the demand or need for citizen-led social innovation, and the solutions on offer. What is more, is that the number of socially innovative solutions and citizens engaging in social innovation as ‘initiator’ or ‘user’ changes greatly from city to city and from country to country. Related studies highlight that social innovations are more concentrated in some countries and cities than elsewhere. All of these indicate that many countries are at risk of missing this age of social innovation as they missed the opportunities of the industrial revolution. One of our premises in this chapter is that some societies, which we call ‘maker societies,’ are keen to take an active part in developing socially innovative solutions to the challenges they confront. Likewise, societies are failing to address the challenges they face and are not eager to participate in existing innovative solutions, only work through a top-down approach from the public sector, which we call ‘taker societies.’ Although proven advantages of social innovations in many areas, the density of social innovations and interest of the citizens in taking an active role in providing innovative solutions, shaping the future, and thus improving social well-being is varying widely in different countries.

There are various historically- and geographically-influenced features (such as civic capacity, social capital, urban morphology, a sense of belonging, and socio-demographic composition) that enable or constrain the emergence of community-led social innovation (Parés, Ospina, & Subirats, 2017).

Deep disruptions and challenges in almost every field -including changing social needs, aging societies, unequal distribution of wealth, poverty, limited natural resources, urbanization, increasing population of the world, globalization - challenge almost all societies and call us for a new consciousness, innovative solutions, and a new collective actions.

The challenge that lies ahead of us is how to introduce innovative and customized solutions to the disruptions mentioned above and obstacles, which also conceives many possibilities for a profound personal, societal, and global renewal. In this sense, the key is to increase the capacity of a society to act by nurturing tomorrow’s social innovators and entrepreneurs from today by empowering them with appropriate tools and guidance.

Designer Society

Design is considered as a crucial ingredient of successful social innovation. As a particular discipline, the design emerged as a response to the need to adopt technological artifacts to human needs, behaviors,

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and measures, which made it one of the creative disciplines that are active in social innovation (Emilson et al., 2014).

Encompassing systematic thinking, prototyping, co-creating, and visualizing, design approach has proven to be a useful tool in social innovation thanks to a user-centered perspective, the involvement of stakeholders through participatory design, and rapid prototyping (Murray, Caulier-Grice, & Mulgan, 2010). On the other hand, the design must be adapted to the new landscape in order to avoid naïve and superficial approaches (Hillgren, Seravalli, & Emilson, 2011).

The design approach also refers to a social capacity involving collaboration, sharing common values, trust as social virtue and requires appropriate tools to address the particular issues. Visualization techniques, for instance, support the involvement of diverse stakeholders in the process, a user-centered approach to complement top-down methods, fast prototyping to rapidly test models in practice, and systemic approaches to food, energy, and care systems (Hillgren et al., 2011).

Another version of the design is called participatory design, which requires direct involvement of people in the co-design of the product, service, or processes.

Designer society, referring to a proactive society capable of identifying their own needs, co-creates solution alternatives using necessary design tools and platforms, collaboratively. Accordingly, designer society is expected to use appropriate tools from the initial stage of a problem in finding solutions. Without proper ‘thinking routines’ and appropriate tools in place, we cannot expect the society to embark on a quest toward an issue, detect the underlying causes of the problem, and develop innovative solutions by using limited resources. Design Thinking is described as a process for creative problem-solving and can be used in almost every area where ‘design’ is necessary. As Tim Brown put it, “Design thinking taps into capacities, we all have, but more conventional problem-solving practices overlook that. It is not only human-centered; it is deeply human in and of itself. Design thinking relies on our ability to be intuitive, to recognize patterns, to construct ideas that have emotional resonance as well as functionality, to express ourselves in media other than words or symbols...” (Brown & Wyatt, 2010). As seen, being equipped with the design mindset and looking at the issues from a designer’s lens would massively change the way we solve problems or develop solutions.

Social innovation design is a collaborative process combining contributions from several stakeholders, including citizens, entrepreneurs, professional designers, public servants, or academicians. One crucial characteristic of social innovation is that it often emerges from collaborations between actors from different sectors and disciplines (Emilson et al., 2014). Subsequently, citizens and community groups can be characterized as the essential players of the participatory design process. Instead of designing for people, designers within the participatory design tradition involves the people concerned and design with them, starting from their own experiences and desires (Emilson et al., 2014).

Participatory Design became first popular during social, political, and civil rights movements of the 1960s and 70s when people demanded an increased say in decision-making about different aspects of their lives and were prepared to participate in collective action around shared interests and values (Simonsen & Robertson, 2012). Influenced by these movements, designers began to claim that “if we are to design the futures we wish to live, then those whose futures are affected must actively participate in the design process” (Emilson et al., 2014). This call has resonated with several communities who acknowledged their responsibility and actively participated in the design process of services, products, or processes in other platforms. This is also in line with the characteristic of social innovation: not for the people but with the people.

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As many professional designers highlight, innovation itself is no more a closed in-house process. It should be “welcoming responses from anyone, involving users at every stage as well as experts, bureaucrats, and professionals” (Murray, Caulier-Grice, & Mulgan, 2010). Now, social innovation is expected to be an open and social process involving participation from various actors, including especially the people being directly affected. As definitions suggest, the participatory design of social innovation necessitates an active community, appropriate tools, and a physical or virtual place to accommodate the process. Societies are expected to embrace their responsibility during the participatory design process and realize “how design plays a crucial role in exploring new possibilities to create a more sustainable, equal, and just world” by addressing issues on both an individual level and a systemic level (Emilsson et al., 2014).

Acknowledging that design approach is a crucial component of social innovation, various platforms are emerging around the world, accommodating design sprints, brainstorming, ideation, prototyping events, and functioning as a hub for collective intelligence. In the form of social innovation labs, living labs, or citizen labs, design platforms play the role of those R&D labs played for technological innovations.

Since social innovations contribute to social and human wellbeing, beneficiaries -citizens and social groups- are supposed to play a proactive role in the designing process of social innovations under various domains. Proactive role in the designing process includes but not limited to problem identification, expressing the need, prototyping, testing, ideation of alternatives, participating in the co-creation process of public institutions, NGO's or universities.

The growing number of platforms around the world accommodate the design process of socially innovative products and services and thus enable citizens to play an active role in shaping their environment and futures.

As an example, Living Lab Malmö applies a participatory design approach for social innovations. Living Lab Malmö brings together diverse actors for particular issues and assist them to come up with a solution, or improve the existing product, service, or process related to their social wellbeing. As an urban living lab, it envisions to respond to a variety of challenges on “how to provide economic prosperity and social cohesion while achieving environmental sustainability” (McCormick & Kiss, 2015).

At the intersection of citizens, NGOs, public and private sector living labs, social innovation labs, policy labs, or citizen labs collectively provide an arena for people to take an active part in shaping their environment, highlight their opinion and challenge the status quo.

Another example of how design can contribute to social innovation is represented by the French organization, La 27e Région. La 27e Région “supports regional governments in developing collaborative projects to respond to local issues by establishing temporary laboratories where multidisciplinary teams of civil servants, designers, and citizens co-design new solutions in response to issues such as health, employment, education, and obesity” (Hillgren et al., 2011).

Around the world, there is a growing number of institutions, platforms, and initiatives allowing citizens to participate in the design process of developing socially innovative products, services, or models. For instance, ‘Engine’ of Kent County Council designs a new platform for co-creation, Live Work incorporates citizens to find innovative solutions to support hard-to-reach unemployed people, ThinkPublic implements participatory design to engage “local residents in identifying challenges and co-designing responses to better community health and wellbeing” (Emilsson et al., 2014). DESIS (Design for Social Innovation towards Sustainability) labs around the world help local creative communities to develop collaborative services and sustainable lifestyles by exploring “what role design can play in building bridges between city government and people in the creation of social innovation” (Staszowski, Brown, & Winter, 2013).

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As another domain of participatory design, open innovation is also a useful tool for public engagement. Through open innovation, public bodies and some public service providers seek contributions of citizens to introduce new services or improve the existing ones. OBB of Austria, for instance, uses the participatory design method by seeking ideas from the customers for improvements in certain domains and by asking them to try new services at their OBB Open Innovation Factory.

Although problem-solving is an important and desirable skill to be possessed in any field, problem-finding is considered as the primary driver of creativity and innovation (Fajans, 2015). Determining the needs, seeking improvement opportunities, and shifting from a problem solver to a problem finder & solver mindset are also considered as crucial elements of the designer society. A desirable ‘designer society’ involves citizens equipped with problem-finding skills along with problem-solving skills. Asking the right question and determining the real need is very crucial for further investigations and the development of an adequate solution. In line with this essential prerequisite, the first step of the design thinking approach requires citizens to scan their environment with a critical eye and detect an issue to work on it.

Another domain of participatory design is reflected in the participatory policy-making process at the local level. There is a growing number of initiatives where policymakers and civil servants seek collaborations with citizens intending to co-create and co-design the public services. As an illustrative example, Institute Without Boundaries and the Dublin Institute of Technology are, at this moment working together on a project called “City Systems: Innovation in Public Service Delivery for the 21st Century City” in which they - as design schools - facilitate the co-design process amongst citizens, civil servants and policymakers of the city of Dublin (Manzini & Staszowski, 2013). In this context, Cottam (2011) argues that there is a need to shift from a conventional welfare state to a new model of the state, i.e., a ‘relational state.’ ‘Relational State’ suggests “a new social pact amongst state and citizen, in which the private citizen is incrementally more and more actively involved in the policymaking process” (Tassinari, 2013).

Another distinctive feature of a functioning designer society is the ability of the citizens to come together and tackle an issue by using ‘collective intelligence.’ With collective intelligence, we refer to the ability of large groups - a community, region, city, or nation - to think and act intelligently in a way that amounts to more than the sum of their parts (Saunders & Mulgan, 2017). Geoff Mulgan, as a pioneer in the field of social innovation and collective intelligence, shows in his latest book “how human and machine intelligence could solve challenges in business, climate change, democracy, and public health by emphasizing that we’ll need radically new professions, institutions, and ways of thinking to make that happen” (Mulgan, 2017).

Maker Society

Given the challenges, including changing social needs, aging societies, unequal distribution of wealth, poverty, limited natural resources, urbanization, increasing population of the world, and globalization, moving from ‘taker’ to ‘maker’ society seems to be an imperative rather than an alternative. A new generation of ‘social makers’ using open source innovation models, available collaboration platforms, and crowdsourcing is expected to drive a big wave in societal well-being.

Unlocking the potential of the society and exploring new ways to increase the role of citizens and community groups in solving social problems, sustaining and improving the wellbeing of the people beyond increasing the monetary term welfare has triggered the interest in so-called ‘maker society.’ In his book of ‘The rise of the creative class,’ Florida (2002) makes the point that the world is changing

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dramatically since the industrial revolution, and contrary to previous experiences, the current one is shaped by a creative class, rather than conglomerates, industrialist or big corporations. Although Florida (2002) referred to ‘creative class’ as a new social class with a particular emphasis on ‘fundamental economic driver,’ it can also be understood as innov-active societies solving social challenges cooperatively in a view to enhance life quality and improve social wellbeing. Along with Florida (2002), Manzini and Staszowski (2013) also highlighted this emerging phenomenon, what we call maker society, as “an active and collaborative attitude driven by several social and economic factors, enables people to establish direct links between interested peers and opens new opportunities for meaningful activism and effective collaborations, which in turns collectively creates a large and deep wave of social innovations.” We have to acknowledge that achieving a ‘maker society’ is very challenging since it requires a set of activities, fertile environment, engagement of stakeholders, appropriate tools, dedication and enthusiasm, and, most importantly, a substantial personal, societal, and global renewal. It is key for any country to increase the capacity of a society to act by nurturing tomorrow’s social innovators and entrepreneurs from today by empowering them with appropriate tools and guidance.

A growing number of citizen-led social innovations around the world in the forms of sharing economic practices, social entrepreneurship, new institutions, or models are a manifestation of the potential of the maker societies. Open-source technologies, new collaboration tools, and platforms in the form of fab labs, social labs, or living labs energize social innovations in a way to create local and fitting solutions, thus fostering maker culture in a society.

As bottom-up solutions, social entrepreneurship is gaining more attention due to their promise of alleviating social problems such as poverty, discrimination, or exclusion (Estrin, Mickiewicz, & Stephan, 2013). In a ‘maker society,’ social entrepreneurs have the potential of playing a significant role by sustainably introducing innovative solutions. There is a growing number of socially innovative entrepreneurs around the world who are pursuing novel solutions by addressing issues in diverse fields, including education, economy, health services, or renewable energy systems. These grassroots initiatives are mostly launched by a group of local people or dedicated citizens who want to build up a business around a social need.

In terms of economy, there is a growing consensus among pundits that logic of passive consumption is challenged whilst engendering a new kind of community-based economy which relies on vast network of maker spaces, hacking clubs, and online peer-to-peer (P2P) design collaborations are pointing the way to a different kind of participatory and networked economy (Kish, Quilley, & Hawreliak, 2016). In line with that, (Anderson, 2013) argues that the maker movement has the potential to challenge established business models.

Community gardens, purchasing groups, time banking, community-supported agriculture systems, number of sharing economy practices, community energy hubs, innovative interest groups, citizen journalism, local currency movements, serious games, participatory budgeting, community energy hubs, social cooperatives, new ownership models, blockchain for social good, citizen science, do-it-yourself movements, repair cafés and many other forms of social innovations are some of the promising examples of how maker societies contribute to society by considering itself as an essential part of the solution.

However, even if there are many illustrative examples of citizen-led social innovations, it is still a challenge to get the remaining part of the society on board and encourage them to embrace their potential in developing socially innovative solutions. For this reason, it is imperative to shed light on enabling an ecosystem that cultivates and encourages citizens to take an active part in social and human development. Given the fact that social innovations are crucial elements of the ‘emerging civilization,’ it is of

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great importance to understand. First, the dynamics of a creative and proactive society extend to which cultural codes, thinking styles, the context of information, gender, and regulations affect the success of social innovations.

It is widely believed that “whatever our future society will be, it will be a ‘risk society’ – a society likely to be affected by different kinds of traumatic event, from natural catastrophes, to war and terrorism, to financial and economic crises” (Beck, 1992; Manzini & M’Rithaa, 2016). Given that, the precondition for every possible sustainable society is its resilience – its capability of overcoming the risks to which it will be exposed and the stresses and breakdowns that will inevitably take place (Walker, Salt, & Reid, 2006). The challenge that arises from this fact is that to achieve a ‘maker society’ mindset and enabling more resilient and risk-taker societies. We have to move away from the dominant ways of thinking and doing. We have to acknowledge that challenging the status quo and promoting an alternative is not easy. In many places, advocates of the status quo pose threats to innovation in several ways, and often it seems that the odds are tilted heavily against the change-makers (Cels, de Jong, & Nauta, 2012).

Overcoming obstacles and provide a solution often requires a risk-taker mindset. In the world of ideas, when presenting an idea that goes against the crowd, “you are risking your ‘shirt,’ and in order to do something impactful, valuable and innovative, one has to take that risk” (Sternberg & Lubart, 1995).

Along with the risk-taking ability, community feeling, and trust among the society can also be considered as one of the prerequisites of the enabling ecosystem for maker society. Fukuyama (1995) asserts in his famous book that “a nation’s well-being, as well as its ability to compete, is conditioned by a single, pervasive cultural characteristic: the level of trust inherent in the society.” Since collaboration is at the heart of the social innovations, the level of trust affects the capability of a society to act immensely. To make it worse, selfie, individualism, selfishness are some of the popular concepts which characterize the *zeitgeist* of this age. This tendency suggests that the challenges we face today require us to feel concerned about ‘others’ and take collective actions. One of the prerequisites of a ‘maker society’ is the high consciousness level of the member of the society that acknowledges responsibilities and duties associated with being a part of the community. We are in the belief that adopting a community consciousness that recognizes the collective wellbeing can only be possible provided that citizens are part of it. Going beyond the border of individualism and embracing the problems from the heart entails, among others, action-oriented initiatives that physically, rather than virtually, bring people together and let them discuss, develop and implement their socially innovative ideas, thus creates synergy and improve community feeling. By enabling participants to address issues which concerns a group of people rather than one particular individual, the foundations of community feeling are set.

Moving from so-called ‘engaged environment’ to ‘empowered environment’ and inspiring people with proven experiences would make people believe that they can also be an agent of change which might consequently cultivate the active citizenship mindset.

Funder Society

An indispensable part of developing an innovative solution to a social or environmental challenge is to assuring funding. Around the world, there is a growing tendency to provide funding to socially innovative projects through various types of civic crowdfunding. Increasing numbers of citizen-led social innovations, small or big, are harnessing crowdsourcing and crowdfunding platforms in a way to use the collective power of the citizens. Crowdfunding enables groups to self-fund the changes they want to make in the world (Light & Briggs, 2017). While the full potential has yet to be seen, this emerging,

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innovative funding mechanism has already begun to transform the way urban change and community development occurs ('Crowdsourcing the City 24 April 2018 London—PDF,' n.d.).

In recent years, we have witnessed not only growth in the number of funding platforms that rely on partly or entirely to the commitment of the citizens, but a variety of funding mechanisms have also seen a promising increase. Various types of online crowdfunding allow social innovators to persuade people quickly easily around common interests and causes. Crowdfunding for social innovation is a part of a broader trend of the bottom-up development powered by citizens and community groups. In terms of social innovation, it offers a welcome new approach at a time of shrinking state support (Light & Briggs, 2017).

When it comes to social entrepreneurship and community initiatives, crowdfunding offers significant alternative funding to get projects off the ground ('Learning Relay#3: Crowdfunding | SIC,' n.d.).

Civic crowdfunding and digitally-enabled crowdsourcing illustrate the advantages in empowering the crowd, but also pave the way for altogether new, bottom-up development strategies ('Crowdsourcing the City 24 April 2018 London—PDF,' n.d.). Various types of crowdfunding bring together social innovators, funders, associations, NGOs, banks, or public bodies. Crowdfunding platforms come mainly in four shapes as follow (Light & Briggs, 2017);

- Donation-based: philanthropically and socio-politically motivated, and no tangible goods are exchanged.
- Rewards-based: fundraisers request money within a time limit in return for a tangible reward.
- Equity: funders enter formal agreements with a social enterprise in exchange for equity.
- Loan-based or P2P: platforms broker deals; funders lend to fundraisers for a pre-agreed period and interest rate.

As a result of the growing interest of citizens and proven social benefits, the number of crowdfunding platforms providing financial support to social innovations in the form of either loan based, reward-based, or donation-based funding is increasing. Between 2010 and 2013, crowdfunding platforms experienced growth at the amount of 460 percent in particular, after introducing new models (Assadi, 2015).

When it comes to successful examples of crowdfunding, types of the initiatives funded by the platforms and their impact make us acknowledge that the crowdfunding platforms are the backbones of the innov-active society which allocate available resource to make genuine improvements on the ground.

Davies (2014) argues that "civic projects enjoy higher success rates than other types of a crowdfunding project, although the data is not yet comprehensive enough to allow a robust claim to be made about the relative success rate of civic projects."

Bluebees of France, for instance, sees itself as an 'agricultural transition catalyst.' As a reward and loan-based crowdfunding platform, Bluebees can be considered as 'the citizen funding of tomorrow.' It is a tool for solidarity-based savings with a robust agricultural dimension offering agricultural entrepreneur projects in the seed stage, who do not have access or limited access to a bank loan, and for which the recourse to loans is too risky ('How does it work?', n.d.). Citizens have various options to provide funding: as a donation, a loan, or in exchange for goods or services. So far, it provided 5.6 million Euros to 324 projects to get off the ground.

Another innovative form of crowdfunding is known as civic crowdfunding. As a sub-type of crowdfunding, civic crowdfunding provides a platform through which citizens, in collaboration with government, fund projects (Stiver, Barroca, Minocha, Richards, & Roberts, 2015). Although in the early stages of development, civic crowdfunding is a promising area due to its potential impact on citizen engagement,

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as well as its influence on the success of a wide range of civic projects ranging from physical structures to amenities and local services (Stiver et al., 2015).

As a sub-category of civic crowdfunding, match-funding is also gaining ground among crowdfunding platforms. In this form of crowdfunding, public institutions, associations, or corporations match the promised donation of citizens for social projects.

Community empowerment through crowdfunded investment constitutes a new level of power of the community in improving the wellbeing of the community. This particular type of crowdfunding model is used in the UK to enable community-led regeneration and boost local resilience. As an illustrative example of crowdfunded investment, a group of residents of Plymouth managed to raise funds around £200,000 from 165 people and from city council to bring an available pub back to life as a community market and workspace for local startup business (Old, Bone, & Boyle, n.d.).

The city of Reykjavik has developed an innovative crowdfunding platform, called Better Neighborhoods. Through a matched funding mechanism, the city of Reykjavik funds ideas generated by local people and allocated €2 million per year between 2012 and 2016. 31 Projects have been funded collectively by the local people and city council, including children's parks and community gym equipment.

CONCLUSION

The historical period of disruptions almost every field of life underlines the necessity of bottom-up development, which requires citizens to realize its potential and take the responsibility to make a change. Social innovations are believed to play the role that technological innovation did during the industrial development one century ago.

Considering the advances in technology and communication, rapid urbanization, and a growing number of local and global challenges, people's emerging active and collaborative attitudes can be among the most promising drivers of the needed transformation.

Proven experiences suggest that there is an immense need of cultivation an 'innov-active' society which is sensitive to the challenges around them, capable of analyzing the situation, determining the point of action, develop alternatives and provide necessary resources innovatively and collaboratively without waiting or expecting the intervention of 'others.'

Unlocking the potential of the people necessitates taking advantage of collective intelligence; participators design approach, improving the community feeling and level of trust; developing necessary tools for action; improving the active citizenship mindset, which eventually contributes to entrepreneurship spirit and thus creating a risk-taker and resilient society. One of the primary responsibilities of societies today would be to recognize their power, potential, and crucial role in creating, applying, and dissemination social innovations. Innovative financing models are also popping up around the world, enabling socially innovative ideas to put into practice. Crowdfunding for social innovation is part of a wider trend of the bottom-up development powered by citizens and community groups. In this sense, the close involvement of people with the strongest understanding of their own needs and challenges by the citizens is of great importance.

It is becoming evident that top-down approaches are falling short in providing solutions to the local or 'customized' challenges. Grassroots innovations, social enterprises, and the various example of sharing economy have the potential of replacing the status quo, improving social well-being. New forms of neighborhoods – cohousing systems-, sharing economy practices, mutual help communities, new forms

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of exchange of ‘things,’ ideas, tools, materials, time requires innov-active society equipped with necessary tools including design mindset, platforms to test and prototype of ideas and funding platforms. On the other hand, there are promising examples of designer, maker, or funders societies around the world who make real change on the ground. As the chapter illustrates, a variety of promising cases of innov-active societies appears in almost every field from consumption to education, from democratic participation to social services. As Manzini (2015) outlined, the most evident common characteristic of these initiatives is that they emerge from the creative recombination of existing assets, which aim to achieve socially recognized goals in a new way. Given that, it is of great importance to acknowledge that we need to recombine existing resources and capabilities to create new functions and new meanings, products, services that are done by the people for the people.

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KEY TERMS AND DEFINITIONS

Designer Society: Designer society refers to a proactive society capable of identifying their own needs, co-creating alternatives using necessary design tools and platforms collaboratively.

Funder Society: Funder society is characterized as providing necessary resources to the initiatives that have the potential to increase social wellbeing by ensuring sustainability, participatory governance, openness and transparency in policies, respect of the rule of law, and social cohesion.

Innov-Active Society: Innov-active Society is characterized as an innovative and pro-active society equipped with design, funding, and implementing (making) capacity.

Maker Society: A maker society is composed of citizens who are eager to take an active part in developing socially innovative solutions to the challenges they confront.

Social Innovation: Social innovation is defined as new ideas, products, services, and models which simultaneously meet social needs and create new social relationships or collaborations

Taker Society: A society in which citizens fail to address the challenges they face and are not eager to participate in existing innovative solutions only work through a top-down approach from the public sector.

Chapter 6

The Importance of Intellectual Capital for the Sustainable Growth of Regions: Evidence From the Republic of Serbia

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ABSTRACT

In the knowledge economy era, the importance of intellectual capital as the source of value creation has been well recognized in theory and practice. Only those countries, regions, organizations, and individuals who understand the significance of intellectual resources can improve their performances in the long run. Hence, this chapter aims to investigate the importance of intellectual potentials for the sustainable development of regions. The main contribution of this chapter is the presented methodological framework for measuring the intellectual performance of regions. Additionally, this study provides empirical research regarding regions in the Republic of Serbia. The obtained results can be a good starting point for policymakers in designing regional development strategies and policies.

INTRODUCTION

The world is facing global disproportions between developed and undeveloped countries, as well as between regions within certain countries, and these disproportions represent a great obstacle for global economic development. The gap between rich and poor is each day greater and greater, the inequalities in the income distribution are immense, and unbalanced regional development becomes a global issue.

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Therefore, in order to reduce regional disproportions, achieve balanced regional and socio-economic development, increase the living conditions of citizens, and reach economic welfare, it is necessary to give special emphasis to regional development strategies and policies (Rakić & Rađenović, 2013, p. 129).

Regional development represents an integral part of the overall socio-economic development of a country. Thus, governments all over the world are putting huge efforts and invest funds in order to diminish regional disproportions, and to some extent, alleviate their consequences. As a result, they adopt numerous regional strategies and policies to reduce the economic and social inequalities between regions, aimed at supporting job creation, competitiveness, improving quality of life, and sustainable economic growth and development. Quality, effectiveness, and management of the public policies at the macro and regional levels are analog to the strategy of the firm at the micro-level. Effective government policies can help in the realization of potential competitive capabilities of a nation or region, that strive from the wealth of natural resources (comparative advantages), by efficient resource allocation. However, what in the case when a nation or region does not have natural wealth that enables the fulfillment of long term competitive advantages on the international market? Certainly, prospective and sustainable solutions are intellectual resources that the government, by its supporting policies, must create, constantly enhance, and efficiently manage.

According to the European Union (EU) regional policy, “sustainable growth is increasingly related to the capacity of regional economies to innovate and transform, adapting to an ever-changing and more competitive environment” (https://ec.europa.eu/regional_policy/en/policy/themes/research-innovation/). Sustainable development implies “the integration of economic, social, and environmental issues in all societal spheres and levels in the short- and long-term” (Steurer et al., 2005, p. 264). While sustainable development theory describes the relationship between enterprises and society, the stakeholder relations management theory enables the strategic management of enterprise-society relations (Pérez & del Bosque, 2014). Namely, sustainability relates to an enterprise’s obligation to be accountable to all its stakeholders in all its operations and activities to achieve sustainable development in all three dimensions. Networking and building on local resources give rise to a new understanding of community and social economy. According to Retolaza and San-Jose (2011), stakeholder and social economy perspectives, to a great extent, overlap, and their convergence leads to a wide range of possible synergies. In that regard, regional and international social economy networks play a significant role in diffusing knowledge about relevant social, technological, institutional, and policy innovations (Utting, 2015, p. 2). This involves the creation of ecosystems that encourage innovation, research, and development (R&D), and entrepreneurship (Saiz-Álvarez & Palma-Ruiz, 2019). Hence, those countries and regions investing more in education, training, life-long learning, R&D, and science have greater possibilities for economic growth and development. Namely, continuous investments in education, innovation, information and communication technologies (ICTs), and supporting institutional and economic infrastructure lead to the increased formation and implementation of intellectual capital, consequently resulting in the sustainable economic growth (Stevanović et al., 2018, p. 779). In such circumstances, the wealth of nations and regions depends on the level of knowledge and its effective and efficient usage (Krstić & Vukadinović, 2009, p. 460).

The contemporary knowledge society is characterized by the application of scientific and technological knowledge in all spheres (Komnenić, 2013, p. 17). So, it is an evolutionary process that has gradually diminished the importance of physical assets and labor as production factors and has put in the first plan intangible components of assets and labor – knowledge. Hence, knowledge has become the primary production factor and has replaced the traditional production factors in the value creation process (Rađenović & Krstić, 2017c, p. 32). Only a few decades ago, the proportion between tangible

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and intangible assets in the enterprises' value was 80%:20% (Sullivan & Sullivan, 2000, p. 328), while currently, the proportion has changed in favor of intangible assets, and now the intangible, intellectual resources have the dominance over tangible assets – 87%:13% (Ocean Tomo, 2015).

It is evident that the value creation process has been changed, and power has been shifted from those who invest money to those who invest their knowledge and capabilities. Hence, the main characteristic of economic prosperity in the global economy is knowledge-based competitiveness. Enterprises, cities, regions, and nations are aware of the possibility of succeeding in the global market by developing and implementing the new, unlimited resource – knowledge (Rađenović & Krstić, 2017a). The economic success of a nation is connected with the advances in knowledge creation and the capabilities of the nation to transform that knowledge into value for society (Viedma Marti & Cabrita, 2012, p. 13). Knowledge, as opposed to other resources, increases the value by its usage (Sveiby, 1997, p. 23). Thus, the prosperity in the knowledge economy is determined by the three essential elements of new infrastructure – knowledge, innovation, and networking (Rađenović & Krstić, 2017a, p. 191).

In the knowledge-based economy, the sustainable development of regions has multidimensional aspects, as “it includes a variety of knowledge activities and multiple interactions among a range of actors including universities, research institutes, enterprises, knowledge workers and institutions” (Wintjes & Hollanders, 2010, p. 3). Key determinants of regional development are accessibility (depends on the development of local infrastructure, connectivity, markets' closeness, number of research and knowledge institutions, R&D and innovation activities and networks), absorptive capacities (depend on the level of education, skills and competences, equipment and expert relations, and availability of knowledge-intensive services), and diffusion capabilities of knowledge and innovation (depend on mobility of professionals, concentration, high-tech products and services, international trade and foreign investments) (Wintjes & Hollanders, 2010, p. 7).

Since the success of a certain region is based on the development of a knowledge base that strives from the unique resources, core competencies, and dynamic capabilities, it is necessary to assess the regional knowledge base carefully. The design and implementation of policies, agendas, and projects aimed to support the regional development have to be based on an analysis and evaluation of the knowledge base, i.e., the intellectual capital of a region. For this reason, policy-makers and managers need frameworks and tools for the analysis, identification, mapping, measurement, and management of the key knowledge assets driving the regional value creation dynamics. The knowledge assets represent the components of intellectual capital, and they need to be assessed at the regional level by adopting appropriate frameworks and indicators which can guide policy-makers and managers towards the design, plan, and implementation of regional development strategies.

Therefore, the chapter aims to investigate the importance of intellectual potentials for the sustainable development of regions. This will be done by defining the concept of the intellectual capital of regions to map their intellectual potential, as well as, by designing the methodological framework for measuring the intellectual performance of regions, in order to enable policymakers to manage intellectual capital better and measure its contribution to the sustainable growth of regions. A critical assessment of available methodologies at the micro and macro levels will give an overview to the policymakers on how to identify and value the regional intellectual capital in order to improve the competitiveness of regions, increase their wealth and improve the well-being of their citizens. The empirical evidence will be presented regarding NUTS (Nomenclature of Territorial Units for Statistics) classification of NUTS 2 regions in the Republic of Serbia.

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The chapter is structured as follows. After the introduction, the theoretical foundations regarding intellectual capital will be presented, followed by the methodological framework for measuring the intellectual potential of regions. Then, the problem of regional disproportions in the Republic of Serbia will be explained, followed by the empirical analysis of the intellectual potentials of Serbian regions. Finally, the concluding remarks will be presented.

INTELLECTUAL CAPITAL: FROM MICRO AND MACRO TO REGIONAL ASPECT

The importance of intellectual capital for creating and sustaining competitive advantage of enterprises has been well established and confirmed in theory and practice. The knowledge-intensive enterprises have well recognized it since the 1980s. Namely, the huge differences between market and book value of these knowledge-intensive enterprises have been attributed to the intellectual capital. Intellectual resources proved to be the most valuable resource in the process of value creation for various stakeholders. However, the system of financial reporting was unable to disclose adequately and fully capture the value of the intangible assets in the balance sheet of these enterprises (Rađenović & Krstić, 2017b). Although, there have been numerous studies and authors investigating the issue of intellectual capital at the microeconomic level (Itami, 1987; Hall, 1992; Brooking, 1996; Edvinsson & Malone, 1997; Sveiby, 1997; Sullivan, 2000; Lev, 2001; Andriessen, 2004; Marr & Moustaghfir, 2005), generally it has been widely accepted the three-dimensional model of intellectual capital components – human, structural and relational capital (Rađenović, 2017). Even though, occasionally researchers incorporated some other dimensions of intellectual capital, such as: innovation capital (Chen et al., 2004; Tseng & Goo, 2005; Tsouklini, 2006; Wang, 2008; Maditinos et al., 2010), social capital (Nahapiet & Ghoshal, 1998; Yli-Renko et al., 2002; Subramaniam & Youndt, 2005; Wang & Chen, 2013), renewal capital (Kianto et al., 2010; Inkien et al., 2017), entrepreneurial and trust capital (Inkien et al., 2017), this three-dimensional model is most frequently and widely used among researchers (Inkien, 2015).

Intellectual capital at the organizational level is regarded as the set of knowledge assets that significantly drives the innovation and value creation processes in an enterprise (Lerro et al., 2014). Human capital encompasses all employees in an organization, which by its interactions with structural and relational capital, represents the basis for creating and augmenting the value for the organization itself and all key stakeholders. It also includes skills, expertise, specific competences, working habits, professional experience, motivation, ability to learn and adapt, and other performances of employees (Krstić & Bonić, 2016; Rađenović & Krstić, 2019b), as well as, collective experience, organizational memory and know-how of all employees in an organization (Sullivan, 1998). Competent and dedicated individuals are the most valuable property of an enterprise whose intellectual inputs, as well as outputs of their work, belong to the enterprise as far as they are the part of the organization. However, since employees can decide to leave the organization at any point in time, their knowledge and capabilities should be transformed in the organizational knowledge that will stay in the permanent possession of an enterprise in the form of structural capital (Jelčić, 2007).

Structural capital comprises all that is left behind in an enterprise at the end of the working day when employees go to their homes (Edvinsson, 1997, p. 370). It includes internal processes, infrastructure, information systems, routines, organizational structure, databases, culture, innovations, patents, and other resources created by human capital in an enterprise (Viedma Marti & Cabrita, 2012, p. 75). Structural capital is the base and driver of relational capital, since improvements of organizational procedures,

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enable improvements in the interactions with key stakeholders which are reflected through relational capital (Bjurström & Roberts, 2007, p. 49).

Relational capital reflects the ability of positive interactions of an organization with the members of the business community to support the value creation potential (Nazari & Herremans, 2007, p. 597). Business success and competitive advantage of an enterprise can be achieved by creating and sustaining long-term cooperation relations with key interest groups: consumers, suppliers, competitors, strategic partners, and relevant government agencies (Krstić, 2014, p. 36). In the contemporary business conditions, the success of an enterprise in the market is reflected in its ability to identify these key components of intellectual capital, and efficiently manage them to create value (Rađenović & Krstić, 2019b). Nevertheless, in order to be able to manage intellectual capital efficiently, it is necessary to measure it.

In the rich literature on the intellectual capital measurement at microeconomic level, the following classification of measurement methods has been widely accepted (Jurczak, 2008; Sveiby, 2010; Pike & Roos, 2011; Viedma Marti & Cabrita, 2012; Rađenović, 2017; Rađenović & Krstić, 2017a; Krstić & Rađenović, 2018): Direct Intellectual Capital (DIC) methods, Market Capitalization (MC) methods, Return on Assets (ROA) methods, Scorecard (SC) methods, Proper Measurement Systems (MS) and other. The first three groups of measurement methods provide as a result of financial value, while the remaining groups are focused on non-financial measures of intellectual capital (Krstić, 2014).

Once the intellectual resources proved to be essential and valuable for the microeconomic competitiveness of enterprises, academics and practitioners have shifted their interest towards the role which intellectual resources have in the process of wealth creation and competitiveness of cities, regions, and nations (Rađenović & Krstić, 2017c). Since then, numerous studies have been conducted focusing on the valuation of intellectual capital of cities, regions and nations, by replicating microeconomic models for measuring intellectual capital (Edvinsson & Stenfelt, 1999; Malhotra, 2003; Bontis, 2004; Andriessen & Stam, 2004; Hervás-Oliver & Dalmau-Porta, 2007; Weziak, 2007; Ståhle & Bounfour, 2008). Nonetheless, there still does not exist consensus among researchers and practitioners about the most appropriate methodology for valuing national intellectual capital, while studies dealing with the intellectual capital at the regional level are indeed scarce.

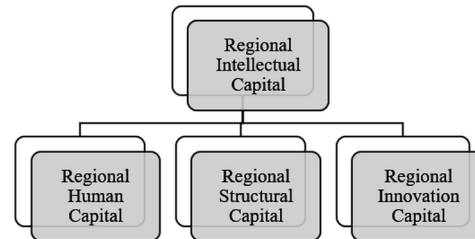
The intellectual capital of a country represents the strategic source of its competitive advantage in the international market. Namely, developed economies base their competitiveness on information, knowledge, innovation, and intellectual capital strategies. Hence, it is important to explore the contribution of certain components of intellectual capital on the competitiveness of enterprises, regions, and national economies, and for doing so, the various performance measures can be used. When measuring the performances of national intellectual capital, it is important to examine the interdependence between certain components of national intellectual capital, and their synergistic influence on the overall economic development and macroeconomic competitiveness. Only by continuous enhancement of intellectual capital performances, it is possible to achieve sustainable competitive advantage and economic growth of a country in the long run.

The national intellectual capital encompasses the intellectual capital of individuals, enterprises, regions (Bontis, 2004). It reflects the knowledge of a nation and its knowing capabilities which are involved in the value creation processes of a society (Käpylä et al., 2012). Similar to the structure of intellectual capital at the micro-level, there is no unique identification of key components of national intellectual capital. However, different authors have different categorizations (for instance: human, relational, market, structural, process, renewal capital), and hence, the categorization of the concept of national intellectual capital is still unclear. Nonetheless, the Bontis's (2004) classification encompassing

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Figure 1. Regional intellectual capital

Source: Own elaboration



human, market, process and renewal capital is frequently used among researchers (Andriessen & Stam, 2004; Hervás-Oliver & Dalmau-Porta, 2007; Weziak, 2007; Ståhle & Bounfour, 2008; Lin & Edvinsson, 2008; 2011; Lazuka, 2012).

National human capital includes knowledge, education, and competences of individuals in realizing the national development goals (Bontis, 2004, p. 20). Market capital evaluates the intra-organizational relations and connections, as well as the extent to which the organizations can capitalize on the capabilities of cooperation and coordination in the international market (Andriessen & Stam, 2004, p. 12). Process capital encompasses the national processes, activities, and related infrastructure, which enable the creation, exchange, transmission, and dissemination of knowledge that enhance the productivity of knowledge workers (Malhotra, 2001, p. 237). Renewal capital represents the future intellectual wealth of a nation and includes R&D, patents, trademarks, and start-ups, which can be the basis of future national market competencies (Malhotra, 2001, p. 237).

Bearing in mind all the above mentioned, the regional intellectual capital can be viewed somewhere in between the micro and the macro aspect of intellectual capital. The hidden, implicit values of individuals and enterprises in a region represent the base of future development. Thus, it is necessary to design the mapping system to identify and describe the intellectual capital in a region or country, in order to systematically monitor the evolution and development of regional and national intellectual capital.

The concept of regional intellectual capital is presented in Figure 1. Regional human capital refers to the knowledge, education, skills, and competences of individuals within a specific region. Regional structural capital includes the necessary infrastructure, physical and technological, for knowledge creation, dissemination, and implementation at the regional level. Finally, regional innovation capital is essential for the sustainable development of a region and involves investments in R&D and innovation activities of individuals and organizations within a specific region.

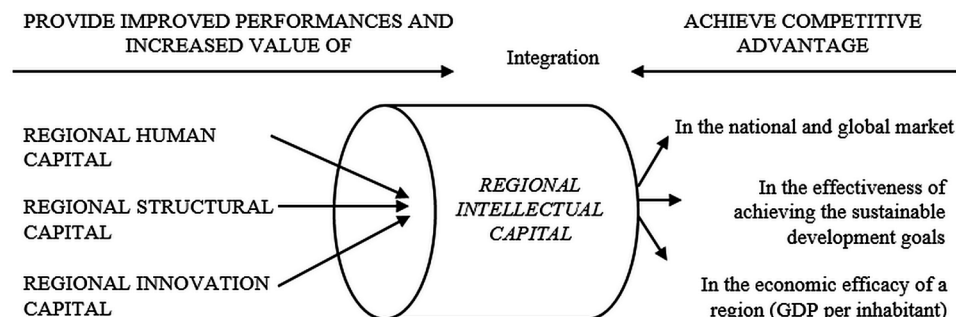
Human capital is the most important component of intellectual capital since it drives all other components in the value creation process. Therefore, as employees should not stay within those enterprises which do not respect their quality and do not invest in them (Krstić & Rađenović, 2017, p. 8), this issue should also be addressed at the regional level as well. Namely, those regions, which do not recognize the human potential they possess, and do not invest in it, will probably end up without necessary intellectual base to foster economic growth and development.

Once the three-dimensional model of intellectual capital at the regional level is identified, the attention is put on the measurement issues.

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Figure 2. Regional intellectual capital and regional competitiveness

Source: Own elaboration



METHODOLOGICAL FRAMEWORK FOR MEASURING REGIONAL INTELLECTUAL CAPITAL

The identified three-dimensional regional intellectual capital model can be used as a performance management tool. Hence, it is necessary to provide a set of indicators that can serve as an informative base for designing regional intellectual capital index, which is a good starting point to design, communicate, implement and review policies and actions aimed at the development and management of regional intellectual capital.

Measuring the intellectual performance of regions is not the aim by itself. However, the aim is to use obtained measurement results as the base for the analysis of the achieved performances and goals, as well as for defining future corrective actions and changes targeted toward the performance improvements. In that regard, measuring intellectual capital enables forming relevant management information system which should enable fast adaptation to the changing business environment. Especially, measuring intellectual capital helps regions in diagnostic and benchmarking their competences and capabilities, since such evaluations can facilitate the adoption and implementation of good strategies and politics for the overall economic and social development (Lin & Edvinsson, 2011, p. 8).

Regional intellectual capital represents the unlimited source of the competitive advantage of a region in the national and global markets (Figure 2). “Value dynamics of regions play a fundamental role for local, as well as, national growth and wealth creation” (Schiuma et al., p. 283). When measuring performances of regional intellectual capital, it is important to examine the interdependencies between certain components of regional intellectual capital and their synergy effect on the regional economic development and regional competitiveness. Only by continuous improvement of the intellectual capital performances, it is possible to achieve the sustainable competitive advantage of a region in the long run. Thus, the success of a region is increasingly based on the ability of its stakeholders to develop, maintain, and exploit unique and differentiating resources and competences that are knowledge assets (Schiuma et al., 2008, p. 284). Knowledge assets are crucial success factors to stimulate, support, and manage regional development.

For measuring the intellectual capital of regions, two perspectives can be employed: the microeconomic perspective – replicating the microeconomic models for measuring intellectual capital to the regional level, and macroeconomic perspective – replicating the macroeconomic models for measuring intellectual capital to the regional level. Both micro and macro measurement methodologies differ

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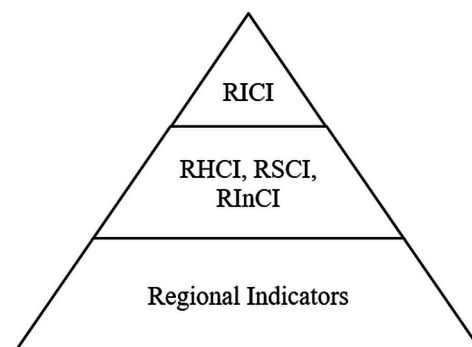
primarily in the information base that they employ. Namely, some methodologies use secondary data to make comparisons of enterprises' intellectual capital, or certain national intellectual capital indicators. Contrarily, other methodologies focus on primary data to use the gathered information about intellectual capital for the internal strategic guidance perspective (Salonius & Lönnqvist, 2012, p. 333), and decision making on national intellectual capital (Labra & Sánchez, 2013, p. 585).

Additionally, the difference can be made between those methodologies developed by academics and practitioners and those developed by numerous international organizations primarily aiming at investigating competitiveness, innovative capacity, and human capital development at the national level (Rađenović & Krstić, 2017c, p. 37). Although, all models provide international comparisons regarding intellectual capital development, those developed by international organizations, combining the indicators of tangible and intangible assets in determining competitiveness, innovative capacity and human development, are more frequently used than those related solely to the intellectual capital (Rađenović & Krstić, 2019a, p. 68). This is because policymakers are far more familiar with the models developed by international organizations than those proposed by researchers and dealing exclusively with the intellectual capital components. However, with the increased importance of intellectual capital for the future growth and development of nations and regions, the importance of methodological frameworks, comprising of composite indicators for measuring intellectual resources and driving managerial decisions of policymakers, will grow as well.

Generally, there is no unique methodological framework for measuring regional intellectual capital. Also, there are no strict procedures and criteria for selecting relevant indicators. However, the methodology is prone to constant changes, adjustments, and improvements to take into account the specific environment and strategic goals. The proposed methodological framework – the Regional Intellectual Capital Index (RICI), aims at mapping the intellectual potential of a region and determining the intellectual capital development, through the prism of the key regional intellectual capital components: human, structural, and innovation (Figure 3). This methodological framework is based on the premise that in the evaluation of regional intellectual potential, a bottom-up approach should be applied. Concretely, selected regional indicators are aggregated into three dimensions of the regional intellectual capital index: regional human capital index (RHCI), regional structural capital index (RSCI), and regional innovation capital index (RInCI).

Figure 3. A methodological framework for measuring regional intellectual capital

Source: Own elaboration



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The proposed RIC is a composite indicator that enables measuring complex, multidimensional phenomena through a single measure. When constructing a composite index, it is important to base the selection of specific indicators on the critical analysis of indicators used in previous studies, to increase the validity and reliability of the constructed index (Seleim & Bontis, 2013, p. 134). The list of possible indicators to be included in the construction of RIC is based on following studies: Bontis (2004; 2005), Hervas-Oliver & Dalmau-Porta (2007), Weziak (2007), Lin & Edvinsson (2008; 2011), Seleim & Bontis (2013), Ståhle et al. (2015), Rađenović (2017), Rađenović & Krstić (2019a) (Table 1).

Certainly, that problem may arise because regional statistics are specific. Hence, the proposed framework has to be modified to incorporate those indicators that are available within the statistical information system.

Table 1. List of indicators for the regional intellectual capital components

Indicators of Human Capital
• Number of enrolled secondary students • Number of secondary graduate students • Number of enrolled tertiary students • Number of enrolled tertiary students in ICTs • Number of tertiary graduate students • Employment in high-technology manufacturing sectors (% of total employment) • Life expectancy at birth • Literacy rate • Public expenditures on education (% of GDP)
Indicators of Structural Capital
• Fixed broadband subscribers per 100 inhabitants • Fixed telephone subscribers per 100 inhabitants • Mobile phone subscribers per 100 inhabitants • Internet subscribers per 100 inhabitants • Enterprises using the internet for their business • Computers in use by enterprises for their business • Gross Value Added (GVA) Information and Communication • GVA Trade, Transport, and Warehousing • GVA Professional, Scientific, Innovation and Technical Services
Indicators of Innovation Capital
• Number of R&D institutes • Employees in R&D activities • Number of research papers • The innovation of products/services • Process innovation • R&D expenditures • R&D researchers • Number of patent applications • Public R&D expenditures (% of GDP) • Business R&D expenditures (% of GDP)

Source: Own elaboration

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REGIONAL DEVELOPMENT IN THE REPUBLIC OF SERBIA: ISSUES AND PROBLEMS

During several decades the regional development in the Republic of Serbia has not been viewed as an integral part of the overall socio-economic development but as one of its separate and not so important dimensions. Regional differences are viewed exclusively from the aspect of the level of development, while their economic, development, social, and political consequences have been put aside. Funds have been mainly invested in undeveloped areas with the aim of their rapid development, but such supporting policy was unable to prevent further lagging of undeveloped regions. The consequence of such an approach is the increase of regional and structural development problems. The business environment of the Republic of Serbia has some specifics due to the insufficient development of institutional and physical infrastructure and the unstable macroeconomic environment. Hence, the basic preconditions for doing business, which is immanent for developed countries, have to be added to the general determinants when analyzing the business environment in this country (Veselinović & Makojević, 2016, p. 32).

In order to prevent further intraregional and interregional differences, the Government of the Republic of Serbia adopted in 2007 the Regional development strategy for the period 2007-2012, to support balanced regional development through increasing regional competitiveness, decreasing regional disproportions and poverty, and building institutional and regional infrastructure. Also, during 2009, the Republic of Serbia passed the Law on Regional Development and the Bylaw on the Nomenclature of Statistic Territorial Units (Rakić & Rađenović, 2013). In this way, the Republic of Serbia attempted to synchronize the statistical units in the country with those of the EU, thus enabling the comparative and benchmarking analysis with the EU regions, but also creating possibilities for using the EU funds. According to the adopted bylaw, the Republic of Serbia is divided into 5 NUTS 2 regions: Vojvodina, Belgrade, Šumadija and Western Serbia, Southern and Eastern Serbia, and Kosovo and Metohija. However, data are unavailable for the Kosovo and Metohija region, and hence, this region will not be analyzed.

The intraregional development imbalances are determined by the depopulation trend and decrease in economic activity. Based on the data from Table 2, it is evident that the population is significantly reduced in all regions except in the Belgrade region. The situation is really dramatic since the Republic of Serbia has lost more than 300 thousand inhabitants in only nine years, and this negative demographic trend has continued since 2011 as well.

As regards employment, it was significantly increased in the analyzed period 2010-2018, and Šumadija and Western Serbia region recorded the highest increase of 20.61%. Unemployment is reduced in all regions, but the highest reduction is achieved in Vojvodina 42.04%. Also, the average net salary is increased in all regions by approximately 40% to 50%, but there are evident significant disproportions between the north and south regions of the country. The dominance of the Belgrade region is more than evident. Namely, the population is moving towards this region due to the highest salaries, the lowest unemployment, and great possibilities for a good life and education.

The highest increase in GDP is achieved in Vojvodina 49.32%, while the lowest is achieved in Southern and Eastern Serbia 39.01%. However, the greatest share of regional GDP in the overall GDP is recorded in Belgrade. As regards GDP per capita, the highest increase is recorded in Vojvodina 76.44%. However, the Belgrade region is still the best performer, with GDP per capita significantly higher than in other regions (Figure 4).

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Table 2. Regional cohesion in the Republic of Serbia

NUTS 2 Regions	2010	2018 (*2017)	% Change
Belgrade			
Population	1,576,124	1,659,440	+5.29
Employment	597,000	717,998	+20.27
Unemployment	93,769	75,443	-19.54
Average net salary in RSD	42,489	60,689	+42.83
GDP in million RSD	1,297,042	1,921,025*	+48.11
GDP per capita in thousands RSD	703	1,139*	+62.02
Vojvodina			
Population	2,031,992	1,931,809	-4.93
Employment	472,000	545,851	+15.65
Unemployment	198,276	114,926	-42.04
Average net salary in RSD	33,392	47,095	+41.04
GDP in million RSD	844,515	1,261,004*	+49.32
GDP per capita in thousands RSD	382	674*	+76.44
Šumadija and Western Serbia			
Population	2,136,881	2,031,697	-4.92
Employment	415,000	500,520	+20.61
Unemployment	237,641	192,777	-18.88
Average net salary in RSD	28,636	42,963	+50.03
GDP in million RSD	634,972	913,299*	+43.83
GDP per capita in thousands RSD	276	470*	+70.29
Southern and Eastern Serbia			
Population	1,753,004	1,563,916	-10.79
Employment	312,000	366,710	+17.54
Unemployment	193,204	147,425	-23.69
Average net salary in RSD	29,248	44,130	+50.88
GDP in million RSD	471,851	655,938*	+39.01
GDP per capita in thousands RSD	253	431*	+70.36

Note: Population in 2010 and 2017 according to the 2002 and 2011 Census respectively

Source: The Statistical Office of the Republic of Serbia

SOLUTIONS AND RECOMMENDATIONS

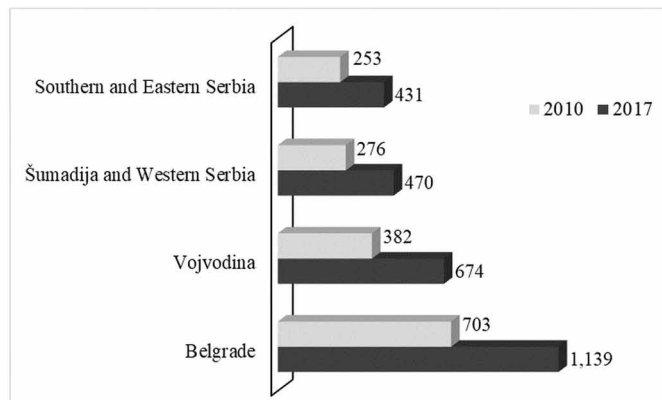
All presented data indicate huge disproportions between developed north and undeveloped south in the Republic of Serbia. Given these disproportions, it is important to identify if there exist imparities regarding regional intellectual capital, following the methodological framework developed above.

Regional indicators are selected from the list of indicators presented in Table 1 and based on the data available from the database of the Statistical Office of the Republic of Serbia. As regards human capital following six indicators are obtained: number of enrolled secondary students, number of secondary

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Figure 4. Regional GDP per capita in thousands RSD

Source: Own elaboration based on the data from Table 2



graduate students, number of enrolled tertiary students, number of enrolled tertiary students in ICTs, number of tertiary graduate students, and registered employment. Structural capital includes the following five indicators: enterprises using the internet for their business, computers in use by enterprises for their business, GVA Information and Communication, GVA Trade, Transport, and Warehousing, and GVA Professional, Scientific, Innovation and Technical Services. Finally, innovation capital encompasses the following seven indicators: number of R&D institutes, employees in R&D activities, number of research papers, the innovation of products/services, process innovation, R&D expenditures, and R&D researchers.

After the completion of the selection process, the normalization is performed by applying a min-max method for the transformation of indicators to the same value range from 0 to 1. All indicators are grouped in the appropriate components of intellectual capital using equal weights for the chosen indicators. This is in line with the research conducted by Hervás-Oliver and Dalmau-Porta (2007) and Stam and Andriessen (2009). Finally, the values of RHCI, RSCI, and RInCI are aggregated into the overall RIC by applying a simple additive weighting method (Nardo et al., 2008, p. 103). The RIC is calculated for the period 2015-2017, and the results are presented in Table 3.

According to the presented results, it is evident that the Belgrade region is the best performer regarding all components, and overall regional intellectual capital index in the analyzed period. The intellectual potential of this region is twice bigger than the average potential of the Republic of Serbia. The region of Southern and Eastern Serbia has the lowest intellectual potentials in the analyzed period. It has very low levels of human and innovation capital, and thus it is the worst performer compared to the other regions. As regards structural capital, the region of Southern and Eastern Serbia is ranked third in 2015 and 2017.

The regions of Vojvodina, and Šumadija and Western Serbia interchangeably share second and third place. Namely, according to RIC, the region of Šumadija and Western Serbia was second in 2015, while in 2016 and 2017 dropped to third place. As regards innovation capital, this region improved its position from third place in 2015 to second place in 2016 and 2017. According to the human capital potentials, this region is ranked second in the whole analyzed period, while structural capital is reduced from second place in 2015 to fourth place in 2017. At the same time, the Vojvodina region significantly improved its structural capital from fourth place in 2015 to second place in 2016 and 2017. However, the innovation potential of this region is reduced from second place in 2015 to third place in the following years.

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Table 3. The regional intellectual capital index in the Republic of Serbia for the period 2015-2017

Region	RHCI		RSCI		RInCI		RICI	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
2015								
Belgrade	0.732	1	1.000	1	0.938	1	0.890	1
Vojvodina	0.412	3	0.342	4	0.237	2	0.330	3
Šumadija and Western Serbia	0.414	2	0.448	2	0.227	3	0.363	2
Southern and Eastern Serbia	0.004	4	0.344	3	0.116	4	0.155	4
2016								
Belgrade	0.760	1	0.790	1	0.873	1	0.808	1
Vojvodina	0.402	3	0.338	2	0.257	3	0.332	2
Šumadija and Western Serbia	0.421	2	0.248	3	0.290	2	0.320	3
Southern and Eastern Serbia	0.003	4	0.220	4	0.251	4	0.158	4
2017								
Belgrade	0.764	1	1.000	1	0.873	1	0.879	1
Vojvodina	0.398	3	0.377	2	0.246	3	0.340	2
Šumadija and Western Serbia	0.420	2	0.252	4	0.288	2	0.320	3
Southern and Eastern Serbia	0.004	4	0.300	3	0.236	4	0.180	4

Source: Own elaboration

The presented analysis points to the priority areas that have to be considered in order to better use the intellectual potentials of individual regions for their sustainable growth and development. Namely, the Belgrade region has to enhance the segment of innovation capital, especially the innovation of products/ services and process innovation, since it significantly lags behind Šumadija and Western Serbia regarding these indicators. This should also be the priority area for the Vojvodina region. Additionally, Vojvodina should consider increasing the number of research institutes, as well as the region of Southern and Eastern Serbia. As regards Šumadija and Western Serbia, priority should be given to the human capital since this region lacks tertiary enrolled and graduated students, and thus lacks R&D researchers. This is also a huge problem in the region of Southern and Eastern Serbia.

Therefore, one of the key areas for the focus of the knowledge-based regional development policy is: supporting and creating favorable conditions for the enhancing of education and training of the workforce, developing innovation system which support fundamental and secondary research and development projects, production and commercial innovations, patents, licenses, and increasing absorptive capacities of the expansion and spillover of external knowledge (Komnenić & Tomić, 2013, p. 41).

Bearing in mind all the above considerations, it is evident that intellectual capital is a relatively oblivious issue in the context of the Serbian economy. The possibilities are unexplored and unused, and hence, serious emphasis should be given to the promotion of intellectual capital and its importance for the sustainable growth of regions. Prominence should be given to the human capital since, without educated and skilled individuals, the development potentials of regions could not be maximally exploited.

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The importance of human capital stems from the fact that capabilities, talent, and knowledge of individuals have a direct impact on the other components of intellectual capital in an enterprise or a region. Namely, the increased efficiency in the use of human capital positively influences the economic performances of an enterprise or a region it belongs to. People are the biggest wealth, but the Republic of Serbia has the problem of retaining talented and educated individuals. Migration trends are not only directed towards the Belgrade region but to other countries as well. Some of the reasons for these negative migration trends and “brain drain” are low wages, poor working conditions, inadequate motivation, and others.

Therefore, the priority actions should be taken to support the qualitative development of human potentials in several key areas, the development of professional competencies, the improvement of social competences, the enhancement of the level of motivation, as well as entrepreneurial, leadership, and managerial skills and capabilities. Besides, accent should be put on the increase of the efficiency and quality of education, by improving the quality of education above the primary and secondary education level, increasing the professional enhancement of teaching staff, creating supporting living and working environment for highly qualified experts, and strengthening the cooperation between faculties, institutes and business sector in the sphere of innovation.

At the level of enterprises, special emphasis should be given to the management of employees’ satisfaction and reduction of the time they spent on the job since this can additionally stimulate them on greater efficiency in performing processes and activities. Content employees are willing to put greater intellectual efforts into their job. Hence, they are more creative and motivated to create innovative solutions and provide a greater contribution to the fulfillment of business and social goals.

To build an adequate system for managing the intellectual capital of enterprises and regions in the Republic of Serbia, it is necessary to raise the awareness of the importance of intellectual capital for their business and economic performances by emphasizing the values of organizational, knowledge, and innovation cultures. The key aims of strategic management of intellectual capital should be the identification and usage of competitive advantage by combining external and internal potentials of enterprises and regions. Regional intellectual capital management should focus on the broad range of immaterial values and determinants within regions that influence the growth and development of regional intellectual capital.

The poor intellectual performances of Serbian regions can be partially explained by the absence of a strategy for the development of regional intellectual capital. Hence, the macroeconomic policymakers should apply a strategic approach to the growth and development of intellectual capital by formulating and implementing regional and national strategies for intellectual capital development (Rađenović & Krstić, 2019a). They should realize the importance and role of the key elements and factors of regional intellectual capital for the augmentation of social wealth and living conditions of the citizens. Thus, the activities should be directed towards strengthening government capacity for the efficient management of regional intellectual capital, enhancing infrastructure and the network of institutions and other stakeholders in the process of regional intellectual capital management.

It is necessary to develop a system for measuring regional intellectual capital, to monitor the implementation success of all sub-strategies within the regional and national strategy for intellectual capital development, and benchmarking with developed countries regarding defined development goals. In that regard, the proposed composite RIC can be used as a starting point for measuring regional intellectual capital, which is essential for designing future development strategies and policies.

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FUTURE RESEARCH DIRECTIONS

Investigating the intellectual capital of regions within a certain country is a relatively new issue among researchers and an unexplored concept regarding regions in the Republic of Serbia. Therefore, in general, future research should pay attention to the more detailed list of indicators that can be used in the construction of the regional intellectual capital index, while particular, the presented methodological framework could be extended to the NUTS 3 districts in the Republic of Serbia.

CONCLUSION

The unbalanced regional development represents a huge obstacle for the overall socio-economic development. In order to prevent further disproportions between rich and developing countries and regions, governments all over the world put great efforts and funds to reduce those disproportions, achieve balanced regional development and hence, increase the competitiveness of an economy. Economic prosperity in the globalized environment is characterized by competitiveness based on knowledge and innovation, where the key determinants of national competitiveness are the innovation capacity of an economy and innovation. In contemporary circumstances, in the knowledge economy era, the main source of competitive advantage is knowledge. Thus, the wealth of nations, regions, and cities depends on the level of accumulated knowledge and its efficient and effective usage.

In order to achieve overall macroeconomic competitiveness and economic growth, it is necessary to reduce regional disproportions and enhance regional competitiveness and development. Explicitly, within the regional development studies, it has been documented that the success of a specific region is based on the ability of its stakeholders to develop, maintain and exploit inimitable and unique competencies and resources. Hence, the strategic resources for regional development can be viewed as a knowledge base. These knowledge resources are critical success factors to stimulate, support, and manage regional development. The achievement of regional development requires comprehensive knowledge of the economic base of the region, as well as specific regional development factors that can make the region more attractive for investments and in turn, increase the competitiveness, economic development, and prosperity of the region. Therefore, the successful development path of a region requires a thorough knowledge of key-value drivers, as well as necessary policy and managerial decisions to set up for their development and management.

Measuring performances of intellectual capital is not an easy task, especially due to the nonexistence of unique definition of this issue, as well as, due to the different categorizations of its structure, and its immaterial nature. Nonetheless, the efficient management of intellectual capital, at micro, regional, and macro level, requires at least an imperfect measurement system that will serve as a basis for management than to not measure intellectual capital and its performances at all. Intellectual capital performance measurement provides a basis for defining realistic goals of regions, as well as determining controlling standards to compare, benchmark, and performance analysis. Given the changing dynamics immanent to national performance, it is not surprising that developing countries with significant intellectual resources and expertise have possibilities and capabilities to reach and outperform developed countries.

If intellectual capital management can contribute to create a competitive advantage, increase productivity, and market value of enterprises, then it is not the question of choice but needs. Hence, it is not whether intellectual capital should be managed or not, but in which way the intellectual capital should

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be managed. Therefore, managers, at the local and regional level, who are interested in the strategic management of intellectual capital in their environment should follow these steps:

- Conduct initial investigation of intellectual capital in order to determine the quality, quantity, and diversity of existing intellectual resources, as well as missing and insufficiently developed intellectual resources.
- Set individual goals for each region/district for the development of intellectual capital, which will serve as a base in the valuation process.
- Formally define the role of intellectual capital in the industry and the region, i.e., find and provide intellectual resources within and outside the industry/region through cooperation with academic society, civil society, industrial association, and others.
- Classify the portfolio of intellectual resources through mapping intellectual resources within a region to determine which people and systems possess intellectual resources. This is best done by creating a central database that contains all information regarding the intellectual potential of a certain region and which can be easily accessible.
- Use information systems and other tools for the dissemination of knowledge and its codification, such as technologies that enable teamwork, video conferences, intranet, cooperative universities, and transfer of experience among the members of various organizations.
- Participate in international conferences and forums in order to obtain new knowledge and disseminate it within the region.
- Consistently carry out the analysis of intellectual capital in order to conduct a new evaluation of the accumulated intellectual resources in the region.
- Identify the deficit of intellectual resources compared to other regions, best practices, and optimal performances.
- Comply new portfolio of intellectual resources, and provide a full report regarding that portfolio for the key stakeholders.

Adherence to these steps should enable regional policymakers to map their intellectual potentials, easily define priority areas, and constantly enhance the regional knowledge base, to achieve sustainable growth and improve the living conditions of their citizens.

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KEY TERMS AND DEFINITIONS

Intellectual Capital: Knowledge and other intellectual resources key for the success of enterprises, regions, and nations in the knowledge economy.

Knowledge-Economy: New era in economic development based on knowledge and other intellectual resources.

Regional Competitiveness: The success of a region in attracting and retaining knowledge-intensive firms and increasing the living conditions for its citizens.

Regional Disproportions: Differences in the achieved level of development of regions.

Regional Human Capital: Incorporate the knowledge, education, skills, and competences of individuals within a specific region.

Regional Innovation Capital: Involves investments in R&D and innovation activities of individuals and organizations within a specific region.

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Regional Structural Capital: Includes the necessary infrastructure, physical and technological, for knowledge creation, dissemination, and implementation at the regional level.

Regional Intellectual Capital Development Policy: Policy for creating regional intellectual “assets” as the source of regional competitiveness. It is a policy for the effectiveness in achieving the goals of sustainable growth of the region. It is a policy for improving the economic efficacy of a region (GDP per citizen of a region).

Regional Intellectual Capital Index: Composite index for measuring the intellectual potential of a region.

Regional Intellectual Capital Performance Indicators: A set of selected performance indicators for measuring and monitoring the performances of key components of the regional intellectual capital – human, structural, and innovation capital.

Chapter 7

Citizen Perceptions and Support for Smart City Projects: The Case of “Smart Santander”

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ABSTRACT

The Information and Communication Technologies (ICT) applied to territories leads to the phenomenon of “Smart City.” The goal of a smart project is to use technology to manage all of the issues of a city (mobility, heritage, environmental, safety, and health services) in a more sustainable, livable, and efficient way, which will result in improving the citizens’ quality of life. To know how the individuals perceive and evaluate these smart initiatives, we surveyed 525 citizens of Santander, a city in Spain that has developed a smart city project. As a result, we found that the citizens who are more familiar with smart cities are more likely to perceive that these types of projects have positive economic, cultural, environmental, and reputational impacts for the towns. This group of citizens also has a more positive attitude toward smart cities, assesses more favorably the brand equity of the smart project under investigation, and shows higher support for it.

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Citizen Perceptions and Support for Smart City Projects

INTRODUCTION

Nowadays, cities are complex systems that are characterized by massive numbers of interconnected citizens, businesses, means of transport, communication networks, services, and utilities (Neirotti, De Marco, Cagliano, Mangano, & Scorrano, 2014). The complexity of the social ecosystem in cities can bring up problems related to traffic, pollution, health, scarcity of resources, waste management, and poor infrastructure (Sujata, Saksham, Tanvi, & Shreya, 2014). These are important challenges for policy-makers. In this context, the Information and Communication Technologies (ICT) applied to territories have created new opportunities to assure future viability and prosperity in metropolitan areas (Falconer & Mitchell, 2012; Secundo, Del Vecchio, Dumay, & Passiante, 2017; Lim, Kim, & Maglio, 2018), and to improve the economic, social and environmental sustainability of a city (Neirotti et al., 2014).

In particular, the integration of ICT within a city leads to the phenomenon of a “Smart City.” Smart cities use technology -Big Data and Internet of Things- to address all of the issues of the city in a “smarter” –i.e., more sustainable, livable, and efficient– way (Sujata et al., 2014). ICT helps cities make better use of their resources (Neirotti et al., 2014) by incorporating new value-added services based on real-time data: parking availability, traffic density, or waiting time in public transportation routes, among others. Also, wireless Internet and web 2.0 allow increased interconnectivity and interactivity between public administrations, citizens, and firms (Vicini, Bellini, & Sanna, 2012). All this is leading to higher empowerment of citizens in the urban decision-making processes and, consequently, to an increased co-creation of high added-value services in the cities.

In previous research on the planning and development of communities, an important field has been the citizens’ satisfaction with the community (Sirgy & Cornwell, 2001; Nunko & Ramkisson, 2011). More concretely, this field is specifically referred to as the citizens’ evaluations of government services (Nunko & Ramkisson, 2011). Taking into account that the implementation of a smart city project aims to improve the quality of life of citizens (Vicini et al., 2012; Buhalis & Amaranggana, 2014), we consider it important to know how the individuals perceive these smart initiatives. Despite the high interest in this topic, there is a lack of studies considering this perspective. With this in mind, our study focuses on the citizens. It examines their perceptions and attitudes towards smart cities in general as well as their evaluations and support for a specific smart city project. Also, we introduce the concept of familiarity with smart cities and, subsequently, establish several research questions to examine if the citizens’ perceptions, attitudes, and support are significantly different according to their level of familiarity with smart cities.

In order to answer these research questions, we carried out an empirical research project focused on the citizens of Santander, a city in northern Spain. The interest in this territory lies in the fact that the city of Santander has developed a successful smart city project so-called “Smart Santander,” which has become a city-scale experimental research facility in the field of smart services in Europe (Sotres, Santana, Sánchez, Lanza, & Muñoz, 2017). As a result of this project, 20,000 sensors have been deployed in Santander and the partner cities (Belgrade, Guildford, and Lübeck), exploiting a large variety of technologies. Thus, Santander is one of the most successful cases of a smart city in Spain, together with the cities of Madrid, Barcelona, Valencia, and Málaga. In the following section, we present the theoretical framework related to the smart city projects, with special attention to the citizens’ perceptions, attitudes, and support for them. Then, we describe the methodology used for gathering the data, and we present the main results obtained. Finally, we detail the main conclusions of empirical research and identify theoretical and practical implications.

BACKGROUND AND RESEARCH QUESTIONS

Smart Cities and Citizens

The term “Smart City” represents the integration of ICT within a city to improve the efficiency of the public services and, therefore, to improve the quality of life of the citizens (Vicini et al., 2012; Bakici, Almirall, & Wareham, 2013). According to SEGITTUR – Sociedad Española de Gestión de la Innovación Turística (2015), smart city services can be divided into five main categories:

1. **Mobility services:** Systems aimed at the efficient management of public transport and mobility resources, including the provision of real-time information on traffic, parking, and public transport routes.
2. **Heritage services:** Real-time access systems to the history and cultural activities of the place, facilitating a more satisfying experience. This includes augmented reality applications, geolocation, optical devices for historical immersion, as well as video mapping and holography.
3. **Environmental services:** Systems oriented to improve the efficiency of energy and sustainability management. It includes different applications in the areas of public lighting, waste collection, and treatment, as well as the implementation of renewable energies.
4. **Safety services:** Systems aimed at improving public safety such as remote video monitoring in certain areas, electronic reports from the police, or the location of sensors at mass events. These applications can be of special interest to reduce the perceived risk in cities or in those areas of a city that are considered unsafe.
5. **Health services:** Health and prevention systems such as remote access to electronic medical records, preventive health applications, bar codes with nutritional information on food packaging, or the geolocation of pharmacies.

The development of smart city services requires three basic technological components: cloud services, the Internet of Things, and an end-user Internet service system. First, cloud services allow convenient and scalable access to electronic applications, software, and information through web browsers (Dikaiakos, Katsaros, Mehra, Pallis, & Vakali, 2009). Second, the Internet of Things refers to the presence of a great variety of objects such as sensors, tags or mobile phones which allow for identification by radiofrequency and can interact with each other and cooperate with their neighbors to achieve common goals (Atzori, Iera, & Morabito, 2010). Finally, the end-user Internet service system refers to the applications and equipment that support the cloud services and the Internet of Things at the level of end-users (Huang & Li, 2011). For example, it would include individual payment systems based on smartphones and tablets or wireless connections, among others.

Perceived Impact of Smart Cities

According to Segittur (2015), the implementation of smart services has positive impacts on the economy and other strategic areas of the cities. In this same line, previous literature highlights that smart projects try to improve sustainability at various levels with economic, social, and environmental impacts for the city (Neirotti et al., 2014; Ahvenniemi, Huovila, Pinto-Seppä, & Airaksinen, 2017). For example, and according to Ahvenniemi et al. (2017), the number of new start-ups and the affluence/economic well-

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being of a city are economic indicators. The impacts on education and culture, well-being, health, and safety are social, and everything related to the natural environment, water, and waste management are included in the environmental impact (Saiz-Álvarez & Palma-Ruiz, 2019).

With this in mind, our study aims to define the impacts that citizens may perceive around the smart city projects. Particularly, we consider the following: economic impacts—for example, the creation of local ventures, the generation of employment opportunities, and the development of new infrastructures and services; socio-cultural impacts—for example, the stimulation of cultural activities or the preservation of cultural heritage; and environmental impacts—for example, the protection of green areas or the increasing environmental awareness among citizens. Besides, we also consider the existence of reputational impacts derived from smart cities. More concretely, we establish that citizens may perceive that these smart projects lead to an improvement in the image and status of the city, which are two relevant attributes of city brands (San Martín, García de Los Salmenes, & Herrero, 2018). Under these circumstances, the implementation of a smart city project would lead to better positioning of the city to attract more tourists, international students, and other target groups.

Attitudes Towards the Smart Cities

Depending on their perceptions of those impacts, the citizens will form certain attitudes towards smart cities. Particularly, considering a traditional approach to attitudes (Eagly & Chaiken, 1993), we define the citizens' attitudes towards smart cities as an enduring predisposition towards the application of smart services in their cities. Taking into account that the citizens expect to obtain a positive result or experience from the smart services, their attitudes will be positive if they perceive that the smart services have a positive influence on their quality of life and the development of their cities. Under these circumstances, they will form favorable attitudes towards the smart cities in two ways: cognitive (i.e., considering that the smart cities are beneficial or useful) and affective (i.e., reacting with positive feelings regarding the smart cities).

Assessments, Brand Equity, and Support for a Smart City Project

Adopting a marketing approach based on the distinction between “product categories” and “brands” (Keller, 1993), it is necessary to establish that in previous sections, we have considered smart cities in general (i.e., the smart cities are considered as a product category). Now, we examine the citizens' beliefs and perceptions for a specific smart city project (i.e., the project is considered as a brand). First, we establish that the citizens will make assessments of the smart city project according to the functional, experiential, and symbolic benefits from the different smart services included in that project.

Second, although a positive assessment of the smart services significantly contributes to the value of the smart city project, it is necessary to introduce the concept of brand equity in order to understand the true value of that project. Brand equity is a multidimensional construct initially proposed by Keller (1993) and Aaker (1996) in the field of goods and services and later extended to places (Pike, Bianchi, & Kerr, 2010; Im, Kim, Ellio, & Han, 2012). When reflecting a consumer perspective, brand equity is referred to as consumer-based brand equity. It is defined as the added value of the brand to the consumer, and it is composed of four dimensions: namely, brand awareness, brand associations, perceived quality, and brand loyalty (Keller, 1993; Aaker, 1996). Regarding the territories, the concept of place branding emerges (Cai, 2002; Konecnik, 2006; Pike, Bianchi, & Kerr, 2010) and, specifically, destination brand

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equity (Fuchs, Chekalina, & Lexhagen, 2012). These concepts would be composed of the same four dimensions as the consumer-based brand equity (Herrero, San Martín, & García-De Los Salmones, 2017; San Martín, Herrero, & García de Los Salmones, 2018). In this sense, the territories also struggle to create a unique brand identity and a community-based place brand (Hudson, Cárdenas, Meng, & Thal, 2017).

Nowadays, with the proliferation of rankings and other publications closely related to the development of smart services and the improvement of the management strategies in the leader cities (Akande, Cabral, Gomes, & Casteleyn, 2019), the smart city projects are becoming a critical factor in the development of city branding. Therefore, a smart city project is considered to be a relevant factor to attract talent, investments, and visitors to a city as well as a way to improve the satisfaction and participation of the citizens. In relation to this internal target group for cities, it can be established that the citizens will perceive a positive brand equity of a smart city project not only if they make positive assessments of the different smart services (i.e., a good perceived quality) but also if they consider the smart city to be well recognized, it is associated with innovation. Finally, they are committed to the smart city project.

Finally, according to the Theories of Reasoned Action and Planned Behavior (Ajzen & Fishbein, 1980; Ajzen, 1985), behaviors are a consequence of beliefs and attitudes. In this conceptual line, we consider that citizens will develop certain support for a specific smart city project depending on not only their attitudes towards smart cities in general but also on their evaluations of a specific smart city project. According to previous studies, the individuals' support for an initiative would include their participation in the specific initiative (O'Shaughnessy & O'Shaughnessy, 2003), as well as their recommendations about it to other people (Palmer, Koenig-Lewis, & Medi Jones, 2013). Thus, we consider that if the citizens have positive attitudes towards smart cities, then they will develop different acceptance behaviors such as encouraging the policymakers in their cities to make an effort in the development and promotion of the smart city project, using more of the smart services and participating in the project with new ideas.

The Role of the Familiarity with Smart Cities

A key variable in the study of perceptions, attitudes, and behaviors about smart city projects is the level of citizens' familiarity with the relatively new phenomenon of smart cities. Initially, it is necessary to indicate that in previous research about the role of familiarity in the new technologies adoption, it has been established that familiarity with the new technologies contributes to significantly reduce the level of uncertainty and perceived risk around them. As a consequence, the more the familiarity there is with new technology, the more precise are the expectations of that technology (Kang & Gretzel, 2012). In our research context, we establish that the citizens can be more or less familiarized with smart cities depending on their knowledge and previous experience with this recent phenomenon. In this sense, those citizens who are more familiar with smart cities will have more positive perceptions and attitudes towards smart cities in general. They will evaluate more favorably the smart services and the brand equity of the smart city project under investigation, and they will show higher support for that project.

With this in mind, we establish several research questions where familiarity with the smart cities is related to the citizens' perceptions, attitudes, and support:

RQ1: Are there significant differences in the perceptions of the economic, socio-cultural, environmental, and reputational impacts of the smart cities according to the citizens' familiarity with smart cities?

RQ2: Are citizens' attitudes towards smart cities significantly different according to their familiarity with smart cities?

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Table 1. Profile of respondents

Variable	%	Variable	%
Gender		Age	
Male	45.0	18-34 years old	19.8
Female	55.0	35-49 years old	25.0
		50-64 years old	27.4
		65+ years old	27.8
Level of studies		Occupation	
Without studies	9.7	Worker	45.4
Primary studies	19.3	Student	13.3
Secondary studies	29.9	Housewife	13.3
University studies	41.1	Retired/unemployed	28.0

Source: Own elaboration

RQ3: Are citizens' evaluations of a specific smart city project significantly different according to their familiarity with smart cities?

RQ4: Is brand equity of a specific smart city project significantly different according to the citizens' familiarity with smart cities?

RQ5: Is citizens' support for a specific smart city project significantly different according to their familiarity with smart cities?

METHODOLOGY

Quantitative research based on a survey was conducted in the city of Santander (Spain). The target population consisted of residents over 18 years old. In order to guarantee a representative survey sample, sampling was developed using the methods of quotas and convenience. First, a quota sampling method was used to control for the age and gender of the sample, according to the population of Santander, as reflected in the official statistics (Cantabrian Institute of Statistics). Second, citizens were surveyed in the main streets of the city of Santander, following a convenience method to collect empirical data efficiently. In order to avoid bias in the estimation of results due to non-responses (Lynn, 1996), in case of rejection, the interviewers were instructed to survey another person with the same socio-demographic profile so that the sample reflects the quotas initially established. Finally, 525 valid responses were obtained (Table 1 shows the sociodemographic profile of respondents).

Information was collected using a survey questionnaire with questions referring to the following issues: (1) the citizens' familiarity with smart cities and their overall attitude towards them; (2) the citizens' perceptions regarding the impact of smart cities in economic, socio-cultural, environmental, and reputational terms; (3) the citizens' support for a smart city project (i.e., "Smart Santander"); (4) the evaluation of the specific smart services for that project; (5) the evaluation of the brand equity of that smart project; and (6) the sociodemographic characteristics of respondents. In order to gauge the diverse facets and nuances in each case, all of the variables were measured through multi-item scales. In particular, a 7-point Likert scale was used where 1 means total disagreement with the statements, and 7 means total agreement with them.

In particular, familiarity and overall attitude regarding the smart cities were measured using scales adapted from Kang and Gretzel (2012) and Rauschnabel and Ro (2016). Economic, socio-cultural, en-

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environmental, and reputational impacts of smart cities as perceived by citizens were measured by taking Sinclair, Gursoy and Vieregge (2015) and Vargas, Oom, Da Costa Mendes and Silva (2015) as reference; whereas, the support for the smart project was measured with a scale adapted from Palmer et al. (2013). The scale with all the smart services was created by considering the conceptual approach from SEGITTUR – Sociedad Española de Gestión de la Innovación Turística (2015), and the brand equity of the smart city project scale was measured as a one-dimensional concept considering the scales of Herro et al. (2017) and San Martín et al. (2018).

RESULTS

In order to answer the research questions established, we developed a K-means cluster analysis to segment the sample of citizens according to their familiarity with the phenomenon of smart cities. Once we segmented the survey sample, we analyzed the perceptions of citizens concerning the different impacts of smart cities by presenting the descriptive statistics (average and standard deviation) for each sub-sample (low and high familiarity with the phenomenon of smart cities). Before the cluster analysis, we indicate the descriptive statistics of the scale measuring the citizens' familiarity with smart cities. We can observe that the average values for the three items are very close to the central position of the scale (4 on a scale from 1 to 7). This shows that the sample obtained has a medium level of familiarity with smart cities, following a quasi-normal distribution (asymmetry coefficients $< \pm 0.5$). According to this, and taking into account the size of the total sample and the objectives of this research, the K-means cluster analysis was configured to search for two groups of citizens based on their familiarity with the smart cities.

The results summarized in Table 2 confirm the existence of two distinctive clusters (perfect convergence in 3 iterations): Group 1–Low Familiarity, comprising 225 individuals (42.9% of the sample) and Group 2 – High Familiarity, comprised by 300 individuals (57.1% of the sample). Moreover, the ANOVA test shows that the values of each item of the Familiarity scale are significantly different in the two groups identified ($p\text{-value} < 0.05$). In particular, the Low Familiarity sub-sample shows mean values below 3.0 (on a seven-point scale) for all the items, whereas the High Familiarity sub-sample has mean values over 5.0. Therefore, these groups or clusters can be considered appropriate for analyzing the potential effects of familiarity because they show different mean values and have a balanced size.

In order to examine the eventual differences in the citizens' perceptions, attitudes, and support depending on their level of familiarity with smart cities, we conducted a mean comparison analysis using a T-Student test. First, the citizens' perceptions of the impacts of smart cities may depend on their familiarity with the smart cities. By adopting a multidimensional approach, we consider four types of impacts: economic, cultural, environmental, and reputational impacts. The results summarized in Figures 1 to 4 confirm that the citizens' perceptions of the impacts of smart cities are positive in general terms (average values over 4.0 in both sub-samples). However, there are significant differences in this regard, depending on their familiarity with smart cities. In particular, the values of the T-Student statistics confirm that the citizens with high familiarity with smart cities have more positive perceptions of the economic, cultural, environmental, and reputational impacts of these types of projects ($p\text{-value} < 0.05$ for all the items).

More specifically, regarding the economic impacts (Figure 1), the citizens more familiar with the smart cities perceive, at a more positive level, that these types of projects foster the economic development of host communities by enhancing new business and employment opportunities, creating new infrastructures and services, and facilitating commercial activities. This result is especially relevant

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Table 2. Cluster analysis

Item	Mean Values			ANOVA
	Low Familiarity (N = 225)	High Familiarity (N = 300)	Total (N = 525)	F-Snedecor
I am familiar with the concept of “smart city.”	2.24	5.09	3.87	823.8***
I think I have a good knowledge of what a “smart city” is	2.11	5.15	3.84	1170.3***
I understand clearly what represents a “smart city.”	2.63	5.54	4.29	795.9***

*** p-value < 0.01

Source: Own elaboration

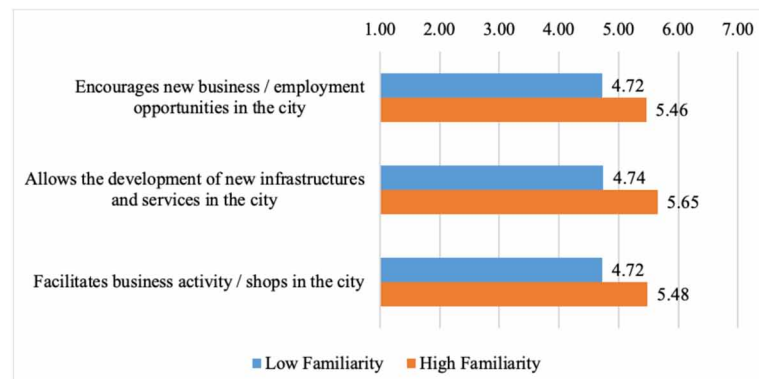
from the perspective of entrepreneurship, as the citizens perceive smart cities as drivers for the development of new businesses and ventures in the community, particularly if they are more familiar with this phenomenon. Moreover, the economic impacts of smart cities are mainly associated with high-value services based on innovation and sustainability.

Additionally, citizens also perceive that smart cities have positive cultural and environmental impacts (Figures 2 and 3), especially if they are highly familiar with the phenomenon of smart cities. More concretely, smart cities are associated with more efficient ways of showing and valorizing the history and customs of a place, preserving its heritage, and stimulating cultural life. Similarly, the citizens perceive that the smart city projects contribute to the conservation and protection of natural spaces and green areas, increase the citizens’ environmental awareness, and favor the implementation of environmental policies.

The empirical evidence also shows that the citizens perceive that smart cities have a great impact on reputational terms. In particular, although the perceptions are significantly more positive in the high familiarity sub-sample, even the group less familiar with smart cities shows average values over 5.0 for all of the items related to the reputational impacts (Figure 4). Therefore, in addition to the economic, cultural, and environmental impacts of smart cities, the citizens also consider that they contribute to improving the image and reputation of the place and to attracting more tourists or international students.

Figure 1. Familiarity and perceptions of the economic impacts of smart cities

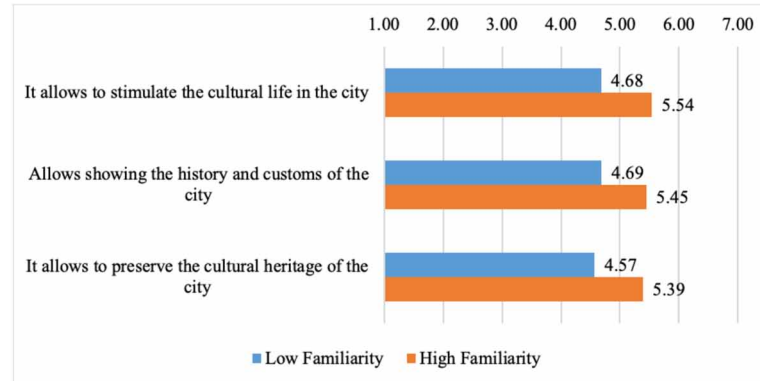
Source: Own elaboration



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Figure 2. Familiarity and perceptions of the cultural impacts of smart cities

Source: Own elaboration

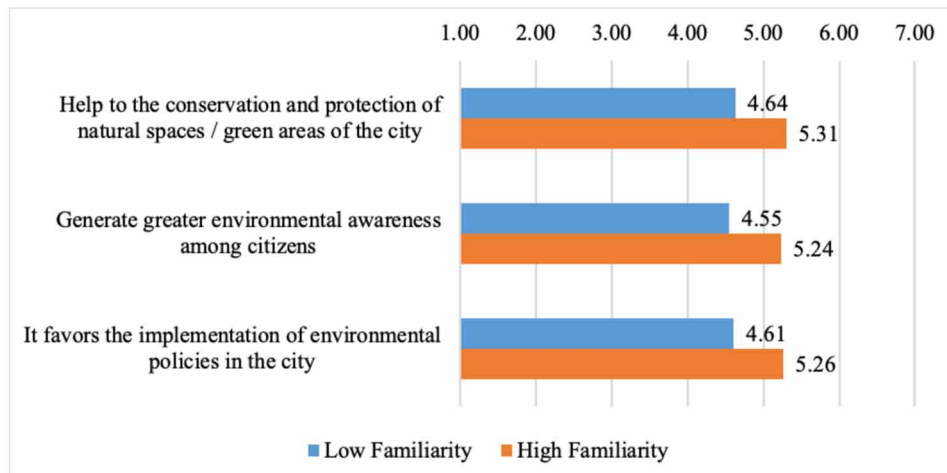


Regarding the role of the familiarity in the formation of the attitudes towards the smart cities (Figure 5), the empirical evidence shows that the overall attitude is significantly higher for those citizens with high familiarity with smart cities ($p\text{-value} < 0.05$ in the T-Student analysis, confirming the existence of significant differences between both sub-samples). In particular, whereas the overall attitude towards smart cities is moderate for the sub-sample of low familiarity (average values between 4 and 5 for all of the items), the sub-sample of high-familiarity shows higher average values (they are close to 6.0). This empirical result implies that the overall assessment of citizens about the smart cities is associated with their knowledge about them.

Besides the citizens' perceptions of the impacts of smart cities and their overall attitude towards them, the present research also intends to analyze how the citizens assess the smart services of a specific project in their city and to what extent their familiarity with the smart cities influences their assessments. In this regard, the results summarized in Figure 6 show that. In contrast, citizens, in general, make a positive

Figure 3. Familiarity and perceptions of the environmental impacts of smart cities

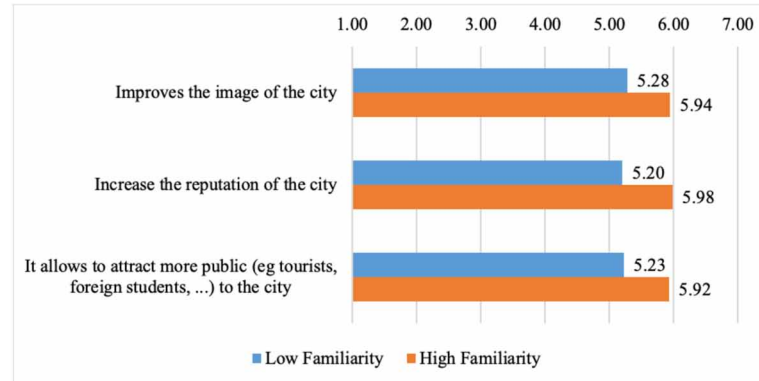
Source: Own elaboration



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Figure 4. Familiarity and perceptions of the reputational impacts of smart cities

Source: Own elaboration

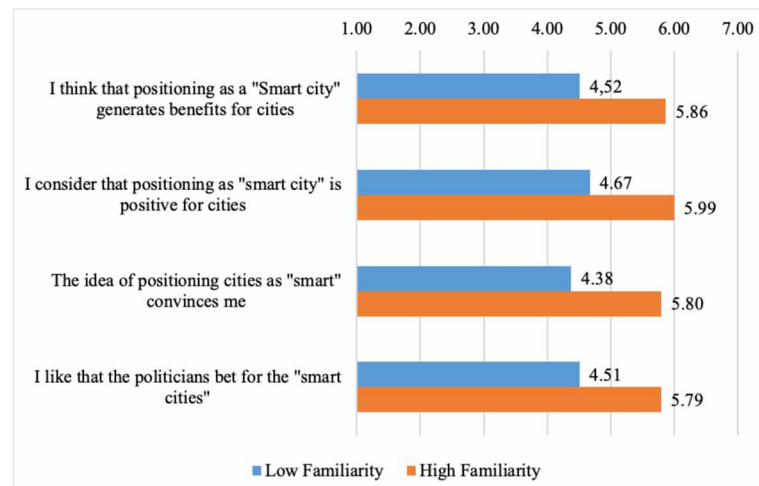


evaluation of the smart services provided in the city under investigation, the average values are significantly higher for the sub-sample of those who are more familiar with smart cities (p -value < 0.05 for all the items of the scale). In particular, the smart services with a more positive evaluation from citizens are those related to health, the environment, and mobility, with average values for all items over 4.5 for the low-familiarity subsample and 5.5 for the high-familiarity subsample (on a seven-point scale). The smart services related to safety and heritage management are also positively perceived, but more moderately.

Also, the empirical evidence supports that the brand equity of the smart city project, as perceived by the citizens, is also influenced by their degree of familiarity with smart cities (Figure 7). The subsample with low familiarity shows moderate perceptions concerning the smart city project as a brand (average values between 3.64 and 4.34), with a low predisposition to provide positive word-of-mouth about it. On the contrary, the brand equity indicators (i.e., awareness, image, perceived quality, and loyalty) are more positive in the case of citizens who are more familiar with smart cities (average values between 4.88 and 5.00).

Figure 5. Familiarity and attitudes towards smart cities

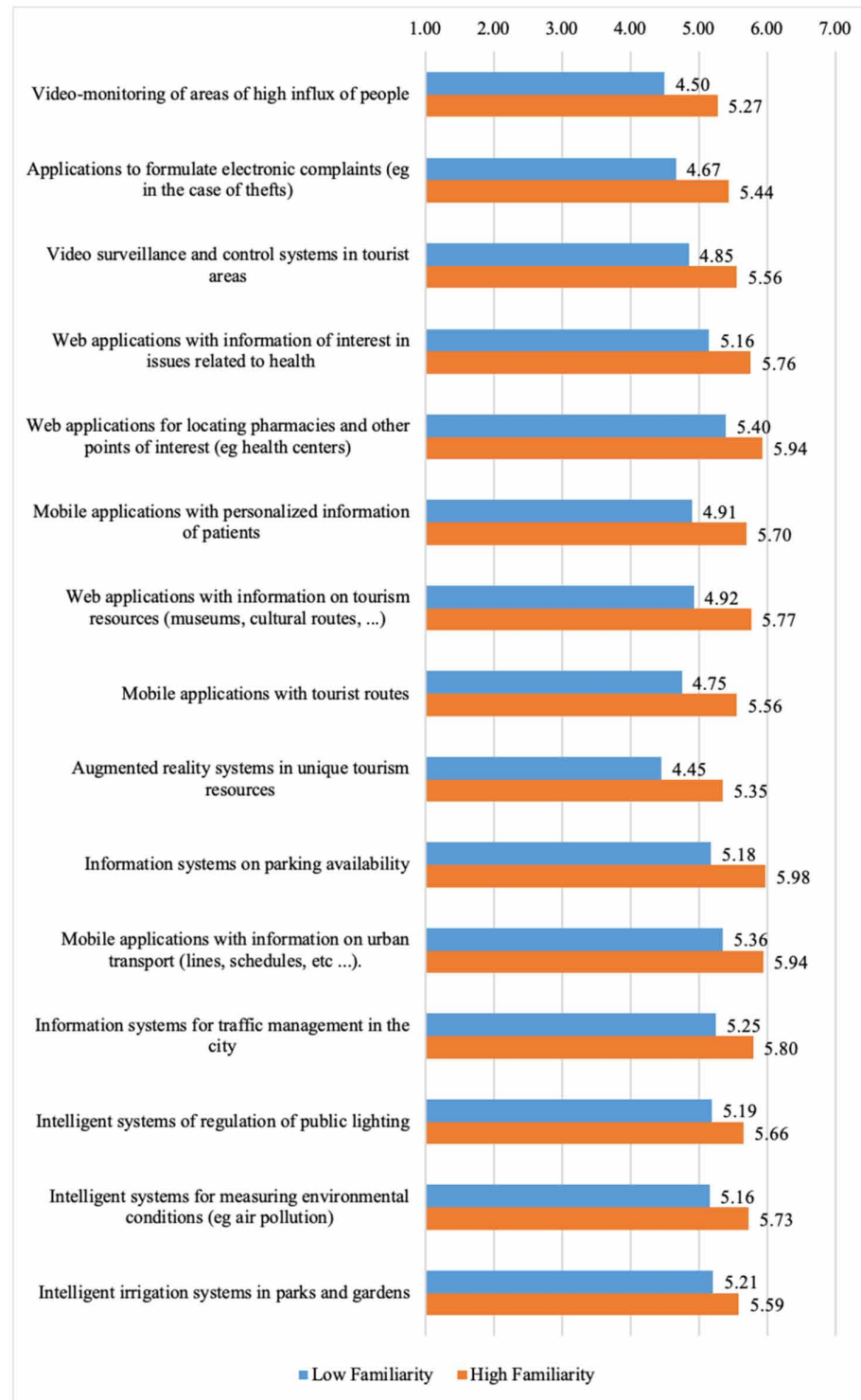
Source: Own elaboration



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Figure 6. Familiarity and evaluation of smart services

Source: Own elaboration



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Figure 7. Familiarity and brand equity of the smart city project

Source: Own elaboration

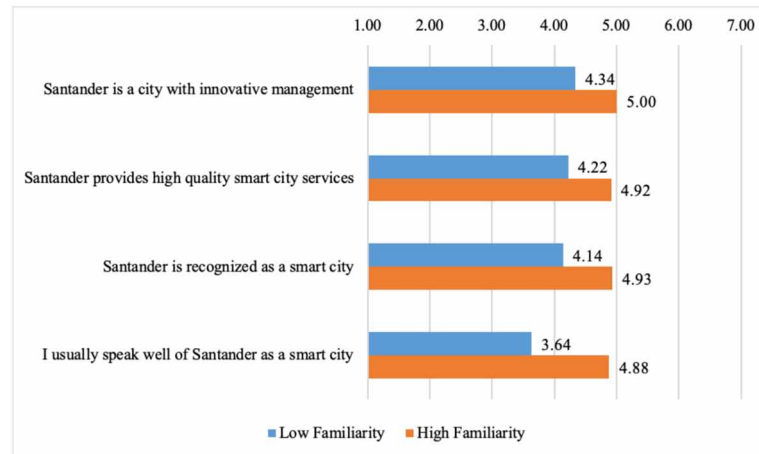
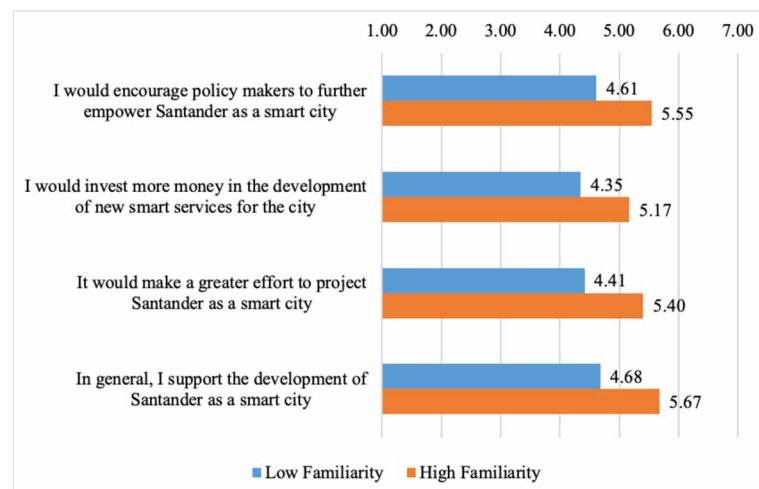


Figure 8. Familiarity and support for the smart city project

Source: Own elaboration



Finally, our evidence also confirms that the support is significantly higher in the case of the citizens who are more familiar with smart cities (p -value < 0.05 for all of the items of the scale). Thus, while the sub-sample with low familiarity shows moderate support for the implementation of a smart city project in the territory (average values between 4.35 and 4.68), those who are highly familiar with the smart cities express stronger support (Figure 8). In this regard, the higher average values are obtained for the items related to the general support, whereas the item proposing to invest more money in the development of new smart services is the one with a lower average value. This seems to indicate that citizens support smart city projects, but this support is slightly weaker when the expenditure of public funding is specifically considered.

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CONCLUSION

Our study of smart city projects has adopted an approach based on the citizens who are an important target group for cities in order to develop successful strategies in the management of public resources and services. In particular, we have examined their perceptions and attitudes towards smart cities, as well as their evaluations and support for a smart city project named “Smart Santander.” The analysis of these psychological variables was performed considering the citizens’ familiarity with smart cities because this variable could significantly influence their perceptions, attitudes, and support for smart city projects.

Theoretical Contributions

Our findings represent an important step in the generation of knowledge about the relatively new phenomenon of smart cities. First, we have established different types of impacts that the citizens may perceive around the smart cities: economic, socio-cultural, environmental, and reputational impacts. Based on this theoretical framework, it has been empirically demonstrated that the more familiar with smart cities the citizens are, the more positive their perceptions of the economic, socio-cultural, environmental, and reputational impacts of the smart services. Also, it is necessary to emphasize that the reputational impacts in the cities, which have not been considered in previous studies, are the most positive ones for the citizens.

Second, we have also considered the citizens’ attitudes towards smart cities, which are formed based on how the citizens perceived the impacts or influences of the smart services on the development of their cities and, particularly, on their quality of life. In our study, several indicators have been proposed to measure, in an effective way, the cognitive and affective facets of the attitudes towards smart cities. Besides, it has been supported that the more familiar with smart cities the citizens are, the more positive their attitudes towards them.

Third, we have established a theoretical framework to examine in depth both the true perceived value of a smart city project and the consequent support for that project. In particular, we have proposed the following conceptual sequence with multiple indicators to measure each variable: smart services assessments – brand equity perceived of the smart city project – support for the project. Considering this framework, it was confirmed that the more familiar with smart cities the citizens are, the more positive their assessments of the smart services, the brand equity perceived of a project, and their support for the project.

Managerial Implications

The results obtained in this study have relevant implications both for public decision-makers and for entrepreneurs and companies working on the field of public services and smart cities. From the perspective of city public managers, this research shows that, while citizens’ perceptions, attitudes, and support for smart city projects are high in general terms, the assessment and response of these types of initiatives is much higher in the case of those individuals who are more familiar with them. Therefore, it is very important to implement effective communication campaigns aimed at explaining the objectives, structure, and expected performance of the smart city services to the local population. This requires both traditional and online communication tools, as well as fostering a visit to smart city technology demonstration centers. More specifically, the communication should explain the scope and expected

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performance of the project, highlighting its benefits for the citizens and the improvement of city management efficiency. However, it should also present the specific services offered to citizens and visitors. Moreover, public decision-makers should also be aware that the citizens perceive that smart city projects contribute to the reputation of a city. Therefore, it is important to integrate the smart city dimension as part of the branding and marketing strategy of a city.

From the perspective of the private sector, the results obtained in this study show the need to consider the citizens in the development of business models in the field of smart cities. Therefore, as one of the main beneficiaries and users of smart city services, citizens' needs and characteristics must be taken into account in order to design smart applications and technologies. In particular, companies should analyze which smart services are more appreciated and demanded by citizens and, subsequently, develop interfaces adapted to their technological competence. Additionally, companies should collaborate in the explanation of the benefits and use of smart city services in order to contribute to their appropriate acceptance by citizens. Finally, it is important that the private sector, as one of the key stakeholders in the urban ecosystem, collaborates in the branding strategy of the smart city, as the city will benefit from its reputational effect.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This research has several limitations that open up some future lines of research. First, the findings are limited to the context under investigation. Considering other cities with different sizes, sociocultural characteristics, and level of development of a smart project would extend the scope of our findings. Furthermore, we have used the level of familiarity as a variable influencing the residents' perceptions and attitudes towards the smart project. It would be interesting to analyze other variables such as the age or the socioeconomic characteristics of citizens. Finally, we have performed only univariable and bivariable analyses, so it would be very interesting to conduct some multivariable analysis in order to know the potential relationships among citizens' perceptions, attitudes, and behaviors.

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KEY TERMS AND DEFINITIONS

Attitudes: Overall predisposition, favorable or unfavorable, towards a specific idea, object, conduct, or phenomenon (smart city concept, in the case of this research).

Familiarity: Knowledge and understanding that an individual has of a specific topic or phenomenon (smart city concept, in the case of this research).

Smart City: City in which smart technologies and services are implemented to improve the efficiency of public services and the quality of life of citizens.

Smart Services: Services provided using smart technologies in order to boost their quality, efficiency, and sustainability.

Smart Technology: Information and communication technologies used to improve the management of territories and businesses. Include, big data, cloud services, Internet of Things, end-user Internet service system, artificial intelligence, among others.

Support: acceptance behaviors of a specific idea, object, conduct, or phenomenon (smart city concept, in the case of this research). Includes encouraging the policymakers to develop and promote the project, or participating in the project with new ideas.

Brand Equity: Added value of a brand to the individual, traditionally linked to four dimensions: brand awareness, brand associations, perceived quality, and brand loyalty.

Chapter 8

The Development of Smart Tourism Destinations Through the Integration of ICT Innovations in SMEs of the Commercial Sector: Practical Experience From Central Italy

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ABSTRACT

The small and medium-size business activities (SMEs), coming from different commercial sectors, are generally found in Italian small towns and municipalities. Recently, SMEs are characterized by negative economic cycles. Factors negatively affecting commercial and tourism activities are historical centers' de-population phenomena, productive delocalization, business transfer, and changes in service delivery processes and logistics. To overcome these negativities the promotion of cultural assets, the use of new technologies for economic development, co-operation through networks and clusters, and the involvement and integration of different local stakeholders are crucial. The aim of this research was to identify key performance indicators and hotspots of business networks created for smart tourism development. The analysis was conducted through the compilation of a mapping of potentially usable technologies and through the analysis of the results of four case studies on the application of a business network in the Italian Lazio Region.

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INTRODUCTION

Tourism is a fast-growing industry, which is forecasted to grow at the global level at a significant rate in the next decade. In recent years, tourism has experienced continued expansion and diversification to become the second-fastest-growing sector in the world (World Travel & Tourism Council, 2018), occupying a prominent role in the global and European economy. The travel and tourism sectors grew by 3.9 percent in 2018, accounting for 10.4 percent of global GDP and contributing to the world economy with \$8.8 trillion and 319 million jobs in 2018 (World Travel & Tourism Council, 2019).

At the same time, tourism is also a significant contributor to environmental degradation and climate change (Budeanu, Miller, Moscardo, & Ooi, 2016; Kucukusta, Pang, & Chui, 2013). Estimates show that the industry is responsible for roughly 5 percent of global greenhouse gas emissions (World Tourism Organization and the United Nations Environment Program, 2008). Additionally, tourism can produce negative impacts on biodiversity and cultural landscape, generating a negative effect on its ability to provide those amenities that generate its success (Gössling & Buckley, 2016; Gössling, Hall, Ekström, Engeset, & Aall, 2012). Therefore, it arises the need to implement efficient policies and practices that may meet the twofold goals of reducing its negative impact on the environment while generating a positive impact on the economy (Girard & Nocca, 2017). The international community has widely recognized the importance to develop sustainable tourism as the “tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities” (United Nations World Tourism Organization and United Nations Environment programme, 2005, pp. 11-12). In this sense, the development of Smart Tourism Destinations (STDs) may be guaranteeing the sustainable development of the tourist area, also through the integration of ICTs. Smart Tourism Destination being a local system characterized by advanced services, a high degree of innovation through a considerable use of ICTs, and the presence of open, multipolar, integrated, and shared processes may enhance the quality of life for both residents and tourists.

Particularly, the tourism sector is closely related to the use of information and communication technologies (ICT), which have revolutionized the operation of the sector through changes in processes, products, and organization of companies dedicated to the provision of services, as well as in the new demands of visitors. In this Chapter, the most important theoretical aspects retrieved from the academic literature concerning smart tourism and the role of Information and Communication Technology (ICT) technologies were highlighted. In particular, the role of ICT as a factor in strengthening the competitiveness of the SMEs and the link between tourism management models and the development of business networks were analyzed. This research aimed to identify key performance indicators (KPIs) and hotspots (Hs) of business networks created for commercial activities in smart tourism destinations development. Positive influencing factors may be the promotion of cultural assets, the use of new technologies for economic development, co-operation through networks and clusters, and the involvement and integration of different local stakeholders throughout a participatory approach and immersive technologies integration. The general model was created according to a bottom-up approach using as a base a practical case experience in the Lazio Region¹. In detail, this chapter provides a brief overview of the general tourism context and the smart tourism phenomenon (smart tourism section). Then, it analyzes the international evolution of technologies trends in the literature and in the general market development (the authors discuss these aspects in the background section). Next, it analyzes the development of business networks, highlight-

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ing the main characteristic and the Italian model and diffusion. Finally, results from four case studies are presented. The Chapter provides an overview of technologies applicable in business networks in the case studies evaluation. It explains the evolution of the business network in the Italian central area – particularly in the Lazio Region.

BACKGROUND

This chapter provides an overview of smart tourism practices and innovative tools supporting cultural heritage, intending to evaluate their potential in the Italian scenery. In particular, it evaluates the theoretical and methodological implications of the Smart City paradigm in the tourism sector. Moreover, it explores the results of data retrieved by four case studies analysis based in the Italian Lazio Region, with a focus on impact indicators and good practices related to the Italian smart tourism development.

In recent years, smart technologies, as well as the digitization of cultural resources, have been increasingly considered as interlinked inputs for added-value products and services in fields such as cultural heritage and tourism.

SMART TOURISM

According to the UNWTO (2016), tourism is a social, cultural, and economic phenomenon which entails the movement of people towards countries or places outside their usual environment for personal or business/professional purposes (Boes, Buhalis, & Inversini, 2016).

The increasing convergence between culture and economics in the process of city branding and the emergence of the so-called “commercial cultures” have been transforming urban spaces as well as their representations/narrations elaborated by citizens, city-users, and tourists. However, economic crises affecting Western - and specifically European - economies since 2008 have strongly affected the ascending trajectory of capitalism-based service societies where tourism is a very important economic driving force. Apart from this, other kind of “crises,” namely environmental and institutional, have induced an innovative change in cultural and tourist practices which have been recently oriented towards the Smart City paradigm, whose potential could be exploited particularly in a country such as Italy where tourism has suffered from a lack of an integrated approach.

Smart tourism has been conceptualized for the first time in 2000 by Gordon Phillips that defined it as: “a holistic, longer-term and sustainable approach to planning, developing, operating and marketing tourism products and businesses” (Li, Hu, Huang, & Duan, 2017). In his opinion, smart tourism is shaped by two types of techniques:

1. Smart demand and use of management techniques that are capable of managing request and access;
2. Smart marketing techniques that can be used to target the proper customer segments to deliver appropriate messages (Gretzel, Sigala, Xiang, & Koo, 2015).

Moreover, also Gretzel et al. (2015) defined smart tourism with more emphasis on the relationship between tourism and ICT. These authors defined smart tourism as: “tourism supported by integrated efforts at a destination to collect and aggregate data derived from physical infrastructure, social con-

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Figure 1. TVC -Tourism Value Chain

Source: Own elaboration based on Arcese, Flammini, Lucchetti, and Martucci (2015)

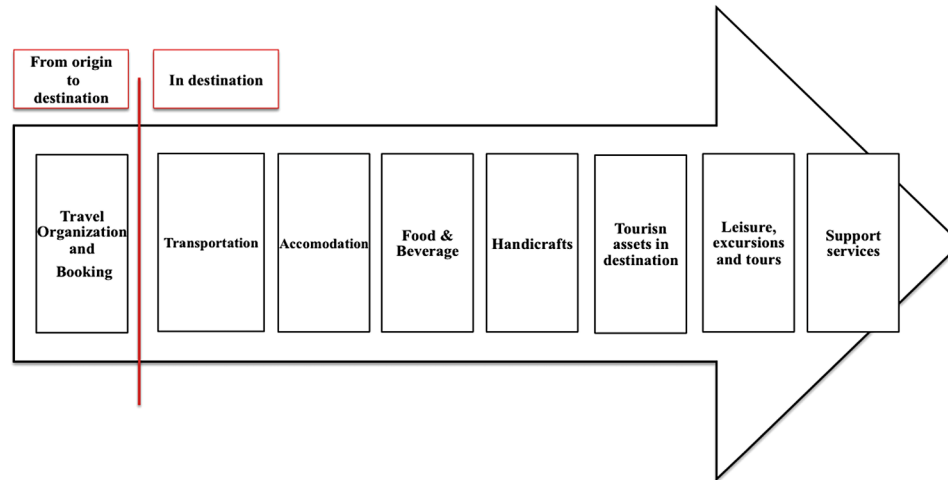
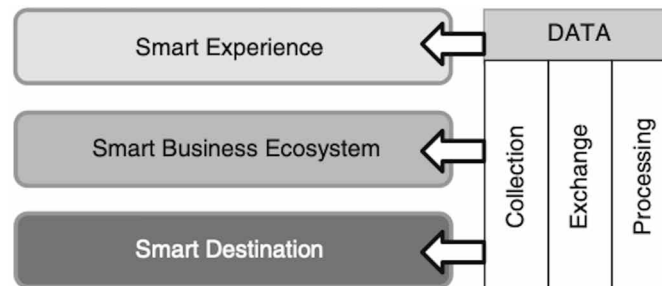


Figure 2. Components and layers of smart tourism

Source: Own elaboration based on Gretzel, Sigala, Xiang, and Koo (2015)



nections, government/organizational sources and human bodies/minds in combination with the use of advanced technologies to transform that data into on-site experiences and business value-propositions with a clear focus on efficiency, sustainability and experience enrichment” (Gretzel et al., 2015). Indeed, according to Wang, Li, and Li (2013), Smart tourism destinations use ICT to enhance the development and production of tourism processes.

Starting from the evidence highlighted in the literature, in our research, we decided to focus on the scientific exploration of different technologies and their applications into the different macro-areas of the tourism value chain (TVC) (Figure 1). Therefore, the main objective was to see how different technologies could be analyzed in the light of the TVC prospect showed in Figure 2 and provided by DEVCO and UNWTO in a 2013 publication.

Additionally, according to Shafiee, Rajabzadeh Ghatari, Hasanzadeh, & Jahanyan (2019), smart tourism development, it is rooted in the smart city concept (Boes et al., 2016). Therefore, “smart destinations” can be categorized under the umbrella of urban development with a unique approach focusing on integrating information and communication technologies with physical substructures (Gretzel et al., 2015). Smart destinations are, indeed, special cases of smart cities: they apply smart city principles to urban or

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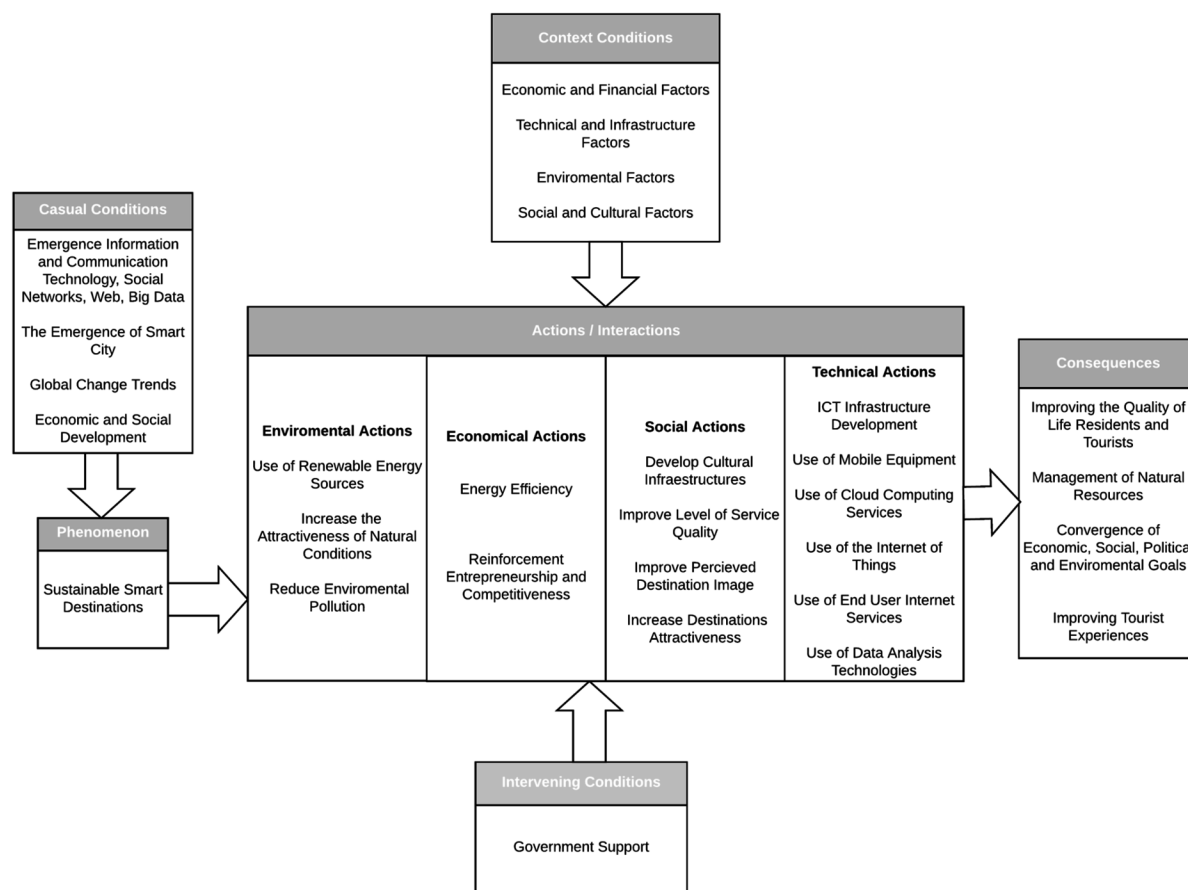
rural areas and not only consider residents but also tourists in their efforts to support mobility, resource availability and allocation, sustainability, and quality of life/visits. As Figure 2 shows, smart tourism involves multiple components and layers that are supported by ICTs (Gretzel et al., 2015) (Figure 2).

Perles Ribes and Ivars Baidal (2018) argued that smart tourism destinations (STD) have sustainability as one of their core activities and that without sustainability, a destination cannot be conceptualized as smart. According to definition provided by SEGITTUR (2015) STD is “an innovative tourist destination, built on an infrastructure of state-of-the-art technology guaranteeing the sustainable development of the tourist area, accessible to everyone, which facilitates the visitors’ interaction with and integration into their surroundings, increases the quality of the experience at the destination, while also improving the quality of life of its residents.” From this definition is clear, the pivotal role of sustainability aspects in STDs development.

The integration of ICT technologies and sustainability pillars for smart tourism destinations development may enhance tourism management through competitive, smart, and sustainable approaches (Vargas Sánchez, 2016). In this regard, environmental and economic sustainability are key aspects of smart tourism development and management (Gretzel, Werthner, Koo, & Lamsfus, 2015). From a social point of

Figure 3. Smart Tourism Destinations Framework

Source: (Shafiee et al., 2019)



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view, smart tourism may be an opportunity to enhance and develop local crafts and cultures, strengthen the vitality of the local community, improve tourist facilities and local awareness of economic value of its cultural and environmental heritage, in order to encourage residents to safeguard it (Bramwell & Lane, 2008).

In this regard, Shafiee et al. (2019) starting from a systematic literature review on smart tourism destination have elaborated a theoretical model for STD integrating the casual, context and intervening conditions for its development with the different sustainability and technological actions (environmental, economic, social, and technological actions) that can be implemented and the relative consequences (Figure 3).

TECHNOLOGICAL ASPECTS OF SMART TOURISM DEVELOPMENT

The diffusion of ICTs, like any other generic radical technological innovation, has interrupted the previous balances in different economic sectors and has created new value for a large number of sectors (Rosenberg & Trajtenberg, 2009). Therefore, ICTs play a strategic role in a company's ability to develop business opportunities. In their work, Sedera, Lokuge, Grover, Sarker, and Sarker (2016) highlighted four main recent innovations in organizational development that are enhanced by technological innovation, which are:

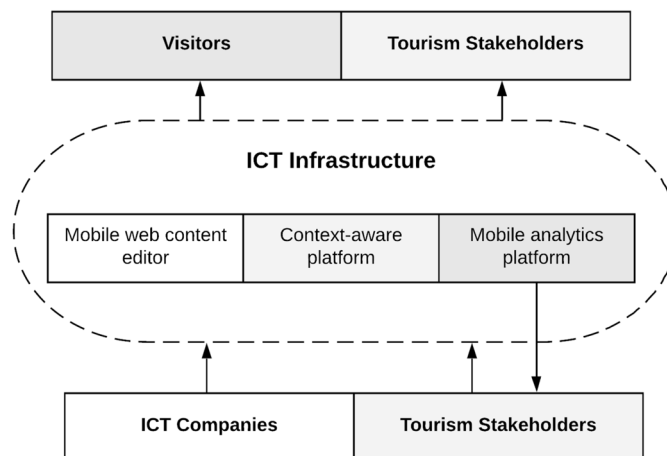
1. Improvement of decision-making capacities.
2. Increased connection with customers.
3. Increase in the number of channels to reach customers/suppliers.
4. Strengthening of the communication structures.

The technological advances that allow the development of a company through innovation have a wide range of connotations (Carr, 2005). All these innovations in organizational development may enable and improve the company's ability to create value. According to Maine, Lubik, and Garnsey (2012), the value can be created "when the importance of that technology for customers is demonstrated through sales, for which evidence is currently available." In this sense, ICTs digital technologies can create new value propositions from the massive amount of data retrieved and combining existing data in new ways (Boes et al., 2016; da Costa Liberato, Alén-González, & de Azevedo Liberato, 2018). This is particularly true for tourism destinations where ICT has become an integral part of tourism experience (da Costa Liberato et al., 2018). However, besides improving everyday activities, new technologies may also disrupt and transform routine activities by establishing a whole new set of tourism activities (Gretzel & Jamal, 2009). Indeed, Del Chiappa and Baggio (2015) stated that ICTs, information systems, and social media could be considered as important coordination mechanisms in smart tourism destinations management. Also, Buhalis and Amaranggana, (2013) support this idea they pointed out that: "bringing smartness into Tourism Destination requires dynamically interconnecting stakeholders through a technological platform on which information relating to tourism activities could be exchanged instantly." This is particularly important, as also stated by Jasrotia and Gangotia (2018) in smart tourism destination interconnecting stakeholders through a common platform; it is pivotal as they facilitate information exchange between tourism organizations and tourists. In literature, there is no single definition of platforms. Parker and Van Alstyne (2012) stated that a platform is formed by a set of core components fixed together with a

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Figure 4. The architecture of the smart destination ICT infrastructure

Source: (Lamsfus, Martín, Alzua-Sorzabal, & Torres-Manzanera, 2015)



set of complementary elements and with the interfaces developed for building components, as well as the components that are used for communication purposes with the main platform (Greenstein, 1998; Tushman & Murmann, 1998; Boudreau, Chen, & Huber, 2008). More specifically, Sedera, Lokuge, Grover, Sarker, and Sarker (2016) described a digital platform as “a technological architecture that allows the development of its own IT functionalities and allows the integration of technological platforms of information, processing, and connectivity available for an organization.” The integration of a digital platform in a corporate organization plays a strategic role in terms of enabling innovations and improving value creation (Nambisan, 2013; Sambamurthy, Bharadwaj, & Grover, 2003). In line with this, the literature pointed out several intrinsic characteristics attributable to digital platforms, such as: low costs (Nylén & Holmström, 2015), flexibility (Nambisan, 2013), agile maintenance and connectivity capabilities (Rai & Tang, 2010), multiple-use and applications (Yoo, Henfridsson, & Lyytinen, 2010), ease of adoption and testing (Cea, Nin, Tous, Torres, & Ayguadé, 2014; Nylén & Holmström, 2015). Lamsfus, Martín, Alzua-Sorzabal, and Torres-Manzanera (2015) explored the architecture of ICT infrastructure for smart destinations based on the Cloud Computing Paradigm (Figure 4).

Van Alstyne, Parker, and Choudary (2016) have also highlighted the effect of the network (i.e., the more people use the platform and the more it increases the value) as one of the key features of digital platforms to improve value creation. Figure 5 shows the new technologies that are used on a large scale, in particular for marketing and digital devices, resembling the traditional innovation S curve (Marchegiani & Arcese, 2017). Therefore, among the macro technology areas, it is possible to identify the following technologies of the future (Pemberton, 2018).

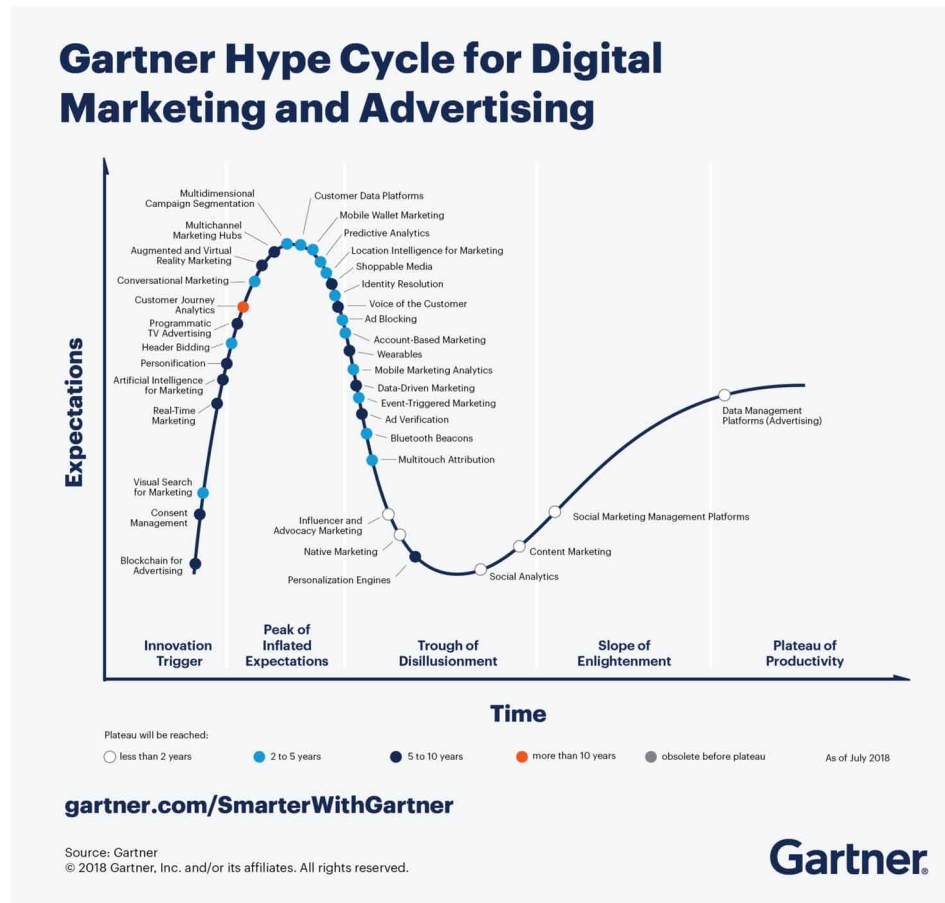
In their work, Arcese, Flammini, Lucchetti, and Mortara (2016) showed that the main technological characteristics that enable collaborative consumption could be linked to five main drivers:

1. Social networking, it helps to facilitate the information peer-to-peer sharing and other kinds of transactions that match supply and demand.
2. Mobile technologies: all the equipped ICT for mobile devices, such as smartphones and tablets that facilitate real-time communications among individuals.

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Figure 5. Hype cycle curve specific for marketing and digital technologies

Source: (Pemberton, 2018)



3. GPS-mapping: allows the individuals to locate their positions and, by doing so, can take advantage of all that is offered through localization technologies, mainly consistent with proximity services.
4. Web Platform: it is the main concept behind the Web 2.0. According to O'Reilly (2007), Web 2.0 is "the network as platform, spanning all connected devices," its applications make the most of the essential advantages of the platforms: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their data and services in a form that allows remixing by others, creating network effects through an "architecture of participation," and going beyond the page metaphor of Web 1.0 to deliver rich user experiences."
5. Payment Systems: this driver is steady to smart e-commerce and invoicing systems to make easier payment transactions.

Technological drivers play a key role in social networks, GPS mapping and mobile technologies as they can offer social, economic and environmental value, and also allow to use a service or good without necessarily buying it. The key elements concerning the digital platform for smart tourism performance are:

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1. Online collaboration
2. Collaborative consumption
3. Online sharing
4. Consumer value

Particularly, it is interesting to evaluate to what extent some Italian cities provide a smart, sustainable access to cultural heritage, for a wider range of users, by the use of digital technologies in order to transform passive audiences into active practitioners, through the cross-contamination between ICT enterprises, Creative and Cultural Industries, and local actors.

The notion includes different technologies, such as mobile, in-memory, social media, and cloud (Ceccagnoli, Forman, Huang, & Wu, 2012; Sedera et al., 2016). In this work, we limit our analysis to the cloud. More specifically, we will examine cloud-based platforms that are a relatively recent phenomenon and therefore require more empirical research (Ceccagnoli et al., 2012). This will be discussed in more detail in the following section.

THE BUSINESS NETWORKS AND CLUSTERS

The increasing regional and global competition in the market environment, rapid changes in techniques and technology advances and the rise in customer expectations, have to lead several businesses to rethink their value propositions and their business models, moving towards the development of collaborative systems, alliances to allow them to improve their economic performance and competitive advantage (Negrușă, Rus, & Sofică, 2014). In Europe, the most common manifestation of these collaborative systems has been the phenomenon of clustering, especially European industrial districts (Rosenfeld, 1997). Porter (1998) defined clusters as: “geographic concentrations of interconnected companies and institutions in a particular field, linked by commonalities and complementarities.” Moreover, the South East England Development Agency (SEEDA) (2003) pointed out that clusters are “a progressive form of business network, which has strong business objectives focusing on improving sales and profits, they are directly connected to clusters and make the exchange of information and technology possible, encouraging different ways of co-ordination and collaboration within them” (South East England Development Agency (SEEDA), 2003). Particularly, Spanikova, Birkman, and Besseling (2014) explored the business networks diffusion in Europe analyzing different case study in different countries and they elaborated a working definition: “a business network is a form of inter-firm cooperation that allows companies, also located in different regions or countries, to collaborate together on the basis of common development objectives expressed in a cooperation agreement/contract. The companies decide to join their strengths, share information, and create synergies to become more innovative and competitive on the domestic and international markets while keeping their autonomy, not creating a separate legal entity. This cooperation model is suitable for any business activity and sector.”

Especially for individual SMEs networks may help companies to resolve problems related to their size, and improve their competitive position (Ceglie & Dini, 1999). However, Ceglie, and Dini (1999) pointed out that clusters face several barriers:

- The frequently high transaction costs that need to be borne to identify suitable network partners and to forge relationships;

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- The imperfect functioning of the markets for such crucial inputs for networking development as information and innovation;
- The high risk of “free-riding” faced, especially in contexts where the legal framework to back up joint endeavors is relatively underdeveloped.

According to these authors, these are the reasons why clusters do not always emerge spontaneously, in fact, they stated that the intervention of “an external agent acting as a catalyst to facilitate the emergence of clusters and networks could greatly reduce the significance of the above factors” (Ceglie & Dini, 1999).

The decisive importance of the networks in the capitalism of small business today is that the frame of the network allows you to effectively and with profit these investments thanks the fact that the network (Marchegiani & Arcese, 2017):

- Gives access to the economies of scale (network) in the production and use of knowledge.
- Favors the division of cognitive labor in the sense of the reciprocal specialization.
- Distributes between subjects the risk and the financial requirements connected to the investment in innovation and experimentation of new.

The network is effective from this point of view only if the bond is such as to allow a good relationship between the subjects in the network in terms of communication, logistics, proprietary rights, and guarantee systems.

In tourism, the development business network and clusters sharply increased (Jackson & Murphy, 2006). Networks and clusters in tourism bring several benefits such as flexibility, the share of valuable marketing information, innovation, opportunity to enter other networks and clusters on a national level and across borders, resource development, and knowledge transfer between stakeholders (Novelli, Schmitz, & Spencer, 2006). Beni (2003) elaborated a definition of tourism companies or business cluster as “group of highlighted tourism attractions within a limited geographic space provided with high quality equipment and services, social and political cohesion, linkage between productive chain and associative culture, and excellent management in company nets that bring about comparative and competitive strategic advantages.”

Particularly, Kolveková et al. (2019) analyzed the level of implementation of sustainability principles in Central and Eastern Europe tourism clusters founding that clusters can boost the effective planning and decision-making for the destination management to support the sustainable development of tourism in a specific region. Also, Novelli, Schmitz, and Spencer (2006) explored tourism cluster implementation. They focused their analysis on the case study of the UK ‘Healthy Lifestyle Tourism Cluster’ (HLTC) experience. The authors found that the HLTC has brought significant benefits for involved SMEs, improving quality of services, business referral, enhanced visibility, cross-marketing activities with other cluster members, and involvement in major annual local events.

However, if this cannot be defined as the era of networks, it is undeniable that we are facing an economically significant phenomenon. Among the forms of organization of economic activities that have historically been affirmed, the reticular group is the one that comes closest to the concept of “network” used in this work (Bisante, 2017). Business networks, “formalized in-network contracts,” are not characterized by productive specialization because they could be part of the network also subjects that perform very different activities, although in some complementary aspects (Burlina, 2018). Some studies have highlighted a prevalence of horizontal aggregation models for the common goal of reducing

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costs and seeking synergies such as cost-sharing and centralization of purchases. However, in utility-sharing, there is no lack of vertical networks or company networks that start upstream and downstream integration processes with customers and suppliers (Ceglie & Dini, 1999). Network contracts, although in many cases have certain territorial proximity between the companies that compose them, can be set up between companies without any territorial constraint and in fact show, from the first data, a tendency to aggregations that go beyond the single geographical area (Spanikova et al., 2014).

Furthermore, the average number of companies for each contract is around 4-5 units. In-network contracts the relevant variable is above all the “sharing of activities” and the technological transfer (e.g., the realization of prototypes, widening of the offer in terms of products or services) (Tiscini & Martiniello, 2015). The duration of these contracts fluctuates between 5-7 years, rarely falling below 3 years. The point is, however, whether the network contract is an organizational form suitable for the activity of the entire district, or whether it can conveniently be used only for the realization of some specific synergies between companies within the district. There are still no official data on how many district businesses have decided to enter into a network contract, and if this has happened with companies in their district (Bisante, 2017).

CASE STUDIES ANALYSIS

As a strategy to support innovation and sustainable development, this research analyzes the integration of technologies for SMEs’ commercial networks in the light of smart tourism destinations development. The Central Italy experiment of the Regional founded project for the development of business networks “Lazio Street of Commerce” project has been identified as a solid foundation to develop a case study in which actors representing different activities of the touristic supply chain cooperate and share resources to embrace an innovative and sustainable approach to their activities. Interviews with key stakeholders, observational research, and content analysis of communication materials, networks contract, and business network proposal used to apply for Regional incentives were used to develop the case studies analysis. Semi-structured interviews were conducted with the promoters, the project managers, and the business network managers of the four business networks (Table 1).

The interviews were performed between February and April of 2019. Interviews were conducted by telephone as a free conversation, with questions guiding the conversation and guaranteeing uniformity and comparability of collected information across the different interviewees.

Questions included:

- When and why did you decide to develop the business network?
- What were the main reasons that led you to develop the business network?
- What are the main drivers and barriers for companies that decide to develop this model?
- What risks do you think are associated with them?
- What was the stakeholder response at the territorial level?
- Have you received support from the municipalities, business associations, institutions, and local entities, and others?
- What are the main activities that you have implemented?
- What does your network contract contemplate?
- What role did ICT technologies had in your project?

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Table 1. List of interviewees

Position	Institution	Role in the Project
President	Confcommercio Lazio	Promoter
General Director	Confcommercio Lazio	Promoter
Project Manager	Confcommercio Lazio	Coordinator for the project “Lazio Streets of Commerce” promoted by Confcommercio Lazio
Project Manager	Confcommercio Lazio	Coordinator for the project implementation for the business network MAM Gaeta
Project Manager	Confcommercio Lazio	Coordinator for the project implementation for the business network Minturno Da Scoprire
Business network-manager	MAM Gaeta	Business network coordinator; in charge of planning, coordination, and governance of the network
Business network-manager	Minturno Da Scoprire	Business network coordinator; in charge of planning, coordination, and governance of the network
Project Manager	Alatri Facciamo Centro business network	Coordinator for the project implementation for the business network Alatri Facciamo Centro
Project Manager	Yes Aquino business network	Coordinator for the project implementation for the business network Yes Aquino
Business network-manager	Alatri Facciamo Centro business network	Business network coordinator; in charge of planning, coordination, and governance of the network
Business network-manager	Yes Aquino business network	Business network coordinator; in charge of planning, coordination, and governance of the network

Source: Own elaboration

- What is the level of integration of your project with digital platforms?
- What types of communication and marketing strategies have you used?
- In your opinion, can this type of business networks help the development of smart tourism destinations?
- In your opinion, how has your project impacted the development of STDs?
- What kind of benefits did you expect at the territorial level?
- What kind of benefits did you get from this project?

Answers provided by the interviewees were simultaneously recorded on paper by two researchers, to guarantee data accuracy and completeness. Data collected were organized into categories, emerging from the questions asked in the interview and the research question of this chapter. Then results were analyzed according to the proposed model from an interpretative perspective.

Moreover, two of the authors of this chapter were involved as an external consultant for the project implementation. So, for several documents we had direct access, others were provided by the project managers and business network managers. Documents as network contracts, communication materials, business network proposals used to apply for Regional incentives, and websites were analyzed using content analysis to extrapolate data and information from documents. The collected data were analyzed using a quantitative content analysis method, which has been widely used in tourism and hospitality research. After the general results obtained at the regional level, four business networks are chosen for

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the technologies analysis in order to understand if the general international model is compatible with the regional development, and the results obtained are in line with literature and business expectations.

THE ITALIAN EXPERIENCES: THE BUSINESS NETWORKS CREATION IN THE LAZIO REGION

Over the years, the European Union and its Member States have intensified their actions in favor of SMEs, recognizing them a pivotal role in their economic, strategic, and social importance. In 2008 the European Commission published the Small Business Act, which was revised in 2011. In the 2011 revision the Small Business Act (SBA) for Europe, which pointed to clusters and networks as new forms of cooperation between companies capable of triggering important synergies that can contribute to strengthening competitiveness and innovation; and where the EC announced that it would: promote the new forms of cooperation between companies, including between businesses located in different regions or countries; investigate the new forms of inter-firm collaboration that enable enterprises to join forces, stimulating a coherent and coordinated approach to achieve a common objective without losing their independence (Spanikova et al., 2014).

Due to the need to implement this act at the national level, a new type of contract appeared in the Italian legal system –“the network contract” or in Italian “Contratto di rete (CDR)” that defined a new form of business cooperation between companies, expressed through a multi-lateral cooperation contract between entrepreneurs (Spanikova et al., 2014). In 2009 the Italian legislator had formalized business networks through the recognition of a specific contract called “network contract” (law n. 33/2009 and law n. 122/2010). The Network contract is an agreement by which more entrepreneurs commit themselves to collaborate in order to increase, both individually and collectively, their innovative capacity and their competitiveness on the market. To this end, with the network contract, the companies undertake, based on a common program, to:

- Collaborate in forms and predetermined areas relating to the exercise of their activities.
- Exchange information or services of an industrial, commercial, technical or technological nature.
- Exercise one or more activities falling within the scope of their business.

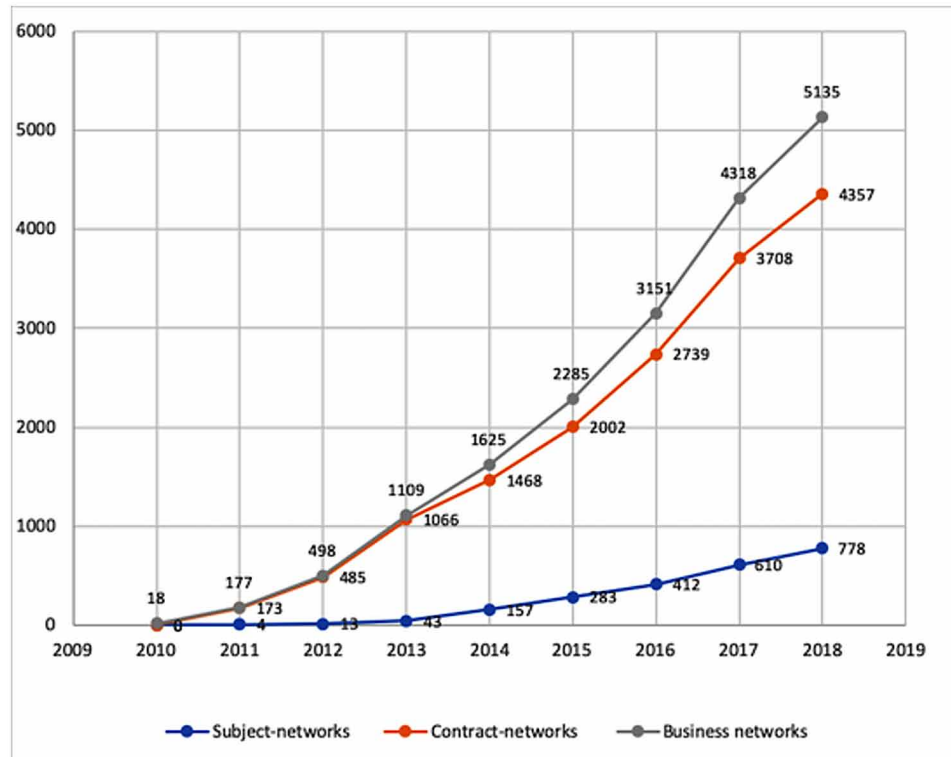
Indeed, the network contract is an innovative institution in Italian’s system and creates a model of collaboration between companies that allows, while maintaining its independence, autonomy, and specialties, to realize shared projects and objectives, increasing the innovative capacity and competitiveness on the market. According to the data of Retimpresa (2018), nowadays, in Italy, there are 5,135 business networks with 31,405 companies involved in this project. Additionally, as shown in Figure 6, this phenomenon is increasing sharply. In 2018 the growth rate of the networks contract was 17.5% (in absolute values +649), while that of the subject networks of 27.5% (in absolute values +168). In both cases, in line with the figure for the total number of networks registered, these are significant percentage increases, although less significant than those of 2017, as shown by the comparison between the respective growth rates: in 2017 the network contract had recorded +969 registered, with a growth of 35.4%, while subject networks registered +198, with an increase of 48%.

Moreover, for what concerns the sector’s distribution of companies involved in network contracts, from Figure 7, we can see as network companies are mainly connected to agriculture, forestry, and fishing

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Figure 6. Network contracts trend 2010-2018

Source: (Retimpresa, 2018)



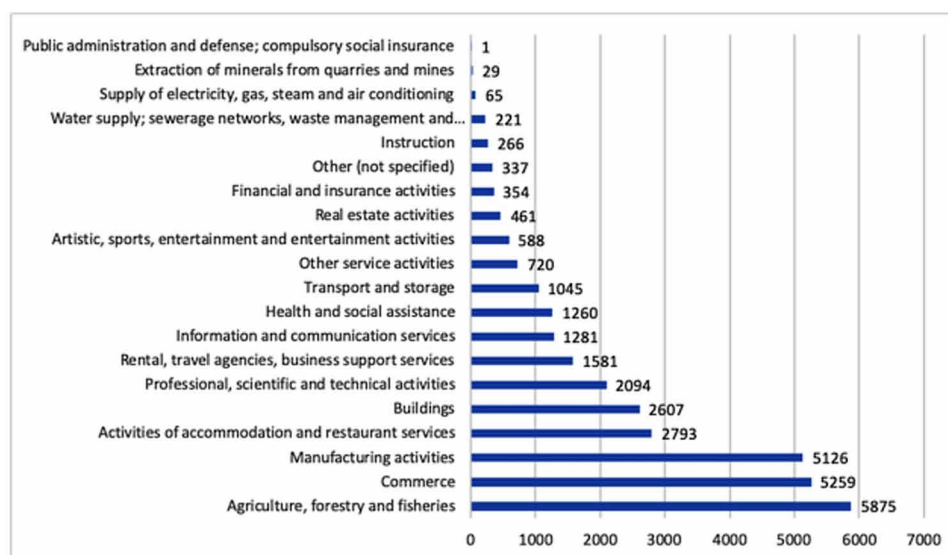
(19%), commerce (17%), and manufacturing (16%). Lower percentages are followed by companies in the tourism sector (9% for those companies that provide accommodation and catering services), construction (8%), companies that provide professional services (7%), and business support services (5%) (Figure 7).

A territorial level Lazio, Lombardia, Veneto, Campania, Toscana, Emilia-Romagna, and Puglia are the Italian regions with the most networks contracts registered. In particular, Lazio has pride of place among other regions for business networks; indeed, in the Lazio region, 8,305 companies are involved in network contracts. One of the reasons why Lazio Region has the greatest number of network contracts is that it launched an incentivization strategy by specific funds for street business and commercial activities. The program called in Italian “Le strade del commercio del Lazio” or “Lazio Streets of Commerce” (Lazio Region, 2019) is based on an agreement, formalized in a “Network Contract,” based on collaboration, exchange and aggregation between companies, which allows them to jointly exercise one or more economic activities falling within in their respective social objects, in order to increase mutual innovation and market competitiveness, while always maintaining their autonomy and individuality. The agreement allows the Business Networks to establish among its members a “strengthened,” organized and lasting collaboration on a common program, to pursue a shared purpose, maintaining their individuality and benefiting from some benefits and also tax benefits. It is, therefore, an alternative business model compared to the individualistic and fragmented one of the Italian industrial factories or districts. Business networks are a specific institution governed by apposite rules (Article 113 of the L.R. 4 of 28.4.2006, as amended by art. 2, paragraph 100, of the Lazio regional law 14 July 2014, n.

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Figure 7. Classification of companies on the network based on the activity section of the ATECO code, data updated to 31 December 2018

Source: (Retimpresa, 2018)



7) which replaced the previous regulations concerning “natural shopping centers.” In the Lazio Region experience, the opinion of the competent council committee on the subject of productive activities, the methods for the establishment of business networks were established (Regional Council, 2016). According to the Regional Law, the “Network” is defined as “the aggregation of economic activities on the road situated in a complex and not homogeneous place, developed over time even without a unified planning, conceived as a single space where an organized whole operates, in corporate form, consortium or network contract, of economic activities on the road, such as commercial, supply, artisanal, tourist, entertainment, cultural, sports, service companies, including daily local markets, periodic ones, as well as commercial activities on public area in general.”

They can also join the commerce business networks:

1. Economic activities on the road such as neighborhood businesses, medium and large sales structures, food and non-food, artisanal and productive activities, daily and periodic local markets, food and beverage operations, activities tourist, entertainment, sporting, cultural activities such as museums, cinemas, theaters, professional and service activities, as well as economic activities carried out in public areas in general, falling within the territorial area that delimits the Network, with the exception of shopping centers and integrated commercial areas;
2. Fairs in public areas.

The companies on the business network can be formed as both a consortium or under the legal umbrella or the network contract. In any case, they have to use an associative form, subject to the publication of the financial statements and registration in the Business Register. The network must have a common program called the “network program,” summarizing the main activities to be carried out and aimed at

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the pursuit of strategic objectives of increasing the innovative capacity and the competitiveness of the participating companies. Different kind of networks can be characterized according to two specificities:

1. Territorial networks, with the presence in a delimited territory of a large urban cluster of economic offer and service on a heterogeneous road in terms of product assortment;
2. Supply chain networks, with the presence of a multiplicity of economic activities on the road belonging to the same product specialization, or in any case organized according to an integrated offer path.

In 2016, 13 million euro were distributed for the entire Lazio Region, assigned to 127 Business Network projects constituted the whole of the Lazio Streets of Commerce project, bringing together economic activities on the road - such as shops, artisans, markets, bars, museums, cinemas and theaters - coordinated by the Municipalities, to create services for citizens and for businesses and to promote initiatives together (Lazio Region, 2019).

The purpose of these initiatives was to increase, individually and collectively, the innovative capacity and market competitiveness of the participating companies to create new opportunities for development, regenerate the urban fabric, create services for citizens, and to promote the development of smart tourism destinations and to develop marketing initiatives at territorial level.

The main objectives of the project were:

1. Increase the innovative capacity and market competitiveness of network companies, while always maintaining their autonomy and individuality.
2. Coordinate relations between the companies that make up the Network, the promoters and the Lazio Region itself.
3. Manage the complexity of the diffusion of new procedures and new operating methods, given the plurality of the subjects involved, and the complexity and articulation of the regional territory.
4. Support the Municipalities, especially the smaller ones, in terms of resources (infrastructures, and application software) and of professional figures with specific skills.
5. Put in place adequate tools to promote territorial marketing.

RESULTS

The preliminary results of the public initiatives at the end of the public competition for funds as summarize in the following Table 2.

CASE STUDIES DESCRIPTION

Alatri Facciamo Centro (“We Make Center” Alatri City)

The conservation, enhancement, and promotion of the cultural assets present in the territory of the municipality competences play a priority role for the economic development of the business activities of the city and its entire social system. The productive, commercial, craft, service, and professional activities

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Table 2. Results obtained for public funding at a regional scale

	Variable	Results Obtained
1	Total Number of Network	187
2	Total Funds distribution	€ 16 000 000.00
3	Total business activities and companies involved	8.069
4	Total municipalities and public institutions involved	109 municipalities and nine municipalities come from Roma Capitale
5	Other Projects	8 (System Areas)

Source: (Lazio Region, 2019)

have been experiencing a severe economic crisis for many years. Alatri does not stand out in positive; on the contrary, the existing activities in its prestigious and prized historical center suffer an even greater crisis. However, it was not only the crisis that was the cause of the current state. The factors are many: the depopulation of the historic center, the location of school buildings in a peripheral area adjacent to the city hospital, the transfer of the weekly market, the closure of a series of public offices, such as - to quote the most relevant cases - the district court, the cadaster, the tax office, the transfer of driving commercial activities, which also moved to the hospital area where there was a substantial demand. The merchandise activities left in the historic center do not entirely satisfy the demand for goods and services, and the offer of receptive activities is almost non-existent. There is an absolute lack of a common strategy of productive activities to increase the demand for goods and services. Before this project, tourists and consumers want a complete offer that can fully satisfy their needs. Moreover, the neighboring cities, in terms of system size, are no better. The mapping of land resources is absent, and unemployment rates are above the warning levels. At present, despite the numerous actions aimed at economic development and the enhancement of the cultural heritage that favors the creation of an integrated tourism system, there are still important technological and valorization gaps, above all concerning the use of technology. First of all, there is the lack of a digital platform that highlights, through technical support and digitalization, the city's cultural heritage and, at the same time, enhances the economic activities and the possibilities to benefit from different services offered by the commercial place. Furthermore, there is no digital illustrative itinerary that helps and accompanies both the citizen and the tourist in visiting the city. Finally, we note the absence of an effective communication and promotion system that uses digital marketing channels and the associated technological tools to conduct digital marketing campaigns (both tourism and purely commercial). The preferential channel for achieving this goal passes mainly through the improvement of access to information and the development of new applications for the benefit of the whole community, such as the interactive digital platform. The long-term objective was the development of an integrated tourism-commercial system that will be implemented through the exploitation of synergies between all the parties involved and, principally, with the Municipality of Alatri and with other stakeholders in the city area in order to start and renew an integrated multi-year tourism planning and actively contribute to a plan to relaunch and develop the activities of the historic center and of the whole city.

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Consortium MAM – Memorie, Arte, Mare Gaeta (Memories, Art and See Gaeta City)

The network was created to achieve six strategic objectives: develop a governance system to bring together public and private actors, foster collaboration among network members, develop a synergistic commercial offer, develop an integrated communication strategy, improve access to the area's services and improve the level of urban quality. In particular, in the interventions of marketing and territorial promotion and beautification of street furniture, the Municipality of Gaeta was involved, which in turn participated with a substantial co-financing aimed at integrating the artistic illuminations of the Christmas period with initiatives by the network. The two cultural associations: "The treasures of art" and "Urban memories," project partners, will intervene respectively for the creation of a city museum circuit and the embellishment of rest areas with artistic benches and urban art installations. Ample space will be given to marketing and communication, with the creation of a web portal for the area and the promotion of social events in the program and also to the re-use of empty and vacant commercial premises present in the intervention area for the realization of artistic events and innovative projects. The vocation of the network aims at enhancing and improving the capacity of the offer in an integrated and heterogeneous manner, promoting the specific artistic, tourist, and cultural nature of the territory through an innovative process of redefining and enhancing the attractiveness and resources.

Villaggio Turistico Diffuso – Minturno da Scoprire (Diffuse Touristic Village, Discover Minturno City)

The project aimed to promote a redefinition of the role of the tourist destination of the Minturno city, in terms of seasonal adjustment, the synergy of the commercial and tourist supply chains, and seasonal attractiveness for differentiated targets. The presentation of the project to the Region is the result of the important collaboration of different institutions. It has allowed companies to be involved and to identify regional and European funding opportunities in various sectors. The Network of Businesses "Minturno to discover" was created under the Cat Confcommercio Latina that supports the coordination of the activities. The main requirements for improving the tourist and commercial attractiveness of the area have been defined. The project was articulated and focused on investments in terms of urban decor and sustainable mobility, promotional and communication strategies similar to those of tourist villages, as well as a program of cultural and commercial events able to attract national and foreign tourist target areas niche, like the "taste tourists," groups and individuals interested in history and archeology. Also, in this case, the need for programs to promote and revive urban and historical centers was necessary. The Municipality has evaluated the project in perfect harmony with its vision of the development of Minturno/Scauri, of its great historical, environmental, socio-economic resources. It has decided to present a request for funding to the Lazio Region. The "Minturno to discover" Network can only bring benefits to local development. One of the interventions envisaged in the Macro-area "Complementary actions to energy and environmental sustainability policies" is the purchase and implementation of a fleet of pedal-assisted electric bikes. The project aims to develop a model of sustainable mobility made available to tourists with reported tourist routes and itineraries and supported actions for sustainable mobility.

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Yes Aquino

The objective of the Aquino Business Network is to disseminate and promote commercial activities in the Aquino area. The promoting companies have decided to embark on a path of union and collaboration because they are convinced that cohesion is a fundamental aspect of the growth of both the city and all activities and citizenship. The Network is open to all the activities that will want to be part of it, because their main objective is to create a structure that brings together all the companies of the city and the territory, in order to offer better services to their fellow citizens, quality events, useful facilities and services to all citizens and friends of Aquino. The strategic interventions, subject of the financing, cover five macro-areas and are:

1. Governance and network manager.
2. Maintenance interventions and urban furniture of the environment.
3. Complementary actions to the policies of intelligent mobility as well as to the improvement of accessibility to the area and use of the public spaces involved.
4. Communication, network marketing, territorial animation, promotional initiatives, and the promotion of excellence.
5. Innovation in the supply chain and management of shared services for businesses and citizens.

Key variables used according to the theoretical model discussed in the background section are shown in Table 3. In addition to the strictly technological variables linked to the digital device and web technologies, green technologies and sustainable mobility have been added because of strategic and priority areas of the public intervention line for the specific geographical characteristic of the areas.

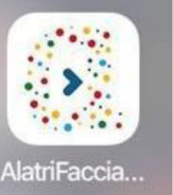
DISCUSSION OF RESULTS

Key performance indicators (KPIs) and hotspots (Hs) of business networks created for commercial activities and smart tourism destinations development are analyzed to considering the technological gaps and evolution after the projects' implementation. In particular, digital and marketing technologies are taking into account for this analysis. General results shown as positive influencing factors can be the promotion of cultural assets, the use of new technologies for economic development, cooperation through networks and clusters, and the involvement and integration of different local stakeholders throughout a participatory approach and immersive technologies integration. Particularly, these experiences have underlined the importance of a participatory and sharing approach to the development of smart tourism destinations. Several advantages are linked to the development of business networks as a driving factor for a sustainable implementation of smart tourism solutions (Baracchino, Lombardo, Bertolino, & De Girolamo, 2017):

- **Sharing:** the creation of business networks enhances the sharing of knowledge and know-how between business network partners. Sharing also allows you to receive suggestions, ideas, opportunities.

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Table 3. Key performance indicators for business network

Key Performance Indicators	Business Network			
	Alatri Facciamo Centro	MAM Gaeta	Minturno Da Scoprire	Yes Aquino
Web and Internet Platform	x	x	x	x
Mobile Technologies				
Technology for Green Practices and Smart Mobilities		x	x	
Interventions for beautification and improvement of the urban environment	x	x	x	x
Social Network	x	x	x	x
GPS Mapping	x	x	x	x
Payment System	x			
Network Brand				

Source: Own elaboration

- Change: joining a business network are more used to changing and lives it with greater serenity, thanks to the strength of networking. Moreover, consequently, it knows how to communicate these changes to its team or its employees better.
- Belonging: feeling part of a network of a community of sustainable businesses to learn to combine business with social responsibility.
- Collaboration: that is cooperating as active protagonists because the union is a strength. SMEs can make useful, innovative, socially responsible projects thanks to new partnerships. From networking, partnerships can also be created to participate in public calls for funding.
- Co-planning: promoting and realizing innovative services together to spread the culture of sustainability.

General results of the Lazio Region initiative on the regional scale shown as the public incentives could help the scale-up of small areas and commercial areas throughout tourism activities and smart technologies. The prioritization of practices capable of, therefore delimited the strategic perimeter of these projects:

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- Positively influence sustainable and homogeneous territorial development by raising awareness among local actors and helping to create and maintain the value produced in the local community;
- Encourage effective collaboration between the territorial actors considered in the broader sense including the final consumers considered as production participants and not just customers
- Impact on the internal processes of the actors involved in the project to favor collaborative mechanisms.
- Increase knowledge capital in a logic of “positive-sum” of the contributions of each concerning individuals.

Going to analyze the results from the case studies, it emerges how sustainability is the guiding principle behind all the actions developed by the networks. Analyzing network contracts, it emerged that for every activity developed by the network, reference is made to assessments of economic, social, and environmental sustainability. Indeed, for every action taken, the network aims to commit to sustainable growth. Additionally, in all business networks, interventions for beautification and improvement of the urban environment have been carried out. All four case studies have developed integrated interventions to improve urban quality. The business networks intervening on urban furnishing elements and public green areas, besides improving tourism receptivity, also enhanced the quality of the city’s surrounding environment. The four business networks developed rehabilitation interventions and enhancement of green spaces.

Moreover, public educational activities on sustainability and sustainable tourism have been organized by the four business networks. These activities played a crucial role in the realization of the sustainability principles in business network development. Furthermore, communication and environmental and social education actions have been started by the four business networks in order to allow the training of personnel and citizens, also trying to positively influence the consumers of goods and users of services towards sustainable consumption practices. Finally, two out of four business networks, MAM Gaeta and Minturno Da Scoprire, have committed themselves to a plastic-free strategy. In this sense, the networks have committed themselves to the realization of their activities and in the organization of events (such as fairs, exhibitions, markets) to the elimination of plastic and in particular, of single-use plastic. In particular, the cities of Gaeta and Minturno have been very pro-active on this issue, also eliminating the use of plastic on the beaches and promoting eco-sustainable consumption methods. Finally, the Minturno business network is the only one that has implemented action to promote sustainable mobility in the city. The network purchased a fleet of pedal-assisted electric bikes intending to develop a model of sustainable mobility made available to tourists with reported tourist routes and itineraries and supported actions for sustainable mobility. The general model created according to a bottom-up approach, using as a base a practical case experience in the Lazio Region, shows that the first step of these incentives has obtained positive feedbacks and good results. However, we are not yet in a phase of territorial networks. The overall success of the Lazio “Road of commerce” initiative gives hope for the replication of the initiative and the development not only from an economic point of view but also for a technological one through the diffusion of specific smart technologies, for which most probably a specific measure is needed.

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CONCLUSION AND FUTURE OUTLOOKS

The analysis of smart Italian tourism case studies implied the selection of only a few macro-categories for smart city development. In particular, have been analyzed just those areas where cultural heritage and tourism intersected or those areas that have already been developed for supporting local development in the light of the “smart paradigm.”

The chosen methodology is based on the Smart Tourism destination concept and integrated with the analysis of data and statistics both on the regional level and urban areas level.

Generally, the smart enhancement of cultural heritage is related to four dimensions:

1. collection, reproduction, protection, management/conservation
2. contents, and multimedia information creation technologies, both conservative and productive
3. user’s interactive experience technologies
4. the dimension of cultural heritage as a specific element connected within a complex system giving new possibilities of urban governance.

From the study emerged the key role of technologies (in particular digital ones and those linked to big data) as a support base for the implementation of a smart tourism model. This chapter aims to create a methodological and strategic framework in which to connect and merge all the priority objectives for the development of a sustainable smart tourism destination. From a systemic and synergic point of view, implementing the business networks at the territorial level following the guidelines for the smart city development framework will help the company in the path towards the realization of the 2030 objectives and with particular reference to the Sustainable Development Goals (SDGs).

For these case studies analyses, the authors could not be observed all of these dimensions. The territorial variables represent a complex system to be monitored through live data collection and governed by allocating resources according to users/citizens/visitors’ requests through, for instance, sensor networks that record main activities or platform solutions to manage city events. Mobile technologies are the main tools through which citizens and tourists can integrate their personal experience by changing the relationship with cultural products in dynamic interaction.

As far as the specific Italian scenery is concerned, during the ‘70s, Italy was the first international tourist destination, while nowadays, in a global context of growing competitiveness, the impressing cultural heritage is no longer sufficient to attract visitors. Smart tourism could involve relevant potentialities of development for small Italian towns but is not supported by institutional actors. The future step of the analysis consists of the investigation of the macro-categories for smart cities development left out from this chapter and the evaluation of different indicators for business network development.

Moreover, ss touristic areas are composed of a multitude of supply chain actors of small dimensions. It is crucial to develop a strategy that can coordinate them to boost actions to mitigate their environmental impact. Greater coordination and cooperation among these actors would increase the efficacy and would reduce the monetary effort than single operators should sustain in the implementation of sustainable development-oriented actions (Saiz-Álvarez & Palma-Ruiz, 2019). Scholars have widely documented the efficacy of setting a common strategy to reduce the environmental impact and reduce costs through industrial symbiosis experiences (Chertow, 2000; Zhao, Zhao, & Guo, 2017). Some studies have also highlighted how a territorial cooperative approach in the environmental management of tourism areas can be effective, allowing the obtainment of several benefits (Battaglia, Daddi, & Rizzi, 2012; Hill & Gale,

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2009). Particularly, in future studies would be interesting to investigate the opportunities of implementing circular economy and Industrial Symbiosis principles and practices at the business networks level. Specifically, for cities, it is possible to integrate urban principles that derive from industrial ecology such as symbiotic exchanges (typical of the Industrial Symbiosis (SI)) models up to the recent evolutions towards the models of the so-called Urban Metabolism (UM) (Shahrokni, Lazarevic, & Brandt, 2015) for territorial development models for city centers. Urban Metabolism is proposed by the scholar Wolman (1965), as a model for designing and evaluating the effects on the environmental variables of the activity city. The metabolic requirements of a city can be defined as “all the materials and goods needed to support the inhabitants, work and institutions.” The urban metabolism concept could be an effective key to decline environmental sustainability problems of a city (as solid waste management, collection of solid waste, separation plants, transportation and infrastructure, energy management, heat network, pipelines for liquid or gaseous energy carriers, Supply of food and nutrients, Eco-sustainable transport) in the context of smart cities and smart tourism destinations development.

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KEY TERMS AND DEFINITIONS

Business Clusters: A geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular field.

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Business Networks: A form of inter-firm cooperation between a complex network of companies, working together to accomplish certain objectives expressed in a cooperation agreement/contract.

Digital Platforms: A digital platform is a set of multiple services, representing a unique combination of software and hardware services of a company used to deliver its digital strategy.

ICT Infrastructure: ICT Infrastructures are all the information and communications technology infrastructure and systems (including software, hardware, firmware, networks, and the company websites) that are used in an organization.

Network Contract: With the network contract, two or more companies undertake to jointly exercise one or more economic activities, falling within their respective social objects, in order to increase mutual innovation capacity and market competitiveness.

Smart Tourism: A new model of delivering tourism services characterized by the integration of ICT technologies into the tourism business value proposition to enable tourists to communicate and interact more closely with residents, local businesses, local government, and tourist attractions in cities.

Smart Tourism Destination: Smart tourism destinations are smart cities which utilize the information technology and innovations to enable pleasure, and experiences for the tourist

ENDNOTE

¹ <https://www.regione.lazio.it/lestradedelcommercio/dettaglio-evento/?eventId=389>

Chapter 9

System and Environment for Tourism 4.0: How Does a Digital System Work for the Promotion and Evaluation of Gastronomic Tourism Fairs?

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ABSTRACT

Smart cities are a new scheme for urban planning and management, in which smart destinations become key points for tourist attraction. The objective of the present study is to determine through the theoretical review, the most appropriate technological tools to be used in fairs and turn them into smart spaces. The Raíces International Gastronomic Fair of the city of Guayaquil and its satisfaction / dissatisfaction indexes are taken as an example case in order to propose a technological management system that improves its performance, in which the use of Big Data, georeferencing, IoT, and augmented reality are key pieces to guarantee the security, experience, and promotion of the event.

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INTRODUCTION

Industrial evolution has had three major changes or evolutions, and today humanity enters a fourth evolution that has been named 4.0 industries. The first revolution begins with the industrial revolution, which was based on mechanization through hydraulic power and steam engines; the second revolution occurs as a consequence of the first with mass production and assembly lines using electricity. After this, industry 3.0 began giving the path to the introduction of computers in manufacturing processes. At the time, it was seen as a significant change in production processes. However, industry 4.0 has entered as a new way of understanding behavior patterns, and insights through the analysis of big data generated, and that makes companies operation more efficient (Marr, 2018).

Industry 4.0 and intelligent manufacturing will generate large contributions from shorter cycles for the development of new products, integrated and automated production processes to providing real-time information that generates collaboration networks for better decision making. However, there is a need for the creation of government initiatives to develop this industry, as well as the support of institutions that generate training for the use of these technologies. Additionally, the creation of a national plan that defines infrastructure development strategies and competences on of use and safety issues (Ynzunza, Izar, Bocarando, Aguilar, & Larios, 2017). Among the technological pillars on which industry 4.0 is based we can find: a) Integration systems; b) Autonomous machines and systems (robots); c) Internet of Things (IoT); d) Additive manufacturing; e) Big data and big data analysis; f) Cloud computing; g) Simulation of virtual environments; h) Artificial intelligence; i) Cybersecurity; j) Augmented reality (Basco, Beliz, Coatz, & Garnero, 2018) which significantly affects the value chain of companies and also the supply chain, making them more efficient.

The digital transformation is not only limited to changing the work environment, but it is intrusive in all social spheres such as culture, education or citizen security (Del Val Román, 2017), where tourism is no an exception, since it is a sector that uses information intensively in every stage of the value chain where the use of storage clouds, mobile devices, Internet of Things and collaborative economies, are of high importance for the development of this industry (Orange, 2016). Such is the case that tourist mobility is generated according to the decisions that are made, according to the ratings they find on the Internet, and generate their purchases through online channels (Barbery-Montoya, Andrade-Vargas & Zambrano-Lozano, 2018).

But not only the purchase process for mobility is a technology issue. Also, from the tourism perspective, the focus of smart cities or destinations is aimed at increasing the sustainability and competitiveness of cities, taking into account the factors of innovation and technologies as critical elements for their development (Fantoni & Soares, 2016). The digital structure that occurs in a smart city creates a communication channel between tourism and culture. For this reason, smart cities use digital channels as a way to exchange communication agile and quickly (Gómez, Server, Jara, & Smart Cities, 2017); and it is in this exchange where the culture of a city is transmitted through events. Today's events are occasions of frequent celebrations in different destinations around the world whose figures increase annually, causing this market to enter a fast growth in the tourism industry, which is one of the most reliable items in this sector (Kim, Duncan, & Chung, 2015). Non-usual occasions characterize the events, driven by different motivations, from cultural, leisure/entertainment, work and even personal, being developed on specific dates in order to celebrate, teach or communicate to a group of people with the help of content provided by these (Cerro Herrero, 2018). The existence of motivation in the events is crucial because it is the main engine that causes people to make their trips and makes their realization possible; these

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motivations goes from socialization to the experience itself, learning, leisure, curiosity and, as indicated, culture (Rosas Herrera & Estrada Castillo, 2016). Another factor of relevance is satisfaction since it is the central axis on which an event moves and where satisfaction can be defined as the consumer's response to the evaluation of the difference that is perceived between previous expectations and actual functioning of the product as perceived after consumption (Oliver, 2015). The relevance of the evaluation of the satisfaction of an event is that the clients are directly linked to the success of the business, since this evaluation will be for the event organizers the necessary tool to take preventive and corrective measures in future events and at the same time allows to improve the overall quality of it, contributing to become a better experience and image by the tourist about the destination (Khadka & Maharjan, 2017).

The development of cultural events as tourist attractions, gastronomy is an important aspect, in addition of being considered a product it is a form of expression of cultural heritage and tradition of a destination, being in some cases a motivating factor in tourists for visit a place (Muñoz, Uribe, Pérez, & Ríos, 2017). Also, it is important to highlight that gastronomy is the second most important element of attraction, only behind citizen security (López-Guzmán Guzmán & Sánchez Cañizares, 2017). According to Tikkanen (2000) cited by Millán, Hernández and Dancausa (2016) gastronomy establishes a synergy with tourism through four aspects: a) In the form of an attraction, where the destination uses gastronomy to make itself know since it is its main product; b) As a component of the product, which emphasizes that it is not the star product but is part of its portfolio, for example: gastronomic routes; c) As experience, which indicates the existence of one or more locations where gastronomy takes another level; and d) As a cultural phenomenon, which lies in the existence of food festivals.

Under the above, two questions arise a) How can the use of technology be applied to turn a city's gastronomic fair into a smart space?, and b) What are the most appropriate technological tools for this to happen? Our main objective is to determine these tools and how to apply them so that they can be used in gastronomic, cultural events and turn them into an intelligent space. To achieve this goal, we define three aspects of this chapter. First, the literature review to understand the relevant elements in smart destinations; second, to expose the particular case of the *Raíces* International Gastronomic Fair in Guayaquil, in which its visitors analyze satisfaction levels; and third, a theory-based proposal, to improve satisfaction levels and turn the fair into a smart destination.

BACKGROUND

Smart Territories and Smart Cities

Smart cities have become a new scheme for urban planning and management since they contain issues of strategic planning, technological evolution, sustainability, and innovation policies; they are "cities with completely defined limits from a geographical and political administration point of view," being their main purpose of improving the quality of life of their citizens and ensuring an economic, social and sustainable improvement in the environment (Saiz-Álvarez & Palma-Ruiz, 2019). Nowadays, the development of this model provides access to value creation, real-time information, and allows dynamic interaction between stakeholders, which will help to create smart destinations.

For some authors, the main criteria for a city to be considered intelligent lies in its urban aspect; in other words, the infrastructure and technology that make it possible. However, the real secret focuses on the connection and integration of economic, social, and technological factors since the administra-

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tion and development of cities depend on the growth of these factors (Monzon, 2015). For other authors such as Buhalis and Amaranggana (2013), the criteria for deserving the “smart” city rating are based on the fulfillment of a high quality of life, government participation and an infrastructure that helps the distribution of information; on the other hand, Boes, Buhalis and Inversini (2015) defined that their intelligence could be based on human capital, infrastructure, and information and that in order to achieve it, the development of six dimensions would be important: intelligent government, intelligent environment, intelligent mobility, intelligent economy, smart people and smart way of life.

In the case of tourism, an emerging approach is shown that includes the high penetration in the production and consumption of information and communication technologies, the need to guarantee the quality of the destination environment to improve the tourist experience, strengthen destination attractions and highlight your competitiveness. In this way, a smart city that uses intelligent destinations as tourist products can be described as a city that uses its technologies to improve the experience and satisfaction of the tourist, in addition to being competitive against other destinations (Femenia-Serra, Perles-Ribes, & Ivars-Baidal, 2018).

Smart Destinations: Opportunities and Linked Actions

Nowadays, the processes of consumption and production in the tourism industry have been affected by ICTs due to the excessive use of information. Technological evolution is an important change factor that modified customer behavior; For this reason, tourist destinations adapt to this evolution. In this context, the concept of smart destinations emerges and becomes relevant because it reflects the concept of cities as centers of knowledge, information management, technology, and innovation (Ivars-Baidal, Solsona-Monzonís, & Giner-Sánchez, 2016).

In recent years, the evolution of technology has contributed to the emergence of different distribution channels that give people access to information about anything; in the case of tourism, information on destinations to organize their trips, which changed the way people search and share information creating a change in their behavior. Against this, destinations are currently adapting to the intelligent era for customer satisfaction, using this new technology as a strategic tool for interaction and creation of a complete tourist experience (Huertas, Moreno, & Ha My, 2019).

In this way, those “destinations that use available technology to co-create value, pleasure, and experiences for tourists” could be defined as intelligent destinations (Jasrotia & Gangotia, 2018, p. 51). Thus, “being an intelligent destination is not only a label but a process towards the integral transformation of destinations, always to achieve the Sustainable Development Goals” (UNWTO, 2018). To achieve this, it is important to connect with the local community to ensure their commitment and facilitate the exchange of information between stakeholders based on the development of innovative and improved services, which meet the needs of tourists and translate into a mixture of human resources, innovation and local cooperation (Boes, Buhalis, & Inversini, 2015). In other words, destinations may be able to interconnect stakeholders to improve the purchasing decision process by facilitating dynamic platforms to exchange information on tourism activities (Buhalis & Amaranggana, 2013).

An intelligent destination is characterized by seeking different ways to collect data on infrastructure, social connection, organizational sources and human resources plus the combination of technologies to improve experiences, propose a value, sustainability, and efficiency to offer tourists the experience that they want (Gretzel, Reino, Kopera, & Koo, 2015). It is important to note that there is a difference between smart cities and destinations. The first only includes infrastructure, economy, and social factors,

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Table 1. The smart destination reference model

Bases	Segments That Involves
Strategic-relational level: It focuses on planning and strategies	• Governance (strategy, planning, and new management formulas). • Sustainability (efficiency, accessibility tourist and urban model) and • Innovation (enterprise, open innovation).
Instrumental level: Related about the infrastructure necessary to develop smart tourism.	• Connectivity and sensorization (based on digital economy: companies and consumers and sensors: devices and people) • Information systems (Platforms for the integration of information, open data, and big data).
Application Level: Involves indicators like quality, business intelligence, tourist information, and new experiences	• Tourist solutions and applications (Electronic management, open management, communication, commercialization, and customer loyalty)

Source: (Femenia-Serra & Ivars-Baidal, 2018)

developed by the state and focused on its citizens; the second is developed by the tourism sector (public and private) and focused on tourists. This distinction is important because a smart city could also be an intelligent destination, or an intelligent destination could be located in a specific part of a smart city (Gomes, Gândara, & Ivars-Baidal, 2017).

Today, the tourism industry has redefined its role, including tourists in the process of creating their trip, helping to improve their experience through the use of new technologies, turning a simple destination into a new type of intelligent tourist destination. To bring intelligence to a destination, a technological platform that must be composed of cloud services, Internet of Things and services for the end-user is necessary, to provide information such as resources, tourist data, tourist actions, habits of consumption; in other words, data generated from the interaction between tourists and space (Gomes et al., 2017). This platform works in each contact between stakeholders and tourists, who through the interaction before, during and after the visit, participate in the creation of their own experience, which in turn helps to innovate the tourism product or service through the data they provide (economic, social, demographic, etc.). This process has shown that the competitiveness of a destination grows through co-creation (Femenia-Serra & Ivars-Baidal, 2018).

For a successful transformation from a tourist destination to an intelligent destination, it is important to develop a reference model based on ICTs and data collection, adapting tourism areas to a destination. Many cities, such as Paraná or Benidorm, have applied this model to be followed to be considered intelligent destinations. The reference models are designed on three bases: the strategic-relational level, the instrumental level, and the application level (Table 1).

This model demonstrates the importance of application levels, given that it feeds the strategic and instrumental, by delivering intelligent solutions based on two groups: intelligent destination management and marketing for a better tourist experience. The first involves marketing, destination intelligence, visitors, and site management, and the second includes improvement of the experience and tourist information. All this, together with other intelligent solutions such as big data tools, Wi-Fi, social networking actions, websites, and blogs, create intelligence by improving the tourist experience and management processes (Buonincontri & Micera, 2016).

In the case of Benidorm, studies reveal that they use smart solutions in conjunction with marketing tools to meet tourists, new market segments, and thereby improve decision making. To improve the tourist experience, they use conventional ICTs plus intelligent services such as Wi-Fi, beacons, applications,

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and actions on social networks. To know about tourists, they use Wi-Fi as a tool to obtain information such as nationality, age, interactions in social networks, comments, how much they spend and how they do it, through semantic analysis (Femenia-Serra & Ivars-Baidal, 2018).

Another smart destination is Dubai; in fact, one of the smartest destinations recognized for its technology with an e-government department, senior and executive committee, and data law. It also invested in infrastructure (urban planning, transportation, electricity, communications, and economic services) and implemented smart projects that are the area of mobility, life, and environment where important projects have been implemented (Khan, Woo, Nam, & Chathoth, 2017). As a smart destination, Dubai has developed mobile applications not only to increase the happiness of tourists but also to help in the development of operations in the resource base. Popular mobile applications that provide intelligent solutions for residents and tourists are iDubi (list of points of interest), RTA Dubai (provides information on roads and transport such as subway, stations, bus and taxi), Timeout Dubai (provides information on the best options for outings at night, music, restaurants, films and hotels), being one of the most important applications for tourists, Careem (local transport service) (Khan et al., 2017).

Big Data, Geomarketing, Augmented Reality, and the Internet of Things: Digital Tools for an Intelligent Destination

Big data is a term that refers to the applications of science's data; that is, it describes a large volume of complex data, variable and high-speed data, which require advanced techniques and technologies for its capture, storage, distribution, management and analysis of information, capable of benefiting any organization due to the constant flow of information that never stops (Molinar, Espinoza, & Llamas, 2017). Another definition given to Big Data is that of a data set whose size exceeds the ability to search, capture, store, manage, analyze, transfer, display, or protect computer tools. The data sets included in this concept are also characterized by their variety, both in origin and in formats; the speed with which they occur; and the truthfulness or rigor implied in its nature and form of use (Thinktur, 2015); we are talking about huge and heterogeneous data that is consumed in real-time, that is, it cannot be processed on a single computer.

In the tourism industry, companies have identified the application of big data; for example, determining the relevance of social networks to plan trips where tourists seek information in blogs or virtual communities. Similarly, big data is used to define relationships between the guest experience and their satisfaction, to create predictive models of reservations through Internet consultations, hotel reservations, and tourist flights (Davenport, 2013). One of the great opportunities that Big Data offers to the tourism industry is in the Smart Cities because they stimulate the participation and the collection of user information before they arrive, during their stay and after they leave. Its physical deployment, based on a complete network of sensors and devices connected to the Internet, encourages the development of a virtual service platform that stimulates innovation, cooperation and, therefore, competitiveness for faster and more efficient decision making, to have a more precise knowledge of the habits and needs of tourists (Lamelas, 2017). Due to its leading role in the concept of smart city, it faces the following challenges: a) access to large data sets; b) the degree of openness and availability of the data; c) which organizations can provide Big Data; d) how the data is processed and; e) what is the added value of this data (Celdrán-Bernabeu, Mazón, Giner, & Baidal, 2016). For optimal use of big data, the tourism industry must clearly define the type of information it requires, because the information provided by big data is massive and constantly increasing.

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Table 2. Data sources in the intelligent tourism era

Big data transactions	Using data from foreign mobiles that used the phone network in the study area, as well as the XXI Century Bank, provided foreign card payments. The behavior aspects of visitors analyzed revolve around the following axes (through analysis of transactions with cards made): a) Visits: visit numbers and nationality b) Stay: average time c) Level of expenditure, time zone, and day of the week, type of expenditure: fashion, bars and restaurants, and hotels. Results were introduced and classified in cities, provinces, and tourist destinations.
Machine to machine	Through the Internet of Things (a network of physical objects based on four technologies: radio frequency identification, sensor technology, intelligent technologies, and nanotechnologies). One application is the flow measurement systems through account person cameras that allow knowing the number of visitors in a public space.
Web and Social media	a) Web analytics tools as Google Analytics allows knowing a good number of criteria about the destination webpage visits. Through tools like this obtain indicators like length of stay, nationality, age, sex, language, interest categories, access time, number of pages visited, access device, among others (i.e., Palma-Ruiz & Gómez-Martínez, 2019). b) The applications for mobile phones and tablets of the destination suppose another source of information on the tourist use of the city. c) Social networks with georeferenced information.

Source: (Lamelas, 2017)

In this new era, it is important to diversify and enrich data sources to improve tourism activity. Some of these sources are described in Table 2, with examples of specific applications.

On the other hand, geolocation, geo-marketing, and geotargeting are also presented as tools of high potential in the tourism industry. Today, smartphones have the ability to offer a personalized consumption experience thanks to web 2.0 technology that allows the exchange of information in real-time with a vast number of applications in different disciplines (i.e., Palma-Ruiz, Gonzalez-Moreno, Cortés-Montalvo, 2019). In addition, that represents an opportunity for companies to provide relevant information to these users and get involved with them through mobile advertising and marketing (also in real-time) based on location (Banerjee, Viswanathan, Raman, & Ying, 2013). Faced with this new technological era, users can easily publish their location information and photos with geographical tags thanks to smartphones that allow interested parties to know where tourists are and what places or attractions they prefer.

The geolocation works with satellites that orbit around the earth's surface and that are connected through sensors of mobile devices used by tourists or thanks to the triangulation of the mobile phone signal (Saldaña-Olcina, 2018). Its power has helped all industries to know more about their customers, demographic, economic, social, preferences, habits, relevant information that allows to build a profile and adapt the product or service to the needs of the target (Memon, Chen, Majid, & Lv, 2015). On the other hand, geo-marketing has been used in the commercial area, however, in the tourism sector, it has a theoretically important potential: it consists of "placing a person, company or organization in a specific place through GPS technology that uses geographic information in the process of planning and implementing marketing activities" (Suhaibah, Uznir, Rahman, & Mioc, 2016, p. 2). From the use given by tourists, geolocated data is generated that will be used by geo-marketing to explain situations and establish relationships through the analysis of the location of establishments, potential customers, active competition, logistics routes or, on the other hand, hotels, tourist attractions, events or tourist offers. With this information, you can develop services such as feasibility analysis, commercial feasibility studies, estimation of potential demand, and design of expansion plans (Saldaña-Olcina, 2018).

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In the tourism industry, travelers have become dependent on geolocation, receiving specific location information, and recommendations on the fly. Initially, it was used to know the location. However, now it has the power to change the way of consumption, how we live, consumption information, discover new things, communicate with consumer brands, and manage commercial and personal matters. For that reason, suppliers of tourist companies such as airlines, hotels, restaurants, bars, entertainment venues, and destinations are taking advantage of geolocation to provide customers with specific location information, as well as incentives to attract and manage business travelers; For example, hotels use geolocation applications to send their empty rooms to last-minute travelers (Sabre, 2016) and similarly, destinations change their approach to tourists, which means proposing activities, information (about weather, hotels, restaurants), even suggesting new options based on the data obtained. For example, in a destination such as Miami, relevant information such as weather, shopping discounts and water activities are considered relevant data; On the other hand, for a tourist who visits Las Vegas, information such as entertainment discounts, hotel rooms, and restaurants will be their type of relevant information (Sabre, 2016).

Another tool that can be used within the tourism industry is augmented reality, that is, the integration of today's world with digital information (Farshid, Paschen, Eriksson & Kietzmann, 2018), in a way that helps improve engagement with the consumer creating a more intimate and personal brand (Scholz & Duffy, 2018). Similarly, the Internet of Things (IoT) defined as the use of intelligent objects within a cyber-physical system in which specific functions are fulfilled through sensors (Boyes, Hallaq, Cunningham, & Watson, 2018), presents an emerging technology that provides unsurpassed convenience in human life. With the IoT, a great deal of information regarding behaviors can be collected in an easy and uncomplicated way, so that exchange solutions with consumers are presented, facilitating their life and generating a better relationship (Lo & Campos, 2018). What is sought is to create a better sensory experience for the user, so that it expands it through word of mouth, in addition to serving as an instrument that helps to obtain information in real-time.

THE RAÍCES INTERNATIONAL GASTRONOMIC FAIR AS A CASE OF STUDY

Concerning motivations in tourism, some authors such as Babolian (2016) and Araújo *et al.* (2017), cited by Hernández and Dancausa (2018), refer to the interest in exploring new cultures, traditions and different experiences of a destination. This last author refers especially to the interest in living and experiencing cultures, authenticity, uniqueness, and being able to tell stories of what was experienced as several of the new motivations that generate expectations in tourists. On the other hand, Hernández and Dancausa (2018) ensure that all these motivations can be connected with gastronomy. Extensive research has validated the relationship between tourism and gastronomy from various perspectives. Sánchez-Cañizares and Castillo-Canalejo (2015) highlight food and drink as a fundamental object of study in tourist literature to understand the motivations of tourists. Gastronomy, also, is linked to geographical and environmental factors that can certainly be perceived and enjoyed through sensory experiences. In this sense, concerning the tourist experience, gastronomic tourism proposes an immersion in the culture through the senses, because in fact, the food can be enjoyed through sight, touch, hearing, smell, and Taste (López-Guzmán & Sánchez, 2012).

The gastronomic experience is enriched with other representative characteristics of a destination. These features include natural attractions, accessibility, hospitality services, cultural backgrounds, and the possibility of experiencing other activities. In view of this, gastronomy is a resource that brings tour-

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ists closer to the territory, eliminating their position of the mere observer (Vega et al., 2018), allowing a more intimate and deeper exploration of the destination visited and creating a unique image for them. (Muñoz et al., 2017). Botelho (2018) states that food was once considered a support element. However, it can now be seen as the decision-making element for choosing a destination. Muñoz et al. (2017) agree with this evolution and refer to food as the main motivation that leads a tourist to visit a particular destination. The authors add that tourism and gastronomy operate in symbiosis. In this sense, Campos and Favila (2018) identified a growing interest that tourist markets and food culture bring together: on the one hand, market trends that are related to traditional, heritage values and experiences and, on the other, inputs of the food industry in tourism.

It should be noted that different ways of referring to the relationship between food and tourism have been analyzed; terms such as gastronomic tourism or culinary tourism that could generate confusion, since each of them leads to a particular explanation. Culinary tourism originally referred to international visitors whose main motivation was to experience culinary specialties and traditions. Sánchez-Cañizares and Castillo-Canalejo (2015) agreed with the use of the culinary term as a broader scope, as opposed to gastronomic tourism; they quote Ignatov and Smith (2006) to explain that the culinary term “tends to emphasize the practice and the actual style of food preparation and consumption, as well as the social context in which food is acquired and eaten.” On the other hand, Richards (2002) and Gacnik (2012, p. 40), cited by Sánchez-Cañizares and Castillo-Canalejo (2015) explain the difficulty of defining the term gastronomy due to its complex and multidisciplinary nature, since it implies concepts scattered that include culinary and wine heritage and modern culinary and wine creativity; while Jung, Ineson, and Miller (2014) hold an interesting point of view, regarding the correspondence between a sustainable approach to tourism and the importance of local and authentic food.

Thus, gastronomic tourism includes a wide range of activities, such as visiting a local food restaurant, a farmer’s market, getting to know the food of a particular region better, tasting local foods or drinks, or attending festivals and gastronomic events. The latter, in particular, “... promote economic growth and increase the social and cultural position of their particular locality” (Johansson and Kociatkiewicz, 2011, cited by Van Winkle, Cairns, Mackay and Halpenny, 2016). In the United Kingdom, beyond being considered as part of the tourism industry, events and festivals generate ambitions about the economic impacts of visitors in this sector (Jackson, Morgan, Laws, Morgan and Laws, 2018), without Forget the production matrix and the participation in the labor market through the participation of local producers who not only act as food and beverage suppliers, but also as service providers and are aware of gastronomic tourism, the possible benefits return by themselves.

On the other hand, events and festivals are also considered an efficient tool for the promotion of a destination, since they can become a sign of identity and, consequently, encourage consumers to visit that destination. Certainly, according to Gursoy et al. (2004, p. 171), cited by Bruwer and Kelley (2015), festivals and events are unique travel attractions. In Tijuana, Mexico, for example, where more than ten food events were scheduled in one year (Kido Cruz, Díaz Carrión, & Kido Cruz, 2017), a growing interest in these activities can be highlighted.

Festivals and gastronomic events can expand the possibilities of a tourist experience. Therefore, it is important to understand how experiences can be positively influenced to achieve greater satisfaction and loyalty to the event and possibly to the destination (Lee, Sung, Suh, & Zhao, 2017). Satisfaction is important as it can directly affect the post-purchase behavior of attendees and future intentions and decisions (Bruwer & Kelley, 2015). Lee et al. (2017) recognize the implicit relationship between the impact of the event on the destination image and the intention of the attendees to attend the event again. Besides,

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there is also a sense of loyalty that could be related to satisfactory previous experiences. Neuhofer et al. (2015) cited by Van Winkle et al. (2016), regarding these activities, adding that many organizations of events, leisure, and tourism consider technology as the means that will provide them with a way to connect with customers to build meaningful experiences. Given the particular influence of technologies and the information revolution, it is unfortunate to find a consensus on the lack of information on tourist satisfaction in these types of events (Muñoz et al., 2017). In addition to the functions of understanding the use of mobile devices and information and communication technology in the tourism and leisure industry that are not entirely clear (Van Winkle et al., 2016).

In Ecuador, the government has focused on taking advantage of the gastronomic values of the different regions of the country through various initiatives such as competitions and other types of events to promote local dishes and chefs, especially in the southwestern area of Loja, where municipalities locals have gathered to create the Dry Forest Commonwealth Area; here, they focus on tourism among several objectives, being the impulse of gastronomy, one of their main interests to promote the development of the industry (Chango-Cañaveral, Quezada-Sarmiento, Artieda-Ponce, Salas-Alvarez, & López- Creole, 2004).

However, a particular case takes place in Guayaquil, a city that has an accelerated pace of tourism growth and has been awarded the prize for the best leading destination of events and festivals and the award of the Leading Tourism Municipality of South America, in the World Travel Awards (El Universo, 2018). Here, several gastronomic events and others related to food seem to occur more repeatedly each year, developing a particular festival that has gained great popularity among the locals: the *Raíces* International Gastronomic Fair, which is a public initiative of the city's tourism department, whose main objective "to turn Guayaquil into an icon of tourism development in Ecuador, as well as the main destination for national and foreign tourists" (Guayaquil es mi destino, 2019). The event took place for the first time in 2014. Since then, it is repeated every year as part of the agenda to celebrate the anniversary of the founding of the city, which is considered one of the largest gastronomic events in the country. In 2017 and 2018, the fourth and fifth edition respectively was carried out with the presence of 40 holes that are places of traditional and humble food that have generally maintained the tradition of a local recipe over the years, becoming a symbolic representation of native culture and local taste. This event, in addition to placing food stores available to visitors, provides components such as the Culinary Cup, the Gastronomic Congress and a commercial exhibition (El Comercio, 2017); in general, it brings together a series of activities, including conferences of national and international guests, a trade show, a gastronomic contest and one of the most notable and expected activities, the presentation of its gaps.

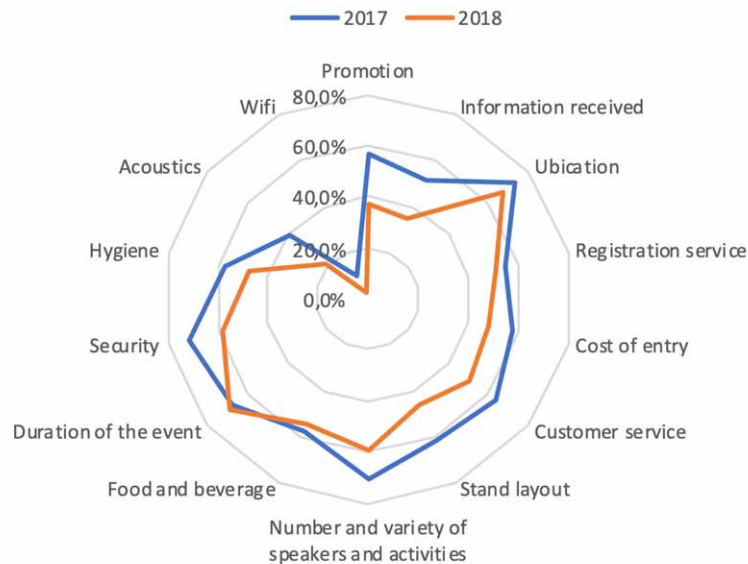
However, a descriptive study conducted by the Espíritu Santo University in 2017 and 2018 shows a gap in fourteen variables of experience for the client. This gap shows a decrease in satisfaction levels in almost all variables, the only one in growth, the duration of the event (Figure 1).

Although the information demonstrates a decrease in customer satisfaction levels from one year to another, it does not show an experiential reality. Still, an opinion based on customer perception, which leads us to rethink how information is analyzed in today and how it should be handled with the use of technologies. Satisfaction surveys give us an idea of the perception through reasoned responses by the respondent. However, they do not define a behavioral analysis that is the most relevant to convert a fair like this into an intelligent space, and that shows continuous improvement, anticipating the requirements of those who visit it.

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Figure 1. Comparison of the satisfaction of the visitors of the Raíces International Gastronomic Fair between 2017 and 2018

Source: Espiritu Santo University



One of the problems facing marketing specialists in the collection of customer information; it is even more serious when a longitudinal study is required to establish a pattern of behavior over several periods. Also, certain unconscious behaviors and attitudes of the individual are not considered in a survey but should be studied by direct observation methods with a sample that, in many cases, may be biased depending on the time or situation. These limitations are shown as a challenge since they do not show real radiography but an approximation to that reality, which causes certain risks when defining a marketing plan that seeks the incentive of visits to certain destinations. In addition to the risks, the marketing plan is also affected by less effective actions that do not have a high impact and do not generate the word-of-mouth, which is expected as the final result.

We believe that the use of technologies should be essential for the management of events and fairs that encourage tourism. The technologies must be managed systematically in such a way that an order is established in their use since the excess of data can also be negative since it hinders their interpretation of the information that can be used for better promotion. Recall that the technology is used before, during and after the experience, in order to place accurate information to encourage visits (Molinar et al., 2017; Thinktur, 2015); obtain information during the experience to know the activity of the visitor; and finally to form products and services that are of interest according to the knowledge of your tastes and preferences.

The results obtained during the years 2017 and 2018 show that the most sensitive points in the drop-in satisfaction are given in three aspects such as promotion, customer service, and security, aspects that can be improved with the use of technological tools. However, there is the possibility of improving the fourth aspect of high importance, and it is precisely that of obtaining information with the use of technologies. In a nutshell, the basis for improvement is in the collection of information and the provision of assistance services such as those mentioned above.

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SOLUTIONS AND RECOMMENDATIONS

Decoding Visitors to Fairs

For a gastronomic fair (and in general, any tourist fair) to have a good impact on the public, you must start by its recognition, and then understand its route in the time that it remains on the site and the tastes and interest that go away generating. According to Lamelas (2017), we consider that the visitor's decoding process is divided into 5 steps: a) The electronic record; b) Monitoring hot spots; c) The monitoring of their steps; d) Control and evaluation points; and e) Social interaction. In addition to this, we consider that safety and promotion are also relevant elements, taking into account the data of the research carried out by the Espiritu Santo University (2018):

- The electronic record. This first step consists of two precise instructions for the visitor. First, downloading a mobile application and registering with a personal account (it can be a social network or e-mail). For this step, we consider the freedom and autonomy of the visitor who must scan a QR code to download the application and already within it, the registration through your account. What is sought in this first part is to feed the basic data like sex, age, role (student, professional), companions and city where it comes from, as a starting point to develop a sociodemographic profile.
- Monitoring hot spots. The downloaded application has a georeferenced system of the fair site, to know the exact location of visitors. Although it is challenging to follow patterns of behavior, information is collected from places of rest and interest, by the stops made by people, creating landmarks (hot spots) that go beyond sites such as food courts or stations. Information or bathrooms but focus on the most visited stands and the best-accepted attractions.
- Monitoring your steps. Through the Internet of Things (IoT) sensors can be located with cameras connected to WiFi, which detect the path of each individual. At this point, you have not only data on hot spots but also the flow and route in the spaces of the tourist fair. Thus, a pattern of behavior is obtained, by the hour or by day, in addition to ensuring the safety of visitors and even their belongings.
- Control and evaluation points. The mobile application must not only be a registration tool that passively monitors people's breaks, but must also contain essential and interactive information, as well as entertainment for the user. The use of augmented reality as a dynamic platform, serves as a catapult to obtain more information about your tastes and preferences; For example, a person wants to know the ingredients of a typical dish exposed, and through the use of their mobile application, they can access this and accompanying images with other meals or in different places. This resource is essential to play and use the imagination of who uses it.
- Social interaction. Social networks are an instrument of amplification of people's feelings and emotions. Invite to share through a hashtag. It is a simple and quick way to know your opinions about the fair. The use of images and photos when sharing also serves to know the places where you have felt better and where you want to make your emotions known about the experience you have. This helps the eWOM (word of mouth digital) and, therefore, the promotion of the fair, significantly reducing campaign costs through the use of organic content on social networks.

Big Data, Information, and Marketing Actions

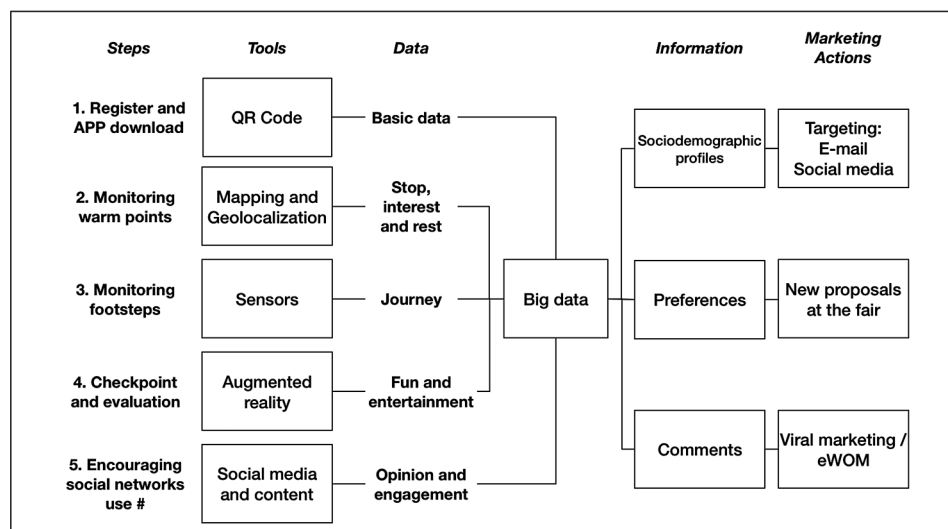
Once the steps indicated above have been followed, big data is generated that must be appreciated from three perspectives (refer to Figure 2). First, know the sociodemographic profiles of visitors and create clusters according to the initial data collected in the registry. While it is true, the more data we collect, the better information is obtained, we should not make the initial phase of the visitor of a fair cumbersome and annoying, but we must maintain the level of comfort and speed so that the technology generates a more pleasant experience (Khadka & Maharjan, 2017).

Secondly, the big data will get better recognition of the visitor's preferences according to its route, breaks, interactions, use of social networks, shared photos, and in general, with any movement within the fair space. This leads to an identification of no longer sociodemographic profiles, but of emotional profiles based on the user's experience, which becomes a more empathic study and learning. Third, the comments generated by users become not only noise outside the fair, but also a learning of what the information of each "ambassador" is consuming. The idea of analysis of social networks, not only focuses on the knowledge of who has the experience but of those who are interested in having it.

With the three types of information (profiles, preferences, and comments), three specific actions are proposed:

- Targeting. Focus the marketing efforts through e-mail, social networks, and contact points with who already visited the fair. The focus of this action is to generate a direct connection with the contact channels they have provided.
- New proposals. The point is not only to contact people but to give new and better proposals. With the information obtained, predictive models can be developed according to tastes, so that people feel more interest in the message sent and the product offered.

Figure 2. Big data process for tourist fairs
Source: Own elaboration



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- Viral marketing and eWOM. If you understand the interest of the person and those around them, you can work on effective proposals where the experienced invite others to believe in the experience of the fair. Viral marketing must go hand in hand with personalized messages in which both experienced and potential visitors have a profit. For example, send an invitation for a tasting of your favorite food and your companion, the entrance at half price. We know your preferences and also the interest of those around you, and this will generate a digital word of mouth (eWOM).

CONCLUSION AND FUTURE RESEARCH DIRECTIONS

This chapter shows the relevant elements that could make an event an intelligent space for a city. In the case of the *Raíces* International Gastronomic Fair, we define that the use of big data and georeferencing are key elements of high importance to determine the behaviors of its visitors and to create profiles according to those behaviors. Additionally, we consider that according to the satisfaction results of this fair, it is necessary to generate security guarantees, a better experience, and promotion for the fair, seeking to increase the number of visits. We believe that the use of IoT and augmented reality will improve the levels of satisfaction and information collection of visitors by creating a big data management process for events of this type.

One of the limitations of this study is the theoretical scope of this since the data presented does not define an application of the technologies but a description of the levels of satisfaction in decline, which we have seen as an opportunity to generate a smart space proposal. With this, we seek to leave the line open for empirical research that can be developed in different gastronomic and tourism fairs around the world, which analyze the behavior of its visitors through the use of technologies, such as those we propose in this study. The critical approach presented is an opportunity for improvement for future fairs to be a point of analysis with approaches focused on tourism marketing, based on the knowledge of tourists as consumers of experiences within smart destinations. In the same way, this chapter serves as a guide for organizers, businessmen, and entrepreneurs to use technologies as a research culture to generate continuous improvement in tourism proposals that are increasingly adjusted to the demands of interested audiences. We are aware that technological development is growing exponentially, and we believe that beyond the use of technologies, the process for data analysis and the development of a proposal according to the results obtained is what should finally be applied within the creation of value for the tourist.

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KEY TERMS AND DEFINITIONS

Ambassador: In marketing, an ambassador or brand ambassador is a person who has extensive knowledge of a specific product or service. He is also an admirer of that product and knows what it brings. In this way, he will make recommendations based on his own experience as a consumer of the product.

Artificial Intelligence (AI): It is the simulation of human intelligence processes by machines. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions), and self-correction.

Bots: A bot is a software that performs an automated task. More specifically, a bot is an automated application used to perform simple and repetitive tasks that would be time-consuming, mundane, or impossible for a human to perform.

eWOM: digital word-of-mouth. This term refers to the comments generated as a result of experience and proposed in a social network.

Hot Points: These are specific points of high recurrence on the part of the public that visit a place.

IoT: Internet of Things. It refers to devices that work with Wi-Fi connection generating convenience and speed to users.

QR Code: A quick response code or QR code is an evolution of the barcode. It has the function, in addition to the coding of products (used by the seller), the link to websites that complement the product information or advertising (used by the buyer).

Targeting: In marketing, it refers to the choice of one or several target groups of clients, as a focus of attention.

Viral Marketing: Marketing technique that seeks a message reproduction and viral self-replication.

Virtual Community: The term virtual community designates people linked through the Internet by common values or interests, such as tastes, hobbies, or professions. The goal of the community is to create values through the exchange between members by sharing suggestions or advice or simply by discussing a topic.

Chapter 10

Smart Territories, Collaborative Entrepreneurship, and Eco-Friendly Tourism for Development: El Boalo-Cerceda-Mataelpino (Madrid, Spain) Case

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ABSTRACT

Zero Waste Europe has awarded the village of El Boalo-Cerceda-Mataelpino (7,090 inhabitants) as the first Zero Waste Municipality of Spain. This chapter analyzes how a smart city has applied environmental conservation policies with the participation of a large number of residents in a public-private collaboration scheme to increase their quality of living, complemented with the application of circular economy and sustainable tourism policies focused on economic growth. Strategies that could be imitated by other small municipalities wishing to increase the quality of life of their population through sustainability.

INTRODUCTION

Climate change is one of the most significant challenges that humanity is facing recently. One of the pillars to at least alleviate climate change is given by the correct and efficient recycling of urban waste, both solid and organic, as warming ocean temperatures are increasing the frequency of coral reef bleaching. The effects of anthropogenic – human-caused – climate change range from more frequent and severe droughts and drier weather that negatively affects forests, as they are no longer recovering

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from wildfires, to snowstorms and extreme winter weather in temperate regions as a result of warming Arctic weather fronts.

A second strategy to combat the process of global warming is the creation of entrepreneurial ecosystems focused on preserving the environment through the use of sustainable growth policies based on social innovation and collaborative entrepreneurship. It is necessary to design smart territories to achieve this goal and to improve competitiveness and attractiveness, through the use of public-private initiatives carried out by decision-makers to take advantage of their natural assets and history, while developing infrastructures, businesses, and managerial skills. In this respect, smart territories can be the solution for achieving sustainable growth without damaging the environment. Solution widely studied in the existing economic literature on this subject linked to environmental-related issues (Lanier et al., 2019; Lillebø et al., 2019; Mutani et al., 2019), territorial management planning strategies (Bellone & Geropanta, 2019), Spatio-temporal issues (Catlett et al., 2019), and tourism (Rodríguez & Virtudes, 2019).

Besides, productive resources and utility management is one of the vital strategies to minimize waste/losses and pollution, and it facilitates the development of a circular economy (Fan et al., 2019). While companies often use lean, 5S, and Kaizen processes to reduce the generation of waste to optimize the use of productive factors, in the public administration, the *kaizen* process (continuous improvement) is mainly carried out with a social purpose to offer a better level of life to society. The smaller the municipality, the easier it will be to implement this type of strategy, since its insertion into the process is less complicated.

In this respect, the choice of the village of El Boalo-Cerceda-Mataelpino (7,090 inhabitants) is given by having been awarded as the first Zero Waste Municipality of the Madrid Autonomous Community by the Zero Waste Europe network (www.zerowasteurope.eu). The environmental awareness of the municipality has been increasing mainly due to that 16.8% of the municipal area is part of the 'Sierra de Guadarrama' National Park, and because the municipality had not stopped growing since the first census of the year 1900 when it had just 457 inhabitants. That is why the use of the circular economy is a powerful solution for sustainability (Inigo & Blok, 2019)

This work analyzes how a smart territory can be created by combining collaborative entrepreneurship inserted into public-private schemes, circular economy, cultural assets, and eco-friendly tourism focused on economic growth.

The goal of this book chapter is to describe how public-private collaboration can create sustainable and eco-friendly entrepreneurial ecosystems to achieve total preservation of the territory for future generations. This union of environmental sustainability and eco-friendly tourism focused on economic development to create social wealth is analyzed in the case of the municipality of El Boalo-Cerceda-Mataelpino, inserted into the 'Sierra de Guadarrama' National Park, one of the most prominent Southern European National Parks located in Spain.

A VILLAGE FORMED BY THREE MUNICIPALITIES

The union of the municipalities of El Boalo (2,268 inhabitants), Cerceda (3,070 inhabitants), and Mataelpino (1,752 inhabitants) (Jan 1, 2016 data) to create a village is the only one of its kind in the Madrid Autonomous Community (Spain) (Table 1). Located in the Samburiel river valley, it is located about 50 kilometers northwest of the capital of Spain, and more than 80% of its territory is in a privileged natural environment of high natural and scenic interest. As a result, this land is legally protected and inserted into the 'Sierra de Guadarrama' National Park, the second-largest in Spain. The 'Sierra de Guadarrama'

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Table 1. El Boalo, Cerceda & Mataelpino's Housing Developments in 2019

El Boalo			
El Egido I	El Egido II	San Muriel Bomán	Sierra Bonita
Prado Sordo			
Cerceda			
Las Praderas	Montes Claros	San Muriel	Sol y Nieve
Mataelpino			
El Navar	La Maliciosa	El Berrocal	Las Aleguillas
San Muriel	La Ponderosa		

Source: Own elaboration

National Park encompasses territories of 28 municipalities, 16 in the Castilla-León Autonomous Community, and 12 in the Madrid Autonomous Community.

One of the characteristics that define these three municipalities is given by 16.8% of their territory (526 hectares equivalent to 1,299.77 acres) integrates part of the 'Sierra de Guadarrama' National Park, one of the fifteen Spanish national parks (Table 2). The high environmental protection approved by the Spanish legislation related to national parks allows citizens living close to this natural environment to have a high quality of life. Quality of life complemented with a rich cultural heritage defined by a 15th century castle (Manzanares el Real), two 18th century royal palaces (La Granja and Riofrío), a 14th century royal monastery (Santa María del Pualar), and eight museums (Luis Feito Graphic Artwork

Table 2. National parks in Spain

	National Park	Size		Province
		Hectares	Acres	
1	Aigüestortes – St Maurice Lake	10,230	25,279	Lérida
2	Atlantic Islands of Galicia	8,400	20,757	Pontevedra
3	Cabañeros	39,687	98,069	Ciudad Real and Toledo
4	Cabrera Archipelago	10,021	24,762	Balearic Islands
5	Caldera de Taburiente	4,690	11,589	La Palma-Canary Islands
6	Doñana*	34,625	85,560	Huelva
7	Garajonay*	3,984	9,845	Gomera-Canary Islands
8	Monfragüe	17,852	44,113	Cáceres
9	Ordesa and Perdido Peak*	2,100	5,189	Huesca
10	Picos de Europa*	17,000	42,008	Asturias, Cantabria, and León
11	Sierra de Guadarrama	33,960	83,917	Madrid and Segovia
12	Sierra Nevada	70,953	175,329	Granada
13	Tablas de Daimiel	1,928	4,764	Ciudad Real
14	Teide*	13,571	33,535	Tenerife-Canary Islands
15	Timanfaya	5,107	12,620	Lanzarote-Canary Islands

* UNESCO World Heritage Site

Source: Own elaboration

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Collection in the village of Oteruelo (Rascafría), Manzanares el Real Ethnographic and Archeological Collection, Navacerrada Ethnographic Museum, Paquito Fernández Ochoa Ski Museum in the village of Cercedilla, Navafria Drop Hammer, La Granja Royal Palace Tapestries Museum, La Granja Glass Museum, and Riofrío Hunting Museum).

Since the 1960s, the village has suffered a constant demographic growth. With a population of 7,225 inhabitants, of which 7,092 are registered, a gross income (on average) of 30,023 euros per year and an available income (on average) of 23,854 euros per year, the municipality of El Boalo, Cerceda and Mataelpino occupies in Spain the 94th place (out of 8,125) in the ranking, and the 33rd (out of 184) in the Madrid Autonomous Community. From a social perspective, the high number of people who exceed one hundred years of life is remarkable in the village, also being very numerous the number of nonagenarians. As a curiosity, this village has one of the highest percentages in Spain of citizens with Ph.D. studies.

Intending to maintain this standard of living, the municipality has set in motion a waste recycling policy based on a circular economy with the collaboration of neighbors and volunteers. A type of economy that we will see in the following section.

THE CIRCULAR ECONOMY: CONCEPT AND KEYS TO BE DEVELOPED

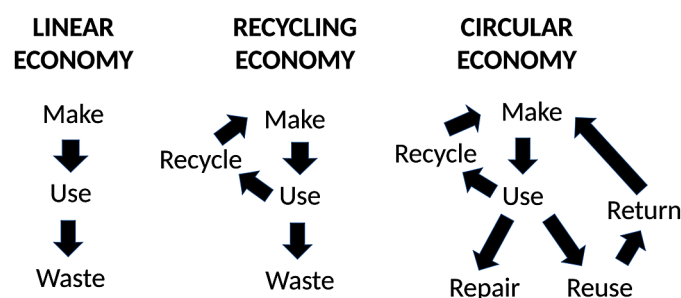
The circular economy (also known as circular responsibility, and circular advantage) is a powerful strategy for sustainability. The circular economy involves reinventing how products are designed, created, stored, used, and disposed of by stakeholders (Wright, 2019). As a result, the circular economy is the strategy focused on the complete recycling of waste to achieve economic sustainability without wasting productive resources. Many studies have dealt with this issue (e.g., Principato et al., 2019; Baldassarre et al., 2019; Millar, McLaughlin, & Börger, 2019; Pieroni, McAloone, & Pigosso, 2019) and the success in its implementation is leading to an effect spread in small and large municipalities around.

No single individual or firm can make the circular economy system work; it is a collective responsibility defined by selecting reusable materials to manufacture final products in the market. Firms need to reduce the number of natural resources used per time and per product to ensure that final products are reusable.

To sustainably stop pollution, firms must readjust their manufacturing processes to adopt a “make, use, return/recycle” mindset, as shown in Figure 1. Earth’s natural resources are depleting at an alarming rate, and humankind has the crucial responsibility of preserving the environment for future generations.

Figure 1. Circular Economy vs. Linear Economy and Recycling Economy

Source: Own elaboration



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For the circular economy takeover, managers must position their firms by having in mind sustainable business growth, and by exploring new business opportunities, updating firm's core values to insert the circular economy mindset, redesigning products and the manufacturing and distribution systems, embracing energy-saving equipment, and building a closer and symbiotic relationship with other organizations. The circular economy allows both firms and public organizations to make a system to run in the long term without further damaging the environment.

One of the significant advantages of the circular economy is to apply it at the local level, which means that changes are quickly perceived by the final beneficiaries who, in turn, can participate actively in the changing process. In this process, both the circular economy and the solidarity economy have a central role to play for the human being to find a balance both with society and the natural environment (Saiz-Álvarez & Palma-Ruiz, 2019). In this sense, both are anthropocentric with the particularity, in fact, that the circular economy is also repairing environmental damage by following two routes: [1] through the full recycling of waste to re-insert them into the industry value chain with the creation of semi-finished products with different uses, and [2] through a constant process of mutual aid for the resolution of problems or for the achievement of objectives, which in turn leads to social change and maximization of individual welfare.

However, and concerning the circular economy, we could say that the world runs at two speeds since, while in the more developed countries of the planet, its inhabitants tend to show a high environmental awareness, developing nations usually suffer from this lack of knowledge of ecological preservation. This environmental awareness is especially visible among Europe, whose efficient use of resources is part of the Europe 2020 strategy, an initiative supported by the European Parliament and the European Council, to achieve sustainable and inclusive economic growth rates within the European Union, as well as being successful in the fight against climate change.

Indirectly, the implementation of a circular economy favors both the innovation processes within companies carried out through intrapreneurship, and the design and implementation of quadruple helix models to achieve sustainable economic growth, which leads to change the productive chains of semi-finished goods and consumer products, seeking to maximize efficiency while avoiding waste (Moreau, Sahakian, van Griethuysen, & Vuille, 2017). This combination of innovation, intrapreneurship, and quadruple helix models fosters the creativity and competitiveness of countries, as well as guarantees security in the supply of essential products and services.

Regarding the circular economy applied to public administration, in the case of the municipality of El Boalo-Cerceda-Mataelpino (Madrid, Spain), we can list six keys to sustain its successful application, as follows.

KEY #1. 'SIERRA DE GUADARRAMA' NATIONAL PARK

The proximity of the 'Sierra de Guadarrama' National Park, created by Law 7/2013 of June 25, 2013, is a protected area of the Spanish provinces of Madrid (21,714 hectares equivalent to 53,656.46 acres) and Segovia (12,246 hectares equivalent to 30,260.53 acres), as part of a long mountainous chain of 310.686 miles in length, which crosses from east to west the center of the Iberian Peninsula is crucial to understand the environmental awareness of the population. Given its high biodiversity and its vast natural beauty, it was the second most visited national park in Spain in 2018, with 2,989,556 visitors, only after the Teide National Park located in the Canary Islands (Spain).

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Table 3. Municipalities in the ‘Sierra de Guadarrama’ National Park

Castilla-Leon Autonomous Community
Aldealengua de Pedraza, Basardilla, Collado Hermoso, El Espinar, Gallegos, La Losa, Navafría, Navas de Riofrío, Ortigosa del Monte, Otero de Herreros, Palazuelos de Eresma, Real Sitio de San Ildefonso, Santiuste de Pedraza, Santo Domingo de Pirón, Segovia, Sotosalbos, Torre Val de San Pedro, Torrecaballeros, and Trescasas.
Madrid Autonomous Community
Alameda del Valle, Becerril de la Sierra, Canencia, Cercedilla, El Boalo-Cerceda-Mataelpino, Guadarrama, Los Molinos, Lozoya, Manzanares el Real, Miraflores de la Sierra, Navacerrada, Navarredonda y San Mamés, Pinilla del Valle, Rascafría, and Soto del Real

Source: Own elaboration

The existence of the ‘Sierra de Guadarrama’ National Park generates a greater environmental awareness in the inhabitants of the municipality, who have chosen that place to live due to its very high quality of life. This quality of life goes through the preservation of the environment, as well as the implementation of recycling policies to generate a circular economy in the territory (Table 3).

The ‘Sierra de Guadarrama’ National Park contributes in Spain to the National Parks Network the representation of diverse natural systems, among them, *Pinus sylvestris* pine forests of recognized environmental value and excellent state of conservation on siliceous soils. In its physical environment, its cirques and glacial lagoons and its granite rocks stand out among its plant landscapes, high mountain ecosystems, and the extensive pine groves of Scots pines.

Moreover, in the ‘Sierra de Guadarrama’ National Park, nine natural systems are identified, which constitute a representative sample of the natural systems of high Mediterranean mountain, such as (a) supra-forestry thickets, high mountain pastures, tall woody steppes, and crushed stone; (b) pine, and juniper; (c) oak, beech, and birch; (d) holm oaks, cork oaks, and olive groves; (e) watercourses and riverside forests; (f) wetlands and high mountain lagoons; (g) unique natural systems of glacial and periglacial origin; (h) formations and singular reliefs of mountain and high mountain. Some of these glacial and periglacial natural systems, such as the supra-forestry thickets, high mountain grasslands, and tall woody steppes, are distributed continuously on both sides of the regional boundary. The joint protection of both slopes (Segovia and Madrid), under the unique figure of National Park, allows better conservation of these natural systems.

Also, the ‘Sierra de Guadarrama’ National Park has a high diversity related to flora, fauna, and natural habitats. The variety of species of vertebrate fauna reaches 255 registered animals, which supposes to lodge 40% of the Spanish vertebrates; moreover, 74 of those 255 species have some level of protection at national or European scale. The Park hosts 148 species of birds (40% of the Spanish ones recorded) and 58 species of mammals (almost 50% of the Spanish species of mammals).

Regarding the flora, 114 species of interest have been counted, either by being included in the Catalogs of Endangered or Protected Species of the Community of Madrid. Finally, 25 types of habitats have been mapped within their geographical scope, 4 of which are considered “priority habitats.” Of those 25 types, 21 habitats have been identified in the province of Madrid, 13 in the Segovian slope, and two are not represented.

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Table 4. Waste collection in the “Door to Door” project

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Organic waste	Paper & Paperboard	Metal containers	Glass	Rest of waste	No pick-up	

Source: Own elaboration

KEY #2. ZERO WASTE AND THE ‘DOOR TO DOOR’ PROJECT

The ‘door to door’ project optimizes waste management by recycling it at home, where single owners and families daily deposit their waste separately on a particular spot located in the street near the home on the corresponding day of the week to be collected (Table 4).

The use of the ‘door to door’ system

1. Improves the efficiency of the waste management system, lowering service costs by creating new jobs.
2. Increases the recycling level when it is meager and unsustainable.
3. Reduces the amount of waste (called remainder or reject to end in a landfill) because it cannot currently be recycled or composted.
4. Diminishes noise and the quantity of waste.
5. Treats the organic matter directly in the municipality, through composting, to convert it into fertilizer for gardens and orchards, avoiding the use of industrial fertilizers and chemical products.
6. It helps the village to comply with current regulations that require 50% of the waste generated to be recycled by 2020. However, currently, the Madrid Autonomous Community barely reaches 16%.

Therefore, the ‘door to door’ policy helps to fight against climate change through better waste management by the population, a sustainable process promoted by local authorities with the cooperation of the neighbors.

KEY #3. A PRIVILEGED NATURAL AND ECO-FRIENDLY TOURISTIC ENVIRONMENT

Complementary to the natural beauty of the national park, and nationally-recognized sports activities carried out in nature, the village presents a remarkable historical and artistic richness defined by

1. A nearby 4 kilometers (2.5 miles) Medieval granite-made castle (15th century) in gothic style recently restored.
2. Three Catholic churches (Santa María la Blanca, 16th century, located in Cerceda (Madrid, Spain); San Sebastián Mártir, 17th century, built-in El Boalo (Madrid, Spain), and Santa Agueda, 20th century erected in Mataelpino (Madrid, Spain). Flemish and Castilian artists made the main altarpiece of the church of Santa María la Blanca, so the official Spanish National Heritage protects it.

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Table 5. Touristic pedestrian routes

Route	Length		Time	Difficulty
	Km.	Mi.	Minutes	
El Boalo Circular Path	3.9	2.4	70	Low
Towards the National Park	8.5	5.3	150	Low
El Boalo-Mataelpino	9.8	6.1	170	Low
Los Chaparrales	4.6	2.8	90	Low
The Maquis Cave	5.5	3.4	180	Medium
Cordal de los Porrones	15	9.3	300	Medium High
Maliciosa Peak	12	7.4	420	High
Las Vacas Hill	6	3.7	150	Medium

Legend: Kms. (kilometers), Mi. (miles)

Source: Own elaboration

3. A set of Visigoth tombs (7th Century) and the Visigoth Hermitage (in ruins) of the Virgen del Sacedal located in the Cerrillo del Rebollar (941 meters - 3,087 ft.), as well as a 13th-century Christian medieval cemetery on the banks of the Cerrillo stream between Cerceda and El Boalo.
4. The Museum of Pre-Columbian Art and Culture (in process) in El Boalo with the objective of approaching the local population to several dozens of pre-Columbian cultures located in several Latin American and the Caribbean countries, especially Aztec, Inca and Mayan cultures, as well as to show some cultural and anthropological pre-Columbian aspects of various Latin America and the Caribbean nations.
5. The start-up of leisure activities related to sports tourism, with signage of mountain trails, mountain races (e.g., CruzaPedriza) in collaboration with the Spanish Mountaineering Federation, and sports clubs. These activities shown in Table 5 are complemented with some skiing and mountain trekking activities.
6. The house-museum of the Spanish writer Carmen Martin Gaité (1925-2000), winner of several awards, including the Prince of Asturias Prize in 1988.
7. The 'Virgen Blanca' Municipal Choir created by the City Council of El Boalo-Cerceda-Mataelpino and conducted by Mijail Erman (1994-2016), and Mara Corbalán (from 2016). Its repertoire includes works of classical choral music (from the 15th century) including the *Eine Kleine Nachtmusik* by Wolfgang Amadeus Mozart (1756-1791), *Magnificat* by Giovanni Battista Pergolesi (1710-1736), *Gloria in D major, RV 589* by Antonio Vivaldi (1678-1741), *Requiem in C minor* by Luigi Cherubini (1760-1842), and Baroque cantatas by Bach (1685-1750) and Buxtehude (1637-1707).
8. Numerous cultural activities adapted according to the age and needs of the audience, in general with high public attendance, organized by the City Council following public-private initiatives and collaboration.

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KEY #4. PUBLIC-PRIVATE COLLABORATION

Endowed with one of the lowest debts per capita of Spanish villages (353 euros), the governance of this village is characterized by having a very strong public-private collaboration through the preparation of municipal participatory budgets helped by the neighbors integrated in specialized commissions, and through a City Council App to allocate budget items (Agenda 21). Resulted from this collaboration, local authorities listen to citizens intensively, which brings the village hall closer to its neighbors.

This public-private collaboration leads to a strengthening of the crowding-in effects generated by public intervention, results that are positive since the degree of intervention is not excessive, and because it directs towards environmental preservation. Protection strengthened by the closure of a municipal landfill that was highly polluting of an environment that is currently fully recovered.

The implementation of public-private collaboration policies benefits the community by helping the population to increase their quality of life. This collation leads to an optimization in the use of productive resources and is a more significant approach towards the market as local economic development is achieved. By having both parties an adequate environmental awareness, it is easier to apply policies and strategies focused on the circular economy within the municipality.

KEY #5. ENVIRONMENTAL SUSTAINABILITY

The City Council decided in 2014 to create a local herd of goats as one of the strategies with neighbor collaboration to achieve the environmental sustainability of the village. The project arises by the civil commitment to make compatible the extensive livestock activity in the municipality with the environmental protection of habitats and species like the wolf, whose presence has already been consolidated in the surrounding mountains. The variety of goat finally chosen was the ‘Guadarrameña’ goat.

The ‘Guadarrameña’ goat (from the ‘Sierra de Guadarrama,’ province of Madrid, Spain), or ‘Moncayo’ goat (from the ‘Sierra de Moncayo’, province of Soria, Spain)(Almodovar, 2010), is an indigenous breed protected in danger of extinction. It has been selected for its dual meat and dairy aptitude (Table 6). Since the late 1990s, this breed has been recovering and genetically improving for three reasons: (a) its excellent adaptation to climatic conditions and terrain; (b) to become one of the best biological control tools in firefighting; and (c) to conserve biodiversity.

The Association of Breeders of the ‘Guadarrameña’ Goat (ABGG) is in charge of performing the milk control tests, and the artificial insemination of the females with the six males selected for these tasks in the Farming Center of the city of Colmenar Viejo, located 20 kilometers (12.43 miles) away from the village. The ABGG veterinary technicians are advisors of El Boalo-Cerceda-Mataelpino’s Village Hall in the tasks of drafting and designing the project to obtain the REGA (Livestock Farms Register), as well as for the purchase of the animals of the flock to comply with the standards of this breed and all the sanitary and veterinary requirements required.

The final goal of the creation of a municipal herd of goats is

1. To reduce and value of the bio-residues from the unlock of plots.
2. To prevent fires in rural areas with the shepherding of the flock.
3. To protect biodiversity, both breeds of livestock and wild species.
4. To recover traditional uses and traditions, such as grazing and livestock.
5. To educate with the dissemination of environmental values to school groups.

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Table 6. Meat and milk production

	First Birth	Later Births
Milk Production		
Milk production in liters (in US gallons)	248.80 (65.73)	331.30 (87.52)
% of fat	4.61	4.54
% of protein	3.53	3.58
% of dry extract	10.85	10.80
Lactation days	236	266
Meat Production		
Age at sacrifice	30-40 days	
Birth weight (on average)	3.8 kilograms (8.4 pounds)	
Weight gain per day (on average)	237 grams (8.36 oz.)	
Sacrifice weight	9-10 kilograms (19.84-22.04 pounds)	
Usable weight	6-7.5 kilograms (13.23-16.53 pounds)	

Source: Own elaboration

To create an ecologically sustainable smart city, these keys are complemented with a sustainable local environmental policy based on

1. The implementation of a pollution reduction mobility plan for entering the ‘Sierra de Guadarrama’ National Park through the promotion of public transport, the creation of pedestrian spaces to access the park on foot and by bicycle (road and mountain bikes) from the nearby urban centers, among which is the municipality of El Boalo-Cerceda-Mataelpino.
2. The ecological recovery of the Samburiel and Manzanares rivers with the introduction of autochthonous fish and amphibious in both streams, water cleaning, and the removal of garbage from the margins of both rivers.
3. Conservation of raptors (imperial eagle and griffon vulture, among others) and recovery of birds (cranes, storks, and kites, among others).
4. Composting of organic matter through the use of home and community composters to avoid throwing organic waste in the garbage. The City Council is giving these composters to the neighbors who voluntarily request them, so they create their compost at home for their consumption, only after having received some composting courses taught free by City Council technicians.
5. The closure of the existing granite stone quarries in the municipality to be transformed as part of tourist routes of the municipality.
6. Design and construction of the non-polluting industry with the exploitation of traditional stonework in a sustainable and controlled manner and with a minimal environmental impact.
7. The delivery of all kinds of environmental awareness courses aimed at the youngest of the population to insert them into the circular economy.
8. The commissioning of a clean point in the municipality to recycle products that are difficult to recycle, such as washing machines, refrigerators, construction materials, electric batteries, furniture, and metals.

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9. To approve some control measures on the illegal dumping of waste in nature, with the imposition of severe sanctions, if necessary.

These ecological-grounded public strategies complement the start-up of urban gardens, a program of reuse of used objects and policies of good purchases of organic products in shops and supermarkets of the municipality. As a result, local commerce is encouraged, which benefits the municipality's businessmen, and local employment is created.

KEY #6. AN EFFECTIVE MONITORING AND SANCTIONING POLICY

From a legal point of view, the awareness of the City Council in the fight against environmental degradation is robust. Thus, the waste management policy carried out by the Municipality is mainly determined by the following legislation:

1. Article 45, section 1, of the Spanish Constitution, that affirms "the right of all Spaniards to enjoy an adequate environment for the development of the person, establishing the correlative duty to conserve it", while in the second section "entrusts the Public Administrations with the function of ensuring the rational use of natural resources, in order to protect and improve the quality of life and defend and restore the environment".
2. Law 5/2003, of March 20, on Residues of the Community of Madrid (Official Bulletin of the Community of Madrid (BOCM), N. 76, of March 31, 2003, and N. 128, of May 29, 2003.
3. Council Directive 91/156/EEC of the Economic European Commission (today, European Union) (18 March 1991), amending Council Directive 75/442/EC of 15 July 1975, to establish a common standard for all waste unless in some instances a specific regulation is necessary.
4. Order 917/1996, of June 4, of the Regional Minister of Environment and Development, which regulates the management of the oils used in the Autonomous Community of Madrid, although due to their characteristics, they do not affect the Municipality.
5. Decree 83/1999, of June 3, which regulates the activities of production and management of bio sanitary waste and cytotoxics in the Autonomous Community of Madrid.
6. Order 2188/1996, of October 15, of the Minister of Environment and Regional Development (Government of Spain), by which the Registry of Producers of Biosanitary and Cytotoxic Residues is created.
7. Decree 4/1991, of January 10, which creates the Registry of Small Producers of Toxic and Hazardous Waste.

In this same framework, it should be noted that the sanctioning policy of the Municipality of El Boalo-Cerceda-Mataelpino is given, in the case of "abandonment, dumping or uncontrolled disposal of any non-hazardous waste without seriously endangering the health of the people or there has been a serious damage or deterioration to the environment [...] both in public roads, roads, and in general, in all the lands of the municipality" (Municipal Band of July 26, 2018) with penalties from 901 euros up to 45,000 euros. These municipal sanctions are supported both by the provisions of Law 22/2011, of July 28, which regulates the legal regime of waste and contaminated soil in the Autonomous Community

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of Madrid, as in Law 5/2003, of March 20, Waste of the Autonomous Community of Madrid and Law 8/1998, of June 15, on livestock of the Autonomous Community of Madrid.

To help neighbors in the recycling of vegetable waste, and to avoid the corresponding sanctions, the City Council has made available to the neighbors at the municipal Clean Point, the rental of sacks of 1 cubic meter of capacity (35.31 cubic feet), at a price of 4.5 euros per bag that, once filled with plant waste, are withdrawn by the municipal services following a “door to door” scheme. This strategy incentivizes recycling, as it is cheaper than landfilling (Chen, Kucukyazici, & Saenz, 2019).

All this recycling process is possible to be achieved due to collaborative entrepreneurship. A special sort of entrepreneurship that will be described in the next section.

COLLABORATIVE ENTREPRENEURSHIP

The collaborative entrepreneurship is part of the collaborative economy (Dredge & Gyimóthy, 2015; Glad, 2015; Suárez-Villa & Walrod, 2003) to accomplish a common goal through collaboration among related groups, as collaborative entrepreneurship is a business model for continuous innovation (Miles, Miles, & Snow, 2005). As well as it happens among companies that develop multilateral business, also public administrations carry out this type of collaboration only if the private initiative participates in the project. The higher capacity of adaptation achieved by the individual action allows attaining the necessary flexibility for the project to be successful. A success rooted in a public-private collaboration that generates positive externalities in the population, which leads to an improvement in their quality of life.

This changing process bases on effective knowledge management that depends heavily on the organizational (public and private) ability to collaborate, both inside (Collective Entrepreneurship) and outside (Collaborative Entrepreneurship) the public-private initiatives. As Ribero-Soriano and Urbano (2009) shows, collaboration enables a firm to be entrepreneurial and continuously innovative by exploring new markets, and continuous innovation and market exploration are the building blocks of cooperation. Both entrepreneurship and the ability to innovate come from a skill that is underdeveloped in most organizations: collaboration (Miles et al., 2000).

Corporate entrepreneurship or intrapreneurship is one of the most potent innovation approaches for studying the formation of collective entrepreneurship. Moreover, collective entrepreneurship leads to structural transformation not only of the organization but also of the affected society. Social changes that usually contribute to solving (at least partially) the socioeconomic problems derived from poverty and social inequality, as well as entail the generation of higher standards of living in all the beneficiaries emanated from this public-private entrepreneurial collaboration.

Within this process of public-private collaboration, the knowledge, training, and previous experience of the Town Hall is of decisive importance for the projects to be successful and, consequently, for the population to achieve a social change towards the enjoyment of a higher standard of living. Therefore, it is a moral obligation for the municipality to generate a positive impact on society, so that the population can see tangible results after paying taxes. When the community does not recognize tax payments, it is when tax fraud arises. Moreover, combating corruption must be the first step necessary to succeed in the implementation of new projects, thanks to the imitation effect generated by public administrations.

Public-private networks link collaborative and collective entrepreneurship, as they behave guided by joint trust, negotiation, decision processes, and flexibility where social capital has a vital role to play. Social capital includes interpersonal, inter-group, and inter-organizational relationships, networks, and

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connections, as well as the underlying group and community resources, social structure, and cultural dynamics (Capó-Vicedo et al., 2008).

Complementary to collaborative entrepreneurship, social capital is the sum of resources inserted into a structural network of relationships for the benefit of a community, and the ability of those within a network to take advantage of those resources guided by trust, social support, and information exchange (Sommerfeldt, 2018). One of the objectives of public administrations is to maximize social capital to revert it to the community. This reversion towards the population allows us to reach higher levels of life, as well as to strengthen the generation of wealth among citizens.

When the level of participants' internal social capital is low, trust and support from colleagues are rare in the network. Thus, changes are difficult to be carried out, as participants lack colleagues' commitment (Qi et al., 2019). Therefore, it is essential to have excellent communication and trust among all parties to carry forward the projects, with the final goal of generating social change.

When social capital augments through increases of trust, corruption diminishes (Khan & Majeed, 2018). Corruption is one of the most severe problems. Still, thanks to both democracy and technocracy, it is possible to remove current politicians who may even have criminal issues by taking advantage of public funds for their benefit. Therefore, and more in politics, it is essential that the top leaders be examples to their voters (and non-voters) to combat financial fraud and encourage, besides, the realization of illegal practices based on corruption exercised by the rest of the population, independently of the size of the municipality.

Finally, social capital ensures enhanced communication within migrant families and communities from different cultural and linguistic backgrounds. This fact is observed where sixteen nationalities are living in the village. As immigrants tend to feel lonely and isolated, they try to make conversations and reach out to people with a similar cultural background and language in their social environment. This behavior directly can also be attributed to their collectivist experience, as shown by Wali and Renzaho (2018).

The start-up of collaborative entrepreneurship, together with public-private initiatives aimed at creating a smart city based on a circular economy, provides the basis for the development of ecotourism activities described in the following section.

ECO-FRIENDLY TOURISM

Tourism is one of the primary sources of income for the municipality, having converted many of them into new residents after acquiring their second home as a holiday home in the municipality. This practice of having two houses (city and mountain) and three houses (city, mountain, and beach) is a practice that extended in the 1960s and early 1970s in a good part of the Spanish middle class. A practice that continues today in the upper-middle class and upper class, together with the realization of leisure activities linked to ecotourism.

Three main axes bases ecotourism in the municipality

1. The attraction of ecological tourists through the creation of urban gardens located in municipal green areas characterized by an optimization in the use of land and the use of minimizing techniques of water consumption through drip irrigation;
2. The implementation of local consumption policies based on the offer to the market of high quality and low price products

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3. The performance of sports activities in the mountains (skiing, mountain races, and climbing), which attracts sports tourism. The realization of these activities leads to that, especially in sports tourism, the new generations are educated in nature so that the younger population respect and appreciate it.

The realization of ecotourism activities is inextricably linked with the preservation of the environment, as well as with the improvement of the natural environment with the planting of trees, the non-use of plastic bags, and the substitution of chemical fertilizers for fertilizers of natural origin.

Given the excellent results obtained, the public-private collaboration in the municipality should continue to attract new tourists through the implementation of two future museums (still under project), both of public ownership (Municipal Museum of Archeology) and private ownership (Museum of Pre-Columbian Art and Culture). The proximity of municipalities with goods of national tourist interest means that El Boalo-Cerceda-Mataelpino can be part of the tourist routes already established in the region. The union is a strength, either with the implementation of public-private initiatives within the municipality, as with collaboration between nearby municipalities that pursue common objectives. And in this sense, any ecotourism initiative will always be welcome.

CONCLUSION

According to official data from the *Mancomunidad del Noroeste* for 2018, although the population has increased, the amount of waste has diminished in the village (from 3,123.52 Tons to 2,967.62 Tons), which shows that the combination of home and social composting, the 'door to door' selective collection, and the pruning collection campaign has been successful. The introduction of the circular economy in the municipality has led to

1. The incorporation of all local businesses into the circular economy by receiving a diploma and the badge for their premises for participating in the 'door to door' waste collection campaign to highlight their work and commitment to local sustainability.
2. The foundation of three SMEs (small and medium businesses) related to female entrepreneurship: Punto de Luz Women, Cervezas Gabarrera, and Los Mochuelos that are integrated into Women Entrepreneurship Cooperatives to manage projects related to the Circular Economy.
3. The recognition of the Local Tourism Office of the City Council, as it has received the official distinction of the Tourism Quality SICTED Program granted by the Ministry of Tourism (Spain).

A second positive aspect of the municipality is that it is summer and spring home for the white stork (*Ciconia ciconia*), which spends the winter and part of autumn in the African continent. The Spanish Catalog of Endangered Species protects the stork for its importance in the ecosystem. Resulted from this environmental protection, it has led to rapid growth, so it is possible to develop nature tourism, through bird watching, as happens in the neighboring municipality of Manzanares el Real (Madrid, Spain). As El Boalo-Cerceda-Mataelpino village also has an intense concentration of white stork nests, it could opt to be named a European Stork Village (www.storkvillages.net)(Table 7), and thus form part of the European Natural Heritage Fund, and the European Stork Villages Network, as well as of the European organizations Euronatur and Ciconia.

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Table 7. The European Stork Villages network

Village	Country	Village	Country
Malpartida de Cáceres	Spain	Tykocin	Poland
Altreu	Switzerland	Marchegg	Austria
Rührstädt	Germany	Buzica	Slovakia
Andrid	Romania	Mala Polana & Velika Polana	Slovenia
Nagybajom	Hungary	Cigoc	Croatia
Taras	Serbia	Cesinovo-Oblesevo	North Macedonia
Belozem	Bulgaria	Poros	Greece
Eskikaraagac	Turkey		

Source: Adapted from the European Stork Villages webpage.

The “European Stork Villages” have been designated for their exemplary dedication to the protection of the White Stork. To be selected, all European Stork Villages strive to improve their performance in the following fields (Euronatur, 2019)

1. The village holds a significant number of stork nests on its area or close-by, compared to other communities in its country.
2. There is a connection to a protected area in the vicinity of the village.
3. The village dedicates a special event to the White Stork and nature conservation (on an annual basis).
4. The village cooperates with a professional organization/institution, which is active in biodiversity conservation and ready to support the village in the implementation of joint conservation projects.
5. The village implements measures for the protection of the White Stork and nature in general (e.g., installation of nesting platforms, habitat restoration, insulation of dangerous power lines, and others).
6. The village implements activities in the field of nature education and awareness-raising for children and adults.
7. The village has excellent contacts with local/regional/national media. It manages to be mentioned in the press regularly, e.g., when special events take place or projects have been completed successfully.
8. The village implements any other activities/projects or has any other attribute/feature, which makes it especially suitable for the title “European Stork Village.”

Located initially in Radolfzell (Germany), the European Stork Villages Network meets on an annual basis in one of its member villages to enhance the exchange among the villages across Europe. Each village sends at least one English-speaking delegate to these annual meetings and, at some point, organizes a meeting on its own supported by EuroNatur and other partners and villages if needed, as the network can only be kept alive by the contribution and exchange of dedicated people.

Besides applying for belonging to the European Stork Villages Network, a third conclusion is to foster the circular economy to neighboring villages to strengthen their environmental protection to create a network of people that apply the circular economy as an essential part of their public policy.

Shifting from linear supply chain thinking to interconnected, circular, ecosystem thinking offer insights into addressing non-economic issues because private organizations are designed to maximize

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profit, and are less aligned with global ecological and social challenges (Tate et al., 2019). To counteract this problem, public administrations have a fundamental role in fulfilling. A mission that is much more effective when it occurs in a scheme of public-private collaboration, as in the case of El Boalo-Cerceda-Mataelpino municipality.

A fourth conclusion deals with the connection between the circular economy and Industry 4.0. Today, humanity is living in a global village, and the El Boalo-Cerceda-Mataelpino village is not an exception. When the municipality has optical fiber and high-speed Internet, it would be very desirable to become a service hub through, for example, the generalization of the home office, the assembly of non-polluting products.

Finally, the development of museums in the municipality, with the construction of an Archaeological Municipal Museum with the Visigoth pieces (VII century) recently found in the Archaeological Site of the Cerrillo del Rebollar, complemented with the future construction of a private-owned Pre-Columbian Art and Culture Museum in the village will attract cultural tourism. Along with this, entrepreneurship initiatives in education and health services in the municipality could be strengthened with a university in the surrounding area to carry out, for example, courses, seminars, and specialized workshops during the summer months (June-September). All these measures could be part of a development strategy of the municipality to unite the three urban centers, and thus have a single health center that is larger and with specialties, as well as a unique educational center and not separated from each other. The union is the strength, so a united and not diversified services would achieve higher levels of welfare, especially if the city applies circular economy in all this process of change, to be the circular economy significant enablers connecting circular economy and Industry 4.0 (Rajput & Singh, 2019).

Resulted from these public and private policies, the parallel efforts of hundreds of entrepreneurs, civil sector organizations, businesses, and other stakeholders can be joined and multiplied without impeding the work of any individual actor. In this sense, collaborative entrepreneurship and citizens' active participation can mold the future of this village. Municipality in constant population growth given its high quality of life, its privileged location within the 'Sierra de Guadarrama' National Park, and its proximity (50 kilometers | 31 miles) to Madrid-capital united by two different highways (A6 and M-607). A municipality defined by its high quality of life and by the constant growth of its population.

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KEY TERMS AND DEFINITIONS

5S: Formed by the acronym (*seiri, seiton, seiso, seiketsu, and shitsuke*), its objective is to increase the quality and efficiency in the production process of a good or service, as well as to reduce the waste of productive resources.

Clean Point: Also called green point or ecological point, it is a controlled municipal property whose function is to offer the citizens of the municipality a place to deposit separately the waste of difficult recycling generated in their homes.

Collaborative Entrepreneurship: It consists of the union of entrepreneurs (private only or private and public) intending to develop a joint project through the creation of synergies, which allows maximizing the impact of the project with minimum effort.

Kaizen: It is a Japanese concept that defines the processes of continuous improvement of organizations over time.

Smart Territory: Territories with a strong capacity for learning and implementing sustainable projects and strategies over time focused on increasing the quality of life of its citizens.

The European Stork Villages Network: The network of villages characterized by the defense and protection of the stork carried out, among other measures, by the security of nests, insulation of power lines and conservation of wetlands

The Zero Waste Europe Network: European conservationist movement defined by the introduction of measures and policies aimed at preserving the environment through the non-generation of waste and the start-up of a circular economy.

Chapter 11

Smart Territory Initiatives in an Emerging Economy: The Case of Chihuahua City in Mexico

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ABSTRACT

In the last years, a sense of urgency for cities to become more livable and sustainable has arisen due to the expected increase in their population. This chapter describes different initiatives taking place in the city of Chihuahua in Mexico, using the framework developed by the Inter-American Development Bank (IDB), with four dimensions: 1) Infrastructure for connectivity; 2) Sensors; 3) Integrated command and operations center; and 4) Communications technology. For each one of them, a description of the activities or projects is provided, along with a final SWOT (strengths, weakness, opportunities, and threats) analysis.

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INTRODUCTION

There is a gap between the concept/development of a smart city and that of an intelligent territory, the latter being an evolution of the first since it goes beyond the scope of a single city (Ekiona, 2018).

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information, and communication technologies (ICTs). This group (ITU, 2014) proposed the following definition for a smart, sustainable city. Said the ITU-T Focus Group approved definition for Smart Sustainable Cities, and it reads as follows:

“A smart, sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, the efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects.”

A Smart City can be understood as a community in which citizens, business firms, knowledge institutions, and municipal agencies collaborate with one another to achieve integrated, efficient systems, engaged citizens, and quality of life that is continually improving (Barrionuevo, Berrone, & Ricart, 2012; Berrone, Ricart, Rodriguez Planas, & Salvado, 2017). With urbanization on the rise at a global scale, failure to adapt to the new urban reality could be disastrous for cities; they would be facing unprecedented demographic, economic, social, and environmental challenges. Case studies are needed to transform such challenges into opportunities since they can outline initiatives that help redesign cities and territories so that they become smarter and more sustainable.

From the above definitions, it can be inferred that a Smart Territory initiative comes along with a Smart City initiative. From this standpoint, the chapter offers the description and lessons learned from the Chihuahua municipality. This case describes several actions or projects developed by the local government and the private economic sector. These initiatives combine information, innovation, and technology, as well as entrepreneurial initiatives, all of them essential for smart territorial development.

Hence the relevance of these types of reviews, considering through them, it is possible to identify similarities and development opportunities for other initiatives in similar or comparable circumstances. In this context, the sustainable development of cities becomes more relevant than ever. New urban models must be conceived from a more respectful and sensitive perspective regarding citizens and the planet. Given current urban growth trends, many urban centers will become mega-cities, with mega-problems, if not adequately prepared.

Technology is reconfiguring traditional roles and divisions of labor. City governments cannot provide every type of application and service themselves. This realization opens the door for other entities with capital and capabilities to step in, mainly where there may be opportunities to generate revenue. Smart cities have become more intricate ecosystems over time, with a mix of private-sector participation varying from city to city.

The need to tailor solutions to fit each city's context, combined with the unwillingness of dealing with multiple stakeholders and agencies, has made it challenging for many actors and organizations involved. One possible solution could be balancing each city's desire for custom solutions with their own need for scale. Forming alliances and working cooperatively with other providers to set industry standards and thus promote a shift toward open interfaces, may help the entire industry move forward — while simultaneously addressing a common worry among city governments about being locked into specific technology solutions and vendors (Woetzel & Remes, 2018).

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As more of the world's population moves to cities, businesses have myriad opportunities to carve out new, lucrative niches using their expert knowledge and access to cutting-edge technology and data to help tackle the growing list of challenges being faced by local authorities (Berrone et al., 2017).

Smart territories are for people, for current generations, and above all, for future ones. It has been established that if the current trend continues, by 2030, the planet Earth will begin to be non-viable for sustaining life, and the data estimated for 2050 does not show a nice scenario. For this reason, the key to success resides on people as the core of any approach, and with technology as a basis. Territories must adapt and look for partners who supply services that integrate intelligent systems, such as sensors and communications, that meet the standards of each of the layers of the system's architecture. Otherwise, the territories will become more expensive, less attractive for their inhabitants and businesses, which might result in them becoming degraded areas (Ekiona, 2018).

Within this line of transformation, the city of Chihuahua has the antecedent of having been named the 2nd. The Digital City of Latin America, according to the Motorola ranking of 2010, where 150 cities in 15 Latin American countries were evaluated (Expansion, 2009). It is from this initiative that the city is included as a success case in a study by the Inter-American Development Bank (IBD) (2016), where "*Chihuahua Ciudad Digital*" (Chihuahua Digital City) program is mentioned as a success case by including free Wi-Fi Internet access offered in dozens of public places. The main objective was to democratize access and encourage citizens to appropriate public spaces and use high-speed access for various purposes, such as those related to study, business, and general citizen participation activities. This initiative was sponsored by a joint committee of private companies and the local government, resulting in Chihuahua having one of the most significant developments in security and a network prepared for the improvement of citizen security.

"Chihuahua Digital City" stands out as an e-government initiative, which shows great efforts to bring connectivity to all educational institutions, as well as developing a website focused on the transparency of Public Administration (Altonivel, 2010). Also, it works as a background which establishes the need for an infrastructure that lays the foundations of an intelligent territory. It also works as a lesson learned on the need to establish citizen-based mechanisms to monitor this kind of initiatives to avoid the misuse of public resources, because of changes in government authorities.

In Chihuahua, there are several initiatives, among them: "*Programa Escudo Chihuahua*" (Chihuahua Shield Program), a security program and centralized command center; Living Lab, a space for collaboration using Information and Communication Technologies; and several apps developed to encourage citizen's participation, like "*Marca el Cambio*" (Dial for Change), "*Chihuahua Móvil*" (Chihuahua Mobile) and "MIA" App.

With the description of these projects, as well as their objectives and implementation degree, it is possible to obtain an overview of the goals established for the smart development of this region. All of them offer valuable and useful lessons for medium-size cities located in emerging economies, along with a diagnosis of opportunities to tackle, which assures/ensures the long term sustainability of this territory. The purpose of this chapter is to describe the current situation of the city of Chihuahua, focusing on the associated initiatives for its development and transition towards a Smart City.

Smart Mexico?

Up to this moment, Mexico does not have a complete Smart city, that is lead/supported by technology in terms of mobility, security, government, health, among others. There are several projects, still in

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development, some with signs of failure. However, each city initiative presents its particularities when trying to achieve their main interests. Among them are:

- **Mexico City:** Optimized transfer times and minimization of their environmental impact are their priorities, due to the burden they represent on the quality of life of their inhabitants (Johannes, 2019). Although there have been assessments about Mexico City as a smart city, they are just evaluations of different initiatives, uncoordinated, without a common goal that focuses all their efforts.
- **Queretaro:** Maderas is a residential project within the city of Queretaro, which seeks to make it the first Smart City in Mexico. Maderas was initiated in 2013 and is estimated to end in 2020. Life in this model city will move to the rhythm of the Internet, through mobile tools and the use of sustainable energies, such as wind and solar. The inhabitants will have all the information on their mobile phones (transportation services, garbage collection, electricity, gas, and water bills), and their homes will have individual sensors to determine humidity, temperature, and alert against thieves. A fiber-optic network will be installed to ensure 100% Internet connectivity. At this time, the level of advance is not available, although it's presumed to be near its conclusion in 2020 (Johannes, 2019).
- **Puebla:** "Smart Puebla" is the state's strategy to transform its cities and territories into the smart model. Actions aimed at improving the integration of their territories and improving the quality of life of their inhabitants through technology, innovation, and citizen participation. The goal of this project is the creation of public policies that help reduce the social inequality gap and focus on economic development, related to technological innovation. The area chosen in the city of Puebla (within the state) for a Smart City pilot project is within the "Barrio de Santiago" and "Atlixco." This pilot project has been on hold for about a year now (2019) since there was an interim state government in place. Besides, according to several sources, residents have expressed their disagreement with this project. The current challenge nowadays is to convince the new local government, as well as the people in the project's neighborhoods, to support the initiative (Ladobe, 2018; Barrio Smart, 2019).
- **Tequila:** 'Intelligent Tequila' is the name of this initiative, also known as the "First Intelligent Magic Town" in Mexico. This project's goal is to ensure the sustainable economic, social and environmental development, by applying technological and non-technological intelligence that will offer solutions to its inhabitants to solve the effects of growth and proposing prevention models to meet their needs. Originated in the municipality of the same name (Tequila), with a population of 50,000, this city is in the process of consolidating itself as an intelligent town in 2020. The leading digital initiatives are innovation in the production processes of the Agave distillate and the establishment of projects and plans for sustainable development. Besides, due to increasing tourist activity in the area, Big Data technology will provide accurate statistics for better-related offerings. Currently, Tequila has smart points to guide the visitor and heat sensors to see the concentration of people. The local government plans to complete the digitalization process by 2040 (Intelligent Tequila, 2019).
- **Guadalajara:** "Digital Creative City" is a project that has been developed in the city of Guadalajara since 2014 to promote the digital and creative industries of the region. The objective of the initiative is to strengthen Mexico's position within the creative economy. Through this ecosystem, better jobs will be created, there will be more competitive advantages for the industry and new spaces

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will be provided to foster coexistence, talent, and innovation. This site will have 380 hectares that will house 50,000 people and will be a global node in audiovisual, digital, and interactive production that will employ 10,000 professionals. Currently, the buildings where companies dedicated to technological development would be housed are practically empty. The state government has just announced the relaunch of the project (Ciudad Creativa Digital Guadalajara, 2019; Milenio, 2019).

- **Monterrey:** Within this metropolitan area, the city of Guadalupe created its own Municipal Institute for Integral Planning (IMPLANI). Professionals and investigators will seek to develop a strategy to create a long-term sustainable ecosystem where infrastructure, services, and technology improve the living conditions of citizens. Along with plans which contribute to maintaining a municipal development with inclusion and transparency. This metropolitan area provides an excellent ecosystem, which makes possible its transformation into a smart city, mainly due to a large number of resources available, as well as the collaboration among the academy, public, and private sectors (IMPLANI, 2019).

BACKGROUND

It is impossible to ignore the increased growth of urban areas observed at an international level. More than half of the world's population lives in urban areas, 54.6%, according to the United Nations (UN), and in the next 30 years, that number will increase to 70%. As of 2018, the most urbanized regions are North America with 82%, Latin America and the Caribbean with 81%, Europe with 74%, and Oceania with 68%. Within this percentage, the second biggest region with the urban population will be Latin America and the Caribbean. By 2030, the world is projected to have 43 megacities with more than 10 million inhabitants; most of these cities in developing regions with medium-to-low income. However, some of the fastest-growing clusters are cities with less than 1 million inhabitants (UN, 2018). In Mexico, it is expected that 90% of the population will be in urban spaces.

A World Bank analysis from 2015 looked at 750 cities around the globe and found that from 2005 through 2012, economic growth in 72% of these cities outpaced their respective national economies. By 2025, the world's top 600 cities are expected to account for 60% of global GDP (Gross Domestic Product). In the United States, the Northeast corridor (Boston to Washington, D.C.) and the Los Angeles metropolitan area together account for nearly a third of the national GDP (Khanna, 2016).

Considering this challenging panorama, it is important that countries, and the cities which are part of them, start working on developing processes for sustainable planning, administering, and governing, which can bring integrated solutions to the complex problems that will arise in the future. The goal is to ensure the best possible economic, environmental, and social conditions for these spaces. To achieve these optimal conditions, it is necessary to implement strategies and mechanisms for dynamic decision making that include input from the inhabitants.

Here is where management and creative usage of available resources come into play, to develop a "Smart City." A Smart City is a sustainable urban space in three fundamental aspects: economic, social, and environmental. It is also an innovative space in search of adequate solutions for problems and resilient against any contingencies that might present themselves. The main facilitator in reaching the desired objectives will be Information and Communication Technologies (ICT's).

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These communication and information technologies will be the key for cities to become inter-connected spaces through the usage of sensors and computer systems that, as part of a whole, will result in an intelligent urban space with proper resources management. This will provide the inhabitants with higher quality services, which is part of the main objectives in the implementation of these strategies.

However, even though ICT's are indispensable to achieve the desired objectives, they are only tools that must be linked to planning and management processes. To develop a proper strategy, an accurate diagnosis of the existing local conditions in the area to be developed must be made. Following these conditions, proper and integral solutions to complex problems that arise when changing from a traditional city to a Smart City will be better solved.

The gathering of local-based information can be evaluated through different models or frameworks. Among them it is possible to find: Deloitte, "Smart City Framework" (2018); the "Initiative of Emerging and Sustainable Cities" (2016) from the IDB; or the "Cities in Motion" model/index from the University of Navarra, now in its sixth edition since 2013.

According to the IDB (2016), a Smart City is: "One which places people at the center of its development, incorporates ICT for urban management and uses these elements as tools to stimulate the creation of an efficient government that includes collaborative planning with the participation of its citizens." When promoting integrated and sustainable growth, a Smart City will become more competitive, attractive, and resilient, thus increasing the life quality of its inhabitants.

These kinds of projects are meant for immediate implementation. While some are still a "work-in-progress," it is indispensable that cities start incorporating aspects that would usually seem unrelated, such as infrastructure, governing agencies, and human and social capital, so a sustainable and integrated development can be achieved along with continued economic and social wellbeing (Saiz-Álvarez & Palma-Ruiz, 2019).

Considering these aspects for transformation into a Smart City/Territory, Chihuahua was named the 2nd Digital City in Latin America, according to Motorola's ranking in 2010, where 150 cities in 15 different Latin American countries were evaluated (Altonivel, 2010; Expansion, 2009). One of the main achievements to be considered a successful Digital City, as seen in the IDB (2016), was the implementation of the "Chihuahua Digital City" program that provided free Wi-Fi access in public spaces. The objective was to give equal access to online content and incentivize citizens to use public spaces. Also, free Internet access could work as support for different needs, such as learning, business, active citizen participation, among others. The program was brought to life by the cooperation of private companies and local government administration of 2007-2010.

However, the project was abandoned by the following administration and eventually disappeared. This result showcases the problem these kinds of initiatives face: the lack of continuity in leadership and long-term planning that should be considered, not only by current authorities but for future ones as well. The failure to provide continuous reinforcement leads to the collapse of Smart City related projects.

The failed implementation of the previous project shows one of the main problems cities face when seeking to change into a Smart City. Long-term commitment and planning are needed throughout changing administrations, and alliances with different individuals, companies, or people with connections should be made throughout the project to help ensure the objectives are met, with no duplicated or missing links. Communication and collaboration are fundamental to achieve success.

Along with the challenge mentioned above, it becomes of utmost relevance to analyze the situation faced by emerging economies concerning sustainability efforts. According to the Boston Consulting Group (BCG, 2017), three criteria of sustainability are summed up in the acronym ESG, which stands

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for Environment, Social, and Governance. Initiatives that consider these matters help the environment and the economy. These three criteria can be explained and exemplified as follows, with their concrete benefits in countries with emerging economies.

- **E–Environment:** More than 50% of the world’s Smart Cities are located in China. Smart Cities improve the local climate through intelligent traffic control, energy, and waste management. Besides, the planning and construction of cities of the future increase the efficiency of the local economy by incorporating state-of-the-art logistics and technology (CNBC, 2018; Deloitte, 2018).
- **S–Social:** With a targeted policy, it took India nearly ten years to reduce poverty by half (University of Oxford, 2018). Those efforts will continue, according to India’s Prime Minister. Among other things, lower poverty rates mean less social tension and higher buying power for the economy. At this point, about half of Indian households belong to the middle class, which is expected to increase to 80% by 2030 (WEF, 2019).
- **G–Governance:** As of 2017, 78% of companies in the Asia Pacific region (in 2011 it was only 49%) report annually not only revenue or research expenditures, but also their activities in corporate governance, such as their treatment of employees (KPMG, 2017). Investors then can assess which companies are making progress in sustainability, for sustainably managed companies, in particular, have the potential to grow into market leaders with a strong financial background.

What pays off is a view that extends beyond economic potential alone. Deutsche Bank analyzed more than 2000 empirical studies and concluded that consideration of ESG criteria has a positive effect on corporate financial performance, especially in emerging markets (Gunner, Busch & Banner, 2015). The lesson is clear: the search for sustainability is embedded into a smart territory, and cannot be postponed at any cost.

LITERATURE REVIEW

As previously stated, different models and indexes contribute to the development of a Smart City. Among those is Deloitte with “Smart City Framework” or “Cities in Motion” from the University of Navarra, and the Initiative of “Emerging and Sustainable Cities” from the IDB. No matter the focus or model that is applied to develop an initiative of this kind, they should always involve processes, technologies, and people, the latter being the main focus of any project. In the following section, there is a brief description of the models mentioned above or indexes:

“Smart City Framework”

Deloitte’s Smart City framework offers a perspective through which technology can implement change in six urban domains (Sen, Eggers, & Kelkar, 2018):

1. **Economy:** This should include an open talent economy, using remote working capabilities to create a borderless workplace; training tuned to match the skills required, which will lead to shorter training periods, a reduced skills gap, and faster job creation; innovation labs that devise products

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and solutions to societal problems while providing a “safe” space for innovation and collaboration; business ecosystems evolving around key areas, building dynamic and collaborative networks to solve real-world issues.

2. **Mobility:** This refers to Dynamic fuel and energy pricing, which allows prices to fluctuate based on time of day, road congestion, speed, occupancy, and even fuel efficiency and carbon emissions, not to mention smart parking, with real-time information on parking spaces, as well as truly autonomous vehicles that maintain smooth traffic, safely reducing distances between cars and thus increasing road capacity
3. **Security:** This domain must include Real-time crowdsourcing of crime data and the creation of large databases that can be used to identify areas in need of greater security; drones or Unmanned Aerial Vehicles (UAV) technology that can act as scouts for first responders, minimizing risks for police officers or fire rescue workers in dangerous situations, as well as augmented-reality security screenings at airports and infrastructure hubs, which can reduce human error with automated facial and behavioral recognition
4. **Education:** Blended learning models that mix elements of in-person instruction with self-paced online learning; school-business collaborations that help teach job-specific skills; adaptive mentoring that uses technology to analyze data for insights into the needs and strengths of individual students.
5. **Living:** As major trends like Smart homes connect with electronic devices that allow real-time monitoring of a home’s energy use and security, then predictive analytics can tell city administrators which social interventions have a higher rate of success for each citizen’s circumstances; wearable devices that track personal health data and make their users more receptive to behavioral rewards for healthy lifestyles.
6. **Environment:** Taking care of Smart meters that help utilities to balance energy consumption and implement dynamic pricing; distributed energy sources transform consumers into “prosumers,” allowing homes and offices to both consume and generate electricity; embedded sensors that monitor everything from pollution to land management, supplement or replace on-site inspections.

This framework can help cities as they move along their Smart City/Territory development. But, besides considering the above six, urban domains should consider five key factors to develop their strategies: 1) Vision; 2) Ecosystem; 3) Governance; 4) Technology underpinnings, and 5) Funding.

“Cities in Motion” Index

In the words of their creators, Index is a research platform. This initiative connects a worldwide network of experts in cities and specialized private companies with local administrations around the world. The objective is to promote changes at the local level and develop valuable ideas and innovative tools that make cities smarter and more sustainable. The mission of the platform is to promote the model through an innovative approach to the governments of cities. This new urban model for the 21st century is based on four factors: sustainable ecosystem, innovative activities, equality among citizens, and connected territory. This model uses ten dimensions, each one of them with its respective indicators (IESE, 2019):

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1. **Human capital:** It relates to indicators associated with educational level, access to culture, and the possibilities of leisure and recreation spaces. These factors provide the capability to attract and retain talent and create spaces for creativity and innovation.
2. **Social cohesion:** This is the central axis for the social context of the city, supported safety, health, work, housing, and citizen inclusion indicators. It emphasizes the presence of diverse groups in the space of a city, its mixture and interaction between groups in an urban system that aims to be sustainable.
3. **Economy:** It covers aspects related to the economic development of a city, based on its GDP and the generation of aspects that favor a business ecosystem suitable for the most valuable companies in the world and the development of entrepreneurial capacity.
4. **Public Management:** It includes the management of a city's public finances, taking into account the efficiency of the administration, its management models, the ability to invest in basic social infrastructure, and the incentives that facilitate private investment.
5. **Governance:** It focuses on the citizen, which entails developing factors aimed to increase levels of citizen participation, the installation of electronic government, access to information, and the ability to involve business leaders and local agents of change.
6. **Environment:** It refers to environmental sustainability through the implementation of plans aimed at reducing pollution levels, efficient water management, development of green spaces, and policies that contribute to counteracting the effects of climate change.
7. **Mobility and transportation:** It includes the quality of public transport in a city and access to infrastructure that facilitates the workforce movement. It is a vital dimension since it affects the life quality of urban inhabitants and aspects linked to the productive system.
8. **Urban planning:** Related to a city's habitability conditions, it emphasizes the design of spaces for exchange among citizens, as well as promoting green areas, public spaces, connectivity in the human dimension, and compact urban development with good accessibility to public services.
9. **International projection:** This refers to the level of openness of a city to the world, understood as the global projection of a defined identity, which shapes the brand of the city. It is mainly reflected in the attraction of world tourism and foreign investments.
10. **Technology:** It reflects a factor that allows cities to be sustainable over time, driving them to maintain or expand the competitive advantages of their productive system, and the generation of innovative solutions for the generation of new jobs. The inhabitants' access to technology constitutes a modifier since it generates effects in the rest of the dimensions.

Model "Emerging and Sustainable Cities"

According to the transition model from Smart and Sustainable Cities (CES - *Ciudades Emergentes y Sostenibles*, in Spanish), proposed by IDB (2016), the technological architecture of any Smart City must have four elements:

1. **Connectivity infrastructure:** Internet bandwidth (fixed or mobile), to send and receive data.
2. **Sensors and connected equipment:** Devices can receive different signals from the environment and transmit them through computer networks located in control centers managed by cities. The same places where several different areas, such as public transportation, public information areas, emergency response, and alerts are managed.

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3. **Integrated operation and control centers:** With the help of computer centers and software applications, these locations receive, process, and analyze the data sent by the sensors located around the city so that it can be monitored and distributed to the appropriate areas.
4. **Communication interface:** Services, web portals, mobile applications; all used to send and receive information from the citizens and companies associated with opening data platforms and electronic government to favor participative management as well as transparency for a public function.

METHODOLOGY

A descriptive approach, using the dimensions defined by IDB on their model “Emerging and Sustainable Cities” (2016), was considered the most suitable to carry out this study, for several reasons:

- The case of “Chihuahua Digital City,” was recognized previously by this institution.
- This model has fewer elements, all of them technologically oriented, and therefore shows less complexity for its application, over the other options reviewed, especially considering the scarcity of data/information available concerning other dimensions used by alternative models.
- The context and background where this territory/city effectively tries to migrate from a traditional approach towards an intelligent one, meaning that it is still an on-going process, taking its first steps.
- The need to build and describe the technical foundations required to cement further advances is essential.

All of the above seem to fit according to the purpose and conditions where the analysis was executed.

This investigation was performed between February 2018 and May 2019. It was made possible thanks to the available information from online websites, as well as data obtained from different local authorities and entities.

This work develops the four technological dimensions needed to migrate and become a Smart City, by CES model: 1) Infrastructure and connectivity; 2) Sensors and other connected apparatus; 3) Integrated Centers for Operation and Control; and 4) Communication Technologies; all of them, already explained.

RESULTS

Based on the established methodology, the following results were obtained, which help obtain a clear appreciation of the efforts made by the city of Chihuahua to become a Smart City.

First, some general information about the city of Chihuahua:

Chihuahua is the capital of the state of the same name (Chihuahua), located North of Mexico. The state borders with the United States of America. The municipality has a population of over 800,000 people, a territorial extension of 8,372 square kilometers, and an approximate population density of 107 citizens per square kilometer. Almost 99% of the population resides in an urban setting. The urban area has an extension of 260.7 square kilometers, with a population density of 3,396 citizens per square kilometer.

The average education time for the citizens of the municipality is of 10.9 years. Besides, 96.49% of the population has a job or attends school; only 3.51% is unemployed or does not attend any school. All these indicators are above the national average.

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On the economic side, the municipality has a total of 390,789 economically active citizens, 43.7% of the total population. Besides, there are 33,069 economic “units,” in which the service sector employs 46.24% of the economically active citizens, and the secondary sector, manufacturing, employs 33.6%. During the last three and a half decades, accelerated demographic growth was observed since the population tripled. However, this growth now shows signs of stabilizing.

The weather in the area is predominantly semi-arid extreme with few rainy days, except when there is heavy, continuous rain, which may cause some flooding. The city covers its water needs by using three underwater reserves, which are overexploited due to a small number of wells (INEGI, 2015; DENU, 2015; IMPLAN, 2019).

The data presented establishes a social, economic, and environmental context from which the main problems the city faces can be inferred. It also shows possible alternatives and initiatives that can help it transform into a Smart City.

According to the order established by the ICES on what the structure towards becoming a Smart City entails, the first thing to implement is the infrastructure, meaning connectivity and sensors that capture and send relevant data, followed by the integrated centers for operation and control, and finally, the communication interfaces needed. All these elements are described below.

Dimension 1: Infrastructure for Connectivity

The project “Chihuahua Digital City” was eventually replaced by an alternative with a more significant scope, a state-level one, called “Digital REDvolucion.” The object is to bring down the barriers preventing access to digital platforms and information and end social inequality by bringing interconnectivity to the whole state of Chihuahua, thus guaranteeing that every citizen has the same information technology and communication rights and benefits.

“Digital REDvolucion” is currently present in 10 of the 67 municipalities in the state, with 94 sites that are running 24/7. Each location can support up to 200 users and guarantees a web connection between 20Mbps and up to 300Mbps for each user connected. Additionally, the capital city put up free Internet connection in 44 public transportation sites in the “*Ruta Troncal*” (main route), which gives service to over 50 thousand users of public transportation (Chihuahua State Government, 2018).

Dimension 2: Sensors

For the description of this component, pertinent data from the state program “*Plataforma Escudo Chihuahua*” (Chihuahua Shield Platform) or “PECUU,” was used. The program has six fundamental objectives (El Ágora, 2019):

1. Efficient use of technology and information.
2. Development and improvement of police personnel and life quality for themselves and their families.
3. Specific police work operations based on strategic information.
4. Certification of members and installations according to professional standards.
5. Participation and prevention attitudes from citizens.
6. Transparency from authorities.

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Currently, there are 500 cameras in 200 locations throughout the city. Also, there are 300 smart cameras, and three drones (waiting for the necessary permits to be deployed). The exact specifications from the PECUU, which represented an investment of 160 million pesos (La Parada Digital, 2018), was as follows:

- Four “shield arches” (Cameras that read the feed and can analyze car’s plates).
- Live feed surveillance cameras with storage capacity for up to 15 days.
- A total of 500 new security cameras.
- Integration of existing security cameras into the new platform.
- One hundred security cameras with flaps.
- Five drones equipped with cameras.
- Upgraded reception capacity for over 3,00 hidden security cameras.
- Increased communication mobility and information consulting.
- A total of 700 tablet devices for consulting and transferring data.
- One hundred new radio communication devices.
- Aerial preventive patrolling for recon and tactical use.
- Five new launching platforms for drones.
- Change and update of emergency buttons located throughout the city.
- Application upgraded to receive and attend up 50,000 solicitudes.
- Up to 3,000 emergency buttons (application integrated to indoor cameras) in commercial, private, and public interest locations.
- Renovation of the Mobile Command Center (it was over ten years old).
- Implementation of the biometric identification system.

It must be mentioned that the previously listed specifications for the “PECUU” program are being implemented in phases, and according to local authorities, it is currently at 80% completion.

Dimension 3: Integrated Centers for Operation and Control

For this section, the renovated mobile command center mentioned in the “PECUU” program, known as the Center for Operation and Monitoring, is used as an example. The mobile command unit is linked to the local police and fire departments. Although it is currently used mainly for security purposes, there are plans to incorporate other functions and services related to Smart Cities. It has also shown, according to statistics obtained by the local government, that reports from citizens have increased since its implementation.

Dimension 4: Communication Technologies (Web Portals, Services, Apps)

“Marca el Cambio” (Dial for Change) App

The application “*Marca el Cambio*” is free to download for mobile devices, both iOS and Android operating systems. The application has the objective of providing an immediate response to the citizens in matters of security by reporting right away the location of a person in need. The application is equipped with:

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- A Panic button, which sends a distress signal to the people in the Center for Operation and Monitoring, thus notifying the local police and fire department.
- A report section for a security emergency in case of robbery, unknown people near one's or a neighbor's household, medical emergency, ambulance need, or fire.
- Report section for situations such as lack of police vigilance in the area, witnessing or being the victim of a robbery, graffiti, and spotting a hazardous area.

The difference in using the application “*Marca el Cambio*” compared to the usual emergency number (9-1-1), is that there is no intermediary. When calling 9-1-1, the operator must follow a protocol: First, ask what the emergency is, and then ask for the location of it, while the application can send the information directly to the monitoring center when the panic button is used.

For iOS devices, the application can be downloaded at <http://apple.co/2jfp0Ch>, and for Android, it can be downloaded via Google Play Store or at <http://bit.ly/2jcn5AX>. As of 2019, the application has 40,000 downloads. During January in 2018, over 12,000 reports were made via the application. The main distress was a lack of illumination, hazardous pavement conditions, and trash accumulation (Municipal Government of Chihuahua, 2018a; Municipal Government of Chihuahua, 2018b).

“MIA Chihuahua” App

This application, managed by the Chihuahua's Women's Institute (“*Instituto Chihuahuense de la Mujer*,” in Spanish) is intended to bring women together and provide them with a support network, along with the promotion of female security and citizen participation to prevent gender-based violence. Additionally, it seeks to make available the benefits of the discount card “My support, my well-being,” granted by the same institution. Users who have the app installed on their mobile phone can generate a support network with a family member, friend, or neighbor, and alert from their phones when they are in danger through a text message that includes their location. The application also provides directions for care and support centers for women living with violence, a measuring tool to identify levels of domestic abuse, and information about self-protection campaigns.

About 70 percent of women in the municipality have a smartphone and an increasing number of public spaces offer free Wi-Fi, which is why “MIA Chihuahua had at least 5,000 downloads in its first semester, taking advantage of the more than 90,000 women users of discount card “My support, my well-being” (Municipal Government of Chihuahua, 2018c).

“Chihuahua Mobile” App

This application was created by IMPLAN (Municipal Institute for Planning, in Spanish), to provide citizens with information related to land management within the city, such as the authorized land uses of any property, according to the Urban Development Plan of the city of Chihuahua 2040 (PDU, 2018); cadastral information; as well as property taxes, making all this data available from any cell phone.

In the latest version of the application above, the user can access the valuable information on any piece of land within the urban area, such as land use, cadastral code, total land area, built area, and property tax, even with the possibility of making the payment through it. This has significantly reduced face-to-face consultation in public offices by speeding up the information queries. Additionally, it is possible

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to download the geographic information that the IMPLAN produces, such as road structure, business location, as well as recreational sites and parks, to name a few.

In September 2018, the Municipal Planning Institute registered up to 16,000 digital queries solely for land use. New upgrades for the application will include the participation and collaboration of the Public Registry of Property of the State of Chihuahua and the Urban Development Department of the Municipality of Chihuahua, to streamline and digitalize the procedures in both government dependencies (IMPLAN, 2018).

Municipal Institute of Planning (IMPLAN)

This institute's mission (website <https://implanchihuahua.gob.mx/>) is to be the technical consultative body of the Municipality of Chihuahua when it comes to the design, development, implementation, and evaluation of sustainable urban development projects, plans, and programs. The institute sets the procedures and policies for their evaluation, carrying out the necessary investigations to ensure the quality of the different planning and helps in projects related to urban regeneration and development projects. The main purpose of this organization is to seek citizen participation to achieve the integral and democratic social development of the community and to help ensure optimal administration of the territory.

This website received the OX 2017 International Award granted to websites whose information can be used by any citizen and which stands out for its content, creativity, ease of navigation, and the promotion of topics of general interest.

IMPLAN was created more than ten years ago. Although it has developed several diagnostics and strategic planning, the vast majority of them have not been implemented for several reasons. In the current administration, 2018-2021, an effort has been made to change the image of the institute, and this has been reflected in the website, where relevant information can be obtained and displayed attractively and understandably, making its access and navigation far more interesting (IMPLAN, 2019).

Local Government Website

In this web portal, several links are provided to a wide range of functionalities, from simply showing official formats or templates and listing searches, up to provide links to more specialized micro-sites (<http://www.municipiochihuahua.gob.mx/>).

This web page has undergone several modifications since its inception, many of which take place each time the municipal administration changes (every three years). Under the current administration (2018-2021), which is the first time that a mayor is re-elected, it shows few variations in its general design.

The site shows a combination of old and new pages. A combination of styles is displayed, including short videos taken by drones to help give a modern look at the site. At the same time, there are problems with some of the links, which are missing or under construction. It is also worth mentioning that the most relevant functionalities for municipal management are working correctly, particularly the payment of property tax. Still, the basic functionality required for a public portal is implemented, such as search options, menus in several sections, links to social networks, as well as links to other relevant applications (Municipal Government of Chihuahua, 2019).

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Other Technological and Economic Initiatives

“Living Lab CUU”

Its conception was to create a collaborative space where academia, private and public sector could develop projects focused on technological areas oriented towards smart cities, Industry 4.0 and the Internet of Things (IoT), to generate social and economic development for the region.

Through this initiative, the “IT Cluster of the State of Chihuahua,” in collaboration with the local government, seeks to achieve common goals, such as the development of talent and business related to the information technology sector. With this in mind, both entities developed a space that has the infrastructure needed to carry out these initiatives.

As part of its activities, courses, and meetings, alliances of various types are carried out with the business, government, elementary schools, and universities, which allows for knowledge transfer around technology issues. This collaboration has generated valuable proposals and collaborations based on technology for different industries in the region, such as manufacturing and agriculture (Living Lab Chihuahua, 2018).

Spark Park

Spark is a science and innovation project presented by Chihuahua’s state government. Spark is designed to promote and boost the growth of local and international companies with a focus on innovation based on knowledge and intangible services such as software and business processes.

One of the objectives of this park is to generate an ecosystem of growth and development for local companies, under the triple helix innovation model, which consists of an alliance between universities, private and public sector. Also, it takes advantage of the different capacities of the manufacturing sector installed in the region, to achieve a greater focus on embedded software, the Internet of things, custom software, software packages, engineering and design, and applications on mobile devices, among others (SIDE, 2018).

SWOT AND DIAGNOSTIC

Following the descriptive analysis that includes the four dimensions used like a framework: connectivity, sensors, operation and control centers, and communication technology, the following SWOT (Strengths, Weakness, Opportunity, and Threats), based on the obtained results, were identified:

- **Strengths:** Infrastructure and sensor installation; development of mobile applications that strengthen citizen participation. Currently, it is small, but there is a growing potential. The existence of a local institution like IMPLAN, which has the attributes to become an independent organ to facilitate the development of a city with the characteristics labeled as “smart.” Local willingness to move forward toward a collaboration among the different actors related: private, public (local and state level), and educational sectors. This goodwill is shown through the different initiatives proposed, most already working, but others just as proposed plans at the moment.

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- **Opportunities:** More sensors to collect data are needed (mainly to gather environment data), but there are no data banks to store and share them among all stakeholders. To solve this, cloud services and alliances could be implemented. There is also the possibility of crowdsourcing, allowing citizens to help recollect data that can be, in return, used to act in real-time for the benefit of the city. There is a sense of urgency among different sectors, which could serve as a catalyzer to help mobilize change. The lack of initiatives oriented towards environmental sustainability, which in the long term will be key for the survival of the territory (like water scarcity).
- **Weaknesses:** The non-existence of an external body of authority, or non-governmental organization (like a City Manager), that can provide continuum to the current and future projects. A deficit of digital government services that help citizens in doing necessary payments and other government-related errands. No sustainable waste and water management programs exist, as well as no data related to environmental conditions. Since there is no data sharing or one single-global data repository, there is not a common “source of truth” that allows all stakeholders to have the same vision and act as needed. There is a shortage of human talent necessary to develop and exploit data collected.
- **Threats:** Project continuity, as seen when there is a change in local government administration. No legislation enforces the continuity to related projects, as well as no single-independent entity which coordinates all efforts. Since there are no environmental data or programs, the long-term sustainability of the territory is at serious risk. It becomes urgent to establish sustainable measurement and goals for all environmental aspects: water, air, and solid waste.

These results establish a favorable diagnostic in terms of the efforts of Chihuahua territory to become a smart one, despite several shortages already mentioned. It is important to notice that the mentioned results have occurred during the same local government administration, which started in 2016, was re-elected in 2018, and will finish in 2021. Therefore, it will be of interest for future research, to follow the trail of the initiatives and projects described here, to establish its continuity and trajectory, despite the change of local government authorities.

The greatest peril of all, as it can be established from the issues mentioned above, is the lack of involvement in these initiatives from residents. This causes, in the long term, people to show their un-conformity or disengagement for these interventions.

CONCLUSION

There is a wide variety of good intentions and projects that show interest from the citizens, not to mention the local authorities, to make their territory a better one to live in. However, there is an urgent need for a coordinating entity that manages all these initiatives and channels them towards the same goal: that of enabling communication, collaboration, and leverage efforts among different stakeholders and economic, social, and environmental interests. Along with this entity, it is mandatory to establish the legal framework needed for its independent operation and funding. In addition to the previously mentioned needs, it is imperative to seek citizen's voices to support and collaborate with these interventions, since in the long-term, they will be the ones who can take charge of them. Authorities come and go, but people remain.

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On the other hand, as a country, Mexico does not have any federal programs, strategies, or financial aid, which helps promote this kind of development. As a consequence, there is no guiding framework that helps coordinate and focus efforts. Despite this, according to Deloitte (2019), Mexico has great potential for the development of smart cities, mainly because of the identification of very specific problems, such as security or mobility; both can find a clear solution through technology. Because of the situation above, Mexico is fertile ground for smart cities, since this kind of scheme has the potential to improve people's quality of life (Deloitte, 2019).

A common situation that cities face when transitioning from traditional to Smart ones is the shortage of resources. To solve this problem, new collaboration schemes are emerging, which can guarantee the necessary initiatives for transitioning to be implemented. In the new proposed financial schemes, private industry associations, as well as possible international funding, would be used to help guarantee emerging economies that can transform traditional city management, into a Smart City, as in the case of the city of Chihuahua.

All the initiatives already described from the case of the city/territory of Chihuahua can easily compare to others initiated in other cities or regions within Mexico. Most of them are in initial stages, taking small and fundamental steps, like providing infrastructure to access the Internet, developing apps that facilitate citizen's paperwork, or developing complete areas where services are technology-enabled. Each city looks to implement specific projects intended to solve their specific problems. It is possible to find similar solutions among them, such as the creation of public bodies to pursue collaboration and planning in order to generate or find technology-enabled public spaces, which allows stimulating knowledge transfer, mainly associated with economic development.

In the same way, it is possible to find similar problems, mainly due to the lack of monitoring when local or state administration changes, since most of these initiatives are sponsored by alliances between local governments and business people. It is easy to acknowledge the underlying economic interests related to these projects. Thus, it becomes imperative to engage citizens, to let them take ownership, to ensure that all these propositions become realities that continue despite changes in government bodies.

On the other hand, as for environmental issues, there is much work to be done, since all of the initiatives, locals and national, do not seem to include environmental factors; there are not even basic indicators that could be monitored. For example, for the city of Chihuahua, water scarcity could be a monitored indicator, which could be observed every day and remains relevant in the immediate future.

All the evidence described highlights the missing link: citizens, or a social perspective. Until now, efforts are more oriented towards economic development, which may have long-term sustainability characteristics, and somehow related to the well-being of the population, but in reality, none of the projects have been agreed upon with residents, which may have other worries or priorities to attend, like mobility (one of the main problems that people face on a day-to-day basis). Ultimately, citizens will be the ones in charge, and their commitment is the key to ensuring long-term sustainability for their territories.

Thus, it becomes imperative to provide solutions for all these sorts of threats and weaknesses, without forgetting the lessons learned from the application of good practices, to achieve a continuous, balanced, and long-term sustainable development for this territory. Most of these situations are common in the Latin American context, making this case study of interest for other regions with similar backgrounds and contexts.

Finally, as a review of lessons learned that could be useful for other territories in similar conditions:

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There is a great deal of motivation to carry out this transition from traditional management into a Smart Territory. There are several initiatives and willingness to do things. All different players have their respective projects and goals. Still, there is no clear coordination among them, starting with the definition of a clear strategy from a higher instance, which might help with coordination and collaboration to fund these projects.

The absence of communication could lead to duplicate efforts or becoming less effective in their achievements. If there is truly a desire to improve the territory conditions, it is necessary to establish a unique road map, where all stakeholders relate with each other and agree to work in close collaboration.

Since most of these projects could be easily associated with gentrification, due to focalized improvements in public spaces, they could be rejected by residents. If the trend continues, these initiatives are doomed to fail.

Finally, the need to have a solid proposal for the transition towards becoming a Smart City is of utmost importance. It goes hand in hand with proper planning that shows who will be involved (government, citizens, private sector, etc.), purpose, strategies, and key indicators that measure achievements of transition strategies. Only then, a traditional city could become a Smart City that truly provides a higher quality of life to its dwellers. Also, as a future extension, as more data and information are made available, more complex models and indexes could be used to evaluate this territory's sustainability in the long run in a more comprehensive way.

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KEY TERMS AND DEFINITIONS

Chihuahua Mobile app: Application developed by local authorities, which seeks to provide a communication channel between citizens and authorities. This app can be found for Android, as well as for iOS systems.

CUU: Abbreviation originally used to identify Chihuahua's airport, which now has become widely used to recognize the whole territory or metropolitan area, both by local authorities and inhabitants.

DENUE: National Statistical Directory of Economic Units. Another federal institution: INEGI generates this listing.

IMPLAN: Municipal Institute of Planning, the institution created more than 15 years ago, to plan and evaluate the city growth. It has elaborated several diagnostics around Chihuahua's problems and proposed solutions, but almost none of them have been implemented. During the administration of 2016-2018 and 2019-2021, there is a sense of purpose that looks to cross the line between planning and real action.

INEGI: National Institute of Statistics and Geography. This institute is in charge of generating data, which helps to provide insights about Mexico's development.

MIA App: Application developed by local authorities to help prevent violence against women.

PECUU: Chihuahua Shield Program, a security program, whose acronym is formed by the initials in Spanish plus the abbreviation CUU (already explained above). Defined by six fundamental objectives: 1) Efficient use of technology and information; 2) Development and improvement of police personnel

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and life quality for themselves and their families; 3) Specific police work operations based on strategic information; 4) Certification of members and installations according to professional standards; 5) Participation and prevention attitudes from citizens; 6) Transparency from authorities.

Smart City: A community in which citizens, business firms, knowledge institutions, and municipal agencies collaborate to achieve systems integration and efficiency, citizen engagement, and a continually improving quality of life for their inhabitants.

Smart Territory: Geographic contexts considered examples of sustainability and efficiency in areas of great importance for their development, always having the citizen in the center of their interest (IGI dictionary).

Chapter 12

Qualitative Analysis of Learning Territorial Planning: The Case of Management of a Local Plan of Territorial Laws in Chile

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ABSTRACT

This chapter addresses the management process of the Regulator Program of Melipilla district in Chile in 1988–2016. Evidence indicates that territorial planning processes are rare in decision-makers, as they are in favor of a technocratic logic focused on quantitative metrics, rather than in qualitative or processional analyses, such as organizational learning. To this end, the qualitative analysis in this study sought to capture the perceptions of some of its actors regarding issues such as citizen participation, technical management, and political management of this instrument. The fieldwork consisted of the application of in-depth interviews of actors involved at different stages of their implementation from a multi-level approach. It is concluded that the process of updates to this planning instrument was strongly associated with political issues with little strategic vision for the future, precarious levels of citizen participation, and an absolute shortage of organizational learnings into the process.

INTRODUCTION

It is hardly known that qualitative processes are developed both for the elaboration of a Regulatory Plan and its updates. From the academy, research institutes, and even public sectors, it has privileged the use of quantitative management indicators, which give an account on certain metrics of the state of development of the territories. It is no coincidence that, in this regard, rankings such as the ‘Territorial Competitiveness Index,’ ‘Open Government Index,’ or the ‘Quality of Life Index,’ among others, have proliferated in Chile lately, which disaggregate territorial development in a series of dimensions. It is

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known, currently, that these divisions are arbitrary because quantitative and qualitative aspects coexist. In this sense, it is not possible to dissociate variables such as indicators of buildings increase or the own income of the municipality with more intangible factors political as the will of the respective Mayor or perception or involving of community in this type of public issues.

On the other hand, territorial inequality has burst strongly on to the regional scene through the concern of technicians and politicians about strengthening territorial compensation systems in the allocation of resources, this latter also known as financial decentralization (Irrarázaval et al., 2008). Associated with the above, the concern about theme of competitiveness, a notion of modern management, means that territories must improve their comparative advantages in order to compete not only for access to state resources (as the case in Chile of National Fund of Regional Development FNDR or Municipal Common Fund FCM, between others) but also to compete with other neighboring territories in generating better conditions and attractive to be depositaries of future investments.

THEORETICAL FRAMEWORK

In this sense, the ordering of the territory has taken an unusual force. According to Gaspar, it has been carried out as a result of the adequacy of the communities to the available terrestrial space (Gaspar, 2000 cited in Ferrao, 2011). However, for authors such as Ferrao, one of the fragilities of territorial systems lives in the fragmentation and lack of dialogue between scientific and professional communities. This demands to offer solutions or alternatives, which do not disappoint the legitimate public, collective, and private interests where participation, dialogue, and communication are fundamental values of the praxis of the territorial order. Idea shared by Senge, as it will see later, which, by the way, comes from another disciplinary area, not precisely concerned about territory issues.

Based on the objective of this study, it is pertinent to ask: What do we know about these planning instrument management processes? Are the different municipal actors responsible for their implementation? Are there explicit negotiations between actors with different interests? Does the local community have any practical impact on them? How much and How do municipal organizations learn from these processes? If so, how and whom do they manage these learnings?

This research arises given the limited information on how public organizations in Chile, in general, and municipalities in particular, learn from the territorial planning processes that they carry out. So, they can hardly recognize efforts and parameters of efficiency or knowledge of good institutional practices, make invisible spaces of creativity and public management innovation that can increase efficiency and quality to these planning processes, whose activation can even take years and enter into true latency processes.

Today, for any public policy in governance contexts, dialogue, and social consensus-building among the various social groups involved in decisions are required. This is accentuated when generating public policies on territorial and regulatory systems in the use of communal land since there is a higher possibility of increased environmental or ecological conflicts. As Martínez-Alier points out, as the economy and population increase, more natural resources are used, and more waste is produced, affecting the sustainability of the territory, emerging concepts such as possible environmental conflicts (Martínez-Alier, 2007).

In the practical sense, the adequate visualization or interests' differences of detection or territorial vocations detected in the historical negotiation processes of the Communal Regulatory Plans (from here on out PRC) can be considered as accurate predictors of socio-territorial conflicts in the communes.

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Conflicts not addressed or omitted from the information-raising process and methodologies for leading consensus on the uses of certain territories can help the new urban agenda to define specific solving conflicts methodologies. Therefore, the learning achieved in these areas must be the result of the interaction between institutions and organizations in uncertainty and competition environments. Consequently, it has necessarily continuously been looking for new 'ways of doing' in territory management (Innovation). However, it is hardly possible to do this without enough information.

The latter is particularly applicable to the role of municipalities in Chile, which must deal permanently with the central government about powers and competences within their territory (Irrarázaval et al., 2000). By Gurovich, Communal Regulatory Plan is an objective image, provided and expressed based on the negotiation of multiple opinions and interests, with a determined temporal perspective, in addition to demonstratives, pedagogic, and enlightening effects on participating agents and their interpreters (Gurovich, 2000).

On the other hand, as already noted, in these territorial planning and agreement-building processes, it is essential to consider interdisciplinary dialogue in scientific dispute. For Ferrao, it is necessary, then, to learn by observing the micro-dynamics of trading, decisions and actions, mostly invisible that occur in these processes (Ferrao, 2011) or in Senge's language, "are linked to invisible plots of interrelated acts, which often take years to fully exhibit their mutual effects" (Senge, 2012, p. 14).

Thus, occurs in the process of building the territory (or urbanistically called territorial order) a series of community, political, symbolic, and other processes that change beliefs, values and attitudes of the citizens and communities of professionals and technicians, with regard to transfers, appropriation and co-production of new knowledge, and on learning modalities, on successes or errors in decisions and on coordination between levels administrative and political issues involved. In this sense, it is important to know the different logics and rationalities present in a multi-level territorial planning process, as evidenced in this research work, which, while a single and unrepeatable case, allows to size challenges and opportunities for organizations of equal or similar nature and complexity.

Municipalities Organizations That Learn?

As Peter Senge suggests, "five new component technologies converge innovating smart organizations. Although they were developed separately, each will be decisive for the success of others, as is the case with any set. Each provides a vital dimension for the construction of organizations with authentic learning capacity, capable of continually perfecting their ability to achieve greater aspirations" (Senge, 2012, p. 15).

As Senge points out, the converging dimensions refer to 'Systemic Thinking,' 'Personal Domain,' 'Mental Models,' 'Building a Shared Vision,' and 'Team Learning.' In this sense, according to Senge, businesses and other human enterprises are also systems; they are linked to invisible plots of interrelated acts, which often take years to exhibit their mutual effects fully. On the other hand, Senge refers to an organization's ability to achieve constant learning, connecting personal and organizational learning, with reciprocal commitments. Learnings can also modify hidden mental models. For this reason, Senge thinks that 'planning is learning' and believes deeply in the value of dialogue and the creation of perceptions in groups (Senge, 2012).

In Chile, municipalities are public entities responsible for the planning of the territory from a 'Private'¹ Function and have territorial planning instruments that must coincide with other supra communal instruments. In general, changes in regulatory plans are slow and complex, as the regulation requires high-cost technical studies that municipalities are unwilling to assume, or instead cannot assume au-

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tonomously. In the case of the Communal Development Plans (PLADECOs) are a strategic instrument that establishes the mission and vision of the commune -and according Gurovich is municipal management means, complementary that uses PRC as a territorialized guide of communal development and their programs- there is greater dynamicity in its elaborations since apparently, these are fewer complex matters: it is enough to hire a consultant to conduct the study and summon the community in mayor's election times. However, literature in Chile does not offer much information about it and how this type of organization learns from its practices.

In this sense, it is necessary to differentiate between 'organizational learning' and 'learning organizations.' The first case concerns the changes that an organization makes in the way it performs its activities from its experiences, while the organization that learns is an ideal type of organization in which learning has an important role (Solf, 2007). Organizational learning and organizations that learn, while referring to two different entities, are interrelated so that an organization that learns intentionally channels organizational learning. For Chapman, arises a need to radically alter public policy formulation and implementation models through the adoption of lifelong learning processes based on systemic forms of reasoning (Chapman, 2002). The initial response to this dilemma is to try to manage greater control systems, with more significant inspection systems, with high regulatory standards. It is proposed to incorporate the notion of complex systems, although this generates remarkable resistance to change.

An approach based on an understanding of complexity and systems would allow greater diversity and experimentation. This means that a new policy roadmap requires policymakers and the development of a new narrative to explain the local, territorial planning process to the public. Following again to Chapman (2002), a good approach to improving performance is to take several actions, such as evaluating results and then learning what works best. This evolutionary approach to learning requires both innovation (variety of actions) and useful feedback on the results of previous actions (a selection process). However, there are significant obstacles to learning within the government process and policy-making, among which one can point out the aversion to failure, exacerbated by the political process that uses failures to score points rather than learn lessons. That is, no one with any interest in advancing a political career is interested in being the subject of inadequate evaluations even more so when it comes to aspects as relevant and strategic for development like a process of territorial order.

According to Toloza, the understanding of development at every level (national, regional, and local) has moved, from approaches linked almost exclusively to economic growth to models of multidimensional and holistic interpretation. In this context, most of the information presented in a format describing the development and competitiveness indicators available for the interpretation of phenomena and decision-making at the local level comes from a combination of sources. For that reason, the available secondary information must be reinforced or supplemented by the survey of primary information through surveys or interviews. This process involves an increased means of obtaining indicators, so their reproducibility is limited or contingent on the accessibility of resources (Toloza et al., 2018).

This scarce availability of information regarding decision-making at the territorial and local levels has become a constraint and challenge for the country. This situation was recognized in the report of the Presidential Advisory Commission on Decentralization and Regional Development, which in 2014 noted the need to create integrated regional territorial information systems for decision-making (Presidential Advisory Commission on Decentralization and Regional Development, 2014). Also, a need for restructuring to better leverage data and provide sub-national spaces with higher and better information for public and private policy decision-making in a more relevant manner to complexity and specificity

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of each territory'. (Tolozza et al., 2018). Even so, qualitative or process data in this type of subject matter remains somewhat unknown in territorial public policies at the communal level in Chile.

Public Policies for Territory Management

As previously raised, there are a series of policies and decisions of the State that affect the use of the territory and are based on this type of data. Some are more focused on long-term economic planning issues, others more focused on the proper use of space and resources, and others ultimately primarily related to the autonomy of power. According to Angel Massiris (2008), we find the following policies:

1. Territorial development (concerned about generating competitive regions, strategic regions, reducing disparities in regional economic development, compensation for lagging regions).
2. Territorial planning (concerned with producing and implementing a territorial model of use and occupation, sustainable use of natural resources).
3. Decentralization aimed at a greater autonomy of territorial entities in the management of their development.

In the Chilean case, at the communal level, there are three instruments that according to Law No. 18.695 allows the municipality to manage its development mission, which would combine according to the above, policies of territorial order and decentralization: these are the Annual Investment Plan, Community Development Plan, and Community Regulatory Plan. The second one would allow applying this strategic vision of communal development, but if it is not associated with elements that regulate the use of the territory, it will serve in a minimal form for the active development of the commune and its territory. In this sense, Community Regulatory Plan (PRC) – the subject of our study – becomes a planning tool that seeks to improve the future of the commune and which consists of a set of standards on adequate hygiene and safety conditions in the buildings and urban spaces, and comfort in the functional relationship between the housing areas, work, equipment and recreation.

“Its provisions concern land use or zoning, location of community equipment, parking, classification of road structure, fixing urban boundaries, densities and prioritizing inland urbanization for the expansion of the city, depending on the feasibility of expanding or equipping health and energy networks, and other urban aspects” (General Law on Urban Planning and Construction, DFL 458, 1975).

In the case of territorial planning or territorial organization, organizations, institutions, and different levels of administration involved have been changing at different speeds, their objectives, methodologies, theoretical approaches, among others enabling acclaimed territorial decentralization and efficient land use. At the same time, communities demand more direct participation in public affairs, and municipalities demand greater decision-making autonomy. The reality indicates that the processing of decisions in this area remains vertical and one-way from the Central State (Prats, 2001). The development of a society depends on the functioning of the whole institutional matrix, composed of institutions and organizations that change at different speeds. Territorial decentralization has gone very slowly concerning other types of decentralization, as we will see later. The Municipalities law No. 18.695 does not make community participation mandatory in the continual process of the territory management, least in a binding way. However, if it is established by the General Ordinance of Urbanism and Constructions, national regulations that, even force to the local government to establish a type of participation this continues working out absolutely informative and medium-consultative but in no case binding on the final decisions,

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which remain in the hands of traditional representative political systems such as Municipal Council or the Mayor. In this way, citizen participation in the definition of space use is a critical factor from a governance approach. Participatory influence on the conditions of the environment is critical for civil society. However, it is the local municipality responsible for ensuring the effective participation of the neighbors in the development and for that is commanded by the citizens themselves which is the reason why they today demand decision-making autonomy from their local representatives so that they can ensure the environmental and social sustainability of ‘their’ territory (Saiz-Álvarez & Palma-Ruiz, 2019).

The following study, based on the statements of the leading public and institutional actors of the State, an analysis matrix that allows increasing the levels of knowledge regarding the urban process developed between 1988 and 2016 in the commune of Melipilla-Chile.

METHODOLOGY

Following Mardones et al. (1982), we understand in general terms the epistemological perspective that better suits the research objective is interpretative, a perspective that recognizes intersubjectivity in the construction of the experience or fact and utility of the ‘updating of’ that experience from the consulted actor. In particular terms, we focus on Symbolic interaction Theory. Herbert Blumer introduced this term. According to him, the human being places his acts towards objects according to what they mean to him. The origin of that meaning is a social product that comes from and through the activities of individuals when interacting. The use of meaning by the individual occurs through a process of self-interpretation that involves self-interaction and manipulation of meanings.

In this sense, ‘the different ways in which individuals have meanings, objects, events, and experiences form the central starting point for research. Flick (2012) considered that theoretical sampling can be based on groups to be compared or from specific persons; in both cases, sampling is not based on statistical sampling criteria (Flick, 2012 cited in Hernández, 2014). Thus, the representativeness of the sample is not acquired by random sampling or stratified, but individuals are selected depending on the expectations that generate us from contributing new ideas with to the theory that we depend on the state in which it is at that precise moment. There are, therefore, infinite possibilities for incorporating new subjects and cases, so it is crucial to define criteria for the limitation of the sample, that is, when to stop incorporating new cases. Grounded Theory uses inductive analysis of qualitative data constructing a particular theory of the object of study. It is particularly relevant in this coding process that is carried out of this data in order to identify the categories, which can be subsequently divided into subcategories and grouped into categories with common properties. Thus, it is crucial to interpret data discussed above but to be true what the interviewees say. In other words, we need to focus on what the interviewee says and how he says it, and not on what we think about the issue. It is also of triangular interest to the information through various contributions from different participants and interviewees. Once the interviews are conducted, it is important to analyze them and generate categories, do not wait to have all data (interviews) to analyze them later (Hernández Carrera, 2014, p. 193).

Reliability and Viability of The Study

Following Martínez, several ‘triangulations’ can be performed to improve research results and their validity and reliability. The central idea is to use anything that is deemed relevant, related, and consid-

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ered useful for research (Martínez, 2006). In our case, it applied the so-called Data Triangulation; for example, a variety of data was used to conduct the study from different sources of information. Three groups of interviewees were considered: technicians and managers of the municipality, political authorities such as councilors and former mayors, and a third group composed of externals such as Deputies and governor. The pattern of the interview was complicated by the gradual increase in the information

Table 1. Key informants

Post	Institution	Role	Management Period
Manager of Communities Organizations Department	Distinguished Municipality of Melipilla	Advise to communities' organizations on all issues that allow making easy their constitution and working and full application of Neighbors Committee law and all the community organizations.	2017-to date
Community Development Director	Distinguished Municipality of Melipilla	DIDECO: Advice to the Mayor and, also, the Council, in the promotion of Community development. MUNICIPAL ADMINISTRATOR: Execute coordination tasks in all the municipal units and municipal services according to the Mayor instructions COUNCILOR: A Council of a normative character, resolute and inspector, in charge of make effective local community participation and apply attributions that this law points out.	2009-2010 DIDECO 2010-2016 Municipal Administrator 2016-2019 Counselor
Urban Advisor Communal Secretary of Planning	Distinguished Municipality of Melipilla	SECPLA: Serve to a permanent technical secretary of the Mayor and the Council in the repairing and coordination of policies, plans, programs, and projects of development of the Commune.	2002 to date
Former Mayor	Distinguished Municipality of Melipilla	The supreme authority of the Municipality and in this capacity is responsible for its direction and superior management and working supervision.	2008-2016
Former Mayor	Distinguished Municipality of Melipilla	The supreme authority of the Municipality and in this capacity is responsible for its direction and superior management and working supervision.	1996-2008
Provincial Governor	Distinguished Municipality of Melipilla	To exert, according to the Supervisor instructions, supervision of public services created by law to the compliance of administration function, existing in the province	2017- to date
Councilor	Distinguished Municipality of Melipilla	A Council of a normative character, resolute and inspector, in charge of make effective local community participation and apply attributions that this law points out	2017-2020
Legislator	Distinguished Municipality of Melipilla	Representative Chamber legislates altogether with the Senate and the President of Republic. Inspect the acts of the government. Exert control on public authorities	
Directorate President	Universidad del Pacífico (Pacifico University)	It is the maximum rector organ that depends on determining and directing the execution of global policies of university development and the medium- and long-term period dedicated to materialized it.	
Counselor	Distinguished Municipality of Melipilla	A Council of a normative character, resolute and inspector, in charge of make effective local community participation and apply attributions that this law points out.	2017-2020
Former Urban Advisor Communal Secretary of Planning	Distinguished Municipality of Melipilla	Urban architect associated with Juan Honold and Pastor Correa. Workshop chief coordinating the land tasks in the city of Melipilla and reward of regulator Plan in execution	Abril 2018

Source: Own elaboration

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that the interviewees yielded. The fieldwork consisted of visits to the municipality, the governorate, and the parliamentary office of the Member. Visits were also made to the homes of former mayors. To strengthen the validity and reliability, categorization, or assignment of significant categories or classes was applied to continually design and redesign, integrate and reintegrate the whole and parts, as the material and the meaning of each paragraph, event, fact, or fact. The structuring was also applied to validate a realistic and authentic understanding of the subject studied and, finally, the contrast to relate and contrast the results with those parallel or similar studies that were presented within the framework theoretical-referential. In-depth interviews were considered to carried out by 11 territorial actors that had direct and indirect responsibility on the management of the Regulator Plan.

Precisely one of the characteristics of qualitative methodologies and interpretive epistemology is that the researcher seeks to understand the facts, rather than classify them or seek a cause or mechanistic logic. This kind of approach to reality represents a methodological conception typical of the human sciences. ‘Understanding’ has psychological resonance and aims to ‘update’ with the interviewee the spiritual atmosphere, feelings, motives, values that they assign to experience, in this case, in the process of urban development, understanding ‘from within’ historical, social phenomena. The researcher applies emotional empathy, atmosphere, understanding from within historical phenomena, the degree of “significance” he had for the actors (Mardones & Urzúa, 1982).

On the other hand, the choice of interviewees in a multi-level approach is considered. This has been a useful methodology for the development of diagnostics and characterizations of physical activity from an ecological perspective. In general, its conceptual approach has been used, referring to the hierarchical treatment of information associated with relevant qualitative levels. The multi-level approach, which consists of analyzing innovation from a systemic (business, sectoral, regional, and national) approach, highlighting the relationships between actors and factors that promote innovation (Seclén, 2015). Multi-level governance addresses the problems of policy-making interdependencies across multiple governing orders (local, regional, provincial, national, international) and inter-government (OECD, 2012).

Three categories of analysis were also built to achieve the purpose of the study: Citizen Participation, Technical Management, and Political Management. In turn, each category presents subcategories described below:

Plan Analysis

See Table 2.

RESULTS

Next, perceptions and statements of different interviewees from a multilevel approach are presented in Figure 1.

Regarding Citizen Participation

In this study, it means by citizen participation as the active involvement of the inhabitants of the commune in matters associated with updates and modifications of the PRC. Consulted one of the three architects that makes PRC in 1988, points out regarding of origins of Regulator Plan that in the process mainly par-

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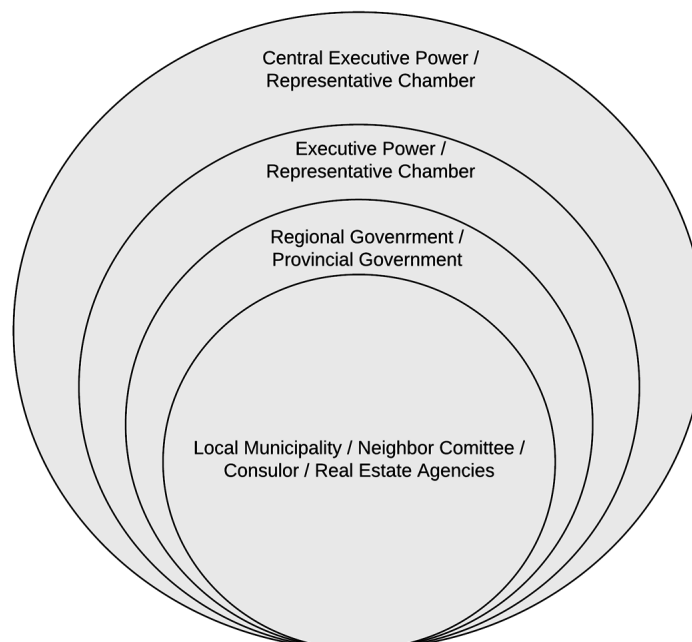
Table 2. Analysis of categories

Central Category	Subcategories
1. Citizen Participation. It refers to the involvement of inhabitants of the commune in matters associated with updates of the PRC. This involvement may be systematic or occasional	Assessment of Citizen Participation in the design of the PRC: It refers to the assessment made by the interviewees regarding the participation of the neighbors in the management of the PRC of 1988 and updates.
	Modalities of Citizen Participation in the Management of the PRCI: It refers to the perception of interviewees regarding the participation instruments used and their innovation proposals in the subject.
2. Technical Component of the Management. It refers to the perceptions that informants have about the urban or administrative technical aspects involved in the management of the PRC	Capacity Municipal Teams: It refers to the perception of interviewees regarding the technical and financial capacity of the Municipal teams to efficiently manage the PRC.
	Competencies and Municipal Faculties: It refers to the perception of interviewees regarding the Municipal Faculties on the efficient and autonomous management of the Regulatory Plan.
	The strategic importance of the PRC for community development: It refers to the opinion of the interviewees to the coherence of the PRC with a strategic vision of the development of the commune.
	Coordination and Territorial Coherence: It refers to coordinated actions and decisions between the municipal, provincial, regional and national levels regarding the development of the commune.
3. Political Component of Management. It refers to the perceptions that informants have about the political aspects involved in the management of the PRC. May refer to the analysis of informal power relations warned.	Incidence of interest groups It refers to the perception of respondents regarding the incidence of stakeholders in decisions taken on the management of the PRC.
	Citizen representation in the management of the Regulatory Plan It refers to the quality and heterogeneity of citizen participation in the instrument during the period.
	Leadership incidence It refers to the perception of interviewees regarding the impact of the leadership of authorities in the management of the PRC.

Source: Own elaboration

Figure 1. Levels that take part in the Communal Regulator Plan Management

Source: Own elaboration



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ticipated traders and entrepreneurs in the area, to seeking to learn about the proposals that he considered the new plan-replacing the previous one that he had implemented since 1953. Real estate entrepreneurs also participated in that early stage, outreach meetings of the instrument as in analysis meetings, basically glimpsing possibilities for investment and future urban development projects, probably considering the geostrategic importance of this commune. On the importance of community participation in such projects most of those consulted in the fieldwork, point out that it is essential to participate the community in any planning process of a city and that it is not only a formality, but it is important to know how they live and what they aspire to inhabitants in issues such as public space, road and transport, city size and other issues that are well known to those who live the day-to-day life of that territory.

In this aspect, it warns an initial spirit democratic enough in the conception of the instrument, although it was more about giving governance to the process. In terms of the quality of citizen participation, the importance of considering the political context existing at the time of the development of the plan is recognized by the interviewees due to in this time (1988) it was characterized by the unbalanced influence of the authoritarian government in Chile, (1973-1990) period in which many areas of social participation were restricted. It means it must be concluded that in any analysis of citizen participation, it is essential to ignore the impact of the prevailing political system in the development of territorial planning instruments. This last aspect makes us think that once democracy has been restored (1990-onwards) quality of citizen participation in these processes should be improved, which did not happen obviously, as we will see later.

According to the former mayors of the commune, there were also no better levels of citizen participation in their periods of local government, since even this issue was objected by SEREMI² as it had not developed in some of the updates of the instrument, robust processes of citizen participation. However, the former authorities note in consensus that individuals and communities demonstrated under interest in such public affairs what could explain-preliminarily – low participation. Although this problem is deeper as it is reported later.

Some technicians and urban planners of the municipality even point out to have repeated the formal processes of citizen participation in many towns of the commune, before the low registered citizen call. On the other hand, the organized community that should be more sensitized to public issues and issues never demanded changes to the communal regulatory plan, and in most cases, these were requested by real estate companies to the municipality. Even the interviewees stand out, whom individuals or companies approached the municipal council or the mayor to promote a particular modification in some area or urban area. Clearly, in this respect, the ideal is that the municipality should push for an update if it is necessary and not a particular – often external investors – who do not have the broad vision of the commune.

Regarding how the call for citizenship has been defined in these updates interviewees states there is an article of the general ordinance of urban planning and constructions where the procedures for the elaboration of the communal regulatory plans appear, where explicitly indicates that the respective municipality must prepare this plan, so there are not any warnings – according they-many possibilities for innovation in this area. However, a more recent view of citizen participation in this process points out that community participation in regulatory plan decisions, while historically minimal, is now being encouraged by some older interviewees hopes with the incorporation of the law on citizen participation since all community states must be represented in the Communal Councils of Civil Society Organizations, requests created by Law 20,500 in 2011 and that aims to strengthen the inclusion of citizens in all kinds of public affairs.

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About Instruments of Citizen Participation

In relation to whether there are or have been specific instruments of citizen participation, such as a municipal ordinance in this area, the urban technicians consulted point out that it is neither relevant nor decisive for this type of decisions since it must be complied with as a result of citizen participation, but that it is finally the municipal council that approves or not a certain modification, which undoubtedly makes invisible citizen participation and devalues these kinds of demands. Only regulatory and technical accuracy matters from an urban point of view. For the technical actors in the social area who are responsible for promoting participation, there is a procedure that obliges municipalities to generate participation processes. These processes have to do with exposing what it will be modified, published in municipality units, or commune to later collecting the observations in digital or written form, even when they recognize that these processes are not binding. For us, it is the regulatory plan, not the process. In the case studied, there is no documentation regarding the citizen participation processes developed either in the elaboration of the plan or in any of its 17 updates made, which allows the municipal and supra-municipal actors to learn from these processes. Only the urban and technical part and the political visa of its authorities on duty prevail. For the national member of the area, the impact of the community today is fundamental in this type of environmental impact processes since there are numerous episodes today that demonstrate the influence of citizen opinion on this type of conflict, when noting by example the case of the recent installation of a brewery plant in an eminently agricultural area, since during environmental processing it was discovered that that plant alone was going to use a third of all the available water from the commune of Paine,³ a project that had the theoretical and real capacity to leave 'dry' a whole commune that has a profound agricultural vocation. In this case, the citizens 'rose,' using the tools of participation and achievement that the regional environmental evaluation commission unanimously rejected this project.

In terms of new strategies to encourage participation in these instruments, some of the interviewees point out that these processes are eminently political, where interests of all kinds intersect in favor and against these decisions, and therefore, citizens must be informed. Some of the respondents propose the implementation of permanent observatories on this topic that require much clearer and more precise standards and parameters that would allow the public to evaluate more clearly technical aspects.

The former community authorities point out in this same dimension of analysis that innovations and new strategies should be developed to increase in order to increase citizen participation, providing them with information on the importance of these types of planning tools, their effects and scopes and how it affects them in their daily lives, so that not only interest groups with higher power and influence participate. In the opinion of the interviewees, the community management offices should explain that it is a PRC and then start a consultation process where "community dreams" are addressed and thus involve the community in the design of their city.

According to the Provincial Governor of Melipilla, the focus of participation in such processes should be changed since Law 20,500 (participation in public management) is still a law that is little applied and far removed from what this type of participation in territorial law matters. In the view of this authority, there is a greater emphasis on the obligatory nature of citizen participation because construction so far is born from the top to down and that perhaps should be upside down.

Councilors of the commune propose to develop systems to follow and support citizen participation, which promotes the democratic participation of all citizens and not only real estate companies or consulting companies that develop business with these public policies. In the same way, the representativeness

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of consultations in these types of decisions should be increased, and that participation processes should not be validated by only 20 people in cities of 130,000 inhabitants.

Regarding the Technical Capabilities of The Municipality

Regarding the technical capabilities of the municipality to manage the regulatory plan, the urban advisers consulted point out that the regulatory plan is an instrument of planning the urban territory, but only urban areas. These tools serve to order the city and to plan its development and growth. However, there has been inefficiency in the management of the plan as in almost 30 years, it has only been updated and has not been developed a new instrument. There is consensus concerning to a commune to be governed by a 30-year regulatory plan; it indicates a precarious technical process.

An important issue to investigate in this research is precisely addressing the perception about efficiency with which local governments approach such efforts. That is, how efficient it is to make in 30 years 17 minor updates of an instrument versus modifying the Regulatory Plan at once? On the origin of the new modifications or updates, the interviewees agree that the updates respond to the dynamics of development of the city, so some communes that have substantial and fast growth, but they point out that there should be a recommendation to be updated every 20 years. It often happens that there is pressure or interest from real estate individuals to develop changes to regulatory or sectional plans and this has political support from the mayor on duty.⁴

The Provincial Governor emphasizes the leadership that must be had in this type of management because there must be political conduct and strategic vision of development by the communal authorities as mayors and councilors. But on the other hand, play around the opinion of the urban planners of the municipality that point out that expanding the powers and responsibilities of municipalities in matters of territorial planning is a risky administrative measure since inadequate measures can be accentuated decisions in urban planning at a local level since most technical teams at the municipal level are insufficient and in many of them even of low technical qualification which can lead to technical proposals of dubious quality and can be generated greater possibilities for influence trafficking to favour certain actors in the planning process by relying mostly on the political decisions of the mayors, so there should be a supra-municipal counterbalance that regulates and looks after the common good of the mayors communal territory.

PRC Management

The design of the PRC in 1988 did not see any more significant operational difficulties since, in the opinion of its authors, it has with the collaboration of the Director of Works and an excellent professional team with much experience in urban planning. There were even resources to hire specialists on specific topics. It is appreciated that in this context, political socio, there was no emphasis on citizen participation and was only veiled by the technical and urban characteristics of the instrument. Today we are in a diametrically different scenario. There is no doubt about it.

On how the PRC has been managed, both in its general design and in the processes of updates, the urban advisor of Melipilla proposes that the Melipilla community regulatory plan that is now in force dates back to 1988, after being published in the official newspaper and basically establish rules all the entire urban area of the city. After that date, several modifications have been made some of greater importance to others of a minor, for example, it was made in 1991-92 where the urban boundary of Pomaire (rural sector) was incorporated with its own sectional.

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About the reason why a new regulatory plan was developed, the interviewees point out that due to the earthquake that affected the area in 1985 and left Melipilla literally ‘on the ground.’ Besides, the interviewees point out that they took advantage of conditioning the instrument so that the commune did not expand due to its proximity to Santiago and then the imminent construction of Highway 78 linking the capital of Chile with the coastal area. However, the councilors interviewed indicate their criticism of how to manage the plan as councilors have been forced to approve only ‘sectionals.’ In this regard, a counselor points out: “We cannot continue to work on a regulatory plan with sectionals, it is like making a new suit, but by pieces, we have to postulate a new one.”

For the Governor of Melipilla, the process of managing the instrument in these nearly 30 years has been very overdue because there has been a lack of political leadership that gives a powerful boost to the area. From his perspective, perhaps the vision of seeing that in this instrument to build a modern city has been lacking. For some councilors, the capacity of the municipality in this type of public policy is affected by the scarcity of resources in this area since the law states that the urban adviser is the person in charge of the changes to the regulatory plan. In our case study, this department in charge is the Community Secretary of Planning SECPLA who currently has only one official architect, which shows the technical inability of this municipality to develop a transformative project on its own.

However, it seems that the inefficiency of the municipality is not only due to the previous situation- For former mayors, this condition that the commune of Melipilla has a 30-year regulatory plan is due instead to the lack of agreements between the actors regarding the future of the commune which in turn results in other problems such as the brake on private investment in Melipilla since this inability to reach consensus in a system of governance allows inefficient discussions and the safeguarding of one’s interests and not those of the whole commune.

About the management of the regulatory plan, a private function of the municipality, the evidence indicates that most regulatory plans are drawn up by consulting firms. How can municipalities be effectively autonomous in the management of regulatory plans? Most respondents agree that the main reason is the lack of budget. In general, today, few municipalities have their resources for the development of new regulatory plans because generally, most municipalities have significant debts in other areas. According to the Provincial Governor, it is impossible to pretend that municipalities with a budget of only two billion annually can generate equipment that can make an uprising of a communal regulatory plan. This lack of support, in some way, favors discrimination against smaller and more lagging municipalities. In general, today, few municipalities can put their resources for the development of the regulatory plan because, generally, most municipalities have significant debts in other areas. According to Provincial Governor, it is impossible to pretend that municipalities with a budget of two billion can access an opportunity to generate equipment with their resources that can make an uprising of a communal regulatory plan. This lack of support, in some way, favors discrimination against smaller and more lagging municipalities.

Finally, an interesting aspect regarding the management of the Regulatory Plan is added by the Member for the area that indicates that in the elaboration of the PRCs is used an overly technical language where there is a proliferation of concepts such as steers, coefficients of constructability, density, that even people with higher education are not able to understand. Here is a matter that should challenge territorial planners, both administratively and technically, and to the academy. This cryptic language, for many, could be an interesting element to develop to encouraging community participation in sufficiently understandable issues.

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PRC Political Management

The third category of analysis developed in this study concerns the political management of the PRC. For some councilors, the approval of a Regulatory Plan should not be resolved in a political instance as they take part because they do not feel sufficiently qualified to be able to approve it or base their decisions, which shows a profound aspect in the management of such territorial planning instruments.

The political context is also relevant when analyzing this aspect because, in the opinion of the interviewees, it is necessary to ‘depoliticize’ such instances. In this sense, they agree to avoid conducting citizen consultations on the regulatory plan at election times or upon of elections of authorities, since the process is ‘contaminated.’ On political interests in the process, some interviewees point out that the problem is profound. To the technical difficulties and concepts identified in previous paragraphs, it should be considered that it is not so easy to make legal changes to these instruments since, for certain interviewees, some political actors should be instruments away from citizen consultation. Even some benefit them that there are no methodologies of citizen participation as a mayor with his or her technical team defines whether he gives or participates the community so that they learn as little as possible about changes to sectionals or participate when they already ‘nothing can be done’ because the Municipal Council already approves the instrument. Some interviewees indicate that the articulation in the space between the communal and the regional requires political management, even more so when different levels of the State coexist in the territory. In this regard, it is interesting what the Provincial Governor of Melipilla points out that in this sense the governorship (sub-national government representing the President of the Republic- performs a political accompaniment and marks the guidelines of the government (national) in this regard when called to the day of citizens. (However, we do not know if there is another informal space for the provincial government to speak at this point.)

Consideration of the political dimension is fundamental in the management of the PRC. According to the Member this is not just a technical problem, the definition of how a society or a city is structured, or where aggressive industries are placed with people, the residential sectors, the width of the streets, the number of parks that can to have the different equipment of health, of education, the distance that must be traveled to their workplaces by citizens, are all definitions of political character.

Other interviewees emphasize the partisan/electoral policy that is present when such instruments are managed. It is important to consider the pressures of real estate linked to some candidates for councilors who might be involved in the process of the regulatory plane. They even say that the economic interest of some people who may have interests in land or plots for commercial purposes must be considered. For some councilors, several complex situations are linked when elections approach. At many regulatory levels, the discussion is nothing because it is polluted with the choice and with the private interests. Interesting is how sub-national governments influence provincial governance in situations of communal interest and competition. Here is particularly important the role of sub-national bodies such as the Provincial Governorate, where it has the possibility of intervening, but in no legal aspect, but in actions of education or protection of citizens’ interests and of ensuring the common good.

Coordination and Territorial Coherence

About the strategic coordination of the Common Regulatory Plan with other internal (PLADECO) and external (regional or inter-communal) planning instruments, some interviewees noted that several flaws could be seen in the methodology of how the regulatory plan or its modifications are developed, not only

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in Melipilla but at the national level. They point out that the regulatory plan is excessively bureaucratic, where there are many actors involved in the final decision as regional government, SEREMI, among others participates. They indicate that there are many areas of power involved in the approval of these instruments.

Another communal planning instrument of exclusive municipal responsibility- as Gurovich points out - is the PLADECO or Community Development Plan, an instrument that must establish the strategic development of the commune in all its areas. In this regard, this instrument suffers from the same vices of the PRC: low participation of citizenship and low representativeness, and in most cases at the national level, there is no synchrony between the two instruments, which potentially affects the development and growth of a commune. Unfortunately, this is also the case with Melipilla. This will make us review the importance of articulation and coherence between these types of instruments. For the member of the area, territorial planning is an area that has become increasingly interested in decision-makers in the communes, in the regions, in the country and particularly of the citizens who are going to be the recipients of those Planning. According to the Deputy, twenty years ago, it was a minor issue, where most of the country's communes did not even have a regulatory plan.

One of the critical issues to generate development in the communes is that the instruments, both regulatory plan and PLADECO are synchronized. For the former mayors interviewed, it is essential to comply with this synchronization. The urban advisory of the municipality points out that to the hierarchy of planning instruments, territorial planning instruments have different hierarchical levels. First, there is the Metropolitan Regulatory Plan, then the communal regulatory plan, then the sectional plans, as indicated by the law of urban planning and construction and its ordinance. Clearly, according to this last witness, development continues to be partially seen as an urban issue on the one hand or as a social issue on the other, when, in practice, it is an integral and indissoluble issue.

Regarding how the PRC of Melipilla is linked with other regional instruments, the urban adviser himself points out that the metropolitan regulatory plan of Santiago incorporated the commune of Melipilla and all the communes of the province of Melipilla and Talagante and Maipo. According to the technician, all the communes of the metropolitan region became part of the metropolitan regulatory plan. From that moment on, the Municipal Works Direction was obliged to consider all the provisions of these rules. In this way, another territorial planning instrument was incorporated into the territorial regulatory plan. Today any project to be executed in the commune of Melipilla must consider the PRS (Metropolitan Regulatory Plan of Santiago) that regulates the entire commune of Melipilla considering urban and rural spaces.

Interesting is what one of the requestors or claimants of one of the updates to the PRC (Owner of a Private University) contributes, who criticizes the planning process the lack of minimum levels of concertation. In private opinion, communes such as Melipilla have a planning system thinking about the next 15 or 30 years. Unfortunately-he points out- the eyes are of the personal initiatives of mayors and on sent needs, but it is not an integrated planning system, he declares.

A former mayor perceives a permanent disconnect between agencies responsible for implementing this type of public policies, and it states that SUBDERE has resources for the professional recruitment, but there is no a flowing coordination with the Ministry of Housing and Urban Planning, for example with funding from professionals who go in support of the urban adviser.

According to the Provincial Governor, the regional goes down to the communal through the work management, through urban planning managers of each municipality where the metropolitan regulatory plan is the one who gives the general guidelines and determines what the urban or rural plans are. In this

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way it is appreciated true ways of ‘straightjacket’ that are given by the metropolitan regulatory plan that reflects the hyper-centralist vision that from the State in Chile, which manifests itself as an institutional and cultural power, to which it must be assigned a greater citizen counterbalance, that is able to exert greater social control.

Investor Group Influences

Finally, as the last dimension of analysis, it looked for clarifying experiences regarding the interviewees’ assessment of external interests and influences on PRC management. One of the former mayors points out that he received at the beginning of his term of office a polluted regulatory plan with one of the most important real estate groups in the commune. The former authority warns about the risk that a PRC may be built for a particular real estate interest and not for the development of the commune. According to this interviewee, under his management were involved major real estate companies that had interests in lands that were to be reviewed later in the updates of the Plan. Also, other former authorities recognize the possible manipulation of assemblies by future councilors candidates. A Councilor for example points out that even in certain assemblies where the new terms of the PRC were discussed some real estate companies even made ‘some offers’⁵ that if it is approved this or that new sectional we would have grown in the city or would be able to carry out housing projects for vulnerable people.

For a Councilman, the process of auditing these instruments should be improved, which must be widely informed and to be immunized as possible in front of political and financial or economic interests. The only way is the increase and consolidation of citizen participation processes.

With regard to exposure to the influence of these planning instruments, the Legislator points out that while there are not so many complaints episodes, he can intuit probably that there is an undue level of influence from decision-makers both at the communal level and at the regional level, that is, representatives of the citizenship, such as mayors and councilmen and regional mayors and managers. According to this citizenship representative, these authorities are very exposed to the undue influence of holders interested in these regulatory changes, which also have a lot of economic resources and look at this stage as an investment phase that *they must do*.

Legislator points out: “At least in the last four years we have legislated in relation to the profits that different real estate companies make when changes occur in regulatory plans and we have to seek to legislate by establishing that these companies see their investment multiplied in an agricultural area by fiscal decision becomes developable or becomes an urban sector, it is legitimate that they must hand over some of the capital gains that they receive, which is gigantic, through contributions to the public space seeking that cities have a better standard.”

Clearly, this type of instrument management must increasingly be governed by standards of transparency, which immunize these public policies in the face of personal and real estate interests, which end up delegitimizing and depreciating instruments that have a direct relation with the sustainable development of communities.

FUTURE RESEARCH DIRECTIONS

In light of the results of this study, future research in this area should contribute to increasing the information level regarding how Latin American and global cities prepare to unfold as smart cities that

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ensure intelligent growth processes in contexts of accelerated urbanization processes that our cities experience today. Equitable development should aim to propose sustainability issues not only from the environmental dimension but also from the efficient management of cities and their territorial planning processes. Developing the learning process is essential for this.

CONCLUSION

Through the interviews, we have been able to know ‘from the inside’ how one of the most relevant communal territorial planning instruments used in Chile was effectively developed. We know that since it is an interpretative and qualitative type of research, it is not possible to extrapolate the results to other communes but the study certainly gives us useful and first source information, from the perception of the actors themselves whom they intervened at different times in this complex planning process, which as we saw has a high citizen impact and it is exposed to many factors that condition it. Through the results, we can see that a solid process has been known as an authoritarian political context that did not value citizen participation, and rather was interested in urbanizing the citizen experience ‘established rules,’ from a governance approach. This situation in 30 years changed radically.

Indeed, planning processes are now needed in governance contexts that directly incorporate citizens’ needs and not just urban issues. Secondly, we believe that territorial planning must be comprehensively addressed both from urban, geographical, and social approaches, where municipal technicians responsible for implementing them must value and recognize citizen contributions because they are finally the ones who live and experience the territory daily. Third, progress must be made towards strategies or protocols to “immunize” these instruments in the face of corruption or misuse of information, as land use now attracts special interest in economic groups in neoliberal systems, that do not have efficient citizen counterweight, leaving the city exposed to unbalanced and unequal growth of the territory. Fourthly, locally synchronized instruments should be generated, specifically between PLADECO and the PRC, otherwise planning is only reduced to a theoretical question without any practical value. Fifthly, explicit negotiations between actors are not formally appreciated in the study, and only the emergence of particular interests that have requested modifications to that regulatory instrument is evident. Finally, we are dealing with a case that has shown almost any interest in learning from its historical processes, and that even rejects or looks with ‘disdain’ participatory registration systems or procedures that allow it to optimize new design processes of new regulatory plans.

The findings found an account for a territorial management process strongly associated with local government political cycles, with a low projection of the strategic development of the commune. In addition to this, we find low levels of citizen representativeness in their definitions with a strong influence of fundamentally real estate economic groups. The 17 updates to which this territorial planning instrument was subjected, from its creation in 1988 to 2016, represent for any observer an extraordinarily inefficient process with high resources expenditure. The opinion and perception of the different actors consulted coincide in the subnational governments maintain their guardianship system towards local municipalities, generating, as Irarrázaval and Pérez (2008) pointed out, a minimal decentralized system. Regional Secretaries of Ministries continue exercising power and control over local government activities and must continue reporting their development plans to regional agencies.

The modifications, including those made to the statutory body, analyzed to the laws of Urbanism and Constructions and the Municipalities Law, remain in the same vein, despite the new demands to

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give greater autonomy to the municipalities. Private real estate processes continue generating mandatory changes to territorial planning instruments, in an improvised and unsustainable way, rejecting the true potential of a communal regulatory plan, which should strategically design the growth process of a determined territory. In this way, the introduction of new real estate or services projects, from time to time, subjects the municipality to the revision of the mother development instrument, leaving local technicians in an extremely reactive and passive position against development. Another situation confirmed- more complex in our view- is that this type of communal territories managing disempowers the path to a governance model.

However, governance, in terms of territorial planning, is an irreversible reality. Citizens are increasingly aware of equality, or political inequality relationships depend to a large extent on the physical or geographical positions that inhabitants of a territory have in it. Local technocrats and politicians must gradually go, adding to an institutionality that favors this form of shared government.

Finally, learning how these types of planning processes have been taken is an important step from the academy, which must be opened and returned to the municipalities themselves. This case analysis has shown that this municipality, like others - since they are governed by the same law - do not present a structure that allows it to systematically learn from these processes in such a way as not to make the same mistakes as in the past. Deepening this type of information could help the public decision-makers to make territorial management more efficient by reducing the numerous updates by a definitive reworking of a regulatory plan, which appears as democratic management of the territory. Territorial planning issues should stop seeing as a purely technocratic issue and should begin to be treated as a public policy that determines the quality of life of citizens.

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KEY TERMS AND DEFINITIONS

Decentralization: Political-administrative process that confers greater decision-making and financial autonomy to the municipalities or communal administrations

Governance: Community government system where strategic decisions prevail agreements and consensus between groups with different interests.

Negotiation Processes: Formal or informal mechanisms established by municipalities to reach agreements between citizen actors

Organizational Learning: Qualitative analysis of the successes and errors involved in the municipal decisions taken in the management of the territory

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Social construction of the Territory: Community, political and symbolic processes, where beliefs, values and dynamics are considered in the planning instruments

Territorial Planning: Planning system that seeks to optimize land use

ENDNOTES

- ¹ Law 18695 Constitutional Organic Law on Municipalities defines for municipalities functions called private and other shared. The latter must be carried out with the competition of other organs of the State.
- ² Ministerial Regional Secretariat, a de-central body of the state, with regional representation that must approve changes to communal regulatory plans
- ³ Paine, commune next to Melipilla, with similar productive, territorial and economic characteristics
- ⁴ At the beginning of 2018, Law 21078 “On Soil Market Transparency and Tax on Increase in Value for The Extension of the Urban Limit” was published, which in Article 28 states that territorial planning instruments should be updated periodically within a period of not more than ten years, in accordance with the rules laid down in the General Ordinance
- ⁵ Understood as promises conditioned by a particular investment that was only possible if a particular section of the Communal Regulatory Plan was modified

Section 2

Entrepreneurial Ecosystems and Initiatives for Innovation, Regional Development, and Growth

Chapter 13

Regional Development via Entrepreneur Multi- Perspective Approach

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ABSTRACT

Entrepreneurs and entrepreneurship have always been highlighted for overall development. This chapter aims to understand the entrepreneurs' multi-perspective approach as a catalyst for regional development in India. It reviews SMEs' policies and multi-perspective approach adopted by the auto component sector/cluster for regional growth by including a broader range of human resource and leadership-related aspects than is normally found in the SME and entrepreneurship literature. The methodology adopted is exploratory study with the open-ended approach of grounded theory, complemented by secondary data analysis with a focus on entrepreneurs of a particular sector/cluster and limited to Pune region development. The findings hope to provide insights on a multi-perspective approach and suggest that successful entrepreneurial firms that operate as clusters create entrepreneurial leaders who then act as "integrating forces" on two levels: integrating the elements of entrepreneurship and mediating between the regional development and entrepreneurship development.

INTRODUCTION

The regional level is an important dimension for understanding entrepreneurship and competitiveness, and whilst the nation is often used as the unit of analysis in studies of economic development, it is clear that there are substantial differences in economic performance across regions within nations (Verheul, Wennekers, Audretsch, & Thurik, 2001; Porter, 2003). Entrepreneurship has potentially short, medium-,

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and long-term consequences for regions, including the creation of employment and wealth (Fritsch & Mueller, 2004; Mueller, Van Stel, & Storey, 2006; Baporikar, 2017c). Efficient firms grow and survive, while inefficient firms decline and fall (Audretsch & Keilbach, 2004), and the total effect upon employment can, therefore, be either positive or negative, depending upon the magnitude of the three elements (Fritsch & Mueller 2004; Mueller et al., 2006). The ability of regions to gain from the positive effects of entrepreneurship will depend on their institutional arrangements and the social payoff structure (Baumol, 1990), and their ability to turn knowledge into regional growth through the creation and dissemination of knowledge (Audretsch & Keilbach, 2004).

BACKGROUND

Regions have gained a position at the forefront of the economic development policy agenda. However, the regional approach to economic strategy remains contested, though many have used enterprise development as a tool for improving regional competitiveness. This paper finds that entrepreneurship policy at the regional level is multidimensional, with policies broadly ranging from those that are either economically or socially driven. Although there is a considerable policy activity in these areas across less competitive regions, enterprise policy-making remains relatively undifferentiated across the regions. There are several evolutions in regional policy occurring, especially a shift from policies relating to the facilitation of clusters to those focused on developing regional innovation ecosystems. It is found that regional policymakers are under pressure to measure short-term outputs at the expense of long-term nurturing.

A decentralized regional political base can allow for differentiation in regional economic policies, including entrepreneurship (Baporikar, 2017c). In a normative sense, the policy should seek to encourage diversity and experimentation across regions (Gibb, 1993). However, and despite national government putting regions and regionalism at the forefront of the policy agenda (Gibbs, 1998; Pearce & Ayres, 2009), the regional approach to economic strategy remains contested, and has been criticized as lacking vision and cohesion between policy areas, and failing to identify truly regional issues, with regional planning guidance tending to replicate national policy rather than translating it into a regional context, leading to a lack of regional distinctiveness (Hull, 2000; Tewdwr-Jones, & Phelps 2000; Charles & Benneworth, 2001; Peck & McGuinness, 2003). Others state that regional agencies, despite billions of pounds of investment, lack sufficient resources to make a significant impact on economic disparities within regions (Pearce & Ayres, 2009).

By examining less competitive regions valuable insights can be gained, as they have been the focus of a great deal of policy intervention and public spending in order to attempt to improve their relative economic performance (Bosanquet, Cumming, & Haldenby, 2006; Centre for Economics and Business Research [CEBR], 2008). However, there is often tension – and the scope for conflict – between central (national) policies and those established at a regional level, especially in more peripheral regions (Peck & McGuinness, 2003; Benneworth, 2004). The paper finds that despite the consistent use of start-up rates as a measure of the impact of regional enterprise policy, as well as the emphasis of most studies on measuring entrepreneurship through new firm formation rates (Acs & Armington 2004; Van Stel & Storey, 2004), entrepreneurship policy at the regional level is a multidimensional concept.

It is found that relevant policies can be broadly grouped as either economic or socially driven policy drivers. Economic policy drivers at the regional level are usually targeted at improving levels of busi-

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ness growth by encouraging new business start-ups, providing appropriate business support, improving access to finance, supporting specific industries (clusters) that are deemed to be of regional significance, encouraging innovation and investment, and ensuring an appropriate regulatory framework (Baporikar, 2017a; 2017b; 2017c). Social drivers are more commonly associated with ‘bottom-up’ activities seeking to evolve societal values and norms within particular communities. Social drivers are targeted at improving enterprise rates in disadvantaged areas which have low rates of entrepreneurship, and groups that are underrepresented in terms of business ownership, and are closely linked with policies aiming to enhance social inclusion through entrepreneurship.

Moreover, at the policy level, already, the Indian government perceives enterprise as a key driver of regional development and competitiveness – principally measured by productivity differentials – alongside skills, innovation, investment, and competition. However, while this has been an influential interpretation of regional development and competitiveness, such definitions may lead to a potential contradiction with regards to enterprise policy, as many new small firms will have low productivity and may not contribute to improving competitiveness (Greene, Mole, & Storey 2007). This reflects the fact that the notion of regional competitiveness is ‘complex and contentious’ and ‘we are far from a consensus on what is meant by the term’ (Kitson, Martin, & Tyler, 2004, p. 992). Nevertheless, enterprise, and the innovation it can spawn considered by both policymakers and many scholars to be a key factor underpinning the future economic development and growth trajectory of regions (Reynolds et al. 2001, 2002; Fritsch & Mueller, 2004). Accordingly, this study aims to identify possible different research perspectives or understandings of the relationship between regional context and entrepreneurship, and entrepreneurship and its role for regional development. In this regard, the analytical goals are:

- to identify, analyze, and structure the main discussions and perspectives about the phenomenon through in-depth, analytical reading,
- to discuss the conceptual and empirical contributions, and methodological advancements,
- to uncover potential inconsistencies and shortcomings

As the first step in our review of policy documents, we identified all relevant reports published by the government and its agencies at either a national or regional level (in this case, within the lagging regions covered by the study). We then selected the reports for inclusion and assessed the quality of each document in terms of their relevance for this study, i.e., where there are substantive mentions of policies and issues relating to entrepreneurship and enterprise policy. Clearly, of crucial significance was that the documents in some way covered content related to entrepreneurship or enterprise policy at a regional level. The key types of policy documents covered by the review are national government white papers and strategy documents, national government reviews of regional policy, and regional policy and strategy documents. Based on the research objectives, a field survey was taken up to acquire primary data. The survey instrument used a structured statement to obtain the data. Auto-Component industries indicated prosperity in their businesses; therefore, for that reason, the researcher selected such SMEs as the sample for the study. Based on industries directory published by the local chamber of commerce and available of the year 2018, Pune Auto-Component industries were identified as a sample frame for the field survey. These auto-component industries had diverse product mixes. Even though the firms had different product segments, the comparison has been made across only those firms which complied with the definition of SMEs.

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INDIAN SMEs CONTEXT

In the present world of globalization, Micro, Small, and Medium Enterprises (MSMEs) are key actors in almost every production system. In all continents, they represent the largest number of firms and also contribute significantly to both employment generation and Gross Domestic Product (GDP) formation (AESMEC, 1998; Peres & Stumpo, 2002). The Government of India since 1951 has encouraged and supported the SME's through its various policy initiatives. Since 2005, The Government of India has identified 3,000 SME clusters of the artisan-specific, village, and small enterprises in the country and has taken up 1,150 such clusters for intervention and improvement. Micro, Small, and Medium Enterprises (MSMEs), including khadi and village/rural enterprises, constitute an important segment of the Indian economy in terms of their contribution to the country's industrial production, exports, employment, and creation of an entrepreneurial base (MSME, 2008-09). As a legacy of Gandhian philosophy in India, since independence the micro, small and medium sectors have played an important role in the economic development of the country. Especially since the commencement of planning for economic growth, adequate emphasis has been given on the development of MSMEs by policymakers, politicians and the intelligentsia alike (Gupta, 2006; Banerjee, 2005; Baporikar, 2018a). The multi-pronged objectives of increased industrial output, generation of employment, dispersal of industrial activities across regions, and development of entrepreneurship have been successfully met through the propagation of MSMEs. Entrepreneurship is a vibrant assertion of the fact that individuals can be developed. Outlook can be changed, and their ideas can be converted into action, though on an organized and systematic program for entrepreneurs. It was also felt that systematic training could be given a better output and attracting people to take up a business venture that can change the economic scenario.

DEFINITION OF MICRO, SMALL AND MEDIUM ENTERPRISES

The lack of a formal means of defining an MSME has to lead to diverse approaches by Governments and other organizations in different countries. Defining the SME sector, and particularly small businesses, is fairly difficult, as there are differences in what is appropriate to describe as "small" in different industries. The main criteria that predominate to define the MSMEs sector are the number of employees, turnover, and the balance sheet total. Moreover, to bring in clarity, there was a longstanding demand from entrepreneurs, small industry associations, and related stakeholders for single comprehensive legislation. The "Micro, Small and Medium Enterprises Development (MSMED) Act, 2006" is the first Act for micro, small and medium enterprises which, inter alia, provides for establishment of a statutory National Board for Micro, Small and Medium Enterprises, filing of memoranda, measures for promotion, development and enhancement of competitiveness of micro, small and medium enterprises, credit facilities, procurement preference and provisions related to delayed payments to micro and small enterprises. The medium sector has been defined for the first time in India, and Micro enterprises have been defined for the first time in this Act. Under the MSMED Act 2006, the earlier, rather limited, concept of 'Industries' has been widened to that of 'Enterprises.' Enterprises have been classified broadly into two categories, namely enterprises engaged in the manufacture/production of goods about any industry; and enterprises engaged in providing/rendering of services. Enterprises have been defined in terms of investment in plant and machinery/ equipment (excluding land and building).

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REGIONAL ENTREPRENEURSHIP

Regions are increasingly considered to be important sources of economic development and organization in a globalized economy. The competitiveness of regions refers to the presence of conditions that enable firms to compete in their chosen markets (Baporikar, 2018b). For the value, these firms generate to be captured within a region. Regional competitiveness, therefore, is considered to consist of the capability of an economy to attract and maintain firms with stable or rising market shares in an activity, while maintaining stable or increasing standards of living for those who participate in it (Storper, 1997). The definition of competitiveness equates with the 'high road of regional competition,' where regions compete by achieving high levels of innovation, upgrading, and growth, rather than the 'low road competition' associated with promoting the lower costs of labor, land or capital. Competitiveness varies across geographic space, and regions develop at different rates depending on the drivers of growth (Audretsch & Keilbach, 2004). Thus, the regional framework for entrepreneurship development should include the following aspects: cultural enablers, physical and administrative infrastructure, quality of life, education, renovation, human, process, market, and financial capital as shown in Figure 1.

This framework also needs to assess the cultural readiness of the region to adopt the new economy's realities. For the indicators to be simultaneously valid and helpful, there is a need to identify measurable variables and be operational to be affected by the policies and decisions of the driving actors.

Further, Figure 2 reflects the strategic drivers as the underlying principles for a comprehensive regional development plan would include:

- Educating a world-class **WORKFORCE**.
- Recruiting and retaining great **TALENT**.
- Attracting and growing new economy companies in complement to the existing remarkably strong manufacturing **INDUSTRIES**.
- Promoting **INCLUSION** and sparking opportunities for minorities.
- Helping **ENTREPRENEURS**

Figure 1. Regional framework for entrepreneurship development

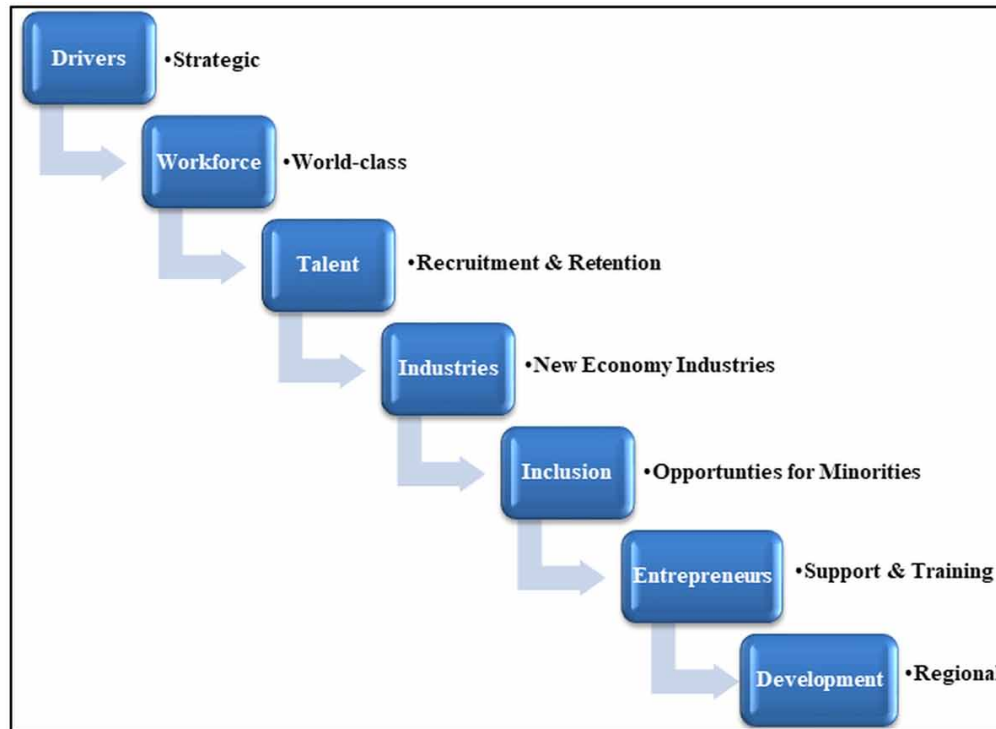
Source: Adapted from Russ and Jones (2008)

CAPITAL	ENABLERS	RESOURCES
• Creativity • Human • Innovation • Financial • Market • Process • Social	• Administrative & Government Machinery • Cultural Mindset • Collaborative Approach • Networked Economy Construct • Infrastructure	• Art • Centres of Excellence • Culture • Education • Environment • Natural Resources • Quality of Life • Research & Development • Science

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Figure 2. Strategic drivers for comprehensive regional development

Source: Own elaboration



However, the problems in case of regional development could concern optimality of interaction between various stakeholders - society and entrepreneurship, which than leads to low business activity, complexity of employment, and low income and it is this non-optimality of interaction if not addressed by policy makers may further leads to inaccessibility and low quality (Ragulina, Semenova, Zueva, Kletskova & Belkina, 2018). Hence, regional development concerns the upgrading of the economic, institutional, and social base, with entrepreneurship that can unlock wealth being a prime source of development. Consequently, entrepreneurship is central-to-regional economic growth (Audretsch & Keilbach, 2004). Spatial economics, which does not incorporate entrepreneurship factors, may fail to understand and identify key sources of regional development (Anderson, 2000), with regions that are open and creative, able to attract human capital, and enjoy more dynamic entrepreneurship (Benneworth, 2004). Effective institutions and a culture supportive of entrepreneurship make it possible for economic actors to take advantage of perceived opportunities and that also leads to cluster approach to entrepreneurship development (Baporikar, 2017a). Regions with entrepreneurially conducive institutions and culture may increase their competitive advantage by attracting investment, skills, and talent (Turok, 2004). Culture shapes what individuals perceive as opportunities, and therefore entrepreneurial alertness is linked to judgment, creativity, and interpretation (Hofstede, 1991; Lavoie, 1991; Verheul et al., 2001). Regions with strong entrepreneurial traditions have a competitive advantage if they can perpetuate it over time and generations (Parker, 2004). Entrepreneurship capital, referring to the capacity of a society to generate entrepreneurial activity, is built up and has a positive impact on regional economic performance (Audretsch & Keilbach, 2004).

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MILIEU OF AUTO-COMPONENT INDUSTRY

India is among the most competitive manufacturers of auto components in the world. The auto component industry in India has the potential to grow at a compounded annual growth rate of 13%, and it has been estimated to reach US\$40 billion by 2015. The Indian auto components industry is predominantly divided into diverse product segments such as engine parts, drive transmission and steering parts; suspension and brake parts; electrical parts; body and chassis; equipment; and others. Large numbers of auto-components are used by the Automobiles. Pune Auto-sector is recognized highly prospective with a potential of high employment and social growth owing to the presence and back-up of the Automotive Research Institute and IT industry. Yearly growth of 20 percent has already been registered in the Auto-Component industries located at Pune. In order to stand better in the business, these component industries continuously introduced superior designs of the components and diverse marketing brands, which made an indelible impression on the buyers. They earned recognition owing to their hard work coupled with extra-ordinary skills, which came to be acknowledged by the automobile companies all over the world.

However, Auto-Component SMEs face multiple challenges, for instance, limited geographical market, fluctuating market share, market share not enhancing, low turnover, low client base, and inconsistency in delivering value to customers. These challenges emerged as a consequence of increased competition owing to 'Globalization,' inadequate manufacturing skills, frequent product rejections, incompetent pricing, insufficient or absence of designing skills, too little technology skills, and poor marketing strategy. The symptoms of declining market-share revealed a strong need to implement the appropriate marketing strategy and thereby make internal changes to match that strategy for the survival and growth of these SMEs. Improvements through branding, requires, 'the creation of a unique and viable position involving activities that are different from rivals' and which involves a show of strengths in terms of resources. In other words, an organization has to choose terms of allocation of resources to various areas of business activity in pursuit of competitive advantage and in the process be innovative in its approach (Baporikar, 2017b). A comprehensive marketing policy, as a result, ought to be devised to enhance the market share of the SME eventually and to take care of the survival and growth of the enterprise.

BRIEF HISTORY OF PUNE

Pune, formerly called Poona, is the second-largest city (after Mumbai) in the state of Maharashtra, India. This is historically an important city. The Maratha was headquartered here. History proves that the city was developed much earlier. The archaeological relics point out that Pune was established as a township in the 8th century. Pune is situated on the banks of the confluence of the Mula and Mutha rivers, which are tributaries of the river Bhima which flows east rising from the Western Ghats of Maharashtra. The city is located at an altitude of over 1800ft above the sea level, with an average rainfall of 170cm. per annum. It has the bracing climate of a hill station. On the western side of Pune is the Pashan lake that is used to supply water to the city. Pune district has several hill forts along with many ancient temples. Pune gets a good quantity of drinking water. The industry also gets ample water supply, as it is supplied by MIDC, which is quite prompt.

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Industrial Background

Pune is a major industrial center, particularly for automobile manufacturing. It is home to one of the world's largest two-wheeler manufacturers – Bajaj. Tata also has its plant here. DaimlerChrysler also has an assembly line for its Mercedes Benz brand. Whirlpool has an appliance manufacturing plant near Pune. Pune also has a burgeoning software industry. Many of India's major software players, such as TCS Infosys and Wipro and global majors like SAS, Veritas Software, have a major presence in Pune. With the construction of the six-lane Mumbai-Pune Expressway, this city is now less than a three-hour drive from Bombay. These days people come for a meeting to Pune in the morning and go back in the evening comfortably. The six-lane, 95-km Mumbai-Pune Expressway has certainly been a 'concrete' milestone in cementing the distance between the two cities. It is primarily during the last three decades that one sees so many companies turning to Pune (total investment in industry and related activities in the post-liberalization era were estimated to be Rs 52,000 crore). The reason being the core competencies Pune offers – proximity to Mumbai and well-qualified talent, abundant skilled IT manpower, and better living standards, to name a few. Certain restrictions imposed by the state government on industrial expansions in Mumbai have also been one of the key drivers for rapid industrialization here. Pune's proximity to Mumbai, India's commercial center with a seaport and an international airport makes it a favorable destination for commercial activities. It has significant opportunities to emerge as a global player in specific sectors, given focused strategic planning. Today, Pune is the seventh-largest industrial metro of the country.

Pune is the second-largest city in Maharashtra and a thriving industrial centre with a population of nearly 2.5 million. Some of the country's most prestigious industries are located in Pune. The Pimpri-Chinchwad-Bhosari industrial complex is claimed to be one of the largest in the country. The major industrial segments in Pune include automobile, machine tools, chemicals, electrical and electronics, instrumentation and control, iron and steel, castings and forgings, telecom, packaging, auto components, material handling equipment, fuel, and pumps. A large number of small and medium scale equipment manufacturers produce basic electrical and electronic components, digital equipment, process control and communication equipment, computers, and computer accessories, and also software.

Post liberalization has seen the springing up of about 1044 units, which qualify to be termed as large-scale industrial units. As many as 100 projects could be termed as mega-projects with investments of over Rs. 16,000 crores. The major industrial segments in Pune include automobile, machine tools, chemicals, electrical and electronics, instrumentation and control, iron and steel, castings and forgings, telecom, packaging, auto components, material handling equipment, fuel, and pumps. A large number of small and medium scale equipment manufacturers produce basic electrical and electronic components, digital equipment, process control and communication equipment, computers, and computer accessories, and also software. The Bombay-Pune Industrial Region was also initially developed by the British. They obtained the Bombay island-site for developing a port in 1774. The construction of a 34 km long rail track between Bombay and Thane in April 1853 ushered in an era of developing a link with the interior. The routes through the Bhore Ghat to Pune and through Thal Ghat to Nasik extended the influence of Bombay towards its hinterland. The opening of the Suez Canal in 1869 provided an impetus to the growth of Bombay port. Pune's skyline speaks a lot about its assuming a new identity as an emerging industrial metro and potential manufacturing hub. Two or three large companies like Telco, Bajaj had set up their base in Pune. Such companies gave rise to the ancillaries, and then multi-national engineering companies

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Sandvik, SKF, Alfa Laval, Sulzer, Mercedes Benz, Burckhardt, and many other engineering companies started here. The strong presence of the Auto Component Manufacturers (ACMs) have always made Pune a favourite destination for Auto industries. However, its growing presence in IT has also recently made it a favorable destination for IT. The center for the development of advanced computing (C - DAC), which is one of the premier institutes in the country in IT, is also located in Pune. Facilities such as the technology up-linking and infrastructure data centers are there. There is STPI (Software Technology Parks). However, Pune already scores a point in this regard with the presence of many software companies in this city. To add to that, there is also the cluster effect in Pune.

Growth of Auto and Auto Component Manufacturing Cluster

The main focus of this study is around the auto component cluster. As discussed earlier, Pune has been growing as an important industrial base for more than a century. Therefore, selecting Pune as the manufacturing location for some of the major auto giants was natural. The year 1945 is important as both Bajaj Auto and Tata Motors were established in that year. Through large scale ancillarisation and vendor development efforts of the auto giants in Pune, which also include Bajaj Tempo and Kinetic Engineering, the auto component manufacturing companies got a boost to establish their factories in Pune. Gradually, Pune, as an auto manufacturing city, could place itself firmly.

Apart from these key players, some of the world's biggest names in Automobiles in Pune are:

- Mercedes Benz (Daimler Chrysler), Pune
- Fiat, Mumbai, and Pune
- John Deere, Pune

Some of the big names in Auto Components and auto Aggregates are in Pune. Tata established a cluster called the Tata Auto Component at Pune which includes companies like:

- Tata Yazaki
- Tata Toyo
- Tata Nifco Fasteners
- TC Springs
- Tata Yutaka

Some of the other names representing joint ventures in Pune indicate foreign participation.

- Keihin Fie, Pune
- Lucas TVS, Pune
- Honeywell Garret, Pune
- Cummins, Pune
- Carraro, Pune
- Motherson Sumi, Pune
- Minda Stoneridge, Pune

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There are other big names in Auto Component manufacturers of repute due to their excellence in Quality and exports include:

- Bharat Forge, Pune
- Kalyani Brakes, Pune
- ZF Steering, Pune
- Wheels India, Pune
- DGP Hinoday, Pune

Some of the remarkable achievements of Pune in Auto Segment could be summed up as below:

- About 70% of the medium and heavy trucks are produced in Pune
- India's only indigenous car producer is located in Pune
- Pune Accounts for 80% of Multi Utility Vehicle output
- Nine out of every ten three-wheelers are produced in the state

The growths in exports have been phenomenal over the years in the country as a whole, and Pune also followed closely in terms of the increase in exports. Though in terms of the export potential, the number may be minuscule, the registered rate of growth continued to be good. Pune played a lead role in the two and three-wheeler segments. Pune, as the center of auto production and auto component manufacturer in India, would continue to play a leading role.

REGIONAL DEVELOPMENT

- **Infrastructure:** MSRDC has identified the potential for Business through Land development along the Mumbai - Pune Expressway. Corridor planning and Techno-Economic Feasibility report for the land development along the Mumbai - Pune expressway has been made. Sites have been identified for the development of the roadside facility in a profitable and environmentally sensitive manner for commercialization. the parties interested in developing the roadside facility have been asked to contact msrdc. there is scope for development of road side facilities like rest places, hotel, motel, restaurant, service station, truck repair and maintenance facility, auto show room, convention center, hospital, naturopathic and ayurvedic center, discount shopping center, multiplex corporate training and conference facilities, farmers markets, call centers, and others. This would impact the economy of the entire stretch.
- **Incentives and Resources:** According to the industrial policy of Maharashtra 2001 (Source: Ministry of Small Scale Industries, Government of India), new industries establishing in C, D, and D+ areas and No-Industry District(s) will be exempted from payment of Electricity Duty for 15 years. Government of Maharashtra proposes to promote Education and Research Institutions of international or national standards, including world-class business education institutions, by providing land in industrial areas/estates at nominal or concessional rates. This should encourage (subject to the real-term benefits and value that one sees out of the investment) set up of quality

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institutes and research organizations. Qualitatively this should have an impact on the governing mechanisms relating to the industry. Sector-specific incentives include 100% export oriented units (EOUs), information technology (IT) and bio-technology (BT) units, and industries setting up in special economic zones (SEZs), and electronic hardware technology parks will be exempted from payment of electricity duty for ten years.

- **New Industrial Townships:** More recently, these concepts were extended through statutory amendments to enable the establishment of independent Industrial Townships. In the first phase, self-governing Industrial Townships with the power to raise resources and determine their application will be established in industrial areas being developed by MIDC at twelve locations across the State, i.e. at Vile-Bhagad (Raigad), Airoli (Thane), Talegaon (Pune), Hinjewadi - Man (Pune), Shendre (Aurangabad), Additional Latur (Latur), Nandgaon Peth (Amravati), Additional Yavatmal (Yavatmal), Tadali (Chandrapur), Butibori (Nagpur), Additional Sinnar (Nashik) and Nardhana (Dhule). The industrial townships so set up will pay 25% of their revenue to the concerned Gram Panchayat(s) or local bodies for the initial period of 5 years.
- **Promotion of Education and Research Institutions:** Educational and research institutions of international or national standards, including world-class business education institutions, would be provided land in industrial areas/estates at nominal or concessional rates.
- **Support Institutions and Organisations:** Pune referred as “Oxford of the East” by Jawaharlal Nehru, India’s first Prime Minister enjoys many institutions of higher education, including the premier erstwhile University of Pune, College of Engineering, Pune (COEP), UCAA (Inter-University Center for Astronomy and Astrophysics (IUCAA), National Chemical Laboratory (NCL) and the Armed Force Medical College (AFMC), Bhandarkar Institute of Oriental Research, Gokhale Institute of Politics and Economics, Agharkar Research Institute and the recent ones like Symbiosis International University, Bharathi Vidhyapeth, and others. The National Defense Academy, which trains officers of India’s armed forces, is also located at Khadakvasla, on the outskirts of Pune. Fergusson College, a premier college for graduate studies, was established in 1885. Hence, students from all over the globe come to Pune for higher education, particularly language, humanities, engineering, and management.
- **Other Spillover Effect:** Some of the other Government, State Government, Non-Government Bodies connected to regional development include: Pune Municipal Corporation, Pimpri-Chinchwad Municipal Corporation, Maharashtra Industrial Development Corporation, Maharashtra State Electricity Board, Software Technology Park of India, Centre for Development of Advanced Computing, Local, National and International Associations, Maharashtra State Financial Corporation, City and Industrial Development Corporation Of Maharashtra Limited, Maharashtra State Road Development Corporation Ltd., Maharashtra Small Scale Industries Development Corporation Ltd., Maharashtra Pollution Control Board, Maharashtra State Khadi and Village Industries Board, Maharashtra Tourism Development Corporation, Maharashtra Centre For Entrepreneurship Development, Automotive Research Association of India, Pune, Confederation of Indian Industry, Pune, Federation of Automobile Dealers Association, Indian Institute of Petroleum, Indian Machine Tool Manufacturers Association, Vehicles Research and Development Establishment, Automotive Component Manufacturing Organisation, and others.

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MULTI-PERSPECTIVE MODEL OF REGIONAL DEVELOPMENT

Persuasive logic of Pune Auto-Component industries has been that of practicing capable instruments to stand for all the challenges that are evolved in the business, survive and make growth in the business. These SMEs cultured a thought that strong brands have a few enormous advantages in the marketplace so that the very best people would be willing to work for them, their brands help their employees focus and make decisions and these brands motivate their employees to do more than they otherwise would have believed they could. This approach can extend to multi-lateral viewpoints such as financial, customer-related, internal-set-up-related, and growth-related perspectives in totality that can create a good sense of business about the strength the SMEs possessed. The financial perspective came up intending to generate long term shareholder value while the customer perspective usually engaged price, quality, functionality, availability, selection service, a partnership that can structure the brand. In essence, MPM relies on Products, Processes, Price and Place, Promotion, and People's strength covering multiple aspects of the business.

Product Perspective

All the Pune entrepreneurs disclosed categorically that customer value branding policy is the surest foundation of a manufacturing concern towards quality that can market. Identification of expressed and latent needs of customers has been the additional prominence decided by these enterprises to offer timely solutions-based products and services. Nurturing market sensitivity is often a trouble for manufacturers, and that has given rise to a shift in the production policy of the SMEs. The Auto-Component industries offered products based on the functional variety and applications by continuously pursuing the objective of competency through product variety and price options. These SMEs introduced product application-based branding that matches with process or function. For illustration, branding is as follows:

- “Form, Fit and Function”
- “Art to part”
- “Domestic Class to World Class”
- “Self Standards to Customers Standards”
- “Customers Standards to International Standards”

Process Perspective

SMEs believed branding the process, for demonstration of internal strength, is the most excellent strategy and thus determined to quickly make its publicity to create greater opportunities for businesses.

To raise market share, Pune SMEs opted for internal changes in operations as well as management processes to create strength and deliver quality products. For this reason, they introduced a robust feedback loop with the design, engineering, and research and development functions to implement a cost reduction approach and adjust themselves with the competitive environment posed by their clients. Business process mapping, along with measurement tools, has been frequently used to identify proper instruments for branding that has links with multiple key stakeholders and able to create relevant, unique, and compelling customer experiences. These enterprises developed and introduced efficient and cost-effective supply chain processes to meet customer schedules. Working with the team to make a case for

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change inside the organization and equip and motivate employees to understand the strategy and deliver on it became the way of engaging the brand. Introduction of the brand in process and the unique equipment assisted Pune SMEs greatly. They adopted a world-class manufacturing process to be the brand that is unique because it has multiple operations like TQM, Lean, and Six Sigma and has the strength to manufacture the products without waste generation.

The processes are variable volume-oriented and based on a total quality function that can meet the requirements of the automobile manufacturers as per international standards. The branding process also included strength in IT and Electronics as a competitive edge. Mainstream industries added IT links for signifying enhanced performance through knowledge building to combating the challenges that keep arising due to changing scenarios. Therefore, this being the strength of the SME, it has been branded to render knowledge to the prospective customers quickly. Illustrative brands on relevant processes are Process Brands - FEA, CAE, Management Brand - PDM/PLM, Engineering design tools brands - 3D Software, Recycling Technology. Another illustration is the brand in the name of “cluster” in which Pune SMEs have largely been taking benefit. It is a ‘Cluster Company’ that has been launched by the State Government in partnership with two municipal corporations to promote the development of SMEs in the region. This cluster company is a typical example to indicate how the member SME derived benefits of the global market and technology to cope up with the diverse needs of the customers.

Price Perspective

The product should have a competitive edge in terms of quality, which is followed by the cost aspect. Therefore, SMEs in Pune preferred bringing sustainability by implementing a quality and price policy to gratify the requirements of their focused clients. The trend has emerged to make the product that is suiting the customers through the pursuit of cost savings. The strategy is to look at a cost-benefit analysis job by job and make innovations to discover if a low-cost option is justified. Introducing quality products at competitive prices, therefore, became their top priority over competing amongst other international suppliers in the business. Pune SMEs further revealed that repeat business orders followed in these SMEs owing to this improved policy.

Promotion Perspective

Auto-component industries in Pune began to cultivate inducements and customer service policy to raise the market share of the products. Inducing the customers by providing good services became a regular feature as it paid them in terms of continuity and repeat business. They started providing various services in addition to supplying their products. Such services included integrating the supplies of other products desired by the automobile manufacturers. They branded their additional capabilities as a promotional perspective that covered organizing suppliers able to designing and integrating components, subassemblies, and systems into modules. Standardization also turned out to be a promotional perspective. Given such supplementary facilities to the clients, these SMEs implemented practically meaningful and useful branding policies. Their brand can indicate system manufacturers capable of setting the standard on a global basis for a component or system through the design, development, and manufacturing of complex systems. “Component specialists” brand extends to suppliers capable of designing and manufacturing a specific component or subsystem while for a given car or platform process specialists or product specialists.

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Place Perspective

Pune SMEs also actively initiated global marketing policy to increase market share through geography multiplication. As such, their place perspective relates to the local and global markets. Branding the place in terms of the worldwide market came to be considered as their next philosophy. This viewpoint helped in generating strength and competency (Baporikar & Deshpande, 2017). These SMEs used this brand to their advantage and, as a result, sent the message to a large number of buyers spread across the globe. By promoting local products to global markets, they created a geographical niche to gain competency recognized as a global or glocal approach, thereby, “Local to Glocal” became the brand. This approach created market multiplicity that helped in enhancing the marketplace as well as they share. Illustrative brands are International Suppliers, Global Suppliers, and Local to Global Market.

People Perspective

Pune SMEs additionally divulged people’s strength as their branding policy. In this relationship, SMEs informed that they hired talented managers and offered them the best facilities to retain their services. Such staff thus became highly proficient in delivering their skills, resulting in another branding advantage as peoples’ strength. While economic and demographic differences between markets have obvious ramifications for business, it is a culture that most affects the development and marketing of brands. The history, culture, beliefs, habits, customs, values, and social behavior of a group of people determine the way people think, behave, and react to the world around them. Therefore, culture has come out as a massive effect on the acceptability and appeal of brands and their marketing communication. The secret of their success has been to know something nobody else knows. A brand is a set of differentiating promises that link a product to its customers. Some illustrative brands are Talented Manpower, Large Technology Workers, and Skilled Manpower.

IMPLICATIONS

There are implications for theory and regional policy if the research mentioned above gaps are addressed in the future. First, providing rich analyses of the interplay between structures and the enterprising agency offers value to the field by recognizing the existence of multiple realities when researching the entrepreneurial process (Jayasinghe, 2003). Focusing on this interplay, a more nuanced understanding of local, place-bound enterprising agency, how local entrepreneurs are influenced by – and contribute to – their immediate context/structure may be obtained. These insights may enhance our understanding of how enterprising individuals transform local structures; hence, they can create and sustain regional development.

Second, there are implications for regional policymakers. Today, policies are often based on a best-practice approach inspired by what other regions or countries do, rather than develop their own context-specific, tailor-made program (Baporikar, 2016). Other countries’ or regions’ policies, as they are today, often fail to consider the specificities of the local place and entrepreneurial culture (North & Smallbone, 2006). Therefore, regional policymakers need to understand that regional environments are different, and consequently, different measures must be developed to foster local entrepreneurship and

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enhance competitiveness (Baporikar, 2019). The results of this study may assist regional policymakers in designing their context-specific programs to create favorable conditions for entrepreneurs.

Regarding entrepreneurship, scholars with different backgrounds tend to use the notions of entrepreneurship and entrepreneur differently (Benneworth, 2004). Few economic studies have refined the criteria of what constitutes an entrepreneurial start-up. Exceptions exist, for instance, Mueller (2006) defines entrepreneurial start-ups as firms that are younger than three years and have less than 20 employees, or Davidsson et al. (1994), who use the definition of single establishment firms with autonomous ownership. In contrast, for sociologists, the notion of entrepreneurship is often more multifaceted than the setting up of a VAT-registered business. For example, Anderson (2000) argues that entrepreneurship is about the creation and extraction of value from an environment that involves the shift in value from an existing utility value to higher market value. Bridging the gap between these two perspectives of ‘what entrepreneurship is’ and their notions of the construct might be tricky yet, it is argued that both camps can benefit from understanding, acknowledging, and reflecting on the complexities of what the construct entails from each other’s perspective. Thus, it is argued that the discussions about entrepreneurship and regional development need more complimentary “connections” across disciplines. This is imperative because policymakers may use the insights and results of these studies for designing and evaluating regional policy.

With regard to the question ‘what kind of regional development?’, some scholars see regional development as equivalent to regional growth and job creation, while for others it is far more comprehensive; for example, social transformation, change, regional learning, and the development of regional entrepreneurial culture (incl. norms, spirit, ethos). Further, social impact of entrepreneurial behaviours from a regional development perspective is also crucial and from that perspective, the relevance of shared values among these entrepreneurs and other actors within regional structures is a decisive component for establishing regional economic prosperity in dynamic conditions (Doepfer, Habisch, Pechlaner, Poppe, & Schwarz, 2016). In a nutshell, future research should “develop a sounder conceptual understanding of what types of entrepreneurship drive what kind of regional development” (Baumgartner, Pütz, & Seidl, 2013, p. 22). Welter (2011) recently pointed out the need to focus more strongly on the interaction between the entrepreneur, local resources, and context, in other words, for contextualizing entrepreneurship. Studies focusing on reciprocity and context could be guided by well-established sociological frameworks aiming at contextualizing social phenomena. For example, Giddens’ (1984) structuration theory or Archer’s (1995) morphogenetic approach may be useful. By adopting such frameworks, entrepreneurship and regional development research has the opportunity to gain a fuller and more nuanced understanding of the “independence of context (structure) and entrepreneur (actor/agent) at the moment and across time and space” (Sarason, Dean, & Dillard, 2006, p. 289).

CONCLUSION

Cluster development, entrepreneurship, and regional development are a phenomenon studied and debated by two streams of research, converging on the issues of how regional conditions influence the clustering of entrepreneurship, how this entrepreneurship contributes to regional development, and how regional policy can or should aid entrepreneurial activity in regions. The phenomenon seems to be highly topical and relevant. Empirically, we have come a long way of exploring and explaining, but there are still plenty of avenues for future research. Several directions have been proposed to move the field forward,

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in particular investigating the effects of place-specific resource endowments, heritage, and local culture, which can act as an agent for cluster formation, which would then catalyze regional development. Regional development in the knowledge-based economy is not just determined by the creation of new knowledge but also by the ability and willingness to transform this knowledge into new products and processes that create economic and social value (Baporikar, 2016). Improving this entrepreneurial mindset in human capital is becoming one of the most important challenges to raising innovation, productivity and regional growth (Secundo, Vecchio, & Passiante, 2015).

This study showed how entrepreneurial clusters and regional development are interrelated; that is: how regional structures or conditions influence the formation of clusters and how entrepreneurship contributes to regional development. However, there is a need to obtain a more nuanced understanding of local entrepreneurship, how entrepreneurs are embedded in their context, and how they interact with their immediate environment and make use of the innate resources (e.g., natural, historical, and cultural). These insights may be useful to understand why some regions like Pune are more entrepreneurial than others, and why certain types of local entrepreneurship prevail in certain regions. Overall, regional studies and entrepreneurship scholars have established that entrepreneurship is largely dependent on its context. Urban, outskirts, and rural regions may, for example, create and nurture different types of the cluster approach to entrepreneurial activity.

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KEY TERMS AND DEFINITIONS

Competitiveness: Act of competing for some honor, or advantage. Rivalry between two or more persons or groups for an object desired in common, usually resulting in a victor and a loser but not necessarily involving the destruction of the latter. The need for global competitiveness is much important for any industry to sustain in this competitive world.

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Entrepreneurship: The capacity and willingness to develop organize and manage a business venture along with any of its risks in order to make a profit. The most obvious example of entrepreneurship is the starting of new businesses.

Globalization: Globalization is the tendency of businesses, technologies, or philosophies to spread throughout the world, or the process of making this happen. Worldwide integration and development, the process enabling financial and investment markets to operate internationally, largely as a result of deregulation and improved communications.

Innovation: Something new or different introduced, it is the act of innovating which includes introduction of new things or methods. Innovation is also introduction of a new idea into the marketplace in the form of a new product or service, or an improvement in organization or process. The process of translating an idea or invention into a good or service that creates value or for which customers will pay.

Organization: A group of persons organized for some end or work; an organized structure or whole for a business or administrative concern united and constructed for a particular end or a body of administrative officials, as of a political party, a government department, etc. It is act or process of organizing; a structure through which individuals cooperate systematically to conduct business and/or the administrative personnel of such a structure.

Perspective: Is a way of regarding situations, facts or topics or a mental view or the state of one's ideas; prospective means concerned with or related to the future and judging their relative importance. It includes the proper or accurate point of view or the ability to see with objectivity so as to try to get some perspective on issues for better solutions.

Process: A systematic series of actions directed to some end, it is a continuous action, operation, or series of changes taking place in a definite manner. A natural phenomenon marked by gradual changes that lead toward a particular result, a natural progressively continuing operation or development marked by a series of gradual changes that succeed one another in a relatively fixed way and lead toward a particular result or end. A process is thus a series of progressive and interdependent steps by which an end is attained.

Small and Medium Enterprises (SMEs): is a term for segmenting businesses and other organizations that are somewhere between the "small office-home office" size and the larger enterprise. Country to country this term may vary, but it is usually based on the criteria of investment, number of employees and turnover, etc.

Strategy: The science and art of employing, a careful plan or method, the art of devising or employing plans or stratagems toward a goal, an adaptation or complex of adaptations (as of behavior, metabolism, or structure) that serves or appears to serve an important function in achieving evolutionary success. It is methods or plans chosen to bring about a desired future, achievement of a goal or solution to a problem.

Chapter 14

Regional Impact of Innovation: The Case of an H2020 Project in Central and Western Europe

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ABSTRACT

Since the 1980s, a great deal of research has been carried out regarding endogenous economic growth. The focus has been specially put on the triangle of relationships among growth, territories, and innovation, and concepts as means of technological innovation have been extensively studied. In this context, this chapter does not pursue to enhance theoretical knowledge on this topic, but, on the contrary, it intends to remark conclusions previously reached by contrasting them with the implementation of a specific innovation policy program. To achieve this objective, an analysis is made of the European Union programme to foster R&D called Horizon 2020 (H2020). Also, it shows the case of an H2020 Project from the 2015 call, applying an impact assessment analysis.

INTRODUCTION

Impact of any kind of innovation on local environment, and furthermore by its spill-over capability, has been long studied along past years, especially those related to the new interest for location and cluster economies. However, case studies about it are less frequent, and hardly anyone which uses as research tool the Impact Assessment Methodology. This is indeed the aim pursued by this paper, such as to show the impact of innovation carried out by 50 companies funded by the European Commission under program H2020 (Horizon 2020), as a way of contrasting regional impact of innovation stated by some former theory models and frameworks.

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LITERATURE REVIEW

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As an evolution of ideas about economies of location and industrial clusters, during the 1990s, Castells and Hall (1996) developed the concept of “Means of Technological Innovation” (MTI), which emphasized the globalization of national and regional economies under the technological paradigm of ICTs (Information and Communication Technologies). With this sense, they highlighted the transformation of organizations from pyramidal structures to more flat and horizontal ones, due to new, more flexible and specialized production capacities. Moreover, these authors developed a model in which companies face new conditions of competition, allowing the emergence of new industrial areas very dynamic, with a high capacity for technological innovation and productive specialization, not only in ICT but also in other groups of technologies: Biotechnology, New Materials and Aerospace.

From an analysis of high technology industrial concentrations in several countries, which they called “Techno-polis,” Castells and Hall (1996) define MTI as “the specific set of relations of production and management based on a social organization, which essentially shares a professional culture and instrumental objectives, aimed at generating new knowledges, new processes and new products.” Both authors identified that a fundamental characteristic of these innovative spaces is their ability to generate synergies and raise the final value of production by combining their elements in the territory, so that the final result is higher than the sum of them separated. Consequently, regional impact of ICT was formalised.

Because of the capability of innovation to impact on territory, scholars soon analysed the different alternatives to deploy MTIs geographically. In this sense, Castells and Hall (1996), classified technological spaces into five types: (i) Industrial Complexes of Technological Innovation, (ii) Scientific Cities, (iii) Technological parks, (iv) Metropolitan High-Tech Industries and (v) Poles of Regional Technologies.

Additionally, in the formation of an MTI, it is often found a certain spontaneity at first, nevertheless, to reach its maturity requires the organized search of positive externalities of the concentration by public and private agents. In this sense, and in a complementary way to the classification of industrial districts by Markusen (2000), Cooke and Morgan (1994) typified the different models of spatial concentration of innovative activity, MTI, by firstly, a Model by Leadership, in which industrial policy organizes the spatial concentration of research institutes and high-tech companies, setting up an infrastructure of scientific and technological park type. Examples of this model are the ZIRST areas of Grenoble and Sophia Antipolis.

Secondly, these authors comment that there is a Spontaneous Model of concentration of innovation, in which there is a spontaneous and sustained concentration with high technological development content, carried out by companies and research and development centres located in the area. Examples of this model are the California Silicon Valley, the Oxford Area and some European industrial districts. Finally, Cooke and Morgan (1994) believe that there is a Network Model of concentration of innovation, which leads to the development of a system of local or regional innovation with a network of research institutes and companies. For these authors an example of this type is the cluster of Baden-Wurttemberg.

In any case, beyond of the industrial concentration or cluster developed in the territory, the evidence shows that its sustainability depends on the generation of a network of relations between the stakeholders of the cluster, with phenomena of mutual learning. As well as these phenomena, there are also two effects derived from the concentration: positive externalities, due to a greater division of labour, and dragging of suppliers, provoking phenomena of endogenous growth and local development. Furthermore, the analysis of European sectoral clusters carried out under the initiative of the Aranguren et al. (2010) confirms that

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there is no total spontaneity in its formation, but there is always a search for positive external effects by private agents or the Administrations. In addition, this cluster formation effort is facilitated if there are previously certain conditions of competitive advantage and social capital on the territory (Sölvell, 2008).

As a consequence, a positive loop or positive feedback loop phenomenon occurs, since clustering makes easier for regions to specialize and become more competitive in a global environment, and in turn, the pre-conditions of competitive advantage of the territory carry weight the formation of the cluster and its greater or lesser competitiveness. Among these pre-conditions, the ability to absorb and generate knowledge and innovation through a regional innovation system is especially important.

In this sense, Porter (1991, 2003) collected the determinants of the competitiveness of a country or territory, in its well-known “Competitiveness Diamond,” in which the capability to generate and absorb innovations plays a key role and depends basically on the regional innovation system, in which interact whole stakeholders: both companies and public administrations, public R+D+i system, infrastructure and the environment of the territory. In addition, the performance of the Innovation System depends to an important extent on the technological level of the industries, the existence of a network of SMEs, specialists in sectoral critical technologies (niche player), as well as the co-existence of an entrepreneurial culture.

Furthermore, Porter talked about the possibility of anticipating innovation requirements, as a function of the nature of domestic demand, that is, the existence in the territory of the cluster of an internal demand that forces local companies to innovate.

Finally, another key competitive factor for Porter (2003) is the existence of an innovation process distributed along the sector value chain, because it is so possible the development of networks of companies from different sizes, different levels of scale efficiency, internationalization and vertical and horizontal integration, with close up sectors by technologies and products. In his seminal work “The Competitive Advantage of the Nations” (1991), Porter explained that no nation can by itself be competitive in all areas. On the contrary, each nation owns industries that are competitive and others that do not. In addition, Porter emphasized not only the differences in the success of specific industries, but also the fact that competitiveness generally arises in particular localities within nations. In this sense, the strength of the “Diamond Model” is reinforced by the geographical proximity. In 2003, Porter abounded in this idea by explaining the importance of clusters in the economic performance of the regions. Sölvell (2008) showed with data from the European Cluster Observatory that the economic prosperity experienced by European regions is related to the degree of strength of its clusters, and this relationship is also confirmed by reports such as Competitive Regional Clusters (OECD, 2007) and European Innovation Scoreboard (European Commission, 2018).

In a nutshell, regional impact of innovation has been hugely studied in the last thirty years, and this article does not pursue to enhance theoretical knowledge on this topic, but, on the contrary, its intention is to remark conclusions reached, by facing them with the implementation of a specific innovation policy program.

Processes of Innovation in Sectoral Clusters

From the 1990s, objectives of existing sectoral clusters have been put mainly at developing as far as possible external economies, location externalities and social capital of communities in territories. In this sense, according to Rabelloti (2003) and Sölvell (2008), it seems opportune to group these externalities into two types: Economies of Production and Operation, on the one hand, and Economies of Innovation, on the other. In both types the key factor of formation of externalities are the already cited

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Knowledge Overflows or Knowledge Spillovers (Grossman & Helpman, 1991a, 1991b). In fact, it has been confirmed that these economies have a positive impact among cluster's members and beyond, even impacting growth and development of the whole territory (OECD, 2007). Thus, if these external economies or externalities become established in the territory and self-feeding over time, they can lead to a process of endogenous growth and development, in the form of a positive and therefore self-sustained loop (Barro & Sala-I-Martin, 1995).

In addition, this process is essentially diffusive, because its engine are the knowledge spillovers and, therefore, tends to spread up with its positive effects to other related sectors, due to the proximity of critical technologies, as well as to other territories, first those of geographical contiguity, contributing to their convergence. In this sense, Porter (1991) explains that innovative countries and territories enter into a most dynamic phase of development, spreading up their impact on to "related and support sectors," once reached maturity in their own sectors and branches.

Additionally, advantages of location are especially important for the process of innovation within clusters, since they have a direct impact on removing barriers or obstacles to innovation, namely:

- Spatial or geographical proximity favours the reduction of technical and economic uncertainty of innovation process (Rosenberg, 1982; Freeman, 1986).
- Geographic proximity allows for greater interaction among clusters' stakeholders, which favours the creation of networks and long-term trust relationships, a key factor for the innovation process (Von Hippel, 1988; Lundvall, 2010).
- Innovation, which has its origin in the transference of technology to companies from universities and technological centres, is facilitated by the proximity among them (Freeman, 1986).
- Finally, the innovative process is catalysed by the supply of qualified personnel in its environment (Rosenberg, 1982).

Moreover, as regards to the effects of these economies or location advantages, they can be distinguished two types: those derived from economies of production and operation, which are, above all, improvements in productivity, greater vertical integration, cost reduction, dragging of suppliers and training within industrial districts. On the other hand, there are the effects derived from innovation economies, which favour innovation and its diffusion, both within the cluster and to related sectors, as well as the effects on technological stakeholders and the attraction of qualified employment.

In any case, the effects of these externalities, and especially those of innovation, are very dependent on the type of innovation processes performed within the cluster, which in turn highly depend on the critical sectoral technologies employed.

Cluster Location in the Territory

Advantages of location in sector clusters are developed from the greater interaction among close stakeholders in the space of the territory, which often allows creating social capital that favours relationships of trust in the long term, as well as certain attitudes of reciprocity associated with them (Feldstein & Putnam, 2003). These relationships are fundamental for the innovation process and its diffusion.

In this sense, it is of the greatest interest the cluster's way of roll-out in the territory, because the territory becomes a key factor of integration, organization and development of its social capital. Thus, the geography of the territory, its culture and the sense of belonging to a community became key fac-

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tors for the development of relationships of trust, leading to build up communication networks among stakeholders of the cluster. In this way, advantages of location depend to a great extent on the agglomeration model and the external economies we have previously discussed, which could become external de-economies, depending on the centrifugal forces of the concentration, which become higher than the centripetal ones, as explains the Krugman-Venables Model (Krugman, 1991, 2000). Similarly, model of “cumulative circular causation,” developed by Myrdal (1957) and Kaldor (1963), operates in an analogous way to the Krugman-Venables.

In the dynamics of formation of clusters, specifically in the seeking for advantages or rents of location, spatial phenomena are developed, influencing on innovation processes within clusters due to the impact of proximity on diffusion of innovation. Due to this, it is appropriated to talk about a “Geometry from Diffusion of Innovation,” and for the aims of our research we will focus especially on five types of spatial phenomena provoked by this geometry:

- **Growth Triangles:** Natural economic zones of a cross-border nature, formed by bordering areas regarding different endowments of productive factors. Consequently, there are border effects in these areas that allow to reduce costs, allocate resources more efficiently and hence to achieve productivity gains. Therefore, it can be said that there is a sub-regional integration that minimizes transaction costs (Coase, 1960), by improving the “losers.”
- **Trans-border regions:** Natural economic zones between regions where a cooperative game is developed, which allows for a better balance solution for all stakeholders (Nash, 1950). They can even give rise to “Regions-State,” which constitute economies of services with availability of good infrastructures. In this sense, Ohmae (1995) said that depending on their size should allow to develop a “flexible community of interests.”
- **Nodes:** Economic centres of clusters, usually poles or districts, which support the cluster and have a certain centrality over it. Hence, from them, axes or corridors extend along the cluster.
- **Axes/ Corridors:** They start from the nodes of clusters, and they extend advantages of location along them, especially through processes of technological diffusion.

INNOVATION POLICY IN PRACTICE: H2020 AND RIS3 STRATEGY

The Framework R&D programmes (FP) have been the main financial tools through which the European Union supports research and development activities since the seventies, covering almost all scientific disciplines. FPs are proposed by the European Commission and adopted by Council and the European Parliament following a co-decision procedure.

According to own European Commission on its website:

Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment dragged. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market. Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe’s global competitiveness. Seen as a means to drive economic growth and create jobs, Horizon 2020 has the political backing of Europe’s leaders and the Members of the European Parliament. They agreed that research is an investment in our future and so put it at the heart of the EU’s blueprint for smart, sustainable and inclusive growth and jobs.

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By coupling research and innovation, Horizon 2020 is helping to achieve this with its emphasis on excellent science, industrial leadership and tackling societal challenges. The goal is to ensure Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation. Furthermore, Horizon 2020 is open to everyone, with a simple structure that reduces red tape and time so participants can focus on what is really important. This approach makes sure new projects get off the ground quickly – and achieve results faster.

As a pillar of H2020 initiative there is the Regional Strategy calls RIS3, devoted to promoting regional development and integration among different regions along Europe. Within this latter, there is the explicit objective of reindustrialization of Europe with new emerging industries through the technological development of SMEs and their capability of innovation (development plus commercialization).

In this context, within a 2015 call, arouse the Project¹ on which is carried out this research. Necessity of Project resulted from the fact that, according to European Commission (EC, 2008), any European SME that develops technological fields which might be applied in different industrial sectors outside their own scope, however, the day-to-day activity of these companies, their lack of external support and training and their resultant weak strategic vision prevents them from innovating in markets apart from their own ones.

To deal with this reality, EC recommends cross-sectoral collaboration among clusters as a key point to promote necessary technology transfer, generation of new value chains and the creation of emerging industries. In accordance to this recommendation, Project was defined with the objective to foster cross-sectoral innovation among SMEs from four different sectors: Aerospace, Agro-Food, Health and ICT, allocating 85 percent of the Project's whole budget of 5 M€ to SMEs, getting funding from H2020 in line to its policies (up to 80 percent of approved budget).

During its 36 months duration, Project focused its effort on setting up strategies which allowed several European clusters to lead the engagement of 50 competitively selected SMEs in activities intended to create new services and products, and therefore the generation of new value chains and emerging industries across Europe, achieving stable growth in the long run of cross-sectoral and cross-border innovation beyond the Project.

METHODOLOGY

There is a rather extensive applied literature about impact assessment of public policies and programs, specially developed by interested institutions such as World Bank (2013). Evaluation and monitoring of support initiatives or programs are useful to verify and improve the quality, efficiency and effectiveness of those programs, focusing on the results. As well as, it provides a good opportunity for innovation and learning.

In this sense, an impact assessment provides information about the performance of a specific program and if it is reaching or has reached the desired results. In essence, an impact evaluation measures the changes that can be attributed to the program. Moreover, here, the main challenge is to identify the causal relationship between the program and the results of interest.

Hence, impact evaluations usually measure the average impact of a program and provide information about causality of the desired changes and results. In turn, they are often periodic and related to an ongoing or completed program.

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Evaluations therefore can be used to answer specific questions related to design, implementation and results. They can address descriptive questions (description of processes, conditions and stakeholder's vision), normative questions (assessment of activities and of target accomplishment) and cause-and-effect questions (outcome examination to identify the difference that the program makes). Impact evaluations are focus on the latest, pointing to causality and attribution. The fundamental question of impact evaluation is: what is the impact (or the causal effect) of a program on an outcome of a specific interest. At the time to establish a causal relationship or the impact of a program on the results, a counterfactual must be estimated. In practice, this requires finding a comparison group. It seeks to determine what would have been the result of the beneficiaries of the program if they had not been beneficiaries.

Therefore, the specific impact assessment methodology to be used will depend on the operational characteristics of the program (resources available for all eligible beneficiaries, or limited resources), beneficiary eligibility criteria and program implementation deadline (one-shot or sequential).

Specific Methodology Approach

The question of impact evaluation must be considered as a hypothesis that can be verified. However, for some of the Project's impact objectives, and due to the nature of this initiative, it is difficult to establish the measurement mechanism that allows isolating the effect of the program from other possible reasons.

Taking into account the characteristics of the initiative and the temporary period in which the impact assessment is done, some challenges arise, as follows:

- **A comparison group creation:** on the one hand, the program support monitoring requires primary information on the performance of each non-beneficiary SME linked to the specific cross-sectoral technology transfer project. As this is not public information, companies that have not received the support ("non-beneficiaries") will have little incentive to provide such information. On the other hand, at comparing the performance of the top 30 with the 20 runner-up one, just the effect of intensity of the support could be tested, which is not the objective of this impact evaluation. However, although we would like to include this approach in this case, we do not have observable variables that allow us to establish significant differences between both groups of beneficiaries.
- **Time and cross-sectional dimension:** the span of time included in the information available is of one year alone, this means that an analysis of the changes pre-treatment and post-treatment is not possible. Surely, there exists information about the expectations for the future for each company, but these are very likely biased.
- **Characteristics of the beneficiary population.** The existing diversity in terms of the characteristics of the beneficiary population of companies and projects, together with their size, which is relatively small (50), makes it difficult to carry out statistical tests and empirical econometrics-based analysis.
- **Chronological fit of the evaluation.** It is still early to observe several of the results expected from the Project. These are results that do not occur immediately, as a result of the program support (financial and non-financial) implementation. It should be remembered that the supported projects are only required to reach a proof of concept phase. At the same time, the training received and the contacts with potential stakeholders made during the program can be translated into measurable results after some time. In the same way, it is also early to ensure the viability of the whole projects supported.

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Figure 1. H2020 Project-specific Impact Evaluation (IE) Methodology applied

Source: Own elaboration

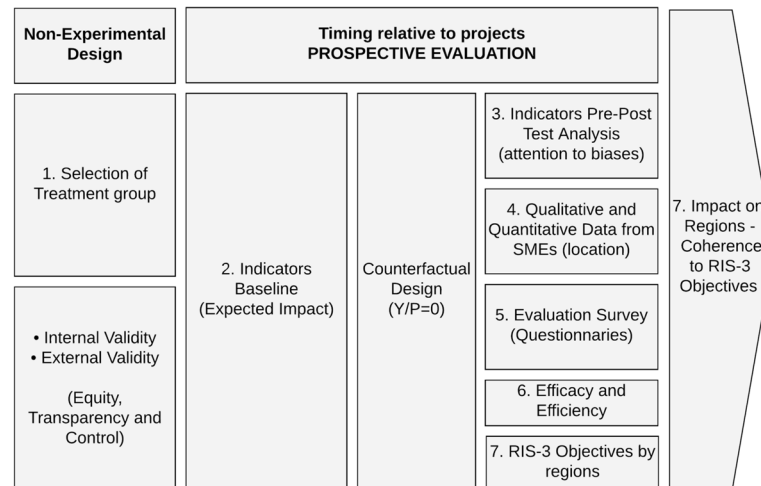
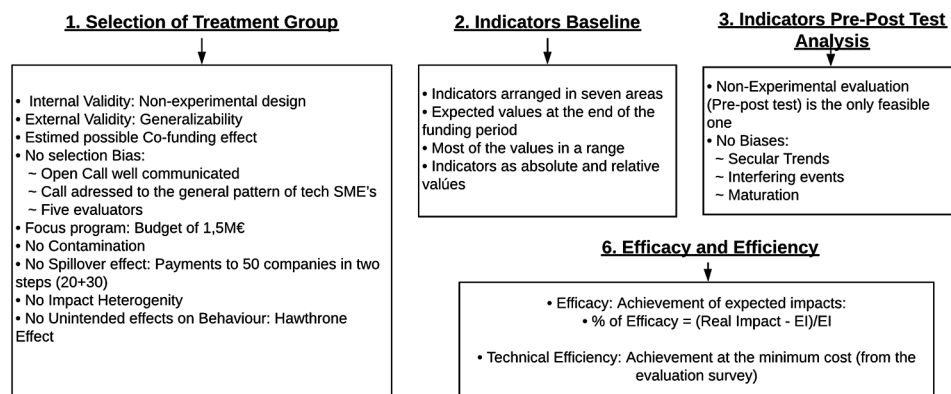


Figure 2. H2020 Impact Evaluation (IE) specific Data Analysis procedure applied

Source: Own elaboration



Next, Figures 1 and 2 show the methodology application to this H2020 Project's features and parameters, as well as procedure defined to get data, leading to a specific methodology compliant with accepted general framework.

EVIDENCES FROM THE MODEL: IMPACT ASSESSMENT IN PRACTICE

The project initiative, promoted by the European Commission (H2020), belongs to INNOSUP 2015 H2020's call and has extended from June 2016 until May 2019. It further aims to boost the development of business ecosystems integrated by innovative SMEs and in which the transfer of technology among

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different key sectors is favoured. This will serve to promote the development of regional economies, creating business and employment opportunities inside them, but it will also reinforce global value chains.

The main impact foreseen by the Project is to encourage cross-sectoral innovation at the SMEs level. A total of 50 SMEs has been beneficiaries of the assistance (financial and advisory) through this initiative. They are SMEs from four different sectors (Aerospace, Agrofood, Health and ICT) and five countries (Spain, Portugal, The Netherlands, Ireland and Poland).

The Purpose and Extent of Impact Evaluation

A demonstration effect is sought, beyond the results that half a hundred of SMEs can generate. The lessons learned through the support formula of the program must guide the dimensioning of the potential involved in the aforementioned ecosystems, both under the socioeconomic perspective and in terms of business sophistication. In this sense, for the sample on which the implementation of the initiative will be documented, the expected impact on employment, gross added value (turnover forecast linked to the projects), expansion of collaboration networks (at national and international level) and other observable performance results are analysed.

In addition, when assessing the impact, the regional dimension is taken into account: regional engagement of the projects supported, contribution to the regional challenges and the Smart Specialization Strategies (RIS3) of the targeted region/s, regional stakeholders mobilized or with whose cooperation has been counted for the development of the projects promoted by the Project (private/ public investors, other funding entities, RTDs organizations, public support institutions, private companies).

A set of seven dimensions has been evaluated, which determine capabilities of SMEs for the development of cross-sectoral technology transfer projects and its reversion in benefits for the regional economies, as follows:

1. Further leverage and complement support for innovation in SMEs and other funding, which may be provided by national or regional authorities (including resources under the European Structural and Investment Funds) and/or by private investors (up-front or as follow-up investments).
2. Contribution to the innovation performance of the supported SMEs in the short-term (number of new or significantly improved products /solutions, processes or organisational methods), and to its impact on resource efficiency and/or turnover. A wider impact is also expected in the medium-term.
3. Strength industrial leadership by reinforcing value chains that integrate innovative solutions in SMEs, along and across existing value chains.
4. Creation of new globally competitive industrial value chains to accelerate the development of emerging industries, which will boost industrial competitiveness and underpin future economic growth, jobs, and progress towards a resource-efficient economy.
5. Contribution to regional smart specialisation strategies, by capitalising upon concentrated and complementary competences for the development of new industrial value chains and emerging industries with a clear EU added value.
6. Improvement of the business environment of the supported SMEs, by establishing open collaboration spaces, that involve innovation actors from different sectors and countries, fostering innovation and new collaboration partnerships, which will be subject of further development.
7. Sustainability of the main expected impacts of the project, large scale demonstrator effect, and RIS3 coherence.

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Information Sources

Different sources of information have been used to carry out the impact assessment. It has been used both the information generated during the project for other purposes than those of the evaluation itself (for example the documentation collected during the call for proposals phase and the deliverables of the beneficiary SMEs), as well as information obtained through a survey of specific and customized information.

The information collection process was designed from the start of Project. However, throughout the development of the initiative it has been adapted to the execution context. A set of indicators for measuring the contribution of Project had been pre-defined in order to analyse the main impact components of the initiative in the beneficiary SMEs in seven categories, and some additional indicators, derived from the preliminaries, were incorporated later. For the measurement of indicators, unit of measurement, main information provider, temporary moment of information collection and the source or channel of information were also established for each indicator. Therefore, information supports have also been reviewed throughout the execution of the initiative, in order to make efficient the process of collecting relevant information.

When carrying out a preliminary measurement exercise of the indicators, several challenges or limitations were observed for the gathering of information:

- Incomplete information: impossibility of measuring many of the predefined indicators.
- Indirect information: introduces subjective bias in the measurement of some indicators.
- Heterogeneous information: some information is not comparable among companies (need to homogenize measures / type of info provided).
- Inconsistent information: (i) within the same SME (between different info sources) and / or (ii) among SMEs, for the same indicator.

Several of these challenges or limitations derive from the fact that many of the information sources (mainly the deliverables of the beneficiary companies) have a more technical approach than economic performance and impact perception. Therefore, they were not designed to collect much of the information sought.

As a result of the above, a rationalization of the indicators system (selection of key indicators), together with the design of ad hoc surveys / queries were carried out:

- Ad hoc online questionnaire for the 50 SMEs
- Request for information from coaches (e.g., info about their perception of project scalability, involvement of companies, and others)
- Internal survey among Consortium members for the evaluation of the performance / commitment of the beneficiary SMEs and of the Project's initiative (in order to identify what has worked and areas of improvement), and for gathering information on complementary initiatives developed by the Project's clusters to leverage more financing
- Incorporation of information obtained through SMEBOOK on the sectoral and geographical interests and dynamics of interaction for technology transfer between the members of the platform, aligned with the objectives of Project

Contribution to Regional Smart Specialization Strategies

Project aims to “contribute to regional smart specialisation strategies (RIS3) by capitalising upon concentrated and complementary competences for the development of new industrial value chains and emerging industries with a clear EU added-value.” In this sense, it is important to develop competitive advantages, as well as, disseminate the technologies and innovation knowledge.

Companies and their technological and innovative solutions have to compete in a global sphere. Their internationalization processes are also aligned with the priorities of their regions’ RIS3. In order to gain new markets in the international arena with new innovative products / services, the SMEs have to develop their competitive advantages.

In the regional context, the proliferation of SMEs (whose weight in the regional business tissues is totally predominant) capable of competing abroad in a sustainable manner, also reinforces the regional competitiveness. As stated before, the beneficiary SMEs expect to enter in foreign markets and obtain an international turnover linked to the innovative project develop with the Project support. This will occur in a time horizon until 2020, according to the expectations of the majority of beneficiary SMEs. 62 percent expect to have international sales by that year. For the top 30, this percentage is even higher up to 70 percent.

Furthermore, in order to disseminate innovations developed under the Project’s initiative, as well as to share the experiences with other companies in target regions and, in general, with other European companies, some activities have been developed through on-line and off-line channels:

- **Online:** both the Project’s website and the social networks used (Twitter, LinkedIn, Reddit, Facebook and Stack Exchange), have helped spread the innovation projects. In this sense, the presentation / profile of each project and the explanatory videos of their experience, included in the website, should be highlighted.
- **Off-line:** the six B2B / Brokerage events organized as part of Project’s Business Support Services, along with other international events in which Consortium members and beneficiary SMEs have participated, have also helped to disseminate the innovations.

Among the objectives pursued by Project, it is also to “improve the business environment of the supported SMEs by establishing open collaboration spaces, that involve innovation actors from different sectors and countries, fostering innovation and new collaboration partnerships, which will be subject of further development”.

Hence, regarding the technology transfer to related sectors, it must be taken into account the technology alliances and agreements developed by supported SMEs with other organizations. Each project supported incorporates a technology transfer between two different sectors (origin and destination sector), being the SME that promotes the project a “tech provider” or a “tech recipient.” If it is a “tech recipient,” there will be a provider company, from another sector, with which it will establish an agreement to incorporate the technology. However, among the top 30 projects, there are only four that cover this scheme. Moreover, in the case of “tech providers,” they may establish agreements with potential client companies in the destination sector, with potential distributors and with other organizations that allow them to transfer the technology.

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Furthermore, Project has different resources to promote the establishment of new cross-sectoral alliances of a technological nature: contacts that can be provided by the clusters, some of the actions included in the Business Support Services and, specifically, the “SMEBOOK.” This last platform helps SMEs to find potential tech partners. However, its placement as a service has taken place at a very advanced stage of the initiative (in September 2018, with official launch in March 2019), replacing the “Cluster Collaboration Tool,” so there is still not enough history to evaluate its contribution to the creation of new technology alliances.

Finally, the fifty projects supported and funded by Project are linked to the creation of new value chains, with a cross-sectoral component. The beneficiary SMEs will so incorporate clients and / or suppliers in their supply chain from a different sector to their own, within the four eligible sectors, to implement their technology transfer project. Many beneficiary SMEs have potential customers for the product/service develop with Project’s support in their own region. This is the case for 63 percent to 80 percent of the top 30 SMEs, so it could be facilitated in the medium run a faster configuration of the new distribution chains, bearing in mind that, although it is difficult to quantify the number of clients and suppliers of beneficiary SMEs in different sectors, there is a willingness of companies to incorporate, in the future, a greater number of international agents in their new value chains.

CONCLUSION

Conclusions regard to lessons learned, refer to the knowledge acquired through experiences, successful or not, in the process of carrying out a project, in order to improve future executions. So, according to this definition, the following are a set of wrongs and rights that the Project’s team has managed and achieved during the implementation of the initiative.

The lessons learned have been outlined from the review of the activities developed and results, as well as from the considerations, as a self-evaluation, of the organizations that are part of the Project. The lessons identified have been arranged in two areas: on the one hand, some aspects that can be improved and, on the other hand, those that should be maintained and enhanced.

Regarding the first ones, they are related to actions carried out that could be avoided and others that have not been implemented and should be carried out. Meanwhile, the areas to be maintained and promoted are linked to actions well done and those that it is considered appropriate not to have done them.

At the same time, lessons learned are organized around the six objectives proposed by Project at the beginning:

- O.1. - Facilitate the emergence of cross-sector new value chains resulting from the analysis and assessment of advanced technologies among four sectors with strong synergies: Aerospace, Agro-food, Health and ICT.
- O.2. - Establish methodologies for durable cross-sectoral collaboration across different regions in Europe, led by cluster organizations and other intermediary organizations creating the grounds for a competitive reindustrialization that foster the development of emerging industries in Europe.
- O.3. - Support the development of innovation projects driven by SMEs from different sectors and improve their business environment by setting up call for proposal processes across different poles of the Project’s Consortium and establishing a systemic approach to foster innovation during and beyond the competitive call.

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- O.4. - Facilitating SMEs access to finance and networks of investors, incubators and setting funding schemes to complement public funds with private investments and establishing open collaboration spaces that can involve innovation actors from different sectors and countries.
- O.5. - Demonstrate the feasibility of strategies to foster cross-sectoral innovation in SMEs through large-scale demonstrations aimed at helping industrial regions and its industries transform themselves and enter new value chains and support the smart specialization strategies of the involved regions, enabling synergies with structural funds, the creation of jobs, start-ups and the consolidation of a strategy for a sustainable industrial development.
- O.6. - Disseminate strategies and methodologies already proven in order to facilitate cross-sectoral innovation and establish the groundwork for the creation of emerging industries across Europe.

Concerning the above objectives, several areas of improvement have been identified:

- (O.1.) The broadness of the selection of the topics, although it serves to establish a layer of knowledge, it has proved to be not very functional for a specific selection of innovative ideas/projects to be supported. It seems that dissemination of these topics in the longer term would be more effective in collecting projects that incorporate certain promising technologies.
- (O.2.) An online platform that facilitates networking and the identification of business opportunities for the development of international projects of cross-sector innovation, in terms of its function and potential, is attractive. However, it requires effort overtime to get the engagement of key agents that keep the on-line platform alive and dynamic, becoming relevant for companies (be used recurrently and be competitive with other similar existing solutions). The period contemplated in the framework of the Project to obtain a consolidated platform is short.
- (O.3.) The relaxation or flexibility of the eligibility requirements, both in the level of experience/maturity of the company/project and in the technical and technological content of the project, establish limitations for the measurement of the impact sought with the project and type of initiatives hosted. Also, the type of business support activities is affected by the profile of the companies.
- (O.4.) Given the diverse situation and capacities of the beneficiary SMEs (availability of human resources), the temporary concentration of support activities may not be viable for all companies. Some services, especially training and coaching, would require a longer-term. The incorporation of more spaces for interaction with other companies (potential customers, suppliers, or others) also takes time. The temporary location of the Mobility Exchange Program towards the end of the support period and its characteristics (requirement of a counterpart abroad and availability of the company's human resources to carry out the stay abroad) have hindered its use by more SMEs. A redesign of this program would be necessary.
- (O.5.) Several of the results expected from the initiative and the success of the supported projects require a longer-term impact measurement in order to generate empirical evidence (predefined "impact" / "performance" indicators measurement). A follow-up of the supported projects in the coming years would be desirable. The expectations of collaboration from third institutions in order to measure the scalability of the initiative at the regional level have shown to be optimistic. The existing limitations in public statistics are not easily covered with information that can be provided by institutions that support regional innovation and entrepreneurship.
- (O.6.) Engagement of third companies (non-beneficiaries of the Project) in communication actions has been complex.

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Furthermore, several other areas have been identified in order to maintain and enhance them:

- (O.1.) A systemic approach to boost the creation of new cross-sector innovations and knowledge transfer, in the medium and long term, developed with methodological rigor and that allows future updates are convenient for evaluating the technological possibilities and for being able to focus the processes of technology transfer better. The identification of advanced technologies also serves to guide the clusters of the four eligible sectors on lines of work with greater innovative potential linked to cross-sectoral collaboration.
- (O.2.) Strategies and tools to foster innovation in SMEs, based on an analysis of supply and demand of technologies offered by SMEs, and involving clusters organizations, facilitates an effective technology transfer between companies from different clusters and sectors.
- (O.3.) The criteria and evaluation process of the proposals (clear evaluation methodology) that combines technical and other aspects related to the project's capabilities and their potential impact while ensuring a diversified representation of eligible sectors and regions has proved useful and easy to implement. Also, the dissemination actions before the call for proposals promoted, mainly, by the cluster organizations is fundamental to attract the interest of the companies.
- (O.4.) The training focused on the technology transfer/commercialization process, and its strategic planning has been useful for companies (Tech Com Academy) in order to establish knowledge bases in the decision making and analysis of the diagnosis / commercial viability of their projects. Also, a more personalized accompaniment, through the mentoring and coaching program, has allowed companies (top 30) to overcome some difficulties in the implementation of their projects. For the organization of investment forums with potential investors, a certain critical mass of companies is needed, and not all SMEs are prepared. In this context, early identification of the capacities and the re-adaptation of the activities to the conditions of the beneficiary companies has been convenient. In this context, the development of sectoral or multisector B2B / Brokerage events, with different orientations and held in those countries that guarantee minimum assistance of beneficiary companies, has allowed covering their needs better. Companies located in countries with fewer beneficiaries have been provided with the displacement (coverage of expenses) to another of the countries in which an event of their interest was organized. Complementary training channels to face-to-face (webinars) also facilitated the companies' attendance at the workshops on investment readiness. In short, given the diverse needs of companies, it is necessary to act proactively in adapting support activities to the real needs of the supported projects. Regarding the financial support, although 60 percent of the beneficiary SMEs would like it to be higher, there is no evidence that for the development of a proof of concept, they would need more resources since the top 30 projects have verified the performance milestones required with the current financial support. However, it is unknown whether the amount of financial support has influenced or not in the participation rate in the call for proposals.
- (O.5.) The profile of the beneficiary companies, many of them micro-enterprises, and the requirements regarding the generation of the deliverables, make it difficult to collect specific information, for impact / performance evaluation, so that the survey was carried out as late as possible, after the last deliverable, but before the last disbursement, in order to look for a high response rate. The "bureaucratic" burden is a handicap for many companies. Although the simplification of the questionnaire entails a trade-off in terms of the richness of the information provided, given the lack of precision of the quantitative information offered in the SMEs selection process, a more simplified

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questionnaire was chosen, with indicators more qualitative and of perception (instead of a wide-set of quantitative indicators). The impact/performance indicators initially proposed have been reviewed during the implementation of the initiative. This, both to gather new aspects considered of interest given the progress and partial results of the program, and to adapt them to a feasible information collection process in the final stage of the program. Various Project Consortium members consider the identification of best practices to foster cross-border and cross-sector collaboration through clusters and the definition of the regional Large - Scale Demonstrators as a source of knowledge and learning.

- (O.6.) Project website contents, including presentations of projects and beneficiary companies, as well as some videos, have proved to be a useful instrument for the communication and dissemination of the initiative. Social media activity also has helped at this task.

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KEY TERMS AND DEFINITIONS

Cluster of Companies: The term, also known as an Industry Cluster, Competitive Cluster, or Porterian Cluster, was introduced and popularized by Michael Porter (1990). The importance of Economic Geography, or more correctly Geographical Economics, was also brought to attention by Paul Krugman (1991). Clusters development has since become a focus for many government programs, such as H2020 program. The underlying concept, which economists have referred to as Agglomeration Economies, dates back to 1890 and the work of Alfred Marshall in his Principles.

Endogenous Growth Theory: Refers to an economic theory developed during the 1980s and 1990s which holds that economic growth is primarily the result of endogenous and not external forces, so that investment in human capital, innovation, and knowledge are significant contributors to economic growth. The theory also focuses on positive externalities and spill-overs effects of a knowledge-based economy, which will lead to economic development.

Impact Assessment: Provides information about the performance of a specific program and if it is reaching or has reached the desired results. In essence, an impact evaluation measures the changes that can be attributed to the program. Moreover, here, the main challenge is to identify the causal relationship between the program and the results of interest.

Innovation: Refers to the generation of new products and also new services, business models and entrance in new markets, which let the delivery of better solutions to customers, meeting new requirements, unarticulated needs or existing market needs. Such wide innovation concept takes place through the provision of more-effective products, processes, services, technologies or business models that are made available to markets, governments and society. Innovation should be therefore something original and more effective and, depending on its disruption level, something new that “breaks into” the market or society.

Regional Impact of Innovation: Regards to the local impact of innovation on the whole stakeholders in a territory, considering innovation’s feature of disseminating knowledge and positive externalities in the form of spillovers.

ENDNOTES

¹ Title of Project is intentionally hidden due to confidentiality considerations

Chapter 15

Open Social Innovation: An Approach to Public Organizations

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ABSTRACT

Three public European case studies are presented as an evaluation of a preliminary test of an adapted questionnaire to measure open social innovation. Findings include the differences and similarities between public and private performance. Public practitioners integrate these experiences later than private. The reasons for engaging in open innovation are different: whereas improving citizens' relationships is the major public reason, creating partnerships is the private driver. Finally, technologies help open innovation in both public and private cases. Furthermore, it may be concluded that there is a lack of open social innovation professionals that leads to a barrier in the development of these policies in the public sector.

INTRODUCTION

Innovation has a deep impact on social aspects, such as individuals, organizations, and policies. However, the research of innovation becomes more complex in public establishments, where the innovativeness of the organizations and the adaptability of the innovation should follow a determined process (Downs & Mohr, 1976). Despite this complexity, as innovation is a driving factor in the growth of the public sector (North & Thomas, 1973), further investigation of this field is necessary.

Open innovation (OI) is a different approach to the traditional closed perspective. It is defined as “the breaking down of an organization's boundaries to encourage the flow of knowledge and creativity —both internally and externally — to promote innovation” (Chesbrough, 2003, p. 124). Open innovation is a new paradigm based on principles of integrated collaboration, co-created shared value, cultivated innovation

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ecosystems, unleashed exponential technologies, and extraordinarily rapid adoption. It is a practice that looks for support, knowledge, experience, and ideas outside of a system as well as internally. It has, at its heart, an ethos of openness and honesty combined with practices of participation and collaboration. These issues together promote a different way of working that is creative, innovative, and founded on relationships of trust and mutual respect. Most publications analyze the role of Open Innovation in the private sector. Chesbrough's research is probably the most popular work in this field. His survey published in "Managing Innovation in Large Firms" is the largest reported about Open Innovation in recent years (Chesbrough & Brunswicker, 2013). Meanwhile, Lee, Park, Yoon, and Park (2010) have observed Open Innovation performance in small companies, while Parida, Westerberg, and Frishammar (2012) have examined firms from the technological sector.

As traditional or closed innovation does not sufficiently address emerging policy challenges that governmental organizations need to deal with, there is a need for open innovation in the public sector (Bommert, 2010). For example, the United States government has made important commitments to the Open Government Initiative (Obama, 2009, 2012), allowing members of the public to access government data and contribute ideas and expertise to government policy-making and services innovation (Lee, Hwang, & Choi, 2012). Another example is De Publieke Zaak in the Netherlands, a combination of projects that allow government agencies to innovate using insights from citizens. One of these projects is the "21 days of debate" effort where citizens ask questions to (changing) panels of participating politicians during the last 21 days before an election. In other parts of the world, open innovation initiatives are gaining ground. For example, the Singaporean government has implemented an open data portal to make datasets from a large number of agencies available to the public (Yang & Kankanhalli, 2013).

Open Social Innovation (OSI) refers to the discussion of the application of either inbound or outbound open innovation strategies in the public sector to social changes as well as innovations in the organization.

In recent years, several studies about open innovation issues have been focused on the role of Open Innovation in the private sector. Nevertheless, citing Chesbrough, Vanhaverbeke, and West (2008, p. 76), "Open Innovation has been mainly studied at the firm level, while other levels of analysis have not been touched upon." They referred to non-profit organizations and open social innovation practices. Later, Grimm, Fox, Baines, and Albertson (2013) argued that more theoretical and empirical work is needed in the field of open social innovation.

This practice of openness unlocks knowledge and assets that are invaluable to cash-strapped city authorities. It brings about engagement in communities because it promotes transparency and empowers users by involving them in the innovation. Open social innovation processes ensure that the final innovation itself is more relevant and scalable as it has been shaped by the users and stakeholders who know how it will work best and know how it will fit in their environment. Open Innovation practices are useful in the public and private sectors.

This chapter looks for the differences in public and private performances in Open Innovation practices. This need for open innovation in the public sector is emphasized by Criado, Sandoval-Almazan, and Gil-Garcia (2013). In this line, this chapter aims to present a preliminary test of an adapted questionnaire to measure Open Social Innovation. The test is probed in three public administration organizations as an initial evaluation of the proposed measurement.

To this end, the document is organized as follows. Firstly, the concept of Open Innovation in the public sector is included. Then, the chapter presents the idea of OSI and describes the contributions from the economic literature to this issue. Secondly, the survey is presented. This survey is based on

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Chesbrough and Brunswicker's work (2013). Thirdly, the sample is described. Finally, some conclusions of our research are discussed.

BACKGROUND

Definition of Open Social Innovation

Open Social Innovation is defined as a junction of social innovation and open innovation (Monteiro Martins & De Souza Bermejo, 2013). Chesbrough and Di Minin (2008) referred to Open Social Innovation as “the application of either inbound and outbound strategies, along with innovations in the associated model of the organization, to social changes” (p. 170). Chalmers (2011) highlighted the connections between both concepts and proposed that Open Innovation could reduce barriers to innovation. As this research was conducted in the last decade, it may reflect the emerging situation of the research area and its early stages of adoption. Furthermore, Monteiro Martins and De Souza Bermejo (2013) believed that the concept remains open for further discussion.

According to Monteiro Martins and De Souza Bermejo (2013, p. 149), the converging of OI and Social Innovation (SI) occurs because of the characteristic of collaboration between actors: “Social Innovation meets open when using a methodology that promotes collaboration among diverse stakeholders in the development of innovation agents.” New social practices, products, services, or processes in a collaborative process that implies social development is required to achieve OSI.

Since Henry Chesbrough created the concept of Open Innovation in 2003, several private companies have applied his techniques to improve processes and products, while, in recent years, a growing number of public organizations have sought to adapt their activities to a more open perspective (Bommert, 2010). The relevance of OSI in solving emerging policy challenges justifies its development in public bodies. However, this adoption must face several obstacles.

Barriers to Applying Open Social Innovation

Public sector organizations are mostly in the early stages of adoption of open innovation (Ham, Lee, Kim, & Choi, 2015). Particularly, open innovation in the public sector requires governments to listen more to their citizens than they did before and to allow for greater involvement of users of public services. However, the means and methods for citizens' involvement in public sector innovation are still not mature (Bekkers, Tummers, & Voorberg, 2013). Furthermore, there is a lack of understanding of how open innovation strategies should be formulated in public sector organizations (Christos et al., 2013). These hurdles result in low levels of citizen satisfaction and trust in these services. Moreover, government organizations must comply with existing rules and regulations that may limit their freedom to innovate and collaborate with external sources (Mergel & Desouza, 2013).

In general, the public sector has been criticized for being inhospitable to innovation due to asymmetric incentives, lack of an innovation culture, absence of funding (such as venture capital) for innovation, and various other barriers (Bekkers et al., 2013). These barriers and the limited understanding of such phenomena in the public sector have led to calls for further research on open innovation in the public sector (e.g., Mergel, 2015). This gap is further aggravated by the differences between the two sectors

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(as discussed next), whereby findings of open innovation in the private sector may not be directly applicable to the public sector.

Most of the studies in OSI have been conducted according to the qualitative point of view, and above all, in the form of a case study. Hence, in reviewing the literature on open innovation in the public sector, most of the current studies appear to be qualitative, through case interviews (e.g., Lee et al., 2012; Mergel & Desouza, 2013).

Lee et al. (2012) examined the open innovation practices in the public sector of the USA, Australia, and Singapore. This publication is the first attempt to study Open Innovation at the government level. In this context, looking for Open Innovation studies in other activity sectors, the Perkmann and Walsh (2007) research in which they studied the Open Innovation process in universities and the relationship between universities and companies can also be cited.

In a special issue of *Government Information Quarterly* in 2017, several researchers presented their results on OSI. It is worthy of highlighting the case study results of Gascó (2017) that introduces the case of two labs in Spain which support open innovation in the public sector. In the same line, Zhang, Zhao, Zhang, Meng, and Tan (2017) discussed the case of the official document exchange via the microblogging (ODEM) system of the Haining Bureau of Justice as an example of government open innovation efforts in the social media context, and Baka (2017) described the process of co-creating an Open Platform at the local government level. Moreover, other researchers have tried to find the connection between OSI and social media. Loukis, Charalabidis, and Androutsopoulou (2017) explained the need for promoting OSI through social media by using theoretical foundations from the political and management sciences from a multi-perspective evaluation framework. Reddick, Chatfield, and Ojo (2017) developed a framework for facilitating organizational learning through social media text analytics to enhance the quality of citizen services. Furthermore, Gagliardi et al. (2017) investigated how open data together with simple and standardized elaborations and innovative visualization techniques can be used to provide new and updated services to citizens and communities.

At present, different projects related to Open Innovation in the public sector are being carried out. The initiative “Open Government and Public Sector Modernization” looks for connecting e-government practices and is building a collaborative e-Government Action Plan in the European Union for the next four years. This enhances the need for researching OSI to understand differing views in a balanced manner.

As mentioned above, technologies, such as social media or online tools, help Open Innovation practices in the public and private sectors. Citizens can participate through platforms in future public programmes. Kube, Hilgers, Koch, and Füller (2015) described voluntary citizen participation in an open government platform in Germany. More than 100,000 people have collaborated on the platform. This is just an example of the wide possibilities of Open Innovation practices.

Apart from the qualitative aspect, few researchers attempt to address the issue through quantitative analyses. Leiponen and Helfat (2010) analyzed the Finnish Social Innovation survey and found that enterprises that maintain an open strategy and open thinking for innovation are more successful. In other words, they found that exploring many sources increases the success of innovation performance. However, there is a need to apply quantitative methods in researching OSI with surveys and econometric techniques (Kankanhalli, Zuiderwijk, & Tayi, 2017).

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Table 1. Differences between Open Innovation in the Private and Public sectors

	Open Innovation in the Private Sector	Open Innovation in the Public Sector
Focus	Both on new product and service development.	Usually not for a physical artifact
Aim	Initiated primarily to achieve competitive advantage.	Driven by the objective of improving service performance.
Value	Add value in terms of higher revenues.	Add value in terms of public benefit.
External stakeholders	Suppliers, customers, competitors, partners, research institutions, organizations in other industries.	Citizens, online intermediaries, academia and higher education, other governmental organizations (e.g., legislators), non-governmental agencies (including the private sector) and non-profit organizations.

Source: Based on Kankanhalli et al. (2017) and adapted from Bommert (2010) and Lee et al. (2012)

Differences Open Innovation in Private and Public Companies

The private sector and public companies are working in innovation in various contexts. The way innovation is applied in the private sector is not conveyed easily in the public sector (Fernandez & Rainey, 2006; Louis, Mergel, Bretschneider, & Smith, 2013). Konsti-Laakso, Hennala, and Uotila (2008) highlight the benefits of innovation in the public sector, even though the grade of popularity in researching this sector has not reached the same level as in private companies. The reason, as written by Mergel and Desouza (2013), is due to the changeable method of the application for political reasons such as new governments that abandon previous policies or just create new ones.

Kankanhalli et al. (2017) compared the differences in open innovation between public and private companies based on the studies of Bommert (2010) and Lee et al. (2012). Table 1 shows these differences. Open Innovation in the public sector is not focused on creating new product and service development (Lee et al., 2012). However, it is aimed at improving service performance and public value (Konsti-Laakso et al., 2008) and, above all, in enhancing the awareness of social problems to increase trust between social organizations and the public (Saiz-Álvarez & Palma-Ruiz, 2019; Mergel & Desouza, 2013). Table 1 summarises the main differences between the public and private sectors regarding the implementation of Open Innovation.

Open Innovation in the public sector should benefit the organization and the general public (Bommert, 2010), solving disputes and problems (Cunningham & Kempling, 2009). Furthermore, the application of OSI could involve the private sector and several stakeholders (Lee et al., 2012). The interest of research in this area (OSI) could favor not only the public sector but also private companies.

Chesbrough et al. (2008, p. 105) stated that “Open Innovation has been mainly studied at the firm level, while other levels of analysis have not been touched upon.” They referred to non-profit organizations and open innovation practices, as non-profit organizations, such as governments, universities, or NGOs, have applied open innovation in their strategy in recent years.

MAIN FOCUS OF THE CHAPTER

Issues, Controversies, Problems

After describing the differences between the implementation of Open Innovation in the public and the private sector, this chapter aims to measure these differences. To that end, a questionnaire is proposed as an adaptation of the previous work developed by Chesbrough et al. (2008).

In this context, and considering the differences between OI in the public and private sectors described above, this research presents a methodology to measure OSI in public organizations, and more specifically, this chapter seeks to answer the following questions:

- RQ1. How is the private and public organizations' performance in innovative processes? Are there significant differences between the behavior of private companies and public organizations about the application of OI practices?
- RQ2. According to the literature, organizations must change internally in order to apply open innovation successfully. Are there differences related to human resource structures in both organizations? Therefore, the authors are interested in comparing the open innovation process in the private sector and non-profit organizations.
- RQ3. Can an order of application of OI between public and private organizations being defined? Who first implemented OI, and why?
- RQ4. What is the role of ICTs, such as social media or the Internet of Things, as instruments to ensure Open Innovation practices in both the public and private sectors?

This research is based on a survey developed by Chesbrough and Brunswicker (2013). The authors adapted this survey from the private to the public sector.

Three public European case studies are presented as a preliminary test. The researchers conducted face-to-face in-depth interviews with the respondents to compare results in order to validate the proposed methodology.

Adapted Survey

As mentioned, the first step consisted of adapting the survey by Chesbrough and Brunswicker (2013) on "Managing Open Innovation in Large Firms" from the private sector to the public one.

The aim was to analyze the same aspects in a later period and the public sector and then compare the public and private results. As a complementary objective, this chapter aims to present a preliminary test of this survey, by surveying three European public organizations, to ensure the structure and validity of the adapted survey. According to Bezzi (2006), questionnaires are a research technique, but they have limitations. For that reason, the adaptation of the survey is essential to research in this field.

To properly achieve these objectives, the adaptation of the survey was developed as follows. Firstly, a definition of Open Social Innovation was added to introduce organizations to this concept. Then, some questions related to the time the changes occurred were added, and some further changes were made to the original survey. Table 2 summarises the survey with the changes included. Applying Chesbrough and Brunswicker's survey to non-profit organizations is our first objective, and this information will be completed with interviews with professionals responsible for open innovation in those organizations.

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Table 2. Survey and the applied changes to OSI

	Chesbrough and Brunswicker (2013)	Our Proposal
What do the authors aim to measure?	Adoption of OI OI management Measurement tools	Same
What are the characteristics of the organizations completing the survey?	Large firms in the USA and EU with sales over 250 million US dollars and more than 1,000 employees	Public administrations in places with more than 10,000 citizens.
What period?	Three years, from 2008 to 2011	From 2008 to 2017
How many organizations are receiving the survey?	A survey was sent to 2,840 companies, 125 of them answered	Preliminary test to three European public organizations
In which format?	Online survey (lime.com) and pdf	Same + Google forms application Face-to-face interviews
To whom?	At least one contact person at the company headquarters. Primary contact: CEO or COO + Chief Technology Officer or a senior executive responsible for strategy or business development. (if contact details available).	Same

Source: Own elaboration

Case Studies

Three public European case studies are presented as a preliminary test. According to Fitz-Gibbon (2002), revising data in ongoing discussions with those whose work is being monitored is essential to collect the right information. Consequently, the researchers conducted face-to-face in-depth interviews with the respondents to compare results to validate the proposed methodology.

In order to select these organizations, the authors have sampled for variance, searching for innovative actors within the public and social sectors. Thus, it is not claimed that our sample is representative of the larger public or social sector. Instead, the authors sought to uncover some of the processes within organizations that are considered to be quite innovative within the social context.

Our cases involve three European public organizations that experienced OSI practices. These organizations were selected as a preliminary test and to conduct an exploratory qualitative research study on these three experiences (Yin, 1984, 2001).

To achieve the research objectives and answer the formulated research questions, the adapted survey described above is complemented by a qualitative analysis based on multiple case studies (Eisenhardt & Graebner, 2007; Galuk, Zen, Bittencourt, Mattos, & De Menezes, 2016; Miles, Huberman, & Saldana, 2014).

The Young Foundation

The Young Foundation came out of the Institute for Community Studies (ICS), which was set up by social researcher and innovator Michael Young in 1954. The ICS was an urban study think tank which combined research and social innovation. In 2005, it merged with the Mutual Aid Centre and was renamed the Young Foundation in honor of its founder. Its mission is related to finding new ways of tackling major social challenges by working alongside communities, using the tools of research and social innovation.

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Michael Young (1915–2002) was recognized as one of the world's most creative and influential social innovators and visionaries. He was the author of *Family and Kinship in East London*, a sociological study of the effects of the post-war housing policy (Young & Willmott, 1957). This book exemplifies, in the opinion of the Young Foundation, the work of this organization today, as they investigate people's attitudes, beliefs, and feelings with immersive research. Michael Young's emphasis on ethnography enabled them to identify and understand the social need in-depth, as it was being experienced. Even in his later life, Young continued to pioneer social innovation focused on family issues and, in particular, the experiences of older people and was instrumental in creating the University of the Third Age and Grandparents Plus. Since its creation in 2005, the Young Foundation created and supported over 80 organizations including Which?, The Open University, Economic and Social Research Council, Social Innovation Exchange (SIX), School for Social Entrepreneurs, Uprising, Action for Happiness and Agenda.

Basque Country Government

In the Basque Country, since 2007, there has been a conscious social innovation strategy by influencing prosperity-driven policies fuelled by the Basque Government and specially coordinated by the Basque Innovation Agency, the so-called “Innobasque.”

Nevertheless, despite the intense activity carried out by agents in this area, social innovation is not yet at the center of institutional policies or an organizational priority. Besides, many other agents are working in this field that gives the impression that they do so in a rather unconscious manner, thus resulting in a subsequent loss of impact of social capital on the organizational network and the territory as a whole. This does not take into account the waste of know-how and waste of the possible interactions that may exist between the agents themselves.

Along this line, the Basque Country social innovation developed the “Strategic Open Social Innovation In Action,” focused on identifying the determining factors that may act as an obstacle and the possible strategies that strengthen the sector as well as each of the agents.

Furthermore, Unceta, Castro-Spila, and García (2017) developed a model that links the absorptive capacity of knowledge based on their experience in the Basque Country.

The Government of Navarre

Social innovation is a collaborative concept (Ziegler, 2017). The Social Innovation Unit was born as a particular action of the Integral Plan for Social Economy 2017–2020 of the Government of Navarra, prepared by the General Directorate of Economic and Business and Labour Policy with the collaboration of CEPES Navarra.

According to the European Committee of Regions, “social innovation can be successfully promoted through the social economy, social economy initiatives contribute to increasing social, economic and territorial cohesion” (European Parliament, 2015). Therefore, the Open Social Innovation unit in Navarra was developed in close relation to the social economy.

The social innovation unit mission consists of helping address a profound transformation, in line with the change in the economic model that is occurring in the most advanced regions. As the Unit stated, the way to approach it is through listening, collaborative work, and practical action with the core development and innovation actors in Navarre: economic agents and society as a whole.

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As the Unit started its activity last June, Navarra's case study evidence less established. Nevertheless, its potential and the fact that it is the first unit-linked to the social economy justifies its inclusion in our research.

SOLUTIONS AND RECOMMENDATIONS

The following headings summarise the results obtained from the questionnaire described above. As mentioned, the three public European case studies described were surveyed as a preliminary test. The evaluation findings are analyzed and synthesized into five statements that provide answers to the research questions defined above. At the same time, results are compared with Chesbrough and Brunswicker's research (2013) for the private sector that included all large companies in Europe and the US with annual revenues higher than US\$250 million and more than 1,000 employees.

The five statements analyzed below correspond to the main sections of the survey. Along this line, the motivation to adopt Open Social Innovation, its implications on the organization, measurements, and indicators of the performance of Open Social Innovation projects and its impact are the main divisions. Each statement contains several questions that address the situation of the organization concerning that topic.

Adoption of Open Social Innovation, Strategic Motives and Innovation Focus

All respondents invest in open social innovation practices. Although most of them started in 2016 and 2017, an organization initiated these practices in 1967 and experienced an increase in the level of managing support for open social innovation.

In this line, and comparing the results with the responses obtained by Chesbrough and Brunswicker (2013) for the private sector, the median OI experience was about five years in private firms. Nevertheless, more than 30 percent of those large firms affirmed that they started OI practices before 2003.

While neither reducing costs per project as an objective for open social innovation activities nor new future partnership opportunities was relevant for most of the respondents (66% not relevant at all; 33% not relevant), establishing new partnerships for innovation, identifying new funding opportunities and new future partnership opportunities were highly relevant to adopting an OSI perspective. On the other hand, reducing R&D costs was also the least important reason for achieving OI activities in the private sector in 2013 (3.67 points out of 7).

Improving relationships with citizens was identified as a major reason of their open innovation practices ("exploring new ways to engage with citizens" and "responding to our citizen's demands of transparency and/or participation"), while private companies stated that establishing new partnerships for innovation and technology exploration were the most important objectives and drivers for engaging in open innovation activities. This behavior is linked to the need for public organizations to consider social change as the ultimate goal of their strategy.

Surprisingly, exploring new technological trends was not relevant to engaging in open social innovation, while it was the second main reason for the private sector (5.42 in a 1 to 7 scale).

Lastly, the so-called "social innovation example," characterized by connecting OI to the social economy, affirms that a new framework linked to OSI was developed, which implies a new perspective in non-technological innovation. Their strategic motives include fostering social innovation projects of other practitioners.

Adoption of Open Innovation Practices, Organizational Implementation, and Centralization

Beyond the adoption of open innovation practices, the picture is greatly heterogeneous regarding the partners and contributors to the projects or even the organizational implementation process. Whereas practitioner-based OSI activities on universities, citizens, and SMEs as a partner, another organization states that neither universities, SMEs, or citizens are used as external contributors. The differences between cases are symmetrically opposed. For these reasons, the authors conclude that the questionnaire should be revised to offer a useful diagnosis of the stakeholders in OSI.

Finally, public research organizations are considered as important partners in OSI activities in 2017. Local authorities and innovation labs are incorporated as important actors by one of the respondents.

Measuring Innovation Activities and Open Social Innovation Performance

According to Chesbrough and Brunswicker's results (2013), large firms engaging in open innovation dedicated resources towards it, which implied managing metrics and impact.

According to the answers obtained, the number of innovation partners is the most used metric to measure OSI performance, while two out of three organizations used the budget invested in OSI projects and the percentage of ideas funded as indicators of performance. However, the OSI technicians were not fully confident with these metrics, and they did not propose any other alternative to measure OSI performance. In the same line, the private managers concluded that they were not sure those measures were helping companies to improve their open innovation activities.

In the private firms, there were three measures that, on average, showed a slight positive tendency as indicators of measurement: the share of external innovation contributions for individual R&D products which seemed to be the most relevant and satisfying measure (Chesbrough & Brunswicker, 2013) with a score of 4.39 out of 7 point, the cost/benefit evaluation of innovation partners (score 4.38) and the number of innovation partners (score 4.10).

As a final point, the share of external innovation contributions for individual projects and the results of OSI launched within a certain period were also identified by one of the respondents as metrics to measure OSI.

Performance Impact and Expected Impact

The expenditures invested in OSI (including external services, communication, etc.) were very different between the organizations surveyed. They could be quoted from 45,000 euros to 1,000,000 euros, depending on the case analyzed. Nonetheless, most of the participants were highly satisfied with the outcomes of their organization's open innovation activities.

On the other hand, and several empirical studies on OI concluding that organizations become involved in OI practices to foster internal innovation (Enkel, Bell, & Hogenkamp, 2011), most of the respondents insisted that managing the organizational change internally was not the major challenge in engaging OSI when they started.

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FUTURE RESEARCH DIRECTIONS

Future efforts in the field should be focused on the collection of data through the proposed methodology to increase the knowledge on Open Social Innovation. Open Innovation in the private sector is a well-known practice. Nevertheless, the situation in the public sector can be defined as being in its early stages. For that reason, this field is an interesting area for further and fruitful research that should include the collection of data from those public organizations.

CONCLUSION

The results presented in this chapter shed light on how private and public organizations manage innovative processes.

On a theoretical level, and as a research implication, such results offer an important contribution to knowledge about OSI experiences. The contribution of this study helps to fill the gap addressed by Chesbrough et al. (2008) and Grimm et al. (2013).

Comparing the findings obtained in the public sector to Chesbrough's research (2013), the authors conclude that there is no similar organizational behavior in Open Innovation between public and private organizations. Practitioners from public organizations integrate OSI practices later than managers from private companies (RQ1). Cultural changes that drive social innovation in non-profit organizations, technological centers, and other public organizations were slowly incorporated as a result of its modes of governance (RQ1, RQ3). This situation affects the measurement of OI performance, which is more developed in the private sector, while it is in its earlier stages in the public one.

Even the reasons for engaging in OI activities were different. While improving citizens' relationships was the major reason in the public sector, establishing new partnerships for innovation and technology exploration were the most important drivers in private companies.

On the other hand, technologies (ICTs), such as social media or the Internet of Things, help Open Innovation practices in both the public and private sectors (RQ4). Citizens can participate through platforms in future public initiatives, which contribute to increasing the user's satisfaction and, consequently, the efficacy of these public projects.

Furthermore, while the research was conducted, it was found that several Open Social Innovation technicians left the surveyed public organization (RQ2). From that situation, it could be underlined that the professional career related to OSI expertise is in its initial stages, and, consequently, there is a lack of OSI professionals that may lead to a barrier in the development of OSI policies in the public sector.

Additionally, as a practical implication of the present chapter, efforts should focus on the improvement of this new profession, and in the enhancement of Open Innovation technicians in the public sector, as it is less developed than the private sector.

An outcome of this study consists of the adaptation of the survey developed by Chesbrough and Brunswicker (2013) from the private to the public sector.

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KEY TERMS AND DEFINITIONS

Innovative Process: The steps that an organization follows to ensure that new knowledge is implemented. It refers to the way new knowledge is applied to create new products, services, or internal changes in the organization.

Open Government: The governing action that believes that citizens have the right to access public information and is against the view that public data are state secrets. Under this view, open access to information implies the improvement of efficiency in the public sector.

Open Innovation: The use of external knowledge to accelerate the internal innovation process. Open Innovation expands the frontiers of innovation and may imply the introduction of the organization in new markets.

Open Social Innovation: The application of the framework of Open Innovation to the public sector to face social changes. It is a new perspective to perform innovation through the participation of citizens and other organizations.

Public Sector: This chapter broadly considers the public sector, including organizations financed by public funds (e.g., foundations, public companies, associations, etc.).

Social Innovation: New social practices that aim to meet social needs in a better way than existing solutions and create social relationships and new forms of collaboration.

Stakeholders: An organization or group of citizens that have a concern in the business (e.g., suppliers, customers, employees, etc.)

Chapter 16

Coworking Spaces and the Transcendence of Social Innovation Knowledge in the Smart Territory

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ABSTRACT

Smart territories favor social entrepreneurship, which develops in a collaborative effort requiring networking and skilled facilitation. Coworking spaces (CWS) advance as mediating organizations that bring together entrepreneurial communities in smart territories. This chapter develops a practical framework for knowledge dissemination in CWS. It bases this framework on the analysis of three spatial characteristics that allow for the assessment of the knowledge transcendence originating in CWS, namely, physical, social, and informational spaces. To test this framework, the authors analyze the Roma-Norte corridor in Mexico City, whose results indicate the presence of two models: one constituted of private organizations that place collaboration as a secondary value, subject to their office rental services, and an umbrella model that clusters other social innovation facilitators that transcend their territorial strip. This latter meta-space model expresses positive effects in terms of knowledge spillover, suggesting the concentrated bottom-up construction process of a smart territory.

INTRODUCTION

Entrepreneurship has transformed the urban space, and this space has welcomed entrepreneurship as a cornerstone component of the not-long-accepted concept of smart territory (Parada, 2017), redefining the

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scope of territorial governance to include entrepreneurial bottom-up applications in its most renowned challenges. In general, entrepreneurial ecosystems are part of the urban space, defining another intelligent element in the constitution of a functional smart territory.

In this respect, motivated social entrepreneurs make proposals intended to improve their territorial milieu, including typical post-modernist problems such as urban mobility, pollution, community building, and lack of public services, among others, gathering together in collaborative environments that aim to maximize knowledge spillover and experience transfer. These environments are usually known as coworking spaces (CWS), which have increased as a modern urban setting to develop social innovations; numerous urban concentrations worldwide have embraced this type of collaborative structure. However, how knowledge is disseminated in CWS and how it influences the social innovations that transcend is a work in progress (Crepeau, 2016; Prado, Pelegrini, & Chaves, 2017; Surman, 2013). Additionally, though recent academic research targets the phenomenon of entrepreneurial collaboration in CWS (Mitev, de Vaujany, Laniray, Bohas, & Fabbri, 2019) or aims to typify CWS in a given urban location (Fiorentino, 2019), most scholars have widely ignored the interplay that takes place between several CWS in the same territory. For instance, Capdevila (2015) presented a qualitative study on coworking spaces in Barcelona, which analyzes their intermediating functions among various social groups, but with no further investigation about the clusters' configuration.

In this chapter, we develop a practical framework for knowledge dissemination in the CWS that would help scholars and practitioners to visualize the role of these milieus in a smart territory. We base this framework on the analysis of three spatial characteristics that would allow for the assessment of the knowledge transcendence that originates in CWS. Additionally, we illustrate this framework applied to an ecosystem of self-proclaimed CWS to search for configurations that may or may not influence knowledge spillover, delineating an original approach to the subject matter. For this study, central Mexico City was chosen as a case study, specifically the Roma-Norte corridor. The selection of this land strip concerned evidence of the settlement of an important cluster of CWS (20). Results and policy suggestions are also provided.

BACKGROUND

Entrepreneurship and innovation are essentially dynamic spatial phenomena that change over time (Groys, 2005). The pursuit of profit or the realization of economic sustainability in a social venture can only take place in a specific location, whose characteristics are defined by a functional space comprising interactions, ideas, and social context (Giddens, 2011). Social innovation has to do with the advance of solutions that aim to remedy certain social needs (Saiz-Álvarez & Palma-Ruiz, 2019; Mulgan, 2006), and each territory expresses different social demands, involving the development of tailored social innovations (Bencardinoa & Greco, 2014).

François Perroux may have been the first scholar to relate Schumpeter's work on innovation with the spatial dimension (Rozga, 2007). From that moment, a variety of conceptual frameworks have been developed to explain territorial innovation, which became the dominant paradigm at certain periods: industrial district and growth pole in the late 60s; high technology areas, technology parks, innovation environments, informational cities, Technopolis (70s and 80s); industrial clusters, regional innovation systems, learning regions (90s); virtual communities, cities, and regions; smart communities, cities, and territories (from the beginning of the 21st century) (González & Rozga, 2005; Rozga, 2007). Though

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clusters are typically defined as economic enclaves that are distinguished by their enterprise agglomeration (Capdevila, 2013), in the context of CWS, a cluster becomes a space of intermediation between different social groups (Capdevila, 2013b).

More recently, part of the scholarly literature about territorial development refers to “smart cities” and their capacity to become “sensitive cities,” whose public policies associate economic competitiveness with social and environmental sustainability (Castelnovo, Misuraca, & Savoldelli, 2016). Other authors designate this type of city as “enabling spaces of entrepreneurship” (Richter, Kraus, & Syrjä, 2015), in that social innovation is empowered by the entrepreneurial ecosystem. In return, the practice of the social entrepreneur impacts the ecosystem, and eventually, the community. From this perspective, the smart city is a space that favors social entrepreneurship, building a new urban configuration that rationalizes innovation from citizen problems and needs (Castelnovo et al., 2016).

On the other hand, intra- and extraterritorial entrepreneurial activities and their corresponding spatial interrelations create an alternative territorial logic based on the clustering of its key participants (Harvey, 2001), leading to the development of a new structure composed of multiple small specializations: the mini-cluster, which reduces the cost of information search and transfer, facilitating entrepreneurial outcomes (Grabher, 1993). One of the fastest-growing mini-clusters in today’s new smart space is coworking spaces (CWS). In general, social networking and collaboration, as well as aesthetic design, distinguish CWS from other office services (Waters-Lynch & Potts, 2017); that is, CWS are differentiated from other Small-office-Home-office (SoHo) concepts in that they are aimed at building a more flexible and interactive working community (Bouncken & Reuschl, 2016). Consequently, to facilitate social relations in a CWS, spatial imagination and usage are more important than planning (Assenza, 2015).

In general, the CWS offering involves both tangible and intangible assets, including services such as rental of infrastructure and access to a social cluster (Bouncken & Reuschl, 2016), which usually target the solo entrepreneur (Assenza, 2015), aimed at making this individual part of an effective collaborative environment. Typical CWS users include self-employed individuals, microenterprises, freelancers, entrepreneurs, or contractors, who participate in CWS to take advantage of its infrastructure, acquire knowledge, or seek recognition (Bouncken & Reuschl, 2016). These CWS value development processes that create conventions around how users seek to build capabilities and fulfill their entrepreneurial goals (Thompson, Purdy, & Ventresca, 2018), which can target both business and not-for-profit projects (Bouncken & Reuschl, 2016).

The origins of CWS go back to the year 2001 when like-minded people held informal meetings around specific productive activities, a model that evolved into a movement to encourage collaboration in shared facilities (Assenza, 2015). Since collaborative spaces become channels that facilitate the flow of unstructured information, they are a key element in understanding the innovation processes that occur in urban networks (Capdevila, 2013). Thus, collaboration is at the core of CWS, which unveils several spatial scenarios that represent laboratories for the exploration and exploitation of the entrepreneurial opportunity.

THE ROLE OF THE COWORKING SPACE IN THE SMART TERRITORY

CWS comprises a multipurpose spatial design that simplifies the complexity of entrepreneurial knowledge, absorbing and codifying useful expertise scattered around a collaborative environment (Eaton, 2015). In other words, CWS convert tacit knowledge value into explicit cognitive maps. CWS develop

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as hinges of knowledge between citizens and their territorial structures of governance, considering that geographical proximity and the persistence of unsolved problems favor the creation of a sort of “noosphere” that strengthens social capital in the smart territory, confronting people’s heuristics to the territory’s institutional design (Giddens, 2011). In one regard, CWS provides a public good through a private service (Waters-Lynch & Potts, 2017) in that they develop a community (Bouncken & Reuschl, 2016) that builds together a culture of shared values (Bouncken, Aslam, & Reuschl, 2018).

These knowledge platforms help entrepreneurs to cultivate ideas and strategies to address social, environmental, cultural, and economic challenges in their territories (Surman, 2013). Based on the CWS-facilitated social capital, entrepreneurs are encouraged to initiate innovative proposals for their different localities, leveraging social innovation that builds on urban knowledge to create problem-solving capacity (Gandini, 2015). How this innovation capacity facilitated by CWS transcends in the form of effective social innovation knowledge is a question that requires further investigation. However, in spite of the fact that there have been around 7,800 CWS worldwide, according to 2015 estimates (Waters-Lynch & Potts, 2017), the study of CWS has been barely analyzed by academic scholars (Bouncken & Reuschl, 2016), and there is little empirical information on the operation of CWS (Assenza, 2015), rendering it difficult for researchers and practitioners to indicate whether the collaborative knowledge that originates in CWS leads to spillover effects for social innovation.

That is why CWS advance as promoters of social innovation, in that they emerge as mediators in the identification of and response to local problems, representing the platforms of social capital that are necessary for the intermingling of collective visions. Hence, from a social innovation approach, the role of CWS is to act as intermediary organizations that connect markets, communities, and governments (Avelino et al., 2019) in the smart territory. Thus, territorial development occurs through social innovation, which takes an approach that diverges from the traditional top-down regional development perspective, in that development or change originates in the social relations of an entrepreneurial community (MacCallum, 2009). As envisioned, the peer-to-peer proximity offered by CWS is expected to favor learning, teamwork, and collaboration, which would eventually lead to creative thinking and the realization of individual projects (Assenza, 2015; Bouncken & Reuschl, 2016), decreasing entrepreneurial uncertainty by sharing multiple knowledge (Waters-Lynch & Potts, 2017).

In this line of thought, it would be relevant to identify the enabling character of CWS as knowledge spillover generators, whose intermediating function (role) produces a public good that services individuals willing to discover novel solutions to territorial challenges. Identifying these enabling factors would permit better considerations in designing an effective CWS model.

Enablers of Knowledge Spillover in CWS

Taboada and García (2010) indicated that enterprises involve knowledge retention and knowledge spillover processes (called risks). The urban fringes of the city informally absorb the knowledge, previously retained by companies, which is disseminated and socialized in the figure of third places (connectors), such as clubs, bars, and coffee chains (Florida, 2002). According to Florida (2002), these places encourage the dispersion of knowledge, causing informal knowledge transfer, the socialization of images and symbols, and the use of physical and spatial objects that may lead to various patterns of action. The diffusion of knowledge will produce unexpected and peripheral cognitive organizations that would eventually facilitate information channels in the urban environment. To achieve the full transformation of collective knowledge into knowledge retained by organizations, it is necessary to count on another

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connecting interface with the capacity to absorb scattered knowledge, formalize it and connect it with business players. This connecting interface is the coworking space.

Social interaction is the expected outcome of CWS, which ought to derive in learning and positive effects on innovation and new venture performance (Bouncken & Reuschl, 2016). However, users in CWS usually confront the challenge of identifying complementary knowledge to solve problems (Waters-Lynch & Potts, 2017), and they may require some level of guidance to profit effectively from this mutual interaction (Assenza, 2015). As seen before, this guidance is part of the CWS service portfolio, which facilitates trust creation and information exchange between participants as part of a social learning process leading to business matchmaking (Waters-Lynch & Potts, 2017).

Therefore, unpredictable encounters (serendipity) are a key component of the CWS dynamic (Waters-Lynch & Potts, 2017), and the value that users perceive in CWS would depend on the quality of these casual interactions or affordances that can be achieved as a result of being part of the CWS (Assenza, 2015). In this sense, the participants' behavior involves strong agency characteristics that may or may not contribute to the new networking environment, in that learning how to conduct effective networking requires a commitment to engage (Assenza, 2015). CWS can be ineffective when individuals end up in isolation as a result of their poor socialization skills (Bouncken et al., 2018). Additionally, some CWS participants may develop temporary links to peers, blocking any possibility of building a community of shared values (Bouncken & Reuschl, 2016).

To be relevant, CWS should pay attention to factors that empower or disempower individuals (Avelino et al., 2019). Depending on the user's personality, the layout of the space can encourage collaboration or discourage it (Assenza, 2015). It remains uncertain which configurations result in effective knowledge spillover that originates in collaboration. However, successful collaboration and knowledge spillover require useful casual interactions, which stem from like-minded peer proximity, either virtual or physical (Assenza, 2015). These social interactions are responsible for the creation of effective entrepreneurial ecosystems (Thompson et al., 2018), and consequently, smart territories.

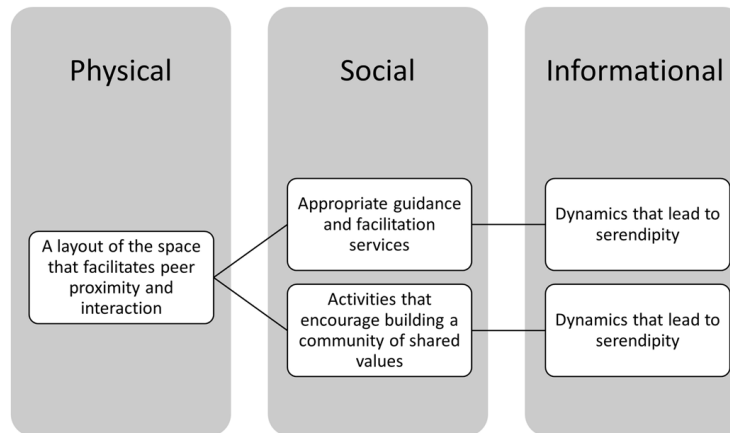
To some, effective collaboration in CWS depends on social similarity among participants (Assenza, 2015), though other scholars expect CWS to create trust and collaboration among persons with diverse profiles (Bouncken & Reuschl, 2016). In any case, trust creation and the subsequent upsurge of collaborative ties take time (Bouncken & Reuschl, 2016), and time is one of the entrepreneur's valuable resources. According to Bouncken and Reuschl (2016), the pursuit of collaboration in a CWS may become a distractor that delays entrepreneurs in the development of their business ventures. In other words, there is a tradeoff between collaboration with the existing network and new contact exploration, between investment in contact enhancement and value appropriation (Bouncken et al., 2018). Contrary to this perspective, Letaifa and Goglio Primard (2016) point out that collaborative entrepreneurship presents more significant evidence of success than individual entrepreneurship. The authors maintain that contexts that present the best conditions for the establishment of collaborative networks produce effective incentives to associate with interest or reference groups.

Based on the contributions of the previously mentioned authors, we identify key enablers in CWS that may lead to effective collaboration and, consequently, knowledge spillover within the CWS ecosystem. These enablers involve building a physical space that encourages social and informational processes within the CWS, namely, a layout of the space that facilitates peer proximity and interaction to achieve effectual affordances and knowledge discovery (serendipity). Additionally, the CWS should ensure, as part of its service portfolio, the appropriate guidance and facilitation to encourage a community of shared

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Figure 1. Knowledge spillover enablers of the CWS

Source: Own elaboration



values, leading to the anticipated informational outcome of opportunity discovery. These enablers are shown in Figure 1 below and are classified according to their character in assembling the CWS.

Identifying whether CWS comply with these characteristics to enable effective collaboration and subsequent knowledge spillover becomes instrumental. As expected, social entrepreneurs at CWS would operate locally though connected globally (Avelino et al., 2019), and international exposure provides incentives for entrepreneurs to engender new ideas that have the potential to flourish as long as the CWS informational processes effectively facilitate them. The extent to which CWS and guest projects produce this social innovation knowledge would determine whether these micro-spaces contribute to the development of the smart territory or are merely service islands in the local business landscape.

Network Effects That Favor Knowledge Spillover

At present, space acquires a new role within the context of global digital networks, including agile forms of interaction and governance (Perulli, 2000), which allow entrepreneurs to aspire to a quasi-planetary or multiregional scope. This level of reach is granted at high speed by the capabilities of digital technologies, building a complex system with network effects that influence CWS.

The formation of clusters is common in all networks whose individual members or nodes are not necessarily in the same “spatial neighborhood,” constituting a space of flows (Castells, 1991). In this way, CWS act as nodes located in a specific territory but integrated into remote collaborative networks. These nodes can achieve significant effects on their geographical territory when they reach higher relative importance within the network: “hubs” or central nodes (nodes with many more links than others can). Thus, in a network of this type, the number of nodes with respect to the number of links of each does not follow (according to empirical experience) a bell curve (where there is a certain homogeneity), but a power law, where the vast majority of nodes have few links and a few, a huge amount of them (Barabási, 2002). A network has “hubs” when two basic conditions are met: the network is growing, and there are preferences toward the nodes with the largest number of links and that are the most robust (“fitness”) (Barabási, 2002). Usually, the first nodes created have competitive advantages in the network (Velasco, 2003).

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There is, thus, a great variety of interconnection possibilities between nodes in the various CWS that locate in a smart territory, some more powerful or with better “fitness” than others, according to their capacity to form part of a global network of social innovation collaboration and value creation. Some nodes carry out activities that are structurally relevant to collaboration (influencers), others control and originate information flows (entrepreneurial ideas and projects), others are simply receivers of information with minimal control (peripheral or isolated CWS), and still others control access to the network (headquarters of global CWS) (Barney, 2004). Consequently, equality is a utopia in the face of the network effects of the CWS collaboration. While individuals can benefit from the information available on the network, this does not mean that more information leads to greater equity in terms of access and collaboration within the variety of CWS available in the territory.

Thus, CWS has enabled the creation of new levels of interaction among entrepreneurs within this network space, leading to different network architectural configurations that determine the transcendence of social innovation knowledge. These configurations allow for different forms of interaction that group collaboration characteristics among entrepreneurs who pursue specific objectives in their digital interrelations on the local and global scale.

Although the efficiency of the network requires the existence of central nodes, when groups with high local content and short links among them are achieved (small world pattern), productivity is enhanced more than any other hierarchical network (Van Alstyne & Bulkley, 2004). This means that it is possible to achieve greater efficiency within CWS when an interactive working community is built locally. The network architecture articulates nodes in a globalizing dynamic but forgets the segments of society that offer little interest from the perspective of value creation (Hilbert, 2001). That is why the study of network effects in CWS plays a fundamental role in the understanding of knowledge spillover at the territorial level: by explaining its structure, dominance, and relevant players.

In summary, collaboration networks through CWS develop as a complex system that adopts network effects with greater force. How CWS operates and interacts within the territory would determine success in terms of effective knowledge spillover, connecting individuals inside and outside of their spatial milieu.

Characterizing the Transcendence of Social Innovation Knowledge in CWS: A Framework Proposal

The smart territory informally absorbs the information spillover, previously enclosed in unconnected individualities. Interfaces built by CWS develop spaces that disseminate and socialize knowledge. Knowledge socialization produces unexpected and peripheral cognitive endeavors that may generate knowledge patterns or territorial trends, many of these fleeting and limited.

In other words, information spillover gives rise to tacit knowledge that had been scattered in the territorial space and without being used. For this reason, CWS becomes an interfacing solution that confers structure on this knowledge dispersion, transforming collective knowledge into retained knowledge for social innovation, which is absorbed, grouped, and formalized by the entrepreneur. During the entrepreneurial collaboration process, knowledge at the CWS and its surrounding territory is boundless, in that it remains safeguarded in the minds of its members. Hence, CWS are open spaces of social innovation possibilities whose members develop their vision collectively.

On the other hand, social entrepreneurship needs to confront an institutional context that favors profit maximization, short-term thinking, and business growth (Thompson et al., 2018), and CWS are physical spaces that generate the conversion of collective know-how into private knowledge value (Groys,

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2005). Some CWS have clear regional economic development goals (Assenza, 2015), and others have been created with strong social or environment-oriented purposes (Avelino et al., 2019). It is this latter model that comprises the type of CWS that inspires social innovation knowledge spillover.

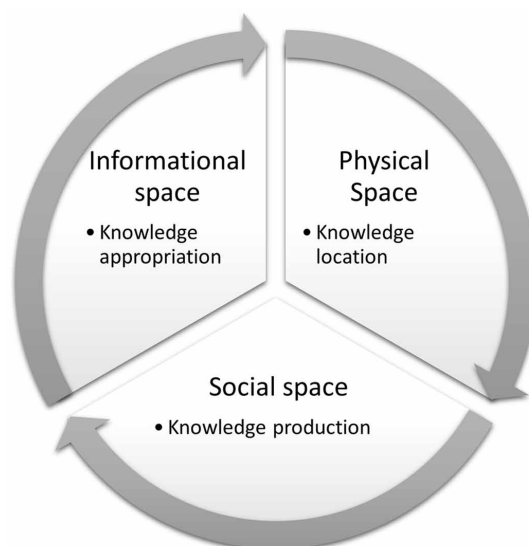
CWS encourages coordination between independent individuals, delivering an intermediating function between users (Capdevila, 2015) who, in the case of social innovation, seek to discover novel solutions to local or global problems, creating a social economy (social space) between them (Waters-Lynch & Potts, 2017). However, the transactional nature of this collaboration falls short if it cannot transcend to generate knowledge-based discoveries (informational space). The collection of dispersed knowledge from certain cognitive groups located in the smart territory is a process that originates in relationships where knowledge flows. CWS has the purpose of admitting this knowledge dispersion in order to explore new combinations and, finally, to grow codified knowledge in the form of cognitive maps (knowledge appropriation in the informational space).

Several frameworks have been proposed to examine change and social innovation dynamics in the smart territory that depart from a dimensional analysis of the territory's systemic functional aspects and their interrelationships. Avelino et al. (2019) conceive four shades of change and innovation, namely, social innovation, innovation system, game-changers, and narrative of change, which are systemic aspects that frame change and innovation from a social approach. Similarly, Assenza (2015) presents a proposal for the study of CWS that includes the organizational level (physical structure leading to production), the interactional level (where knowledge is disseminated), and the individual level (where innovation takes place). However, these proposals were not designed to express the process of knowledge spillover within CWS, but to distinguish functional characteristics.

As noted previously, knowledge spillover enablers can be classified according to their physical, social, and informational character. These characters can be taken to the spatial domain to develop an analytical framework for assessing knowledge spillover, which would provide a characterization of these coworking places and observe their territorial relationships. This framework is depicted in Figure 2.

Figure 2. Spatial dimensions of the CWS

Source: Own elaboration



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In Figure 2, we base this framework on the analysis of the three spatial characteristics, i.e., physical, social, and informational, which represent processes of knowledge location, knowledge production, and knowledge appropriation, respectively. These three spaces of knowledge allow for the assessment of the transcendence of the social innovation knowledge that would have originated in CWS.

For our territorial analysis, we provide an alternative operational framework to accompany other models such as those proposed by Avelino et al. (2019) and Assenza (2015), which can be complemented by the viewpoint of physical space, social space, and informational space. We, therefore, think that constraining our research to these spatial features can help develop a better understanding of the predominant model of CWS in this land area.

METHODOLOGY

From a methodological approach, this chapter collects, organizes, and examines information that originates from a group of CWS to explore their character according to the analytical framework for knowledge spillover presented previously.

Territorial Description

The territorial target is the Roma-Norte corridor in Mexico City, which is the city area that has produced majority of knowledge clusters in that urban space: twenty Coworking spaces (CWS) are registered in that area of the thirty-two that exist in this metropolis, making this district a favorable space for the generation of social capital. This urban area is characterized by the presence of creative global and national companies and by the high density of diverse entrepreneurial activities that take place in its territory.

This business-cultural environment, clearly on the periphery, represents a territory of high spatial diversity and lifestyles. This is a corridor with a great diversity of groups, values, and ideas, assumed to be the type of innovative environment that permits the exchange of information and intermingling among different interests. The twenty collaborative spaces in the corridor share users with a wide range of third-party spaces, that is, environments that serve as connectors of the dispersed information flow on the periphery: restaurants, clubs, bookstores, theaters, public parks, coffee chains, among others.

Since CWS are functional in integrating dispersed information through these third-party spaces into packages of knowledge for entrepreneurship, the Roma-Norte corridor is known for its entrepreneurial lifestyle and global character, flexibility, and openness to outsiders, rendering this area decisive for the exchange of information and knowledge in Mexico City. As expected, coworking spaces in this corridor function as devices that simplify the complexity of this entrepreneurial environment.

Data Collection

After collecting Web and geographical data of the thirty-two CWS in the city (secondary sources), we analyzed and selected those CWS with readily available Webpage information and grouped within the Roma-Norte corridor. Twelve of these CWS were visited for site observation, and this investigation was complemented by phone calls and further web information searches, which were instrumental for exploring these coworking centers and recording their impacts on the territory. From a practical perspective, our investigation has undergone the following considerations:

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Table 1. Information supply tactics

Action	Information Supplies
Secondary sources	Websites
Phone calls	Registered numbers on the internet
On-site visits	Participating observation in coworking spaces

Source: Own elaboration

1. **Data Sharing:** Most coworking spaces appeared reluctant to share data on and features of their communities
2. **Income Model:** We discounted CWS, whose model aimed mainly at the rental of office space. Hence, we directed our attention to five coworking spaces in this territory to carry out a focused, deeper exploration of these organizations and their relationship to territorial change and innovation dynamics
3. **Investigated CWS:** Selected CWS in the Roma-Norte corridor included COW Roma, UZone, 3er Espacio, Distrito Central Coworking, and Impact HUB

Method

We used the qualitative ethnographic research method. Qualitative research seeks to understand the action of the meanings inscribed in the discourses formed by diverse social groups, interpreting the contexts of social reality. Its scope is limited to the understanding that can be obtained from observation and communications. The symbolic world of individuals is understood through their contextual dialogues, which are decisive for the design of categories that allow for the generation of interpretative frameworks and the construction of social reality. The scope of the information search in this investigation included: secondary sources, telephone calls, and on-site visits, whose information supply tactics are shown in Table 1 below.

In this investigation, we essentially sought to specify the following aspects in each CWS:

- Purpose of the coworking space.
- Level of access to member affiliates.
- Impact that each of the coworking spaces had on their surroundings.

Challenges

Secondary analysis of qualitative data is a valid mode of research; however, limitations are always present. From a practical perspective, our research went through the following considerations:

- Some secondary sources did not provide enough information about coworking spaces.
- Regarding telephone calls, some coworking spaces did not provide quality information, or their attitude seemed reluctant to share data, including several characteristics of their communities.
- For some onsite visits to co-working spaces, access was restricted and could not obtain quality information.

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Based on the analytical framework presented in Figure 2, we characterized the five CWS, whose features are summarized in Table 2 and Table 3.

RESULTS

As shown in Table 2, the physical space of four of the five coworking spaces is oriented toward offering office rental services, placing collaborative spaces as one more service, and not as the main value. These CWS are COW Roma, UZone, 3er Espacio, and Distrito Central Coworking. For this reason, we analyzed these four CWS separately. Despite being self-advertised as CWS, these spaces do not consider in their scope networking creation to facilitate information flows as a key component of their services

Table 2. Selected CWS-like organizations in the Roma-Norte corridor

CWS	MISSION	PHYSICAL SPACE Location of Knowledge	SOCIAL SPACE Production of Knowledge	INFORMATIONAL SPACE Appropriation of Knowledge
COW ROMA	To be agents of change and witnesses to the growth of companies and startups by helping them obtain their own space.	Office rental: Furniture, collaboration spaces (limited), virtual offices, and boardrooms.	Tech companies. Networking is not encouraged by the CWS. There is no collaboration. Few events or competitions, not open, restricted access community.	No workshops, only those from individuals. No certifications (good practices). Does not become involved in local issues.
UZONE	To support entrepreneurs and independent professionals who seek to increase their income, through flexible space offering plans.	Office rental: Furniture, collaboration spaces (limited), virtual offices, and boardrooms.	Companies: Advertising, production company. Networking is not encouraged by the CWS. No events.	Education (individuals). No certifications (good practices). Does not become involved in local issues.
3er ESPACIO	To be an office alternative for independent professionals and entrepreneurs, offering multiple services and flexible schedules, with the possibility of developing creativity and expanding networks of contacts.	Office rental: Furniture, collaboration spaces (limited), virtual offices, and boardrooms.	Companies: software developers, public relations, architects. Networking is not encouraged by the CWS. Few events or competitions, not open, restricted access community.	There is education (topics to support entrepreneurs). No certifications (good practices). Does not become involved in local issues.
DISTRITO CENTRAL COWORKING	To be a shared environment in which entrepreneurs, startups, and freelancers are part of a community that connects them, creating business opportunities.	Office rental: Furniture, collaboration spaces (limited), virtual offices, and boardrooms.	Companies: advertising agencies, real estate, tech, architects, psychologists and, therapy. Few events or competitions, not open, restricted access community. Networking is not encouraged by the CWS.	No workshops, only those organized directly by tenants. No certifications (good practices). Does not become involved in local issues.

Source: Own elaboration

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portfolio (demonstrated by their lack of transparency), and only deal with restricted access groups that maintain few relationships among members.

Regarding the social space, we find that the four centers are hosts to for-profit organizations, which are offered office rental services. Networking arises mainly from the motivation of community members and not from the management's initiative, resulting in events, workshops, and competitions that originate essentially from the proactivity of the CWS guest participants. In this respect, education to support entrepreneurs in these centers is scarce and restricted to the community members' interests, resulting in limited or no-creation of startups within these spaces.

Concerning the knowledge space, the lack of open networking and participation beyond their own space instills barriers that impede the flow of knowledge with peers from other territories.

In summary, the services offered by these CWS target the rental of space (and offices), mainly for small companies, not entrepreneurs, resulting in a limited drive for the development of entrepreneurial groups. There is also a restricted offer of networking events, education for entrepreneurs, and invitations to competitions, whose organization is left to the members and their interests, considering that the role of management is confined to site administration. Consequently, few startups emerge from this type of coworking spaces. It is important to highlight that the few startups that have emerged from these spaces do not manifest themselves in the community as "game-changers," that is to say, their presence does not reveal an evident territorial impact. Additionally, interrelation among these centers and other players in the ecosystem is limited, resulting in diffuse, precarious, and dispersed inter-territoriality.

On the other hand, we were able to identify one coworking space that, despite possessing all of the characteristics mentioned previously, hosts organizations and startups that have strong social focus: Impact Hub. Created in 2014, Impact Hub's model combines CWS services with incubation services, building a community of social entrepreneurs who can access a worldwide network (Avelino et al., 2019). Impact Hub characteristics appear in Table 3.

Impact Hub leases its spaces to organizations with a social mission, including Ashoka, ANDES, and SistemaB, whose strategies are generally global in scope and not necessarily local. Despite the presence of these organizations, it should be noted that this coworking space does not have the creation of startups as a fundamental objective since all of its efforts are aimed at promoting the community settled in its space. In line with said community, it promotes proposals, competitions, and events that enhance the networking of its members. According to their "interests," the social-mission organizations in this space that promote social change and the empowerment of players, usually transcend their territorial strip.

Table 3. Impact Hub characteristics in the Roma-Norte corridor

CWS	MISSION	PHYSICAL SPACE Location of Knowledge	SOCIAL SPACE Production of Knowledge	INFORMATIONAL SPACE Appropriation of Knowledge
IMPACT HUB	To be a global platform that supports entrepreneurs and innovators who seek to influence the world positively by offering services and the appropriate infrastructure for these to strengthen and scale their projects and level of impact.	Office rental: Furniture, collaboration spaces (limited), virtual offices, and boardrooms.	Social companies Networking is driven by management and by community members. Events and competitions are held.	Workshops to support entrepreneurs- Certifications (good practices driven by SistemaB). Does not become involved in local issues.

Source: Own elaboration

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DISCUSSION

The analytical framework proposed in this chapter has proved to be a useful tool for characterizing the Roma-Norte corridor in terms of CWS knowledge spillover configuration. The key features of this characterization are listed and discussed below.

- **Feature 1:** The Roma-Norte is not a distributed structure, in that social innovation appears to take place around a single entity: Impact Hub.

Impact Hub not only hosts social entrepreneurs but also is the physical and social space that concentrates relevant organizational players in the social entrepreneurship ecosystem. Thus, Impact Hub becomes a sort of umbrella space in which other spaces, such as Ashoka, ANDES, and SistemaB, cluster. Hence, we can deduce that the Roma-Norte corridor of CWS is mainly a star structure around Impact Hub, surrounded by CWS-like islands with limited collaboration and, subsequently, few knowledge spillover effects. The clustering of social mission organizations in Impact Hub is a recent phenomenon in that they formerly had separate physical but socially interrelated locations, constituting a social innovation ecosystem. Today, this ecosystem opts not only to have social but also physical proximity, potentially increasing knowledge spillover within their territorial influence. This process is an example of the bottom-up construction of a smart territory, in which key social innovation players decide to increase synergies by proximity.

- **Feature 2:** The existence of a set of isolated coworking spaces in the same territory implies the absence of an integrated regional innovation cluster.

These islands focus mainly on the commercial and little on the development of startups in the majority of their coworking spaces. This isolated configuration of CWS is a counterexample to the ecosystem built around Impact Hub in the form of a social innovation superstructure.

- **Feature 3:** Change narratives possess a strong presence in all coworking spaces, unlike the innovation and social innovation systems or “game changers” that, although appearing in all of the examples studied, their actions do not suppose a radical transformation of the dominant institutions of their social context.

From feature 3, we can point out that the studied territorial strip does not demonstrate strong interaction among all dimensions (social innovation, innovation system, game changers, and change narratives), in that some of these aspects are more developed than others, according to the four “shades” of Avelino et al. (2019).

- **Feature 4:** The number of global organizations involved in the clustering process around Impact Hub implies the creation of a meta-space of social innovation, which is expected to transcend their spatial boundaries and scale to become proposals that solve problems in other territories as well.

From a knowledge spillover approach, Impact Hub constitutes a meta-space for social innovation knowledge, which transcends the territory in that it has created links on a global scale. Since there are

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many challenges faced by CWS to influence problem-solving in their local environment, the existence of a physical umbrella space that facilitated a stronger social space may result in positive actions to face these challenges, creating an informational space beyond the territorial boundaries of the Roma-Norte corridor.

As a final remark, CWS is a buzzword that has been mimicked by more traditional office spaces to gain market share, as has been demonstrated by the island CWS-like organizations, whose services portfolio would correspond only partially to what is expected from CWS. However, the existence of a star superstructure may motivate these CWS to evolve their business models and become closer to more collaborative CWS models, expanding the social ecosystem, considering that the presence of more expert peers that share knowledge may encourage entrepreneurial behavior among these CWS participants (Assenza, 2015).

POLICY RECOMMENDATIONS

From a policy perspective, the umbrella configuration that has been born in the Roma-Norte area can be incorporated into other local initiatives to build a smart city, creating stronger linkages that drive the generation of more sensible solutions to territorial problems.

Several unsolved problems are characterized by their complexity, uncertainty, and appraising dimensions, and scholars recognize that innovative solutions to these grand challenges require collective action, whose systemic linkages are yet to be understood (Ferraro, Etzion, & Gehman, 2015). Solving these challenges calls for an approach that understands innovation from a conceptual framework that appreciates social issues (broad meaning), in opposition to the Schumpeterian technology-push perspective of innovation. This approach has been known as the demand-pull model of innovation, which confers social meaning on the economic demand, including human and social needs, and articulated in programs driven by various mission-oriented organizations (Godin & Lane, 2013).

Unsolved challenges produce a type of demand-pull phenomenon, consisting of motivated people that decide to take action in an attempt to discover alternate solutions. Instances of this trend can be found in a variety of sectors, including education, security, health services, and finance, where organized entrepreneurial mindsets have launched bottom-up endeavors to tap into the opportunity to act as a substitute for traditional top-down activities. Great problems serve as a systemic demand-pull engine to generate entrepreneurial action and change, which can be encouraged or disincentivized by public support processes. Governments can partner with these entrepreneurs and be active in CWS to facilitate connections and networking. In this sense, CWS becomes the space to make alternative proposals to solve social problems, whose probability of success can be increased if relevant links exist between local authorities and CWS.

Nonetheless, it would be important to design the correct policies that provide the desired incentives, as it has been proven that CWS, supported by either government or private donors, may be tempted to prioritize short-term results according to their donors' requirements over user needs, confronting idealism with organizational realities as conventional norms prevail (Butcher, 2016). Additionally, since social entrepreneurs intend to target social or environmental problems that the public policy has been unable to solve, challenging dominant institutions (Avelino et al., 2019), public policy designers may see the social entrepreneurship that originate in CWS as a replacement for a public funding budget (Avelino et al., 2019), instead of a complement to solving local problems. CWS aid social innovators to determine entrepreneurial opportunities when participants receive this knowledge (spillover) or discover the op-

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portunity to exploit it (Assenza, 2015). This is the challenge of this new umbrella structure that has been born in the Roma-Norte corridor in Mexico City, whose success needs to be tested to date.

On the other hand, as participants in a complex socio-economic system, organizations need to confront contradictory institutional signals, which would trigger distributed social involvement when top-down institutional and market-based mechanisms seem ineffective to members in a given society. A distributed and learning-focused entrepreneurial approach (robust action) has been proposed as an alternative to solving grand challenges (Ferraro et al., 2015).

Recent entrepreneurship methodologies such as Lean Startup or the Customer Development Model advocate for this robust action approach, which seeks to accomplish short-term goals that are constantly updated as part of a validated learning process (Ries, 2011), preserving long-term flexibility. Through distributed experimentation, intended solutions to challenges can be tested, posing new questions on their effectiveness at a large scale (growth engine).

CONCLUSION

In this chapter, we propose an analytical framework to assess the knowledge spillover that originates in coworking spaces as a key element for the development of a smart territory. This framework evolved from understanding the key enablers of social innovation within the coworking space. We used this framework to review the structure and transcendence of the Roma-Norte corridor in Mexico City from the perspective of its CWS-originated knowledge dissemination potential, whose configuration proved to be a tendency toward a clustering model. We also identified CWS-like models limited in their services scope and territorial impact.

The framework proposed in this chapter has implications for scholars, practitioners, and policymakers, including:

- A better understanding of how social ventures that emerge from these collaborative spaces affect the advance of smart territories.
- The identification of patterns in knowledge overflow beyond the territory's spatial limits, leading to more research questions and strategic role considerations surrounding the design of CWS in the smart territory.
- The recognition of demand-based spatial elements (physical, social, and informational) with the potential to trigger distributed social innovations and organizations around great challenges.

We suggest that if the smart territory includes in its design a spatial configuration that considers these three knowledge-transcendence enabling mechanisms, people would be more encouraged to self-organize (network effects) and create distributed organizations as an alternative proposal to addressing significant challenges. The limitations of this chapter invite scholars to address a variety of research questions, including comparative studies between the Roma-Norte corridor and other urban territories in the world. Additionally, this chapter poses questions about the cluster configurations that result in more effective to encourage collaboration, including incentives and social innovation focus. Finally, this chapter comprises an original contribution to the CWS research discussion by including a perspective that suggests triggering elements of knowledge spillover into the smart territory to build a distributed social organization.

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KEY TERMS AND DEFINITIONS

Cluster: Agglomerate of several business organizations that share common objectives.

Coworking Space: A collaborative facility where the concepts of open and private areas are diluted, adopting an informal style to encourage the flow of information and ideas.

Entrepreneurial Ecosystem: A system of beliefs, values, ways of being, and doing that develops a particular social and economic environment with effects on local or regional entrepreneurship.

Knowledge Spillover: The process of tacit information dispersion in the territory, which is usually collected by business organizations in the form of systematized knowledge.

Mini-Cluster: Small spaces of social agglomeration in a fraction of a given territory, leading to information transfer processes and the construction of social capital.

Smart Territory: Geographical contexts that revolve around citizens, aimed at achieving efficiency and sustainable development in a given territory.

Social Innovation: Social practices that create alternative solutions to relevant societal problems, nurturing general well-being in a given community.

Chapter 17

Are There Really Differences Between Social and Commercial Entrepreneurship in Developing Countries? An Institutional Approach

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ABSTRACT

The objective of this chapter is to determine the probability of starting social or commercial entrepreneurship in developing countries using the institutional approach as the theoretical framework. The study tests the hypotheses through a binomial logistic regression based on a sample of 10,598 entrepreneurs obtained from the Global Entrepreneurship Monitor (GEM). The main findings demonstrate that a higher level of education (formal institution) and a positive perception of personal values (informal institution) increase the probability of being a social entrepreneur. Also, the study shows that the interaction between informal institutions causes changes in the likelihood of being a social or commercial entrepreneur. This research advances the discipline by providing new information on the institutional environmental factors that influence social entrepreneurial activity.

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INTRODUCTION

The concept of entrepreneurship has been increasingly applied to the context of social problems and development challenges. The past decade has seen limited action taken by the public sector to confront social problems, which are increasing and becoming complex challenges in the economic and social development of countries. For this reason, new private initiatives have emerged intending to develop proficient organizations that can deal with social issues. Recently, socially motivated forms of entrepreneurship have gained attention because of their promise to alleviate social problems and provide products or services that are attended to neither by the government nor the market. Social entrepreneurship is increasingly recognized as an element in economic and social contributions (Stevens, Moray, & Bruneel, 2015).

However, social entrepreneurship and its performance within the economic system remains fuzzy, including how social entrepreneurship might interact with commercial entrepreneurship. What makes social entrepreneurship different from commercial entrepreneurship is that the former focuses on social benefit, and this becomes the most important factor (Dees, 1998b; El Ebrashi, 2013; Mair & Noboa, 2006; Martin & Osberg, 2007; Nicholls, 2006).

As a result of the rise of social and environmental problems in developing countries, researchers and politicians have seen social entrepreneurs as agents for changing this situation by offering innovative entrepreneurial solutions (Bornstein, 2004; Maclean, Harvey, & Gordon, 2013). Considering the differences between social and commercial entrepreneurship in terms of their goals and how value is created, some environments and abilities may need to be different in order to succeed. However, there is a limited understanding of the role played by the institutional context in influencing the entrepreneurial process, for instance, the study of how institutional factors affect (promote or inhibit) the emergence of entrepreneurial activities. Questions arise about how institutions relate to entrepreneurial activity and which institutional factors are most important in explaining the different types of entrepreneurship (Urbano, 2006; Urbano & Alvarez, 2014).

Institutional economics provides a theoretical framework for understanding these factors, arguing that human behavior is influenced by the institutional environment (North, 1990, 2005). Institutions are the humanly devised constraints that structure political, economic, and social interactions (North, 1990). Some studies have emphasized the prevalence of weak institutions and the importance of investigating them, especially in developing countries (Mair & Marti, 2006; Parmigiani & Rivera-Santos, 2015). However, several authors consider social and commercial entrepreneurs to be more common in societies with strong institutions (Estrin, Korosteleva, & Mickiewicz, 2013; Estrin, Mickiewicz, & Stephan, 2013). Hence, the decision to start entrepreneurship is also determined by the institutional context in which it occurs.

The use of institutional theory in understanding social entrepreneurship research is limited (Muralidharan & Pathak, 2017). This study intends to open up the exploration of social entrepreneurship and to present a comparative empirical analysis of the extent to which economic institutions apply to commercial entrepreneurship and are transferable to social entrepreneurship in developing countries. The objective of this chapter is to determine the probability of starting social or commercial entrepreneurship in developing countries using the institutional approach (North 1990, 2005) as the theoretical framework. The study tests the hypotheses through a binomial logistic regression based on a sample of 10,598 entrepreneurs obtained from the Global Entrepreneurship Monitor (GEM).

It is important to highlight that there are few empirical explorations in this area, and we intend to address this gap because its theoretical underpinnings have not been adequately explored. The need for

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contributions to theory and practice is pressing. This analysis contributes to the existing literature in several ways. On the one hand, this study helps to advance the application of institutional economics (North, 1990, 2005) to analyze the determinant factors of entrepreneurship (Thornton, Ribeiro-Soriano, & Urbano, 2011; Urbano & Álvarez, 2014; Urbano, Aparicio, & Audretsch, 2019). On the other hand, the research could be useful for the design of government policies and academic programs to foster social entrepreneurship in developing countries (Estrin, Mickiewicz, & Stephan, 2013; McMullen, 2011; Urbano, Toledano, & Soriano, 2010).

Following this brief introduction, the chapter is structured as follows. In the second section, the most relevant literature on social and commercial entrepreneurship is presented in light of institutional economics and the proposed hypotheses. The third section details the methodology used. The fourth section discusses the main findings of the study. Finally, the most relevant conclusions and future research lines are presented.

CONCEPTUAL FRAMEWORK

The definition of entrepreneurship has been in constant debate, despite being a fundamental concept in efforts toward the creation of a viable business resulting from an individual's occupational choice to work on his/her account (Gartner, 1989; Link & Hebert, 1982). Nevertheless, different types of entrepreneurial activity are considered. On the one hand, commercial entrepreneurs have the objective of maximizing economic profits. On the other hand, social entrepreneurs answer needs that are not addressed by for-profit ventures (McMullen, 2011). Moreover, social entrepreneurs create social welfare (Mair & Marti, 2006; Zahra, Rawhouser, Bhawe, Neubaum, & Hayton, 2008).

According to Zahra et al. (2008), social welfare has its origins in studies in welfare economics (Arrow, 1951), where efforts have centered on developing a single metric of social improvement based on the Pareto criterion. Under this criterion, social welfare is created when at least one person is better off while all others' utility remains at least unchanged, or perhaps improved (Santos, 2012).

According to Mair and Marti (2006), the concept of social entrepreneurship means different things to different people (Dees, 1998). On the one hand, it refers to social entrepreneurship as not-for-profit initiatives to create social value (Austin, Stevenson, & Wei-Skiller, 2003). Other groups understand it as the socially responsible practice of commercial ventures (Sagawa & Segal, 2000). On the other hand, another group views social entrepreneurship as a means to alleviate social problems (Alvord et al., 2004).

Therefore, social and commercial entrepreneurs are distinguished by their primary objectives (social welfare and economic profits, respectively). Social entrepreneurship can be analyzed by having a recognized goal that integrates the social needs to which institutions and ventures have committed themselves: the goal of achieving sustainable development (Seelos & Mair, 2005). Some scholars have analyzed the characteristics shared by social and commercial entrepreneurship, including the ability to detect opportunities (Dees, 1998a; Johnson, 2003; Nicholls, 2006; Peredo & McLean, 2006; Roberts & Woods, 2005; Tracey & Phillips, 2007), the drive to innovate (Austin, Stevenson, & Wei-Skillern, 2006; Dees, 2001a; Mair & Martí, 2004; Roberts & Woods, 2005), and the willingness to bear risk (Peredo & McLean, 2006; Zahra, Gedajlovic, Neubaum, & Shulman, 2009). Unless we set boundaries to the scope of social entrepreneurship, it will be impossible to define the unique characteristics that differentiate it from traditional or business entrepreneurship (Seelos, & Mair, 2005). The lack of empirical data makes it difficult to assess the personal or environmental characteristics that stand in the way of achieving scale

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(Drayton, 2002). According to Urbano et al. (2010), social entrepreneurship is oriented especially by the unsatisfied social needs that exist in the environment, making the institutional environment a key issue.

When conducting a review on the institutional theory, DiMaggio and Powell (1991) distinguish between old and new institutionalism. The old institutionalism is guided at the organization, and the new institutionalism is in a macro-organizational perspective. In the same way, Scott (1995) used institutional dimensions (regulative, normative, and cultural-cognitive) to explain the entrepreneurial activity. Kostova (1997) was the first researcher to adapt the institutional dimensions in organizational and business fields with her concept of the country institutional profile, which Busenitz et al. (2000) applied and introduced later in the specific entrepreneurship field. Institutions have been considered to be structures operating in a society with rules and regulations, culture, customs, and traditions (Muralidharan & Pathak, 2017; Szyliowicz & Galvin, 2010).

As North (1990) argues, institutions are the rules of the game in a society, and they define the way the game is played. More formally, institutions are the restrictions that shape human interaction. According to North (1990), institutions can be formal such as those with political rules, laws, and contracts or informal environments with codes of conduct, attitudes, values, and norms. Institutional environments, both formal and informal, promote or inhibit entrepreneurial aspirations, intentions, and opportunities and influence the speed and scope of entrepreneurial entry rates (Aparicio, Urbano, & Audretsch, 2016; Shane, 2004; Urbano & Álvarez, 2014; Urbano et al., 2019; Urbano, Toledano, & Soriano, 2011; Veciana & Urbano, 2008). Then, the institutional environment influences society as well as social and commercial entrepreneurship behavior.

It is not unusual to see different attitudes and different environments towards entrepreneurship across societies with similar formal institutions. This suggests that informal institutions (culture, religion, skill, values) help to explain such variability (Hayton, George, & Zahra, 2002; Lee & Peterson, 2000; Muralidharan & Pathak, 2017; Scott, 2008, Thomas & Mueller, 2000; Uhlaner & Thurik, 2007).

Institutions in developing countries are usually weak (Khanna & Palepu, 1997). Thus, informal institutions with trust, power, and support from the groups lead the scene (Scott, 2005). Social entrepreneurs are interested in addressing these institutional failures (Nicholls, 2006), because they may be the main causes of social problems that need to be solved (Alvord, Brown, & Letts, 2004; Mair & Marti, 2004; Saiz-Álvarez & Palma-Ruiz, 2019). Nevertheless, formal or informal institutions' gaps are considered opportunities for social entrepreneurs (Baker, Gedajlovic, & Lubatkin, 2005; Mair & Marti, 2009). Some scholars have studied the role of social entrepreneurs in addressing institutions in developing economies (Mair & Marti, 2009; Mair, Battilana, & Cardenas, 2012). However, there is a need to study the institutional setting of multiple developing countries concerning entrepreneurship (Bruton, Ahlstrom, & Li, 2010).

In this study, the formal institution is operationalized by education, and this variable is divided into five categories. It is important to note that the different educational legislation regulates each of these educational levels in each country. Informal institutions are operationalized through fear of failure, entrepreneurial skills, and personal values composed of economic, social, and environmental values. Pathak and Muralidharan (2016) present these variables and these three values as useful proxies to understand the antecedents of different types of social entrepreneurs and the motivations that drive them.

It is important to point out that only one formal variable (education) is used because the GEM Adult Population Survey (APS) database only contains enough observations on this one formal institution within the emerging countries. In contrast, informal institutions are made up of three variables and their interactions. Through these, the authors try to identify the appropriate environment for the different types of entrepreneurship.

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Formal Institutions

Education

Education provides social and commercial entrepreneurs with useful knowledge that serves as a guide to determine the behavior of society. Individuals may be more inclined to decide to start a business if they believe they have the skills and education to carry out the activity successfully (Davidsson & Honig, 2003; Nga & Shamuganathan, 2010; Urbano, Ferri, Peris-Ortiz, & Aparicio, 2017). This has implications for the relationship between education and the choice of social or commercial entrepreneurship, as well as the context in which the new venture creation occurs (Estrin, Mickiewicz, & Stephan, 2016).

Some studies report that education is positively associated with the likelihood of engaging in commercial entrepreneurship (Arenius & Minniti, 2005; Block, Thurik, & Zhou, 2013). In the case of social entrepreneurs, higher education involves preferences and motivations consistent with the core aspiration to contribute to the welfare of others and to create societal wealth (Stephan, Uhlaner, & Stride, 2015). Also, some authors in this field show that a high level of education is a common denominator in different social environments (Chell, 2007; Glunk & Van Gils, 2010; Nga & Shamuganathan, 2010; Shaw & Carter, 2007). Therefore, the authors say that education has a positive effect on commercial and social entrepreneurship. However, the positive effect is greater for social entrepreneurship than for commercial entrepreneurship. Therefore, this research proposes the following hypothesis:

Hypothesis 1: A high education level increases the probability of being a social entrepreneur versus being a commercial entrepreneur.

Informal Institutions

Fear of Failure

In entrepreneurship research, fear of failure is investigated as a psychological factor that inhibits entrepreneurial behavior and acts as a barrier to entrepreneurship (Bosma & Harding, 2007; Hatala, 2005). According to Cacciotti, Hayton, Mitchell, and Giazitzoglu (2016), the effect of fear of failure is situated in a larger social context. It can depend on the entrepreneur's stage in the entrepreneurship process.

Some researchers in the field of social entrepreneurship have shown that limitations in resources associated with the creation of new companies may also require a willingness to take risks (Austin et al., 2006; Nga & Shamuganathan, 2010; Sharir & Lerner, 2006). According to Weerawardena and Mort (2006), social entrepreneurs take more risks than commercial entrepreneurs because of their approach to the permanence of the organization and the relative lack of access to financing options. However, Hoogendoorn, Pennings, and Thurik (2010) stated that entrepreneurs perceive different kinds of risk: in particular, they fear personal failure and bankruptcy. These authors found that this is more common among social entrepreneurs than among commercial entrepreneurs. Therefore, the following hypothesis is posed:

Hypothesis 2: A high fear of failure increases the probability of being a social entrepreneur versus being a commercial entrepreneur.

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ENTREPRENEURIAL SKILLS

The entrepreneurship literature states that people's behavior is usually guided by their knowledge and skills (Urbano et al., 2017). Perceptions of knowledge and skills have an impact on opportunity recognition and exploitation (Shane & Venkataraman, 2000). Entrepreneurship in all fields requires expertise in a variety of roles, and those people with skills are most likely to become entrepreneurs (Arenius & Minniti, 2005; Davidsson & Honig, 2003; Lazear, 2005). Some researchers suggest that limited business management skills can be a barrier to those who want to start an entrepreneurial initiative (Chen, Greene, & Crick, 1998; Scott & Twomey, 1988). According to Unger, Rauch, Frese, and Rosenbusch (2011), any entrepreneur will rely on entrepreneurship-specific skills and knowledge.

Some theories on social entrepreneurship assert that social behavior is generally guided by entrepreneurs' knowledge and skills (Nga & Shamuganathan, 2010; Peredo & McLean, 2006). Meanwhile, Bacq, Hartog, Hoogendoorn, and Lepoutre (2011) contend that commercial entrepreneurs are significantly more self-confident when it comes to their entrepreneurial skills than the social entrepreneur. In general terms, skills and knowledge about how to start a venture may together be a factor influencing both types of entrepreneurship. However, the literature shows that it could be a determining factor for the commercial entrepreneur. Based on these considerations, this research proposes the following hypothesis:

Hypothesis 3: A favorable perception of entrepreneurial skills decreases the probability of being a social entrepreneur versus being a commercial entrepreneur.

PERSONAL VALUES

The prior literature has discussed the characteristics of different kinds of entrepreneurship. In these analyses, the authors discuss whether a venture should be seen as a project of economic or social value, or maybe both (Austin et al., 2006). Bacq, Hartog, and Hoogendoorn (2016) evidence the dominant focus of social entrepreneurs on value creation and discard the belief that social enterprises pursue social goals. Some scholars also reject the belief that commercial enterprises only pursue economic objectives. Several researchers have argued that social entrepreneurship arose as a result of existing problems in society and that it creates social value as its only objective (Mair & Marti, 2006), while others argue that the creation of social value is not necessarily contrary to the creation of economic value (Dacin, Dacin, & Matear, 2010). However, an entrepreneur may aim to achieve both social and economic goals (Zahra et al., 2009). An analysis by Haugh (2006), in a broader sense, proposes that the aims of social enterprise are threefold: environmental, social, and economical. Based on this literature, this analysis proposes the following hypothesis:

Hypothesis 4: A favorable perception of personal values increases the probability of being a social entrepreneur versus being a commercial entrepreneur.

The Interaction Between Informal Institutions

Some studies on career decisions suggest that individuals' values serve as important determinants of their occupational choices (Knafo & Sagiv, 2004; Noseleit, 2010). Stephan et al. (2015) assert that the

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greater the number of society members who hold certain values consistent with a particular form of entrepreneurship, the greater the number of individuals who want to engage in that form of entrepreneurship. Other authors (Dees, 1998b; Leadbeater, 1997; Peredo & McLean, 2006; Tan, Williams, & Tan, 2005; Zahra et al., 2009) find that compared to commercial entrepreneurs, social entrepreneurs are less likely to know other entrepreneurs or identify opportunities in their area, have less confidence in their skills to start a business, and fear the risk of business failure to a greater extent.

Reinforced by the literature mentioned, this research takes informal institutions (fear of failure, entrepreneurial skills, and personal values) and makes interactions among these variables. Therefore, the following hypotheses are proposed.

Hypothesis 5A: Personal values moderate the fear of failure effect; such interaction increases the probability of being a social entrepreneur versus being a commercial entrepreneur.

Hypothesis 5B: Entrepreneurial skills moderate personal values; such interaction decreases the probability of being a social entrepreneur versus being a commercial entrepreneur.

Hypothesis 5C: The entrepreneurial skill's effect is moderated by fear of failure; such interaction decreases the probability of being a social entrepreneur versus being a commercial entrepreneur.

METHODOLOGY

Database

This research uses the GEM database, specifically the 2009 data, which takes into account a special topic, such as social entrepreneurship activity. This is the only data set that allows a quantitative and detailed empirical analysis of social entrepreneurship in several countries. GEM thus matches this theoretical framework in its concentration on the individual occupational choice of social and commercial entrepreneurship (Estrin et al., 2013), specifically concerning data from the Adult Population Survey (APS).

The GEM 2009 survey was conducted in 49 countries. Of these countries, this research analyses the 19 developing countries (upper middle income) according to World Development Indicators (World Bank, 2017). The final sample for analysis consisted of 10,598 individuals (18.7% of whom reflect social entrepreneurship and 80.3% of whom reflect commercial entrepreneurship). Table 1 provides a summary of the variables used in this study.

Data Analysis

Due to the binary nature of the dependent variable (social versus commercial entrepreneurship), the study tests the hypotheses through a binomial logistic regression using Stata 14.1 software.

The equation for the model to be estimated is the following:

$$U_j = P(SE_j = 1) = \beta_0 + \beta_1 E_j + \beta_2 FF_j + \beta_3 ES_j + \beta_4 PV_j + \beta_5 PV_j * FF_j + \beta_6 PV_j * ES_j + \beta_7 FF_j * ES_j + V_j$$

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Table 1. Description of variables

	Variable	Description	Source
Dependent variables	Type of entrepreneurial activity	Dummy variable equal to 1 if individuals are in the process of starting a business or company with social purposes; equal to 0 if individuals are in the process of starting a business or company with commercial purposes.	GEM-APS
Independent variables (formal factors)	Education	Highest education level in five levels (none, some secondary, secondary degree, post-secondary, graduate experience)	GEM-APS
Independent variables (informal factors)	Fear of failure	Dummy variable, which indicates if the respondent agrees with the statement, "Fear of failure would prevent me from starting a business." Yes = 1; No = 0	GEM-APS
	Entrepreneurial skills	Dummy variable indicates if the respondent agrees with the statement, "I have the knowledge, skill, and experience required to start a new business." Yes = 1, No = 0	GEM-APS
	Personal values	Continuous variables that group three items and summarize the perception of economic, social, and environmental values in each type of entrepreneurship	GEM-APS
Control variables	Gender	Respondents were asked to provide their gender. F = 1, M = 0	GEM-APS
	Age	Respondents were asked to provide their year of birth.	GEM-APS
	Household size	Respondents were asked to indicate the number of permanent members in the household.	GEM-APS
	Type of work	Classification of work status into three levels (FT-PT, no work, retired, or student).	GEM-APS
	Personal income	Classification of the individual into three levels of income (lowest, middle, upper).	GEM-APS

Source: Own elaboration

SE = Social entrepreneurship

E = Education

FF = Fear of failure

ES = Entrepreneurial skills

PV = Personal values

RESULTS AND DISCUSSION

Descriptive Statistics and Correlation Matrix

Table 2 shows the descriptive statistics and the correlation coefficients for all the variables. This table classifies the different types of variables and differentiates the quantitative from the qualitative variables. As mentioned before, 18.7% of the adult population in emerging economies has been engaged in social entrepreneurship.

Regarding the correlations of the variables, Table 3 shows that education has a great relationship with the dependent variable ($p \leq 0.01$). In the same way, it shows a significant correlation with the independent variables, fear of failure, and entrepreneurial skills ($p \leq 0.01$). The fear of failure and personal values

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Table 2. Descriptive statistics and correlation matrix

		Variable	Obs.	Mean	Std. Dev.	1	2	3	4	5	6	7
1	Dependent variables	Type of entrepreneurial activity	10,598	0.187	0.389	1.000						
2	Independent variables (informal factors)	Fear of failure	9,828	0.262	0.44	0.017 *	1.000					
3		Entrepreneurial skills	9,807	0.842	0.364	0.007	-0.160***	1.000				
4		Personal values	8,210	6.70E-09	1	0.347***	-0.014	0.038***	1.000			
5	Control variables	Gender	10,598	0.432	0.495	0.044***	-0.054***	0.073***	0.031***	1.000		
6		Age	10,468	39.856	13.117	0.015	0.007	0.012	0.003	0.005	1.000	
7		Household	10,547	4.176	3.228	-0.007	-0.015	-0.013	-0.01	0.025***	-0.088***	1.000

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$; *significant at $p \leq 0.10$

variables have a statistically significant correlation with the dependent variable, unlike entrepreneurial skill, which does not have it.

The correlation between the dependent variable and the control variables shows that age and household size have no significant correlation with the type of entrepreneurship, unlike gender, which shows a significant correlation. The research used contingency tables, with the following results: type of work was the statistically most significant control variable about the dependent variable. Moreover, it showed a correlation with the fear of failure variable ($p \leq 0.1$) and a high correlation with the entrepreneurial

Table 3. The relationship among Type of Entrepreneurship and Education, Type of Work and Personal income

Variable		Type of Entrepreneurship		
		Commercial E.	Social E.	Total
Education $\chi^2 = 96.3139$ $Pr = 0.000$	No education	1,175	164	1,339
	Some secondary	1,705	321	2,026
	Secondary degree	3,320	759	4,079
	Post-secondary	2,106	641	2,747
	Graduate experience	270	91	361
	Total observations	8,576	1,976	10,552
Type of work $\chi^2 = 138.2372$ $Pr = 0.000$	Work F-T, P-T	6,999	1,401	8,400
	Not working	1,092	312	1,404
	Retired students	487	244	731
	Total observations	8,578	1,957	10,535
Personal income $\chi^2 = 3.5315$ $Pr = 0.171$	Lowest	1,098	272	1,370
	Middle	2,304	539	2,843
	Upper	3,776	818	4,594
	Total observations	7,178	1,629	8,807

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skills variable ($p \leq 0.01$). However, the personal income variable did not present a significant correlation, and it was discarded. Given these correlations between the independent variables and control variables, we performed a test for multicollinearity, which can affect the significance of the main parameters in logit regressions.

Analyzing the correlation that exists between the control variables and the independent variables, it was found that type of work and personal income correlate ($p \leq 0.01$) with the education variable. On the other hand, the formal education variable has no relationship with the gender variable. In the same way, it was observed that the type of work variable correlates ($p \leq 0.01$) with the independent variable entrepreneurial skills and the control variables gender and personal income, being different from the fear of failure variable, which shows a correlation of $p \leq 0.1$. Furthermore, it was found that the personal income variable shows a high correlation ($p \leq 0.01$) with gender and entrepreneurial skill; in the case of fear of failure, the ratio decreases ($p \leq 0.05$). The gender control variable shows a correlation of $p \leq 0.01$ with the informal variables fear of failure and entrepreneurial skill.

Logit Model Regression

Table 4 presents the results of the logit regression with the institutional variables classified by formal and informal factors.

Model 1 analyzes the control variables used in this research. Only those variables that show a significant relationship with the dependent variable were taken into account. Model 2 incorporates informal factors into Model 1. The fear of failure and entrepreneurial skills variables do not show a high level of multicollinearity (that is the reason why they are maintained in the estimated models). Model 3 adds the education variable as a formal factor to Model 2. Finally, Model 4 is the complete model: it considers formal and informal factors, interaction among informal factors, and the control variables.

Based on the results, fear of failure and entrepreneurial skills are not significant explanatory variables; in fact, they do not show statistical significance in any of the three estimated models where they are considered explanatory variables. Therefore, Hypothesis 2 is not confirmed: we cannot say that a high fear of failure increases the probability of being a social entrepreneur versus being a commercial entrepreneur. Likewise, the obtained results do not allow us to confirm Hypothesis 3 (a favorable perception of business skills decreases the probability of being a social entrepreneur versus a commercial entrepreneur). Based on the estimated coefficients in Models 2, 3, and 4, entrepreneurial skills are not an institutional factor that decreases the probability of becoming a social versus a commercial entrepreneur in developing countries.

The coefficient of the personal values variable shows a significant positive sign in Models 2, 3, and 4. In other words, personal values increase the probability of being a social entrepreneur versus a commercial one. Therefore, these results allow us to test Hypothesis 4 in the expected sense.

Regarding moderations (Model 4), only one interaction is significant: the interaction between informal institutions, personal values, and entrepreneurial skills. Therefore, Hypotheses 5a and 5c cannot be tested in the expected sense, but Hypothesis 5b can. More precisely, the estimated coefficient for the interaction effect presents a significant negative sign, so this interaction reduces the probability of being a social versus a commercial entrepreneur.

Regarding education as a formal institution, and based on the estimated coefficients in Models 3 and 4, we can say that the higher the level of education, the higher the probability of becoming a social entrepreneur instead of a commercial one. Therefore, these results test Hypothesis 1 in the expected sense.

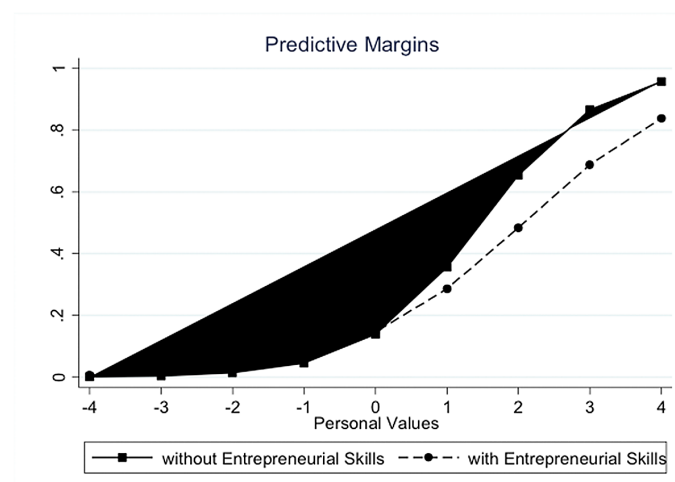
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Table 4. Logit model results

			Model 1		Model 2		Model 3		Model 4	
			Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Independent variables (informal factors)	Fear of failure		---	---	-0.012	-0.076	0.002	-0.076	-0.141	-0.201
	Entrepreneurial skills		---	---	-0.057	-0.097	-0.081	-0.098	0.067	-0.145
	Personal values		---	---	.901***	-0.035	.886***	-0.035	1.187***	-0.111
	Personal values x E. skills		---	---	---	---	---	---	-.371***	-0.113
	Personal values x fear of failure		---	---	---	---	---	---	0.09	-0.084
	Fear of failure x E. skills		---	---	---	---	---	---	0.124	-0.213
Independent variables (formal factors)	Education	Some secondary	---	---	---	---	0.18	-0.135	0.165	-0.136
		Secondary degree	---	---	---	---	.236**	-0.12	.222*	-0.121
		Post-secondary	---	---	---	---	.441***	-0.123	.420***	-0.124
		Graduate experience	---	---	---	---	.746***	-0.185	.739***	-0.185
Control variables	Gender		.195***	-0.051	.114*	-0.067	.114*	-0.067	.111*	-0.067
	Type of work	Not working	.304***	-0.071	.324***	-0.101	.355***	-0.102	.347***	-0.102
		Retired or students	.908***	-0.083	.634***	-0.124	.656***	-0.125	.653***	-0.125
Number of observations			10,535		7,456		7,440		7,440	
Log-likelihood			-4988.3417		-3014.732		-2997.1355		-2989.966	
LR chi²			137.31***		823.86***		846.72***		861.06***	
Pseudo R²			0.0136		0.1202		0.1238		0.1259	

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$; *significant at $p \leq 0.10$

Figure 1. Relationship between personal values and entrepreneurial skills



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Table 5. Marginal effects for Models 3 and 4

			Model 3	Model 4
			dP/dx	dP/dx
Independent variables (informal factors)	Fear of failure		0	-0.016
	Entrepreneurial skills		-0.009	0.007
	Personal values		.105***	.140***
	Personal values x E. skills		---	-.043***
	Personal values x fear of failure		---	0.01
	Fear of failure x E. skills		---	0.015
Independent variables (Formal factors)	Education	Some secondary	0.017	0.02
		Secondary degree	.014**	.026*
		Post-secondary	.016***	.053***
		Graduate experience	.033***	.110***
Control variables	Gender		.013*	.013*
	Type of work	Not working	.046***	.045***
		Retired or students	.095***	.094***

Note: *** significant at $p \leq 0.01$; ** significant at $p \leq 0.05$; *significant at $p \leq 0.10$

Source: Own elaboration

Table 5 presents the marginal effects for Models 3 and 4. We can observe, for example, how the probability of being a social entrepreneur is 10% higher (Model 3) and 14% higher (Model 4) when personal values increase by one unit. However, this increase of 14% is reduced by 4.3% when entrepreneurial skills moderate personal values. Written differently, when the possible entrepreneur has the knowledge, skills, and experience required to start a new business, the effect of the personal values on the probability of becoming a social entrepreneur is reduced.

Therefore, in developing countries, the effect of personal values on the probability of becoming a social entrepreneur is reduced by entrepreneurial skills.

In this analysis, different control variables were used. The variables age, household size, and personal income were discarded because they did not show a significant correlation with the type of entrepreneurship. The control variable gender shows statistical significance in Model 1 and a lower significant effect in Models 2 and 3. Type of work remains the only control variable that has a significant effect in all models. This variable shows that those entrepreneurs who are students, retired, or without a job are the most likely to decide on social entrepreneurship.

CONCLUSION

Using institutional economics as a theoretical framework, the main objective of this research was to empirically analyze the influence of formal institutions (education) and informal institutions (fear of failure, entrepreneurial skills, and personal values) on the decision to become a social or a commercial entrepreneur in developing countries. Based on information from the GEM database (10,598 entrepreneurs), the researchers tested the hypotheses through a binomial logistic regression.

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The main findings of this exploratory study demonstrated that in developing countries, a higher level of education (formal institution) and a positive perception of personal values (informal institution) increase the probability of being a social entrepreneur. Also, the research showed that the interaction between informal institutions causes changes in the probability of being a social or commercial entrepreneur in developing countries.

The research contributes to the existing literature in several ways. First, the study adds new empirical insights into the impact of institutions on both commercial and social entrepreneurship (Alvarez & Urbano, 2011; Aparicio et al., 2016; Thornton et al., 2011; Urbano et al., 2011; Urbano & Álvarez, 2014; Urbano et al., 2019) in developing countries. Second, this study helps to advance the application of institutional economics (North, 1990, 2005) to analyze the determinant factors of entrepreneurship (Thornton et al., 2011; Urbano, Ferri, Álvarez, & Noguera, 2017; Veciana & Urbano, 2008). Finally, the research could be useful for the design of government policies and academic programs to foster social entrepreneurship in developing countries from an institutional perspective (Estrin et al., 2013; McMullen, 2011; Sud, VanSandt, & Baugous, 2009; Urbano et al., 2010).

This research has some limitations. First is the proxy used for social entrepreneurship; it is difficult to find data to capture the process of social entrepreneurship. Second, the size of the sample is an additional limitation; 19 developing countries is a limited sample. To obtain new insights from different contexts, future research could compare developing and developed countries or different regions in a developing country. Also, it would be interesting to expand the period of analysis and update the data.

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Are There Really Differences Between Social and Commercial Entrepreneurship in Developing Countries?

KEY TERMS AND DEFINITIONS

Change Agents: An individual that helps a society transform, participating in activities that improve the lives of individuals and communities.

Commercial Entrepreneurship: The activity toward the creation of a business that prioritizes the creation of economic value.

Developing Countries: A nation with a lower living standard and low Human Development Index, relative to other countries. There is a general reference point, such as a nation's GDP per capita, compared to other nations.

Entrepreneurship: The action and process of creating and developing a new enterprise.

Global Entrepreneurship Monitor (GEM): A global research source that collects data on entrepreneurship around the world.

Institutions: Some restrictions structure human interaction in a society with rules, regulations, culture, customs, and traditions.

Social Entrepreneurship: This refers to efforts toward the creation of a business that prioritizes the creation of social value.

Social Welfare: It is created when at least one person is better, as long as their environment is not affected or maybe can prosper.

Chapter 18

To Examine Women Social Entrepreneurial Ecosystems: Opportunities and Challenges

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ABSTRACT

In the past few decades, the concept of social entrepreneurship has emerged as a popular area of research study and practice. However, despite women social entrepreneurs showing great potentials through a reduced gender gap in social entrepreneurship unlike commercial entrepreneurship where the gender gap is found to be high, not much literature is available on women's social entrepreneurial ventures. This study is an attempt to fill up this gap through a review of prior literature on the field of social entrepreneurship. By reviewing the existing literature, the author draws a comparison between social entrepreneurship and women social entrepreneurship, then examines the success factors in women's social entrepreneurship and also discusses the challenges. To build-up the link between the literature and practice two real case studies are presented in support of the discussed theoretical inputs. Finally, limitations and future research areas are discussed.

INTRODUCTION

Entrepreneurship ecosystem implicit to all entrepreneurs consist of a set of individual elements like leadership, culture, capital markets, and open-minded customers combined in complex ways (Isenberg, 2010) and alongside; equal access to resources, participation, and support conducive to sustain entrepreneurship (Brush, Edelman, Manolova, & Welter, 2019). While studies have referred to the importance of 'entrepreneurship', many have reported on gender-wise differences in entrepreneurship (e.g., Tsyganova & Shirokova, 2010) with some opining the need to focus on gender-based entrepreneurship research (Brush, Carter, Gatewood, Greene, & Hart 2006; Brush, de Bruin, & Welter, 2009) given that women entrepreneurial initiatives are synonymous with women empowerment; contributing to the economic

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growth and development through providing jobs, creating wealth, innovations, etc. (Brush et al., 2006). A recent study, Brush et al. (2019) states that “gender” matters in the ecosystems at the institutional, organizational, and individual levels, with others (Vossenberg, 2013; Nählinder, Tillmar, & Wigren, 2015; Nair, 2019) arguing on the need to address the ‘gender bias’ embedded into entrepreneurship so that women entrepreneurs take advantage of the available promotional policies that help in making significant macroeconomic and social impact. Emerald Publishing (2018) observed a reality often overlooked is that of women (especially in the developing countries) for whom entrepreneurship is a primary source of income.

Another concept that has gained prominence in the past few decades is the phenomenon of “social entrepreneurship” (SE) that plays a significant role in increasing the social value and overall well-being of the society. Of course, this also depends upon the social entrepreneur’s ability to integrate business models that help to address social needs, example-integration of economic and social wealth creation (Peredo & McLean, 2006; Austin, Stevenson, & Wei-Skillern, 2012; Dionisio, 2019). Although the growth of social enterprises can be perceived from multiple perspectives, it is primarily underpinned by the provision of perceived social value, stated Hynes (2009). Similarly according to Greg Dees (referred to as ‘father’ of social entrepreneurship education) social entrepreneurs propel social changes by creating public value, pursuing new opportunities, innovating and adapting, acting boldly, leveraging resources not in their control, and exhibiting a strong sense of accountability to significantly improve the society’s capacity in addressing social problems like: poverty, illness, illiteracy, and environmental destruction (cited in Bornstein and Davis, 2010).

Surprisingly, while a gender gap in favor of male entrepreneurs is found in commercial entrepreneurship, in the SE arena, research has found this to be less preminent. For instance, a study established that women and men who launch a new social venture differ only on one personality dimension—agreeableness, where women social entrepreneurs scored more than their male counterparts, otherwise no significant differences were found concerning the other personality traits (Bernardino, Santos, & Ribeiro, 2018). Another study reported that among social entrepreneurs across the world an estimated 55% are male, and 45% female, with the gender gap in social entrepreneurial activity, found to be significantly smaller than the estimated 2:1 gender gap in commercial, entrepreneurial activity found in some of the economies (Bosma, Schøtt, Terjesen, & Kew, 2016). In the Middle East and North Africa (MENA) region, while the difference between women’s involvement in social versus commercial entrepreneurship was very striking, in Australia and USA both men and women were almost equally involved in SE, whereas, in Southern and Eastern Asia, Latin America and in the Caribbean region female representation in social entrepreneurial enterprises were found to be high irrespective of the type or phase of entrepreneurship (Bosma, Schøtt, Terjesen, & Kew, 2016, p. 21).

The main purpose of social enterprises is to bring about positive social changes, probably a reason that has contributed to gender equality and women empowerment in the field of social entrepreneurship. A 2015 study on UK social enterprises found that social entrepreneurial ventures tend to perform better than the traditional ones in promoting gender equality in leadership. The study further revealed that while 18 percent of leaders in traditional small to medium-size enterprises (SMEs) were women, social enterprises had 40 percent of women leaders (Peg, 2018). While confirming a reduction in the gender gap in social enterprises, Nicolás and Rubio (2016) also found that female participation in SE is influenced by the level of economic development in the country. Interestingly, Kinbu and Ngoasong (2016) referred to women as vectors of SE, who integrate social transformational and commercial goals

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in their business strategies, with the ability to develop social relational networks that influence female SE, added Halberstadt and Spiegler (2018).

However, studies also found challenges and barriers that impede the path of women SE. For instance, Smith (2013) noted that there are Fairtrade gender inequality impacts based on age, marital status, education, and wealth. Another study, Muntean and Ozkazanc-Pan (2016) contended there are three issues associated with women social entrepreneurship: (1) while women are the ones to be negatively impacted by economic and social problems; they tend to become objects of social entrepreneurial efforts with the responsibility of fixing the problems also falling on them, (2) there is a tendency to magnify and marginalize women social entrepreneurial endeavors and their economic identity at a lower value and smaller scale compared to their male counterparts, and (3) new organizational forms, purported to be “solutions” to gender inequality and the other social challenges, often become outcomes of gendered economic arrangements.

Thus, given that the objective of ‘social entrepreneurship’ is social wealth and value creation, studies (e.g., Jiao, 2011; Bosma et al., 2016) feel that women social entrepreneurs have contributed to the socio-economic development of the society and facilitated women empowerment, while reduced gender gap in SE indicates that it can be used to promote female entrepreneurship, female labor market participation, and initiate more social changes, observed Huysentruyt (2014). Furthermore, successful women-led social innovations and entrepreneurial ventures promoting women empowerment would need to bring about social changes with a sustainable perspective adds, Bibars (2018). However, while substantial literature is available on the different aspects of social entrepreneurship, many researchers feel there is dearth of research on women social entrepreneurship even though they (women entrepreneurs) have shown specific potentials (Humbert, 2012; Huysentruyt, 2014; Kinbu & Ngoasong, 2016; Littlewood, & Khan, 2018; Halberstadt, & Spiegler, 2018). In this chapter, we propose to address this research gap by seeking an answer to the research question:

RQ: Which factors can contribute to the success of women social entrepreneurs, and what are the challenges faced by them?

We purport to use the review of the literature method to answer the research question. This study would help to gauge an understanding of factors contributing to the success of women’s social entrepreneurs and the likely challenges impeding the path of their social enterprise’s growth. While this study will be an addition to the existing literature on women SE, such information would interest and encourage more women’s social-entrepreneurial initiatives in the future, is assumed.

Additionally, Singh (2018) cites a 2016 report published by the British Council (“The State of Social Enterprise in Bangladesh, Ghana, India and Pakistan”), which started approximately 24 percent of the two million social enterprises’ existing in India are women-led social enterprises, an indication on the scope of women social enterprises in India, Bibars (2018) observed that women social entrepreneurs are making a mark for themselves globally too. Given the growth opportunities for women SE across countries, we propose to briefly discuss the cases of two successful women social entrepreneurial initiatives. This would help to build a link on the practical conduct of women-led SE.

The chapter is structured as follows: the next section discusses the concepts of social entrepreneurship and women’s social entrepreneurship, to be followed by sections that examine the success factors in women SE, and the challenges encountered therein. In the section that follows two real case studies

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on women-run social enterprises are discussed, and in the final section, the conclusions drawn (along with limitations and future research suggestions) are discussed.

SOCIAL ENTREPRENEURSHIP AND WOMEN SOCIAL ENTREPRENEURSHIP

Social Entrepreneurship

Although social entrepreneurship (SE) caught the attention of the government and academia only in the 1990s, the practical relevance of this began during the 1970s and 1980s. SE is concerned with a search for greater social justice through addressing pressing community and social needs not adequately addressed by traditional entrepreneurs and the government. Typically, SE is viewed as an arena wherein organizations seek innovative ways to address intractable social problems such as hunger, poverty, education, and social security (Dionisio, 2019). Prior studies have attempted to define social entrepreneurship in different ways. For example, Austin et al. (2012) defined SE as an innovative social value-creating activity that takes place within or across non-profit, business, or government sectors. According to Weerawardena and Mort (2006) while prior literature has referred to SE through a wide array of economic, education, research, welfare, social and spiritual activities, social-action organizations, charities, public sector, and community organizations, the majority of these evolve within the domain of non-government not-for-profit organizations, and hence the researchers argue on the need to conceptualize SE within the broader competitive environment in which it operates, while fulfilling its social mission also (i.e., Saiz-Álvarez & Palma-Ruiz, 2019).

Even though this concept has emerged as a popular area of research and practice for more than three decades, there is a lack of a universally accepted definition of 'Social-entrepreneurship.' Justifying this, Choi and Majumdar (2014) argued that Social entrepreneurship is appraising, signifying it as a specific valued achievement that constitutes internal complexity (due to components: social value creation, the social entrepreneur, social entrepreneurship organization, market orientation, and social innovation), is variously describable (based on how different users weigh the importance of the different components) and open in character (implying- it could be modified in the face of new situations and/or varying circumstances). Meanwhile, observing that social entrepreneurial ventures are often found within the nonprofit, business, or governmental sectors, Austin et al. (2012) defined social entrepreneurship as "an innovative, social value-creating an activity that can occur within or across the nonprofit, business, or government sectors" (p. 371). According to Peredo and McLean (2006) social entrepreneurship is exercised when some persons or group focus on the creation of social value either exclusively or in a prominent way, envision to recognize and take advantage of opportunities that create such value, adopt innovation to create/distribute social value, display willingness to accept certain degree of risk in the creation or disseminating of social value, and are undaunted by scarcity of resources in their pursuit of social ventures. A simple definition has summarized the above discussion, "Social entrepreneurship encompasses the activities and processes undertaken to discover, define and exploit opportunities in order to enhance social wealth by creating new ventures or innovatively managing existing organizations" (Zahra, Gedajlovic, Neubaum, & Shulman, 2009, p. 519).

To create social value, social entrepreneurs would need to explore the ecosystems comprising of personal traits, socio-cultural environment, capital/finance, market, and others, which influences the growth of SE. Researchers have found that personal characteristics can initiate the SE plunge. Ghalwash, Tolba,

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and Ismail (2017) identified social entrepreneurs' personal-traits as compassionate risk-takers with an entrepreneurial mindset, seeking to address social issues in innovative ways and have the perseverance to face adversities prevalent in inefficient institutional frameworks. While, 'intention' mindset; inspiration, prior personal experiences, and supportive social networks also encourages the social entrepreneurial plunge, stated Ghalwash et al. (2017); Omorede (2014); Ülgen (2019). Then, there are studies pointing at socio-cultural-ethical practices that encourage SE. For instance, while recent studies brought out the link between ethics and social entrepreneurship (Nair & Saiz-Álvarez, 2019), others (e.g., Vallejo-Fiallos, 2019) feel corporate social entrepreneurship practices can be used as a core business strategy to generate social value, and achieve financial and sustainable goals, while some others (e.g., Garg & Yadav, 2019) found ethical entrepreneurship is the outcome of an intense yearning on the part of the social entrepreneur to serve and ensure the wellbeing of individuals and the environment around them.

Meanwhile, studies have also reported on challenges (part of the ecosystem) that social entrepreneurs need to confront. For instance, insufficient access to finance; investment to develop and expand the business, lack of understanding on the concept of 'social enterprise' by financial, non-financial stakeholders and the public in general, inability to set the 'right price' for their products, manage cash flows, recruit and retain staff, and the personal challenge of managing the various (external and internal) demands of the business (Hynes, 2009; Karaca & Biçkes, 2019), could impede the path of successful SE.

Women Social Entrepreneurship

Although SE has been in vogue since long, researchers have felt there is a dearth of literature on women's social entrepreneurs and their contribution to SE (Humbert, 2012; Smith, 2013; De Magdalene, 2014; Lindberg, Forsberg, & Karlberg, 2016). For instance, De Magdalene (2014) felt qualitative research on women SE and related issues was almost non-existent, although quantitative research had identified the problematic issues as under-representation of women in proportion to women employed in social enterprises, lesser earnings when compared to male-entrepreneurs and omission of diversity amongst social entrepreneurs in contemporary theories. Nevertheless, likely, the key themes emerging from the feminist critique of mainstream entrepreneurship would apply to SE as well as to women's experiences within the SE sector (De Magdalene, 2014, p. 83). Given that social enterprises are embedded in the existing gender regimes, Muntean and Ozkazanc-Pan (2016) challenged the existing assumptions and approaches by questioning the narratives on fit, ability, choice and freedom, which seem like male-dominated discourses borrowed from the area of entrepreneurship, yet are largely silent on the gender aspect even when arguing that gender constitutes a widespread organizational principle for SE. There is a need to adopt a comprehensive approach to identify and analyze gendered norms, subordination, and empowerment affecting aspired transition in social innovation processes from social exclusion to social inclusion, argued Lindberg et al. (2016).

Meanwhile, researchers (like Huysentruyt, 2014) have referred to the reduced gender gap in SE and, while attributing this to personal traits i.e., pro-social value orientation, altruism and attitudes towards competition suggested two implications: (1) The reduced gender gap can be used as a powerful lever to promote women SE and female labor market participation in general, and, (2) women social entrepreneurs could play a pivotal role in bringing about more societal changes. This aspect is supported by the GEM 2015 to 2016 Report on SE, which revealed that among the world's social entrepreneurs, an estimated 55 percent were male and 45 percent female, and that women have the tendency to pursue

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entrepreneurial roles in a social setting, i.e., to become a social entrepreneur with a social goal or say, make an entrepreneurial contribution in the public sector (Bosma et al., 2016).

Nicolás and Rubio (2016) felt that female participation in social enterprises gets influenced by the level of development in the country and also highlighted the importance of culture or social norms that explain female behavior. Pulido, Jiménez, and i-Noguera (2014) reaffirmed the relevance of socio-cultural factors in SE, particularly emphasizing altruistic attitudes and membership in a social organization. Surprisingly, although the gender gap is seen in the pay/earnings of women social entrepreneurs, they seem to be more satisfied with their job than their male counterparts (Estrin, Stephan, & Vujić, 2014).

Interestingly, studies indicate that women entrepreneurs are effective leaders, with a larger appetite for growth, and their revenues and job creation rates capacity is better than their male peers. For instance, Heeks and Arun noted that gains accrued by women social enterprises are visible in five areas: increase in income, development of skills, improved social and business networks, increasing confidence and greater respect and acceptance from their families (cited in Fotheringham and Saunders, 2014, p. 183). While, Kanapi (2018) cited the example of “Womenable” (a social enterprise firm that focuses on women’s entrepreneurship), which analyzed the growth trends of men and women-owned companies during the period of 1997-2014 and found that women-owned businesses witnessed a 72.3 percent growth, whereas, men-owned organizations grew only by 45.1 percent during this period. This indicates the capability of women entrepreneurs to run their enterprises profitably, and of ‘women empowerment’ through skills development, ability to generate employment, create economic opportunities, and to raise funds that impact beneficiaries.

While the typical drivers of women entrepreneurs are: feeling of independence and self-fulfillment, earning a reasonable income, flexible work schedule, finding a creative outlet, ability to provide employment to others, etc. (Nair, 2014, 2019), the primary driver of SE is the ability of the social entrepreneurs to address a social or environmental concern and to create social-values that benefit the community in an ethical manner (Garg & Yadav, 2019; Nair & Saiz-Álvarez, 2019), implying that the common motivational factor amongst both male and female social entrepreneurs is the passion for a social cause and the ‘added value’ (Christopoulos & Vogl, 2014). Meanwhile, although “local conditions” and “intentional mindset” drive them to start social enterprises (Omerade, 2014), “social network support” encourages them to be persistent and continue with their social entrepreneurship (Omerade, 2014; Lindberg et al., 2016).

Bosma et al. (2016); Kinbu and Ngoasong (2016) noted women social entrepreneurs can raise funds, empower women through skills development, provide employment to others, and create economic opportunities. However, Richardson, Sappal, Tsui, and Woodman (2017) found that across the globe only about 29 percent of women’s rights organizations are using income generation activities; while many are unable to take advantage of SE due to lack of knowledge, skills, assets, and resources, which further implies that social enterprises are under-utilized sources of funding for gender equality.

While the list may be in-exhaustive, Table 1 provides a brief outline of a few recent-past studies on women SE, discussed in the chapter.

While this section brought out the various facets of women SE (definition, influencing factors, and others), the following sections will throw light on the success factors impacting women SE as well as the challenges faced by them.

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Table 1. A brief outline of a few studies on women social entrepreneurship

Research Publication	Purpose of the Study	Findings/Conclusions of the Study
De Magdalene, P. (2014). Capitalism with a conscience? A feminist-informed exploration of social enterprise and social entrepreneurship in the UK.	Explore the contextualized experiences, identities, motivations, values, and visions of success of women social entrepreneurs operating within the UK.	The study highlights the cumulative effects of gender on women's social entrepreneurs, applicability and transferability of critical feminist theory, demonstrates fundamental ways in which values and morality are situated within the women's enactment of SE through their social enterprise.
Fotheringham, S., & Saunders, C. (2014). Social enterprise as a poverty-reducing strategy for women.	Investigate the potential of social enterprise as a strategy for poverty reduction for women.	Specific factors contribute to women's poverty, hypothesized mechanisms through which social enterprises could address them.
Kinbu, A. N., & Ngoasong, M. Z. (2016). Women as vectors of social entrepreneurship.	Explored a model of SE focusing on the nature of engagement and participation of women entrepreneurs in tourism.	Women integrate social transformational and commercial goals into their business strategies.
Nicolás, C., & Rubio, A. (2016). Social Enterprise: Gender Gap and Economic Development.	Study the gender gap in social and commercial entrepreneurship.	The gender gap is reduced in social entrepreneurship and the level of economic development influences female participation.
British Council (2017). Activist to Entrepreneur: The Role of Social Enterprise in Supporting Women's Empowerment.	Explore the strengths and weaknesses of social enterprise as a mechanism for empowering women and to consider different ways it is being used for this.	Women social entrepreneurs are an under-utilized resource; they need to be made more effective as a tool enabling women empowerment.
Bibars, I. (2018, November 30). Redefining Success for Women Social Entrepreneurs.	Redefining 'success' of women social entrepreneurs.	There is a need to redefine success and leadership in SE from a gender perspective.
Halberstadt, J., & Spiegler, A. B. (2018). Networks and the idea-fruit process of female social entrepreneurs in South Africa.	Obtain insights on how social relational networks influence female social entrepreneurship.	Social networks are an important part of the personal context which influences the idea-fruit process of female social entrepreneurs.
Humbert, A. L., & Roomi, M.A. (2018). Prone to "care,"? Relating motivations to economic and social performance among women social entrepreneurs in Europe.	To examine the relationship between motivations and social and economic performance among women social entrepreneurs in ten EU countries.	Being driven by self-interest and pro-social motivations, women social entrepreneurs seek to develop alternative business models.
Dionisio, M. (2019). The evolution of social entrepreneurship research: a bibliometric analysis.	To provide an overview of research on SE through a bibliometric study using Gartner's (1985) framework to determine the evolution of this academic field.	The study offered an overview of the development of SE as an emergent field, identified key authors, institutions, and their geographic origins, research and data collection methods, and the key topics analyzed in each category, according to the Gartner's framework.

Source: Own elaboration

SUCCESS FACTORS IN WOMEN SOCIAL ENTREPRENEURSHIP

Critical factors generally contributing to the success of SE include: business planning skills; entrepreneurship orientation; leadership; networking; innovative financing; triple bottom line planning; social enterprise marketing; community engagement; human capital; organizational culture; social impact evaluation; frugal innovation; and government support (Satar & John, 2016). In the case of women SE, a primary factor is that women start organizations that contribute to the goal of creating social value in communities and society (Lortie, Castrogiovanni, & Cox, 2017). Studies have also identified certain personality traits of women social entrepreneurs. Boudreaux (2019) found women entrepreneurs have the

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passion, dedication, and courage to tackle social challenges, make large scale efforts to improve childcare systems, create employment, improve healthcare, environment, education, employment, basic needs, and so on, through partnerships with governments, NGOs, organizations, and corporations, both at the local and global levels. Huysentruyt (2014) observed, given that women social entrepreneurs are more altruistic and socially-minded than their male counterparts, they are able to manage their social enterprise better (than a commercial- pure-for-profit enterprise), especially due to the underlying motivation-to directly take care of the social payoff (e.g., stronger preference for redistribution).

In line with the above, Datta and Gailey (2012) also felt a primary success factor in women SE is their social inclusion and empowerment, visible through economic security, development of entrepreneurial behavior, and in their ability to make increased contributions to the family. Interestingly, Kinbu and Ngoasong (2016) referred to women-owner managers of STFs as vectors of SE capable of promoting local development around tourism. Furthermore, women entrepreneurs are embedded with a social purpose, undergo “self-social transformation” in the male-dominated setting, engage in ‘transformation of others’ through providing employment and training, and income redistribution, and alongside pursue the commercial goal of generating subsistence income that enable women to cater to the needs of their immediate and extended family (Ngoasong, 2016, p. 76). While, according to Humbert (2012), Christopolus and Vogl (2014), more than financial motives, it is the ‘social contribution,’ motivating factor that impels social women entrepreneurs to opt for social innovations. Moreover, as a part of the ecosystem, the socio-cultural context (preference of a social embedded approach) influences network development that facilitates creation/recognition of social entrepreneurial ideas and the support structures in women SE, added Halberstadt and Spiegler (2018).

Meanwhile, the British Council (2017) commented about women SE creating considerable social impacts, “Social enterprise, in its broadest sense, is not a new approach for women’s empowerment organizations, but its use is increasing due to a combination of factors including a changing funding environment, a push from donors for financially sustainable models, and a growing awareness of the opportunities that social enterprise affords.” (p. 53). While Bibars (2018) stated that women in SE have proven they are uniquely capable of empowering women leaders in their field and changing the lives and welfare of all women. The study further leverages the findings of Ashoka’s 2018 Global Impact Study to argue that women in the field of social entrepreneurship have excelled in their ability to create deep and lasting social changes and impacts despite facing gender-specific challenges that interfere in the achievement of their full potential.

From the above discussion, it is seen that the main factor contributing to the success of women SE is their socially embedded approach to run social enterprises that create social value for the community/society as a whole. Additionally, across countries, big strides have been taken by women social entrepreneurs through demonstrating leadership, women empowerment, being empathetic and altruistic, working for the welfare of others, generating employment and income redistribution, all to create deep and lasting social change impact. Given that women are driving SE and creating social impacts (Boudreaux, 2019) such moves should encourage future women entrepreneurs to strive and foster innovations through stakeholders involvement (Nair, 2019) and to use entrepreneurial opportunities to cultivate women’s social innovations (Lindberg et al., 2016) that have positive social impact on wider networks benefitting people across the globe, and thus redefining leadership and success in SE from a gender perspective (Bibars, 2018).

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CHALLENGES IN WOMEN SOCIAL ENTREPRENEURSHIP

Along with the growth opportunities, women social entrepreneurs also face many challenges that need to be tackled. Salovaara and Wade (2018) spoke of the transformative potential of women's leadership in India's social enterprise sector that opens up more entrepreneurial opportunities which come with self-empowerment, and yet face the challenge of 'access to finance.' This is because global social enterprise funders and support organizations, when required to distribute resources, tend to focus on maximum social enterprise impact, positing scalability of the enterprise. However, given that the scales are tied to models from the male-dominated sectors like IT, it may show prejudice to industries that have more women representation. Hence the demand of such a scale seems to be unreasonable, argue the researchers. So, while 'self-empowerment' is a motivating factor for women social entrepreneurs, lack of finance, improper understanding of the concept of a social enterprise by financial institutions and non-financial stakeholders and the public at large, problems related to recruitment and employee retention are the major challenges.

Prior studies have referred to operational challenges faced by social entrepreneurs. Hayes (2009) stated of challenges concerning the growth of social enterprises which has to be perceived from multiple perspectives. For a social enterprise, the creation of social value and profit generation is not mutually exclusive. However, its growth value is likely to be measured from the external beneficiary perspective rather than internal financial metrics. Hence the challenge would be applying a sufficient mix of measures that ensure multiple outcomes of the social enterprise are captured (Hayes, 2009). Ghalwash et al. (2017) referred to other challenges as tackling the 'existing social problems' in the context of the desire to solve unmet social needs, bringing about a change in the society, identifying opportunities, and finding innovative solutions, and the lack of institutional support and funding. In women SE, while highlighting the importance of the socio-cultural context to develop networks that enable the fruition of social entrepreneurial ideas, Halberstadt and Spiegler (2018) found diversity in experiences and competences had a positive impact on their social entrepreneurial outcome, although the opposite was seen in network development and the influence on the idea-fruition process while Smith (2013) mentioned the challenge of Fairtrade gender impacts that can have influence on gender biases in income opportunities, intra-household gender relations, organizational and network dynamics, and socio-cultural, legal and political contexts.

The central focus of social entrepreneurs is on 'social value proposition,' whereas, Nicolás and Rubio (2016) argued that social value generated by commercial enterprises is an indirect consequence of its activity and not the main objective. Nevertheless, since the creation of social value and profit generation are not mutually exclusive in the case of social enterprises, social entrepreneurs would be required to confront the challenges of growth within a business context, observed Hayes (2009). While, women social entrepreneurs are showing more altruistic and social-oriented attitudes than their male counterparts (Huysentruyt, 2014; Nicolás & Rubio, 2016), by operating social enterprises that are small in scale, local in scope, and by using what-ever expertise and resources are available to address the particular community needs, a big challenge is limited resources (financial) and the lack of expertise which inhibits growth and further expansion of their businesses, feel Nicolás and Rubio (2016). Kalpana Shankar, (CEO, 'Hand-in-Hand,' India) perceived another big challenge for women social entrepreneurs is to balance their social performance with the financial performance targets. Furthermore, given that the impact rather than scale drives women social entrepreneurs, they need to accept the drastic changes taking place in the microfinance space, accept that IPOs

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and private equity funding are imminent, and realize that it is important to produce results on par with male-run microfinance organizations (cited in Segran, 2010).

Drawing comparisons between mainstream entrepreneurship and social entrepreneurship Humbert (2012) felt there is a need to consider how ethnicity and gender could affect the magnitude of the obstacles encountered by social entrepreneurs. They suggested future researchers seek answers to the questions: (a) whether the social entrepreneur's tendency to get involved with one's community, though a motivating factor; could simultaneously lead to experiencing multi-disadvantage and discrimination?, and (b) whether women social entrepreneurs experiencing difficulties in accessing finance are more likely to rely on 'bootstrapping' methods of financing their business? While Ghalwash et al. (2017) felt social entrepreneurs would need to understand and realize the legal, bureaucratic, and other environmental challenges likely to be encountered before the establishment of their aspirational social enterprises, which will be critical in building and sustaining their enterprise.

Fotheringham and Saunders (2014) observed that prior literature had assigned women's social enterprises to traditionally gender-segregated sectors where women are the primary employees. However, their ability to be actively involved in higher-level social enterprise development and policy work is shown with limited potential. Additionally, majority of women social enterprises following the WISE model face challenges pertaining to funding, inability to effectively compete with other businesses, insufficient resources to meet the social and economic goals, inter-sector collaborative challenges, lack of government support, and inability to promote the social enterprise model to the public at large (Fotheringham & Saunders, 2014, p. 186). Another concern is regarding women's social entrepreneurial role. Humbert and Roomi (2018) found that women's social entrepreneurial motivations are related to subjective perceptions of social and economic success, albeit disproportionately affected by a double set of expectations. The cultural and societal structures within which they operate give rise to women-specific gender-role expectations. I.e., as entrepreneurs, women should be more 'caring,' and hence perform 'differently' in that role. The challenge lies in women's social entrepreneurs' ability to handle the "care" expectation and alongside fuel their ventures to maximize economic and social outcomes.

Interestingly, while stating that social enterprise is a very effective tool used to empower women across many countries, British Council (2017) reiterated that women social enterprises have great potential- enabling women to raise funds, empowerment through skills development, ability to provide employment and thus create economic opportunities. Nevertheless, they refer to the challenging-limitations as: (1) market constraints (finding the right market), and (2) lack of infrastructure and legislation on the use of social enterprise models for women's empowerment. Of course, such limitations can be overcome through government legislation(s) and public education, adds the study.

From the above discussion it is seen that while women SE promises both economic empowerment and social transformation in the lives of women, they also need to overcome many challenges such as: access to finance/funds, employee recruitment and management, social networks development, Fairtrade gender impacts, matching social performance with financial targets set, understanding the environmental challenges, promoting the SE concept/model to all, and to effectively compete with other businesses. Nevertheless, through effective leadership and building up a conducive ecosystem, women social entrepreneurs will be able to run their enterprise successfully, as is demonstrated in the following case studies.

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CASE STUDY

The following case studies on two different women's social entrepreneurial initiatives would help to understand the practical conduct of women SE.

Jeroo Billimoria (Ashoka, 2017; Wolfe & Werhane, 2017)

Biography in Brief

Jeroo Billimoria is considered to be one of the world's leading social entrepreneurs, managing entrepreneurial start-ups that focus on children, children's welfare, and well-being. She has founded nine social ventures, including MelJol, Childline India, Child Helpline International, Aflatoun International, and Child and Youth Finance International (CYFI). She is a Schwab Fellow of the World Economic Forum, an Ashoka Fellow since 1998, and the recipient of the 'Skoll Award for Social Entrepreneurship' in 2006.

The Social Entrepreneurial Journey

Jeroo Billimoria was born in Mumbai, India, into a family of well-educated professionals who believed in giving back to the less fortunate in the society. The socially motivated influence of both her parents had a profound effect on Jeroo since childhood. She is referred to as an initiator of a global movement, which started as a simple gesture in her teens. At the age of 12, Jeroo started working with the women staff members of her house, encouraging them to put aside some of their earnings as savings and become self-empowered. Later on, she completed M.A from India's reputed Tata Institute of Social Sciences (TISS) and subsequently also pursued M.S. in Nonprofit Management at the New School for Social Research, New York City. It was during this time that she started working with the 'Coalition for the Homeless,' which not only inspired but increased her determination to help others. Of course, after that, she returned to India, traveled the country, started an enterprise that failed, and then started teaching at TISS.

During this time, she founded *MelJol*, an NGO that works towards developing the citizenship skills of young street children (particularly 10 to 15-year-olds), i.e., making them aware of their rights and responsibilities. A laudable initiative is linking the rich children to poor children. Meanwhile, seeing how deeply poverty affected children; prompted the NGO to start focusing on providing them with social and financial education, and on instilling in them the habit of saving at a young age itself. Later on, this became the foundation for the other NGOs established by Jeroo.

In the 1990s, realizing another aspect of poverty could affect children (especially the street children), the precariousness of their lives, prompted Jeroo to set up a hotline where street children could call in for help. This led to the birth of *Childline*, India's first 24-hour, toll-free hotline/ helpline for street children in distress. Alongside the organization also conducts programs to raise awareness on the plight of children living on the margins, in the society. Of course, now, as a part of the Indian government's initiative, many institutions are working with children in banking savings schemes, and alongside NGOs are also asked to motivate street children to open savings accounts.

Incidentally, when living with her family in the Netherlands, Jeroo recognized the impact of the initiatives begun by her in India and decided to make these concepts global movements. This led to her founding *the Child Helpline International*, *Aflatoun*, and *Child and Youth Finance International (CYFI)*. *Aflatoun* works with children in over 100 countries to provide them with social and financial skills

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and education, which enables them to set goals for themselves and can change their lives for the better. Similarly, *CYFI* partners with governments, other NGOs, and financial and educational institutions to help break the cycle of poverty by developing children's entrepreneurial skills, including the financial literacy required for success. Furthermore, it works with governments and other bodies to advance policies that promote these educational endeavors (Wolfe & Werhane, 2017, p. 22)

The major challenges Jeroo faced as a social entrepreneur are 'gender inequality' and the 'age factor.' For instance, in India, she found it difficult to be taken seriously as a young social entrepreneur.

Similarly, as an immigrant in the Netherlands, she had to prove her creditability to be taken seriously. Furthermore, women in the Netherlands had their own set of struggles given the nuclear family system prevalent there, unlike the strong family support system in India. Nevertheless, this only made her stronger and helped in the creation of a solid support network comprising of colleagues and family. Incidentally, Jeroo also acknowledges the influence of mentors and role models (her mother, husband, former officials, among others) in the path of her social entrepreneurial journey.

Jeroo concurs about the changes in the contemporary socio-cultural environment with more women joining the workforce, which signifies a more positive outlook for young women in India. Similarly, progress is visible in the Netherlands, taking the form of women's rights, respect being given to "self-made choices," i.e., women are respected for their 'choices' irrespective of whether they choose to stay at home or work part-time or work full-time.

As a women social entrepreneur, Jeroo has displayed two characteristics: fearlessness and extraordinary self-confidence, which is critical in women entrepreneurial leadership ventures. Jeroo feels that every woman must 'believe in herself' and 'confidently make a choice' of what she wants to do. Of course, the endless energy and skills displayed in leading various social programs are what make Jeroo a strong leader in the nonprofit sector.

Heidi Kuhn: Roots of Peace (Skoll, 2018; Roots of Peace, 2019)

Biography in Brief

Heidi Kuhn is a graduate in Political Economics of Industrial Societies from the University of California (Berkeley), who was awarded a Gubernatorial Appointment to the California Council of the Humanities in 1996. She is the recipient of prestigious awards like Cal Berkeley Alumni Award for Excellence and Achievement in 2002, and the Jacqueline Kennedy Onassis Award/ National Jefferson Award for Public Service in June 2007. Before starting Roots of Peace, Heidi owned her television news organization, NewsLink International. Reporting for CNN, ABC, CBS, NBC, Nippon Television, and other major media organizations, she earned a reputation for bridging 'borders for peace.' As a cancer survivor, she envisioned the issue of landmines as a curable disease—removal, and was prompted to start '*Roots of Peace*.'

Since the formation of Roots of Peace (in 1997), Heidi has received many other awards (The Skoll Social Entrepreneurship Award, the WANGO World Association of Non-Governmental Award for Peace & Security) which are recognitions at local and international levels on the applications of new modern technology and farming techniques resulting in increased yields and sustainability. Additionally, duly considering her dedication and leadership on the "landmine issue," a formal Proclamation from the United Nations Environment Program, officially recognizing that "Landmines are an environmental concern" was accepted on April 30, 2007.

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The Social Entrepreneurial Journey

Heidi Kuhn (Founder and CEO, Roots of Peace) was deeply inspired by late Princess Diana (who had catapulted the issue of landmines to the forefront of the international agenda) to create a global initiative, an organization dedicated to the eradication of landmines worldwide, using a simple toast “the world may go from Mines to Vines.” For her entrepreneurial plunge, Heidi obtained the support of over 400 California vintners (including many legendary Vinters such as Robert Mondavi, Mike Grgich, and Diane Disney Miller) to replace the scourge of landmines with the nectar of grapes in war-torn countries, i.e., to transform “seeds of terror” into “seeds of hope”. She envisioned the “grapevine” as a symbol of hope, and her vision was to transform “swords into plowshares,” which implied to engage, educate and empower an entire nation to create sustainable economic programs for the future generations. Before commencing the program in a war-torn country, Roots of Peace seeks the help of demining partners (e.g., organizations such as MAG and HALO) to safely remove leftover munitions, after which they get involved in programs that help to return the land to economic self-sufficiency.

Roots of Peace first try to understand the needs of farmers in a given community, tailor-make projects to meet the needs, improve the income of small-holder farmers, and help to establish lasting peace in their community. The methodology adopted is to provide market-driven solutions tailor-made to the needs of rural communities of war-torn lands that catalyze the industry-wide development. To help the farmers of a war-torn land, Roots of Peace identifies the best markets for the product and the customers’ demands. After that, the farmers are trained to meet the set standard such that it maximizes their incomes. To overcome the issue of fractured supply chains, Roots of Peace get involved with the farmers at every step in the supply chain; to ensure that the product reaches the most attractive market on equal and competitive terms.

Furthermore, when farmers produce higher yields of improved quality, Roots of Peace help to identify high-value markets interested in such products and create linkages directly from the markets to the concerned farmers and associations. This helps the farmer to understand the needs of the market and suitably modify the production, harvesting, and post-harvest processes. Alongside it helps to develop stronger-ties and relationships with the markets, which ultimately results in improved incomes. Roots of Peace has impacted over 1.1 million farmers and family members across seven countries (Afghanistan, Angola, Cambodia, Croatia, Iraq, Vietnam, and Israel/Palestine), facilitated exports worth over USD \$250 million, and, along with their demining partners facilitated the removal of over 105,000 landmines and unexploded bombs.

A big challenge faced by Roots of Peace has been to help rural communities of war-torn lands in post-conflict countries to rebuild their lives with a source of income to sustain themselves and their families. These include more than 500 million smallholder housing households living on less than \$2 a day. Nevertheless, Roots of Peace has helped farmers to apply new modern technology and farming techniques resulting in increased yields and sustainability, which increases their incomes too.

For more than twenty years Roots of Peace has been successfully working to convert their social entrepreneur founder, Heidi’s social valued vision of transforming “swords into plowshares” into the mission “committed to replace the remnants of war with the roots of peace, where planting peace and prosperity is their product and global legacy.” Heidi’s traits of being raised with values ‘to respect the earth and its people,’ the ideals of which were established by her family (early pioneers in the 1800s), enabled her to embrace and practice these core values. Moreover, seeing the opportunity to eradicate landmines (“cancer” to the Earth) motivated her to start Roots of Peace.

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The above-discussed case studies have illustrated the leadership skill demonstrated by each woman social entrepreneur in making all efforts to work for their respective social-value oriented goals even in the face of challenges. Their tenacity to forge ahead for a social-cause and work at creating a suitable ecosystem (markets, customers, socio-culture, participation, support, and others) has helped them to taste success in their social entrepreneurial plunge. These aspects were highlighted in prior studies (e.g., British Council, 2017) too. It may merit mentioning that a frequently stated challenge in many studies, ‘access to funds,’ does not seem to be a problem for both Jeroo and Heidi, implying that they were able to raise funds. This is in line with Bosma et al. (2016), Kinbu and Ngoasong (2016), who also found women social entrepreneurs can raise funds, feel empowered, provide employment and create economic opportunities, as in the above case studies. However, Richardson et al. (2017) stated that many women are unable to take advantage of SE due to a lack of knowledge, skills, assets, and resources. Nevertheless, as the two women, social entrepreneurs have shown, it is possible to counter such challenges and achieve one’s social-value goal in SE through building a supportive ecosystem.

CONCLUSION

The discussion thus far in the chapter has indicated that ‘social value’ mission is of central focus in all SE, where revenue generation though important, takes a secondary, supportive role. Nevertheless, social entrepreneurial activities have far-reaching economic developments like social value creation through the enhancement of growth, reduction in poverty, and improvising social development on a large scale basis (Jiao, 2011). Additionally, researchers noted that desirability and feasibility of the social entrepreneur in the decision-making process, human capital, and social capital at the individual level, along with social and institutional environment factors would promote SE activities, pushing for social improvement, which have ‘positive effects’ on more initiations of social entrepreneurial activities and social enterprises (Peredo & McLean, 2006; Austin et al., 2012; Satar & John, 2016; Brush et al., 2019).

The main theme in the chapter was to discuss how women SE can create social value. Prior studies (like Nair, 2019) felt there is a need to address ‘gender bias’ embedded into entrepreneurship, given that it contributes to women empowerment and economic development in the field of SE (Bibars, 2018). Simultaneously, women social entrepreneurs also face different types of challenges, including want of access to funds, communicating about SE value model, markets, price setting, and others that impede the path of their SE growth. Meanwhile, although the reduction in gender gap is seen in SE (Nicolás & Rubio, 2016), many studies observed there is a dearth of research on women SE even though women display SE potentials (Littlewood & Khan, 2018; Halberstadt & Spiegler, 2018). This chapter, through reviewing prior studies, sought to identify factors that have contributed to the success of women SE, and also discussed the challenges they encounter in the path of their SE plunge. Moreover, given that they aim to provide social value to the community as a whole (Lortie et al., 2017), women social entrepreneurs face additional challenges in delivering the social value embeddedness ‘vision’ and ‘mission’ in addition to the commercial value (Kinbu & Ngoasong, 2016).

To build up the link between theory and the practical conduct, case studies of two women, social entrepreneurs, were also discussed. The cases illustrated how the women social entrepreneurs, Jeroo and Heidi tried to solve large-scale social problems sustainably by implementing innovative and creative ideas. This finds support in Humbert (2012); Christopolus and Vogl (2014), who had felt that more than financial motives, it is the ‘social contribution’ motivating factor, which impels women social entrepreneurs

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to create social value. Moreover, as confirmed by Boudreaux (2019), their passion, dedication, courage, strong intention-mindset towards a social goal and leadership skill in initiating innovative solutions also played a pivotal role in the SE success of Jeroo and Heidi. These aspects find support in prior studies like Ghalwash et al. (2017); Omorede (2014); Ülgen (2019). Thus, interestingly, as an answer to the research question, it could be stated that the personality traits: strong mindset towards the social-value goal set, perseverance, socio-cultural background (concern for the less fortunate), innovative thinking, creating employment, and so on, are the self-motivated factors that have contributed to the success of the two women social entrepreneurs and also helped in overcoming challenges (gender-role, social innovation, markets, and others) in the pursuit of 'their' social goal's.

IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Given that prior studies (e.g., Humbert, 2012; Huysentruyt, 2014; Kinbu & Ngoasong, 2016) noted, there is insufficient literature available on women's social entrepreneurs, using review of literature method this chapter attempted to discuss different aspects of women SE. Alongside two case studies of women social entrepreneurs were briefly discussed to build the link between theory and practice. This information would help add to the existing knowledge base on women SE, and interest academia and researchers pursuing this field of study. While the two case studies helped to draw the link between literature and successful women-driven SE that create social impacts (Lindberg et al., 2016; Boudreaux, 2019), it also implies that future women social entrepreneurs may be encouraged to initiate social-value added entrepreneurship. Furthermore, future researchers could opt to conduct a primary study through face-to-face interviews with women social entrepreneurs who run and manage different sizes and types of social enterprises to gauge an understanding of the operational challenges encountered and addressed.

Studies (e.g., Nicolás & Rubio, 2016) found women SE is influenced by the level of economic development in the country, implying the need to explore SE opportunities accordingly. For instance, it will be highly challenging for Swiss social stakeholders to bring innovative solutions to the Indian market (Swissnex India Consulate General of Switzerland, 2015) and capitalize on SE opportunities available. This is due to the challenges they would have to counter in India's vibrant social enterprise ecosystem: an openness to market-driven approaches, foreign capital which would drive entrepreneurs in India in the future, India's new rich who are exploring alternative philanthropy, abundance of domestic social impact funds which have supported the ecosystem for more than a decade and the Indian Government which has funded many social initiatives whereas the social entrepreneurial ecosystem is likely to be different in a developed market like Switzerland. This implies another area of study future researchers should explore cross-country women SE comparative studies, which could throw up interesting findings.

Nevertheless, given that there are many benefits of women SE (reducing gender inequality, the economic and social development as it creates social and economic value, adopting innovations or innovative methods to address societal problems, create social capital in the form of a network of long-term social and mutually interested sustainable relationships, is critical in addressing social issues and in the creation of social value for the community), it could be concluded that this is a positive force to reckon with; fostering a more equitable society that addresses social issues innovatively (Lindberg et al., 2016) and seeks to achieve sustainable impact through their social missions (Bibars, 2018), and hence, would encourage an upsurge of more women social enterprises, is assumed.

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KEY TERMS AND DEFINITIONS

Entrepreneurial Ecosystem: The social, economic, and other environment domains in which an entrepreneur operates, and can, directly and indirectly, affect the entrepreneurial success and impact.

Social Enterprises: A social enterprise is a social cause-driven business whose main aim is to improve certain social objectives for the common good of the community.

Social Entrepreneurship: A process by which organizations lookout for innovative ways to address intractable social problems such as hunger, poverty, education, and others.

Social Innovations: Social innovations are new social practices aimed at meeting the social needs of the community in a better way than the existing one.

Social Networks: A social structure made up of individuals and organizations with similar interests who come together to share information or hold discussions of common interests.

Social Value: When an enterprise uses a business model that creates social impact, serving the common good of the community/society, it creates social value.

Sustainability: Sustainability means being consistent in meeting one's own needs without compromising the ability of future generations to meet their own needs

Women Empowerment: Women empowerment refers to a social transformation, with women having the power to act freely, exercise their rights, and make decisions on what and how to do what they want to do.

Women Social Entrepreneur: A woman who initiates, organizes, and runs a social business enterprise intending to create social value for the community.

Chapter 19

Challenges in the Informal Sector: A Tale of Four Successful Entrepreneurs in the Makola Market in Ghana

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ABSTRACT

Owing to the highly competitive and volatile business environment, companies in the West African markets face significant challenges. This study was conducted to examine the challenges faced in the marketplace in Ghana by successful entrepreneurs. Accra was intentionally sampled for the analysis of four successful entrepreneurs from the Makola market. Findings revealed that access to finance, high competition, instability in macroeconomic indicators, poor management competences, lack of skilled labor and deficiencies in marketing strategies are the major factors confronting the survival of entrepreneurs in the marketplace. The results provide insights into the important and current challenges facing entrepreneurs in the informal sectors. Recommendations were made to help overcome the challenges faced by business people in their operations.

INTRODUCTION

Currently, much attention has been focused on the entrepreneurship in the informal sectors (Darbi, Hall, & Knott, 2018; Williams, Matinez-Perez, & Kadir, 2017; William & Kadir, 2018). This is important because the informal sector contributes much towards the growth of the economy (Williams et al., 2017; Li, Ahmed & Qalati, 2019) and improve entrepreneurs' finances (Patel & Wolfe, 2019). According to the ILO (2012), the non-agricultural labor force engaging in informal entrepreneurship in Sub-Saharan Africa

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is approximately 26 percent, and that the informal employment accounts for a significant percentage of total non-agricultural employment in Africa. In Eastern Africa, the percentage exceeds 50 percent and reaches as high as 76.2 percent in the United Republic of Tanzania and 81.8 percent in Mali. The ILO (2012) further notes that in Sub-Saharan Africa, persons employed in the informal sector far outweigh those in formal employment. Undoubtedly, the sector has created several opportunities for the majority of individuals in several developing economies. Even though the sector is not well structured, it provides more employment than the formal sector (Mbaye & Benjamin, 2014).

In Ghana, the Ministry of Trade and Industry (2012) notes that the informal sector constitutes about 70 percent of the industrial sector, and has substantial potential to become the engine of growth of the economy. Furthermore, they perform a strategic role by accounting for 95 percent of the total number of business establishments. Therefore, entrepreneurs in the informal sector contribute substantially to employment and income generation. This is evident by the Ghana Investment Promotion Centre's (2016) argument that the informal sector constitutes the vast majority of businesses in Ghana. Principally, entrepreneurs in the informal sector have contributed to expanding output and creating employment opportunities, especially in the services sector, which largely contributes to broadening Ghana's export base. This study, therefore, assesses the challenges entrepreneurs in the Makola market encounter that affect their survival.

BACKGROUND

However, although, growth in entrepreneurship leads to increase in the economic well-being of a country (Agholor, Smith, Akeem, & Seriki, 2015; Chinomona & Maziriri, 2015; Williams et al., 2017; Li, Ahmed, & Qalati, 2019), they still face turbulent challenges in their quest to operating their businesses (Nyamwanza, Mapetere, Mavhiki, & Dzingirai, 2012; Akhalwaya & Hawenga, 2012; Chinomona & Maziri, 2015). For instance, according to the Ministry of Trade and Industry (2012), 67 percent of new businesses survive for at least two years, and only 44 percent survive for at least four years. This has caused the sector to be perceived by investors as a high-risk investment area. For instance, there are several studies conducted in Africa on the challenges that entrepreneurs face in doing their businesses (Deborah, Wilhelmina, Oyelana, & Ibrahim, 2015; Chinomona & Maziriri, 2015; Henry, Orser, Coleman, & Foss, 2017; Jones et al., 2018). This makes the challenges faced among entrepreneurs in the informal sector, an important concept. Several challenges, including fire outbreaks and poor structure of the market, exist in the market. Other challenges that entrepreneurs face gender discrimination, lack of requisite competencies, cultural and social attitudes (Akhalwaya & Havenga, 2012), access to credit facilities (Gichuki et al., 2014; Ndemi & Mungai, 2018).

Nevertheless, although there are several studies on entrepreneurship in West Africa, there is limited attention to the challenges that entrepreneurs face in Ghana. For instance, studies have shown that some of the challenges that entrepreneurs face are access to credit in the informal sector in the developing countries (Gichuki, Njeru, & Trimba, 2014; Ndemi & Mungai, 2018). This study examines four women and the major challenges that they face. This study is conducted in the Makola market, one of the largest markets that house most entrepreneurs in Ghana. The findings indicated several challenges that entrepreneurs in the informal sector face, particularly, the Makola Market in Ghana. The research implication of this study is that, first, it will help bridge the gap in the literature on the challenges that entrepreneurs

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face in West Africa, particularly Ghana. Besides, the outcomes of the study will help policy-makers to facilitate appropriate measures to help women entrepreneurs to resolve some of the challenges that they encounter in transacting their businesses. This, in effect, may help to increase the economic growth of the informal sector in Ghana.

Limited Research and Development (R&D)

The impacts of globalization have pressured entrepreneurs in the informal sector to greater demands (Raymond & St-Pierre, 2004; Raymond, Uwizeyemungu, Fabi, & St-Pierre, 2018). Particularly, in the manufacturing sector, entrepreneurs are facing pressure to increase research and development, innovation, and quality. Innovation relies on bringing together different types of research and utilizing this knowledge to design new products. Therefore, without an R&D focus, entrepreneurs' risk falling behind competitors in innovative new products (Morrison, 2006).

The Economy of Ghana

Ghana is situated in Africa's western part. Originally referred to as the Gold Coast. Ghana had its Independence on March 6, 1957. The Greater Accra region has the largest population of 2,270,000 million (World Population Review). This followed by Kumasi 1,468,609 people, and the third-highest is Tamale with 360,579 inhabitants (World Factbook, 2019). According to the World Bank, Ghana's current population is around 29,767,108 million in 2018, and the annual population rate of 6.3%. In 2018, the rate of inflation was 10.2% of GDP in the country. In 2019, the population of Ghana was 30,615,214. Out of the 30,615,214 inhabitants in Ghana, about 50.68% are male and female 49.32%. Different sectors in the country contribute to GDP. For example, the Agriculture, Fisheries, and Forestry Sector accounts for about 20% of GDP, with 31% of GDP contributed by the industry sector. Exports of goods and services amounted to 35%, and imports amounted to 38% in 2018. Besides, the volume of credit facilities provided to financial institutions was 20.6% of total revenue and the tax revenue is 18.3% (World Bank, 2018). Table 1 shows the age structure in Ghana. According to figures by the International Labor Organization, youth unemployment in Ghana was 13.7% in 2018.

Table 1. The age structure of the population of Ghana

Age Structure	Percentage	Male Population/ Female Population
0 – 14 years	37.83%	5,344,146 / 5,286,383
15 – 24 years	18.61%	2,600,390 / 2,629,660
25 – 54 years	34.21%	4,663,234 / 4,950,888
55 – 64 years	5.05%	690,327 / 727,957
65 years and over	4.3%	557,155 / 652,331

Source: (World Factbook, 2018)

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THEORETICAL FRAMEWORK

Resource Based-View Theory

Resources are essential for a firm's competitive advantage. Therefore, providing sufficient resource support and policies to create capabilities is critical for entrepreneurs' growth (Rindova & Fombrun, 2009). The resource-based view theory historically emanates from the Penrosean argument that competitive advantage can only be achieved by the effective and efficient employment of all resources available to a firm (Mahoney, 2011). The theory was propounded by Penrose (1959) and served as a strategic management framework for the effective management of the resources of a business.

Contextually, a resource is a production factor made available to a firm either internally or externally, to create a competitive advantage for the firm (Olalla, 2009). Essentially, such resources could be the strengths or weaknesses of a given firm and are either tangible or intangible assets. Tangible resources consist of financial, organizational, physical, and technological resources. Intangibles consist of entrepreneurial knowledge, skills, experiences, organizational processes, and reputation (Eniola & Entebang, 2014). Therefore, from a Penrosean perspective, this study assumes that entrepreneurs in the informal sector need both intangibles and tangibles resources.

According to the theory, the possession of more resources by a business does not alone result in the creation and maintenance of economic value; rather, the effective and inventive managing of such resources. Against this background, Dundas (2006) argued that a lack of relevant resources for the operation of a firm reduces the firm's innovation activities. Therefore, it is viable to take advantage of external opportunities using existing resources efficiently and effectively, rather than seeking to gather new capabilities for every exclusive possibility (Eniola & Entebang, 2015).

The implication of the theory for this study is that entrepreneurs in the informal sector with financial resources like access to credit and superior capabilities like entrepreneurship knowledge will build up a basis for gaining and sustaining competitive advantage. This is based on the argument that the survival of entrepreneurs in the informal sector is a dynamic process of management interacting with resources like access to credit and effectively using the credit for productive purposes. In other words, the theory provides the framework to explain how entrepreneurs in the informal sector can have better access to resources that enable them to survive the challenges of the industry (Saiz-Álvarez & Palma-Ruiz, 2019).

The implication of this theory in exploring the survival strategies of entrepreneurs in the informal sector is that the theory provides a strategic toolkit for the entrepreneur, based upon organizational and environmental conditions. This, according to Wooliscroft (2012), creates the opportunity for entrepreneurs to select among viable alternatives, the most effective strategy to achieve organizational growth. In order for entrepreneurs in the Makola market to survive in the informal sector, there is the need for them to consider many types of strategies, since each would be unique to the market situation at hand, and communicate to a target market the benefits and features of a product.

Deductively, every entrepreneur should be able to manage their resources in order to be more innovative, productive, and competitive. Thus, the survival of entrepreneurs depends on how they manage their resources to obtain a sustainable competitive advantage. The application of the theory is to help understand and appreciate entrepreneurs' innovative and productive ways of utilizing their resources to survive in the industry.

Criticisms of the Resource Based-View Theory

There is a drawback of resource-based-view theory. For example, there are discussions about the effectiveness of the resource based-view concept. For example, some commentators have argued that the concept is vague: lack of parameters for assessing inimitability (Bromiley & Rau, 2016; Priem & Bulter, 2001). They also argue that the resource based-view theory does not clearly define the competitive advantage and how the link between the impact of resources on competitive advantage can be assessed. Moreover, the focus on the development of unique resources alone cannot help the organization to gain a sustained competitive advantage (Priem & Butler, 2001; Bromiley & Rau, 2016).

CHALLENGES OF ENTREPRENEURS IN THE INFORMAL SECTOR

Numerous factors have been named to explain the success of entrepreneurs (Cagliano & Spina, 2002). Some relate to the external environment in which they operate, while others relate to the industry atmosphere that characterizes the informal sector. A review of the relevant challenges that confront entrepreneurs in becoming successful is presented.

Access to Credit

Fundamentally, entrepreneurs in this era of globalization require much more inputs of some sort to be able to establish, survive, and grow. This is explained by Greenspan (2005) that the contemporary financial environment is much more complex than it was before. This means that it is important for entrepreneurs to gain more knowledge on a range of products and services offered by financial institutions, including access to credit and its management. Thus, merely survive as a business enterprise requires a rigorous ability to overcome business challenges. One such biggest challenge for entrepreneurs is access to credit (Mbroh & Attom, 2012; Gichuki et al., 2014; Ndemi & Mungai, 2018). Gichuki, Njeru, and Tirimba (2014) noted that the entrepreneur's access to credit is one of the most disturbing challenges facing persons in the informal sector in developing countries.

However, for the start-up, survival, and expansion of micro-businesses, there needs to be access to and constant flow of capital into these enterprises. Financial access is critical for the growth of entrepreneurs since it enables them to build capacity, trust, and innovation (Bharti & Shylendra, 2011). This is because; capital acquired through micro-crediting is recognized by entrepreneurs as the most important prerequisites to establish an enterprise. However, in developing countries, including Ghana, the majority of entrepreneurs are unable to acquire the finance they need to reach their full potential.

Compared to other developing countries, Ghana has a relatively sophisticated banking sector. However, this largely prognosticates well for established formal enterprises. Banks are often not willing to lend to informal businesses, while financial assistance programmes provided by government departments and agencies are administratively over-complex and largely inaccessible (SBP, 2011). The lack of access to credit has been a perennial problem for many entrepreneurs. It has, therefore, according to Kayanula and Quartey (2000), been a subject of interest for several researchers, policymakers, and governments. Major factors that influence access to credit among entrepreneurs include the inability to provide collateral, lack of entrepreneurial and business management skills, low financial literacy, regulatory constraints, local marketing constraints, difficulties in gaining access to appropriate technologies, and information

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on available techniques (Akoto-Sampong, 2011). The deduction is that the financing of entrepreneurs is a global issue that needs to be tackled since entrepreneurs need capital to grow their businesses, which can only be possible if they get access to credit.

Inadequate Access to Infrastructure

Adequate infrastructure is important for entrepreneurs as it improves general working conditions. As such, it would be difficult for many entrepreneurs to cope with the absence of the relevant infrastructure (Rogerson, 2004). For Watson (2009), the failure to recognize its importance can partly be blamed on the failure to accommodate informal work in the original designs of Ghana cities. Cichello, Almeleh, Mncube, and Oosthuizen (2011) stated that, unlike their counterparts in the formal sector, many informal operators could barely afford to pay market-related prices. Consequently, this renders informal enterprises vulnerable to a range of detrimental factors such as theft due to their operation in high-risk infrastructure. Other researchers have also found that entrepreneurs have issues with access to infrastructure to help them operate efficiently (Igwi, Adebayo, Olakanmi, Ogbonna, & Anne, 2013; Nwibo & Okorie, 2013; Henning & Akoob, 2017).

Inadequate Access to Markets

Entrepreneurs are often less able than larger firms to take advantage of emerging market opportunities (Chen, Jhabvala, & Lund, 2002). Access to markets is an important business growth measure for those working in both the formal and informal sectors. However, formal businesses appear to be better placed than informal businesses to capture the opportunities that global markets present. This often renders informal business unlikely to cope, given the predominantly low innovative capabilities and competencies by which they are generally characterized (Basardien, Parker, Bayat, Friedrich, & Appoles, 2014). The lack of access to markets accounts for the reason why entrepreneurs in the informal sector are continuously servicing saturated markets. This is seen in their habitually low-profit margins (Basardien et al., 2014). There is also a lack of market information for entrepreneurs (Nwibo & Okorie, 2013) and insufficient market stalls for them to operate (Henning & Akoob, 2017).

Difficulty in Accessing Support From Government

There is generally little effective government support and assistance available to entrepreneurs in the informal sector wishing to access international markets (OECD, 2006). In other economies, there are programmes, but entrepreneurs in the informal sector often do not know about them, or how to access them. Where they do, OECD (2006) notes that the process of getting support often appears complex, time-consuming, and burdensome. This has resulted in entrepreneurs opting out of using the available support; however, most of those who utilize it consider it to be beneficial. For instance, Okeke (2014) has made efforts to help entrepreneurs in accessing the Millennial Development Goals; entrepreneurs still have issues such as inadequate access to finance, electricity supply, and poor transportation.

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Burdensome Government Regulations

As stated by the World Bank (2000), complex tax systems are the factors that affect the growth of entrepreneurs. This is to say that, to facilitate future growth, the entrepreneurs could reinvest the resources which they could have directed towards tax compliance. Accordingly, it is believed that a complex tax system and taxes, in general, put an unnecessary burden on entrepreneurs in the informal sector. Consequently, to increase the profit margin of entrepreneurs, the tax rates and compliance costs must be reduced (Vasak, 2008). That aside, taxes are indispensable. They fund public amenities, infrastructure, and services that are fundamental for any economy to function properly.

Notwithstanding the importance of taxes, rate levels need to be chosen carefully, and unnecessary tax rules complexities avoided. The World Bank (2011) states that in economies where paying taxes proves to be more difficult and costly, the informal sector (where businesses pay no taxes at all) ends up with larger shares of economic activity. In Ghana, NBSSI (2002) note that the tax rates applied by districts are hardly uniform and rarely predictable, resulting in extreme insecurity in the entrepreneurs. Many reports have shown that entrepreneurs have insufficient government support to support their companies. These include a bad legal framework, increased taxes, and a lengthy procedure related to the registration and licensing of their company (Nwibo & Okori, 2013).

Inadequate Appropriate Technology

Informal sector entrepreneurs are characterized by low productivity and are weak when it comes to competition. This is because they do not use advanced technology, not maximizing machinery utility and not improving in technology due to the limitation of funding. In keeping with OSMEP (2007), the majority of entrepreneurs in the informal sector are primarily exposed to technology but are not easily familiarized. Many managers are not aware of applying accurate technology in their businesses and cannot choose the appropriate technology for their businesses. However, entrepreneurs need to come up with the most tactical decisions in business. Thus, the support of the government in technology initiatives and networks with research institutions ought to support entrepreneurs with the development of technology (Courseault, Payne, & Kongthon, 2006).

Taxes Levied

One of the major challenges facing traders in the market is the several numbers of taxes levied on them, which has become a large financial burden (MoF, 2014). From time immemorial, congestion continues to be a major challenge confronting the market; it attracts volumes of both human and vehicular traffic commuting daily to the center to trade in goods and services. Fire management in the market has also been a challenge due to poor market structure, inadequate firefighting equipment, and firefighting personnel, and lack of funds to intensify essential fire management approach (MoF, 2014). For example, Nwibo and Okori (2013) found that one of the issues faced by entrepreneurs is the increased payment of taxes imposed on them by the state.

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INSTITUTIONS PROMOTING THE INFORMAL SECTOR GHANA

The Economic Recovery Programme instituted in 1983 has expanded the support provided by institutions to informal sector entrepreneurship in Ghana.

The National Board for Small Scale Industries (NBSSI)

The National Board for Small Scale Industries, a publicly funded organization, is the main organization tasked with the duty of promoting and developing micro-businesses in Ghana. It was established within the Ministry of Industry, Science and Technology to deal with the needs of small businesses. On this count, the NBSSI established an Entrepreneurial Development Programme aimed at helping persons with entrepreneurial abilities to become self-employed through training and assistance. The present form of the NBSSI has the main objectives of:

1. Contributing to the creation of an enabling environment for small-scale enterprise development.
2. Contributing to the development of an enterprise culture in Ghana.
3. Providing non-financial support for small-scale business development.
4. Facilitating access to credit for small-scale enterprises.

The NBSSI is further supporting the micro-business sector with technical and advisory services through its regional Business Advisory Centers found in the ten regions of the country. It provides training to the micro-entrepreneurs in preparation of business plans, bookkeeping, and simple business management practices.

GRATIS Foundation

The GRATIS Foundation has the mandate to promote small-scale industrialization in Ghana through the transfer of appropriate technologies to small-scale industrialists through training, manufacturing, and the supply of machinery (tools, plants, and equipment). GRATIS functions via a system of Intermediate Technology Transfer Units (ITTUs), now called Regional Technology Transfer Centres (RTTCs). The RTTCs exist in nine regions of the country. They are in charge of giving hands-on short- and long-term training for small business entrepreneurs in areas such as metal fabrication and design, textiles, pottery, and soap making. GRATIS Foundation has also provided training, business, and technical advice, access to equipment and tools, to enable artisans and entrepreneurs to have hands-on experience (Ayeetey et al., 2001). The services given by GRATIS and the RTTCs are made possible through the help of the Government of Ghana, the European Union, and the Canadian International Development Agency (CIDA).

Micro-Finance and Small Loans Centre (MASLOC)

MASLOC is a micro-finance apex body responsible for implementing the Government of Ghana's (GoG) micro-finance programmes targeted at reducing poverty, creating jobs and wealth. It was established in 2006 to provide, manage, and regulate approved funds for microfinance and small scale credit, loan schemes, and programmes. It also seeks to provide business advisory services, training, and capacity building for small and medium scale enterprises (MASLOC, 2006).

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Ghana Investment Promotion Centre

The Ghana Investment Promotion Centre (GIPC) is a government agency responsible under the GIPC Act, 2013 (Act 865) to encourage and promote investments in Ghana, provide for the creation of an attractive incentive framework, and a transparent, predictable and facilitating environment for investments in Ghana. Therefore, investment in the informal sector is a key role of the GIPC.

METHODOLOGY

Research Approach

This study employed a qualitative research approach. Its application in this study is based on the richness and depth of its explorations and descriptions. Thus, the qualitative design is used here to gain rich information and a deeper understanding of the challenges of entrepreneurs in the informal sector since it can uncover complex understanding and opinions (Saunders, Lewis, & Thornhill, 2012).

Research Design

The case study design is adopted for this research since it is most appropriate for exploratory research. For instance, it seeks to gain explanations of social behavior like the challenges that are faced by women entrepreneurs in the informal sector, specifically, Makola Market in Ghana. The Makola Market was chosen as a case study because it is one of the largest markets housing several informal markets. Despite the strengths of the case study design, it is limited in the generalization of its findings to a larger population. According to Yin (1994), results from case studies using either single or multiple designs cannot be generalized. Also, case study designs lack rigor and are too difficult to conduct since they can produce a great deal of data over some time.

Population and Sample Techniques

The unit of analysis used for this research is limited to four successful entrepreneurs who faced challenges in the informal market such as Makola. Fundamentally, including every individual in the study population is difficult because it is too expensive and time-consuming (Castillo, 2009). Thus, even if it is possible, it is unnecessary to collect data from all successful entrepreneurs in the Makola market in order to get valid findings. This informed the choice of relying on sampling technique in this study.

Furthermore, according to Maxim (1999), irrespective of the process employed in data collection, some strategies are needed to decide the units to be measured and included in a study. The ones to be excluded from the research population. The purposive sampling technique was employed in the sampling of the entrepreneurs. Gay (1992) argues that the logic and power of purposive sampling lies in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research.

The entrepreneurs were purposively selected since the researcher wants to discover, understand, and gain insights into the survival strategies of the entrepreneurs, and must, therefore, select a sample from which the most can be learned. All the entrepreneurs were purposively identified and included in the

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interviews using the number of years of being in business as the basis. Thus for this study, the number of years of one being in business (less than 10 years, 10-20 years, 21-30 years, and above 30 years) formed the basis of purposive sampling. This ensured that the study covers a range of entrepreneurs who have survived different periods of operation. However, the sampled only covered entrepreneurs that were willing to grant interviews to the researcher.

Sampling Size

A sample size of four successful entrepreneurs participated in the study. This is based on Crouch's (2006) suggestion that, in the case of qualitative research, small samples of less than 20, enhances the validity of fine-grained and in-depth inquiry.

Data Collection Instruments

The collection of the relevant qualitative data for this study was done using interview guides where open-ended interviews were conducted with the participants. This was to present the entrepreneurs a chance to voice their opinions as it will enable the researcher to obtain the sought in-depth information on the strategies that facilitate their survival. Open-ended interviews are a data collection method that is usually conducted face to face between the interviewer and the participants allowing the researcher to control the process and allowing freedom for respondents to express their thoughts (O'Leary, 2004). In-depth interviews were used in this study based on Guion, Diehl, and McDonald's (2013) assertion that qualitative interviews are excellent tools to use in planning and evaluating programmes because they use an open-ended, discovery-oriented method. This allowed the researcher to explore the respondents' perspectives on their survival strategies deeply. Although unstructured interviews are labor-intensive to conduct and they are effective means of collecting high-quality data (Saunders, Lewis, & Thornhill, 2012)

Prior appointments with the key informants were secured. At the meeting with each respondent, the purpose of the study was explained, and all questions in this regard answered. The responses from the interviews were audio-recorded and complemented with written notes (i.e., field notes) by the researcher with the permission of the participants. Written notes include observations of both verbal and non-verbal behaviors as they occurred and immediate personal reflections about the interview. Each interview lasted between 15-20 minutes. This was necessary to eliminate the boredom often associated with long interviews, including interviewer fatigue. The interviews also took place in the location selected by the respondents to ensure that they are more comfortable. In other words, all interviews were performed in private environments.

Ethical matters or considerations are very vital for every research project or study (McNamara, 1994). The significant ethical issues considered in this research process include respondents' consent and confidentiality. To secure the consent of the selected participants, the researcher relayed all necessary details of the study, including its aims and purpose to the participants.

Specifically, the consent of the respondents was obtained by giving a written explanation of the study. Furthermore, the confidentiality of the participants was assured by maintaining anonymity. Only relevant details that helped in answering the research questions were included. All participants also had the right to withdraw from the interview if desired. To enhance ethics, authorization, and approval to conduct the study was also sought from the University of Ghana Business School Ethics Committee.

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Profiling of the Study Area: The Makola Market

Makola Market is a well-known marketplace and shopping district situated in the center of the city of Accra, the capital of Ghana. It is located next to the Kwame Nkrumah memorial park over the High Street in the Ashiedu Keteke Sub Metro, Accra Metropolitan Assembly. The Market is located on latitude and longitude of 5° 32' 52.05" N and 0° 12' 24.71" W respectively. It has an area size of about 6.84 acres (MoF, 2014).

Demographic Characteristics

The Makola market has an estimated population of about 6000 (MoF, 2014). The Market constitutes about 70 percent of women and 30 percent men. Regarding the current economically active population, female traders constitute the greatest share (Alfers, 2010). The market attracts traders from all the ten administrative regions of Ghana and other countries such as Nigeria. People with different religions and ethnicity also characterize it because of the diversity of people who trade in the market. Ghana has several other markets. These include the Kejetia market in Kumasi (Ashanti region), Takoradi market circle (Western region), Kintampo market in Kintampo (Brong Ahafo region), Accra market in Kantamanto (Greater Accra region) and Cape Coast market in Kotokuraba (Central region). The findings have brought applicability to these marketplaces.

Economic Activities

The informal economy mostly characterizes the Makola Market. The market facilitates wholesale and retail trading. Major goods and services traded in the market include foodstuffs, equipment and machinery, textile and building materials, medications, detergents, auto-mobile car parts, shoes, and others. Moreover, financial institutions such as banks, savings, and loans, micro-finance, as well as “*Susu*” companies are a major characteristic of the market (Alfers, 2010).

DATA ANALYSIS

Inductive thematic analysis was performed on the interview data. An inductive thematic analysis, coding, and development of themes are dependent on the data content (Braun, Clarke, & Weate, 2016). Specifically, after the field study, both written and recorded materials were immediately transcribed. The actual analysis begins with reading through the transcribed responses and listening to the audio records in order to have a good grasp of all the data. The transcriptions were very detailed to capture features of talk such as emphasis, speed, tone of voice, timing, and pauses.

The key ideas and emerging themes from the interviews were identified. These themes were then pooled together and integrated into a common one. After that, a generation of concepts for ease of organizing the presentation of the findings was done. Generally, the qualitative analysis involves the categorization of data from interviews and field notes into common themes.

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Table 2. Age (years) of respondents

Participants	Age
Josephine	57
Lydia	59
Rita	50
Richard	50

Source: (Field Data, 2017)

RESULTS AND DISCUSSION

In all, four successful entrepreneurs at the Makola market responded to the study through in-depth interviews. The major demographic variables analyzed in this section include gender, age, educational background, and the number of years the entrepreneurs have been in the informal sector. These variables were relevant for this study based on Li, Shang, and Slaughter (2007) argued that they are critical survival factors and characteristics of an entrepreneur.

Of the four entrepreneurs that participated in the study, there were three females (Josephine, Lydia, and Rita)¹ and one male (Richard)². Though the sample was conveniently selected, the study deliberately oversampled females because there are more women than *men* in informal employment (ILO, 2009). Also is the fact that the Makola market constitutes about 70 percent of women (MoF, 2014). Table 2 shows the age distribution of the four entrepreneurs that participated in the study.

Personal Information

Age of Participants

The average age among the four entrepreneurs is 54 years. The minimum and maximum ages were 50 years and 59 years, respectively, as presented in Table 2. Relating the ages to the National Youth Policy of Ghana (2010), which defines youth as persons within the age bracket of 15 and 35 years, it implies that all the respondents do not fall into the youth category and are indeed matured. Their matured nature suggests that in a few years to come, the respondents might not be productive, energetic, and economically viable to manage their businesses. Hence the need to initiate succession plans for their business.

Educational Backgrounds

The educational backgrounds of the respondents were also analyzed. Of the four, two were 'Form Four Leavers' while the other two had master's degrees in marketing, international accounting, and finance. Generally, the respondents were made up of persons with higher and lower educational backgrounds. For those with lower educational backgrounds, there are implications inadequately applying accounting practices in the management of their businesses, including effective record keeping, which most entrepreneurs lack knowledge (Mbroh & Attom, 2012).

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Table 3. Number of years of being an entrepreneur

Participants	Number of Years Being an Entrepreneur
Josephine	15
Rita	25
Richard	25
Lydia	13

Data Source: (Field Data, 2017)

Business Characteristics

This section presents the background characteristics of the businesses of the respondents. As part of analyzing the business characteristics, the study examined the type(s) of business operated by the respondents, number of entrepreneurial activities engaged in, number of years of operating the business, number of employees, as well as the source of start-up income. Table 3 shows the number of years for which the respondents have been engaged in entrepreneurial activities.

Averagely, the four respondents have been in business for 20 years. The minimum and maximum years in business were 13 years and 15 years, respectively, as presented in Table 3. Using the framework set in Chapter Three, none of the respondents had been in business for at most ten years. Thus, there was no short term successful entrepreneurs in the sample. However, two (Josephine and Lydia) had survived in the informal sector for the past 15 years and 13 years, respectively. These are successful medium-term entrepreneurs. The other two (Rita and Richard) had survived in the sector for the past 25 years, making them long term successful entrepreneurs.

Considering the Ministry of Trade and Industry's (2012) assertion that 67 percent of new businesses survive for at least two years, and only 44 percent survive at least four years, it is obvious that the respondents have devised strategies that have contributed to their survival over the years. Generally, the respondents have had sufficient existence and experience in the informal sector. This is expected to reduce any risk concerning business management, thereby enhancing their survival capabilities. This makes them more credible in providing data that could enhance the reliability and validity of the findings of this study.

The types of entrepreneurial activities engaged in were also studied. Two of the four entrepreneurs were distributors, and the other two, importers. Table 4 shows the details of the entrepreneurial activities engaged in by the respondents.

Table 4. Entrepreneurial activities

Participants	Entrepreneurial Activities
Rita	Distributor of household materials and equipment, and drinks
Lydia	Importation of paraphernalia
Richard	Distributor of biscuits, drinks, and micro-finance
Josephine	Importation of cloths

Source: (Field Data, 2017)

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Table 5. Number of employees

Participants	Number of Employees
Rita	10
Lydia	3
Richard	20
Josephine	9

Source: (Field Data, 2017)

Rita is a major distributor of household materials and equipment like bed sheets, pillows, mattresses, tissues, irons, cooking utensils, refrigerators. She also engages in the distribution of both alcoholic and non-alcohol drinks.

Richard is also a major distributor of soft drinks, biscuits, and also engages in micro-financing. He owns 15 shops and supplies to several retailers. According to Richard:

“I have several people that retail from me. If I get my figures right, I have about 150 people retailing from me. Some have even become wholesalers like me, but not as big as I am.”

Richard’s micro-finance business also offers micro-crediting to services several entrepreneurs. Richard and Rita are engaged in the distributions of fast-moving goods since drinks and biscuits are high consumable goods.

Josephine is into the importation of textiles from China, while Lydia is an importer of paraphernalia such as key holders, flyers, Ghana flags, sporting shirts, political parties’ paraphernalia. She largely imports this paraphernalia from China and sometimes Dubai.

Largely, all the respondents are engaged in trading and services. None is into manufacturing or food processing. Trading and services being the most engaged entrepreneurial activity are expected since the trade and service industry is the major driver of the informal industry (Ministry of Trade and Industry, 2010). According to the Organization for Economic Co-operation and Development (2005), small and medium-sized enterprises (SMEs) are non-subsidiary, independent firms that employ less than a given number of employees. In this regard, the number of employees employed by the respondents currently is presented in Table 5.

On average, the four entrepreneurs had 11 employees. The minimum and the maximum number of employees recorded were three (3) and twenty (20) employees, respectively. According to the Ghana Statistical Service, firms with fewer than ten employees are considered small scale enterprises. In contrast, those with at least ten are considered medium and large-sized enterprises. Therefore, while two of the respondents (Lydia and Josephine) had small-scale businesses, the other two (Rita and Richard) had medium to large scale businesses.

The sources of start-up capital for the entrepreneurs, as well as financing the businesses, were also explored. It is important to note that an entrepreneur could have more than one source of capital, as shown in Table 6.

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Table 6. Source of capital for the business

Response	Starting the Business	Financing the Business
Family and friends	1	1
Personal working capital	4	4
Loan from Bank	0	4

Source: (Field Data, 2017)

Variations are noted in the sources of funds obtained in starting a business and later in financing its operations. While none of the respondents started the business by going in for a bank loan, they all asserted to have used their own/personal working capital in starting their businesses. This could largely be explained by the high-interest rates charged by micro-finance and other banking institutions. The outcome, however, suggested that very little is done by financial institutions to support businesses in the informal sector. Only one of the respondents, however, started the business with support from family and friends.

Regarding the continuous financing of the operations of the business, though all the respondents mainly fund their businesses themselves, they all partially rely on bank loans. One of them explained:

“I usually prefer to use my own money for my business. For the banks, I do not trust them. However, because, in most cases, my capital is insufficient, I occasionally use the banks as a second financing alternative.” [Rita]

Another indicated:

“I have loans with all the banks I have accounts with. Even though their interest rates are high, I still go for them since I have no option.” [Richard]

CHALLENGES THAT AFFECT THE SURVIVAL OF ENTREPRENEURS

According to Cagliano and Spina (2002), many factors affect the success of entrepreneurs. Some relate to the external environment in which they operate, while others relate to the industry atmosphere that characterizes the informal sector. This section analyzed the major challenges that affect the survival of entrepreneurs.

As part of exploring the magnitude of the challenges, the study analyzed the failure rate of entrepreneurs in the informal sector in the Makola Market. All of the respondents assessed the failure rate of entrepreneurs in the Market as high. This reaffirms the assertion by the Ministry of Trade and Industry (2012) that 67 percent of new businesses survive for at least two years, and only 44 percent survive at least four years. The high failure rate indicates that most entrepreneurs are unable to design very effective strategies that can significantly impact their survival rate.

The factors accounting for the failure rate of entrepreneurs in the informal sector are also explored. From the interviews, a proliferation of factors accounts for the failure rate. While some are industry-based, others are external. For analysis, the challenges are grouped under internal and external challenges.

Challenges in the Informal Sector

External Factors

These are challenges that an entrepreneur does not have direct control over. They are mostly macro-economic and industry-based challenges.

Limited Access to Credit and High-Interest Rates

All the respondents lamented that accessing credit from financial institutions is very difficult, though there are many financial institutions offering credit. This supports Gichuki, Njeru, and Tirimba (2014) that the entrepreneur's access to credit is one of the most disturbing challenges facing persons in the informal sector. The lack of access to credit, as noted in the study, is therefore not surprising, since it has been a perennial problem for many entrepreneurs (Kayanula & Quartey, 2000). For those who have access to credit, the interest rates are just too high, limiting performance to full capacity. One of the respondents lamented:

"High-interest rates on loans result in liquidity-limited cash inflow, which prevents us from operating in our full capacity. Currently, I am operating at 40% capacity, but I know I can operate at full capacity if I am given the funds." [Lydia]

Another indicated:

"It is not easy to access loans, but if you can access one, the interest rate is always high." [Josephine]

This means that access to financing at affordable rates has been a constraint for most entrepreneurs, though financial access is critical for their growth (Bharti & Shylendra, 2011). Therefore, development agencies must begin to turn their efforts towards utilizing credit as a development tool for persons in the informal sector. This finding also suggests that there is a need to evaluate the critical factors that affect the provision of credit facilities and another financial support service to persons in the informal sector.

The recent reduction in the monetary policy rate by the Bank of Ghana (BoG) suggests that interest rates could decrease, making access to credit more favorable for the entrepreneur.

Aside from the high-interest rates, it was also discovered that loans are sometimes delayed and often lesser than the amount requested. One of the respondents indicated:

"Although it takes fewer days barely to receive a loan these days, it is generally normal to receive less than the amount requested for." [Lydia]

Fluctuations in Exchange Rate

This factor was largely noted among the respondents engaged in the importation of goods. Generally, the instability in the exchange rates makes planning very difficult for entrepreneurs. One of them lamented:

The instability of the Ghanaian Cedi makes it difficult for me to predict the long-term effects of the capital market. As a result, I find it difficult to borrow from the banking industry or invest. There have been consistent upward fluctuations in the exchange rate. Over the past five years, there was no single

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year that the Cedi appreciated against the dollar, the major trading currency. For the five years, the Cedi has depreciated over 100 percent (118.0%).

Records from the Bank of Ghana show that the Cedi has appreciated by 6.3 percent from March to April this year. There are hopes that the Cedi could be much stable this year. This could impact positively on the exchange rate. The low performance of the Cedi has made the importation of paraphernalia less affordable. This explains the World Bank (2012) assertion that importation of goods into Ghana have suffered tremendously from the inefficiencies in the foreign exchange market since a higher currency makes a country's exports more expensive and its imports cheaper in foreign markets.

High Inflations

All the respondents indicated that there is a constant increase in the cost of items and utility, thereby affecting the purchasing power of consumers. They also indicated that sometimes aggregate demand increases faster than aggregate supply, thereby causing an increase in the cost of goods and services. This concurs with Sukimo's (2000) assertion that inflation also increases the price of goods and the price of work labor. The imbalance of aggregate demand and supply could be linked to the government's deficit, expansion of the bank's interest rates, and the increase of foreign demand.

Unfavorable Government Policies

All the respondents noted that Government economic policies and market regulations influence their competitiveness and profitability. One of the respondents lamented:

"Tax collectors are always here to collect tax irrespective of whether the business is booming or not. This puts pressure on the small profit we make." [Richard]

Apart from the tax paid to the Accra Metropolitan Assembly (AMA) as a business operating permit, empowered by the local Government Act, 1993 (Act 462), the respondents also pay income generating tax to the Ghana Revenue Authority. This raises the tax burden of the entrepreneurs, explaining Atu-guba's (2006) argument that the majority of entrepreneurs believe that their tax burden is too high. It was further noted that taxation is a major problem for entrepreneurs that have larger liabilities. For those with liabilities that can easily be paid, compliance was easy.

High Competition

Generally, it was discovered from the interviews also, that high competition in the informal sector pull most entrepreneurs out of business, especially when there are no strategic means of addressing such challenges by the entrepreneurs. The proliferation of sales vans in the distribution of goods and services to customers has worsened the problem. An entrepreneur explained:

"Sale vans now distribute all over the country. Previously, everyone had to come to Makola to get their goods because this was the hub; before I come to open the shop, there would be a crowd waiting to buy. But now, you stay for all the hours, and very few people come." [Josephine]

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Considering the competitive nature of businesses in the informal sector in recent times, Akinyele (2010) suggests that entrepreneurs should lay down plans and schemes that would, in turn, promote their survival.

It was also noted that the direct link between manufacturers and wholesalers, as well as the availability of more retail shops in recent times, have increased the competition amongst entrepreneurs. Most manufacturers of products are now involved in distribution due to the proliferation of retail shops. This has, however, discouraged people from coming to trade at the Makola market as compared to some years ago, when everyone involved in major trading had to come to the market to purchase goods. One of the respondents noted that:

“Recently, ‘big’ shops have been built closer to people. They do not need to come all the way to get the items they want. People also have a direct link with the distributing companies.” [Josephine]

Another major source of the competition in the informal sector is the inclusion of foreigners in the retailing business. However, for most of the foreigners, interest rates are very cheap in their respective countries. This, according to Olalla (2009), has presented an imbalanced playing ground for the local and international traders.

Seasonal Variations in Demand

The variation in seasonal demands for goods was also noted to have some degree of effect on the survival of the entrepreneurs. One of the entrepreneurs into the selling of drinks noted:

“Our trade is seasonal. Sometimes business is very slow. Business is at its peak around November and December. Moreover, during the time a ban was placed on noise-making and drumming, about the local festivals, there was low patronage. The pubs and clubs do not buy as much at other times.” [Rita]

The availability of substitute products also contributes to the constant change in consumer tastes.

Internal Factors

This section explores the internal business environment in the informal sector that challenges the survival of entrepreneurs.

Poor Financial Literacy

Another major challenge found to affect the survival of the entrepreneurs was the lack of financial literacy, especially among the less educated. It was generally noted that most entrepreneurs lack knowledge in accounting records, including cash management, savings, and investment. This concurs with Mbroh and Attom's (2012) assertion that in Ghana, basic bookkeeping practices are not in operation amongst many of the entrepreneurs in the informal sector. One of the entrepreneurs explained:

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“The majority of our colleagues, particularly those with lower educational backgrounds, do not keep complete accounting records because of a lack of accounting knowledge. Due to this, they are unable to use accounting information in their financial performance measurement efficiently.” [Richard]

The poor financial literacy among the entrepreneurs could explain why access to credit is sometimes a challenge for the entrepreneurs since poor financial knowledge would make it difficult for creditors and investors to assess the creditworthiness of the entrepreneurs (Akoto-Sampong, 2011).

It was also noted that experiences gathered over the years could help entrepreneurs in their financial record keeping, though they may not have a structured accounting procedure. One of the respondents attested to this:

“I have a low educational background, but over the years, I have learned most of the accounting things like simple record balance sheet, although some can get complicated. My children also help me in the reconciliation of some of the accounts, since they are more educated.” [Rita]

The above supports Li, Shang, and Slaughter’s (2007) claim that newer entrepreneurs have a higher likelihood of failure due to their inexperience. All the respondents suggested that special training for proper documentation and book-keeping of balance sheets should be organized for entrepreneurs. Others also recommended the need to outsource their financial services to accountants.

The Attitude of Employees and Absence of Training Opportunities

As noted in the beginning paragraphs, all the respondents have employees who assist in the sale of their products and services. However, for some of these employees, unlike the owner who has a long term vision for the business, an employee aims to have a source of livelihood. One of the entrepreneurs lamented:

“Due to the big nature of the shop, some of the employees steal without my notice. Sometimes I get to know of this later, which becomes difficult in detecting the culprit.” [Josephine]

Another lamented:

“Staff stealing from employers is a major problem for us. We use all our available resources to get goods into our shops, and the staff steals these goods without thinking about the business. They do not mind stealing everything, and the company going down the following day. All they care about is satisfying their selfish needs.” [Richard]

The lack of conservational attitude regarding the use of utilities such as electricity and water is also a challenging factor for the entrepreneurs. For Richard, who had 15 shops, the electricity bill has always been a burden due to the high rate of consumption. Thus, sales boys and girls are largely negligent in their conservation and usually leave electrical gadgets such as fans and air conditions on when not in use.

Regarding the capacity of employees to be highly productive, it was noted that unlike the formal sector that has adopted in-service training practice for their employees, the informal sector is still a stranger in this practice. One of the respondents affirmed:

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“We pick them up from the streets and bring them in to help us. Even top executives go for refresher courses. We do not have anybody doing this for sales boys and girls. We then have to put up with them after years of working with them and establishing trust.” [Rita]

Interference From Friends and Families

For all the entrepreneurs, the businesses were registered as sole proprietorships. This means that all the entrepreneurs have total control and full decision-making power over policies, profits, and capital investments of the business. However, the risk is the unlimited personal responsibility of the owner, implying that the owners take full responsibility for anything that happens regarding the business. If the business cannot pay its bills, for example, creditors can come after the personal assets of the owner, including house and bank accounts.

It was noted that in some instances, while the involvement of the family in the business could work, in most cases, without strict measures, the involvement of the family could be disastrous. One of the respondents recounted his experience at the start of the business:

“I started the business with my wife. But over time, I discovered that she did not have any interest in the business and just come to the shop because her husband (me) has a business. I had to keep her away from the business in order to have survived all these years.” [Richard]

Other external interferences from family members, according to the respondents is due to the perception that the businesses are family-owned, hence family members could pick items from the shop as and when they wish.

Managing More Than One Business

For the respondents engaged in more than one entrepreneurial activity, most of their colleagues in similar positions are unable to report the finances of each business separately accurately. The entrepreneur with three businesses confirmed:

“I used to have similar challenges with my businesses where I pick monies from one business to finance the other, and when there is a loss, paying back to the other business becomes a challenge. I overcame this by treating each business as a different entity.” [Richard]

Another indicated:

“I have more than one shop. So sometimes the income from one business covers the expenses of another business.” [Rita]

The absence of proper record keeping among most entrepreneurs, as revealed by this study, could contribute to the challenge entrepreneurs face in managing more than one business.

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Mind-Set of Entrepreneurs

The mindset and attitude of entrepreneurs towards work are also noted to be a factor contributing to the failure rates in the informal sector. It was noted that people enter into businesses that they have virtually no idea of. One of the respondents noted:

“Everyone is a trader in Ghana, but trading has its skills, thus natural (practical) and theoretical (book) skill. Being able to do basic transactions, record, and do bookkeeping is a great deal in business. But most of these entrepreneurs do not know what a warehouse keeper should do; what is expected from the accountant. If the person is not performing, they are not able to tell. Moreover, if you do not know what is expected of them, they become a drain on you.” [Josephine]

This supports the argument of the resource-based theory that entrepreneurs in the informal sector lack entrepreneurship knowledge.

Generally, the respondents complained of the lackadaisical attitude of entrepreneurs towards their businesses. This was largely attributed to the fact that because the businesses belong to them, they go to work anytime. According to the respondents, most productive hours are wasted by a larger proportion of entrepreneurs. Also, relationship management strategies are poor among most entrepreneurs. As such, they are unable to keep existing customers who can bring in more customers.

A review of all the challenges presented above suggests that achieving an efficient and effective strategy by many entrepreneurs is difficult, as there are fewer external opportunities for their survival. This is consistent with Brownie and Spender’s (2015) statement that many entrepreneurs are being pulled out of business as a result of the ambiguity and instability of environmental factors.

STRATEGIES TO ALLEVIATE THE CHALLENGES FACED BY ENTREPRENEURS

The following recommendations are made for policy formulation and implementation to enhance the successful development of entrepreneurship in the informal sector.

Development of a National Accounting Entrepreneurship Policy

Entrepreneurship is one of the most important drivers of job creation and economic growth, and it is crucial to the development of a vibrant small and medium-sized business sector. In this regard, this study recommends the development of a *National Accounting Entrepreneurship Policy Framework* with the collective involvement of all the major stakeholders in the sector. This should include the Ministry of Trade and Industry, the National Board for Small Scale Industries (NBSSI). The overarching goal of the *Entrepreneurship Accounting Policy Framework* should be to contribute to the inclusive and sustainable financial development of entrepreneurs. The Policy should not be treated entirely separate from broader economic, financial development policies. Coordination and coherence are essential to achieve a positive impact, to benefit from the synergies of these policies, and to maximize the economic and social growth they can provide to the development of the entrepreneurship sector.

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Development of an Accounting Guideline for Entrepreneurs

An accounting guideline should be prepared by the involvement of all the major stakeholders for the informal sector to enhance the adoption of financial reporting practices among entrepreneurs. The Ghana Chartered Institute of Accountants should coordinate this guideline with support from government institutions such as NBSSI, Ministry of Trade. The guideline should seek to contribute to the development of good accounting practices among entrepreneurs, which are not covered by harmonized accounting rules and might be subject to an unnecessary high administrative burden at a national level. The guideline should be designed to be simpler, easier to understand, and cheaper to prepare than public-company financial statements. This should be done using historical data but should not require complicated accounting for derivatives, hedging activities, or stock compensations. The guideline should provide template forms for capturing accounting information.

Entrepreneurship Training for Entrepreneurs

Entrepreneurship training and capacity building programmes should be organized for entrepreneurs in the informal sector to equip them with the requisite skills and existing best practices in the industry. Business development workshops on entrepreneurship skills such as risk management and financial reporting, marketing strategies, business development strategies, use of new technology for processing and production can be organized for these entrepreneurs. Specifically, the entrepreneurship training should tackle record keeping including sales daybook, purchases daybook, cash receipt book, check payments book, petty cash book, nominal ledger, debtors' ledger, and creditors' ledger and a payroll system. This would improve the accuracy and reliability of the accounting transactions of entrepreneurs.

Thus, in order to promote informal entrepreneurs in Ghana, it is imperative to make an adequate investment in entrepreneurial training. Thus, the government should provide adequate funding and resources needed to promote entrepreneurial training in the informal sector. Similarly, private organizations can undertake corporate social responsibility programmes or projects that will offer training to entrepreneurs in financial literacy.

Incentivizing Entrepreneurs to Adopt Accounting Management Practices

In accessing the quality of a credit facility requested by an entrepreneur, banks and other financial institutions should determine whether the entrepreneur can pay back the credit by undertaking a comprehensive review of their books. However, since many of the entrepreneurs lack accounting knowledge, the Relationship Managers of banks that deal directly with the entrepreneurs should develop a package for each entrepreneur and that efficient record-keeping would be important criteria in accessing loan facilities.

In other words, entrepreneurs without proper recording keeping of sales, expenditure, and other financial management and analysis concepts should be denied credit except in special cases. This is expected to serve as an incentive for many entrepreneurs to adopt to accounting management practice as a routine aspect of the day-day running of their businesses.

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Financial Support for Entrepreneurs

Financial institutions are encouraged to provide loans at low-interest rates to encourage more entrepreneurs to acquire loans to sustain and expand their businesses. This can be done by establishing special financial schemes or financial support units for entrepreneurs. Government agencies such as MASLOC and other relevant NGOs should expand their services to a larger proportion of entrepreneurs' activities. This can be done through group lending.

Outsourcing the Preparation of Financial Records to Specialist Accounting Providers

Generally, since most entrepreneurs do not have the professional knowledge in financial reporting preparation, including a balance sheet and others, an alternative way is to outsource accounting functions with external service providers. The need to search for alternate forms of enhancing the knowledge of entrepreneurs and also seek advice from third parties to achieve long term business success is relevant. Expert advice from accounting firms is important for entrepreneurs to get professional views to manage their finances. These accounting firms may explain and recommend important suggestions that can help to clarify any uncertain information. Accounting firms can offer special incentives to entrepreneurs who would be relevant in motivating them to outsource such an important financial decision-making process.

GOVERNMENT STRATEGIES TO ALLEVIATE CHALLENGES FACED BY ENTREPRENEURS

Provision of Low-Interest Rate

Providing special interest rates for high-value entrepreneurs. For instance, if an entrepreneur working in a particular area and can generate many jobs, then the government can develop a particular program that provides low interest that would make these entrepreneurs get easy access to a loan to operate their businesses.

Provision of Finance

In order for entrepreneurs to get capital or loans to boost their businesses, then, there is a need for them to register their businesses formally. If they register their businesses and keep documentation of their transactions with banks and clients, they are likely to have the opportunity to get access to loans and credit facilities to improve their businesses.

PERSONAL STRATEGIES FOR ENTREPRENEURS

There are several personal strategies that we will recommend for entrepreneurs in the marketplace.

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Formal Registration of Businesses

Several entrepreneurs of businesses in the market frown against the registration of their businesses. However, it becomes difficult to get access to credit because their businesses are not registered formally. Consequently, the suggestion to entrepreneurs is to make it a point to register their businesses so they can get easy access to some credit facilities that would help them boost their operations.

Keeping Good Documentation

The market women tend to have an excellent memory, and consequently, they tend to have less reliance on effective documentation. However, effective documentation of sales and expenses are needed to gain access to capital. So entrepreneurs in the market place are encouraged to undertake good documentation of their day-to-day transactions.

Identification of “Best Practices”

Entrepreneurs are entreated to constantly identify the “best practices” that are being used in the market-place. In any eco-system, there are likely to be entities that use the available best practices. The use of best practices will help to improve productivity and customer relations. A strong suggestion, therefore, is that entrepreneurs should go out of their way to look for the best practices in the marketplace and to implement them.

Use of Effective Technologies

Increasingly, technologies are being used in the marketplace. These range the relatively simple such as the use of smartphones to the more complex such as the use of computers. Traders are encouraged to use technologies such as telephones. These technologies are increasingly used for saving of money, transfer of money, and so these technologies are highly recommended for entrepreneurs.

FUTURE RESEARCH DIRECTIONS

A further quantitative study on the impact of efficient financial reporting practices on the accessibility of credit facilities by entrepreneurs should be undertaken. This is to help determine the extent to which the preparation of financial records has become a key part of the credit policy of many banking institutions. Several strategies can be adopted to enhance these research opportunities. These should include: identifying an appropriate pool of market traders assessing report practice that they utilized, assessing their level of accessibility to credit facilities, use of statistical methods to highlight the relationship between these two variables.

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LIMITATIONS OF THE STUDY

Limiting the study's population to only four entrepreneurs in the Makola market suggests that the findings cannot be generalized to all entrepreneurs in the informal sector in Ghana. However, they are relevant in highlighting the challenges of entrepreneurs in the informal sector. Several challenges were also encountered in the data collection stage. The major among them was getting access to the entrepreneurs. Although seeking the consent of the entrepreneurs was of no problem, making time for the interviews was difficult since they had busy schedules. Another major limitation in the paper is that the analysis could have been strengthened by the use of Atlas, a software used for the analysis of qualitative, we could also have generated a hermetic network and undertaken other techniques that would have allowed us to provide in-depth analysis of the interviews better.

CONCLUSION

The first objective of the study assessed the challenges entrepreneurs in the Makola market encounter that confront their survival. The following major findings emerged:

1. There is a proliferation of factors accounting for the failure rates of entrepreneurs in the Makola Market.
2. Entrepreneurs are being pulled out of business as a result of the ambiguity and instability of environmental (internal and external) factors.
3. The major external factors that challenged the survival of the entrepreneurs include the lack of access to credit and high-interest rates, instability in exchange rates, high inflation, unfavorable government policies, high competition, and seasonal variations in consumer demands.
4. The major internal factors that challenged the survival of the entrepreneurs include poor financial literacy, the attitude of employees, and the absence of training opportunities, interference from friends and families, and the mindset of entrepreneurs.
5. Significant challenges are confronting the survival of entrepreneurs in the informal sector in Ghana. The survival of these entrepreneurs depends on the availability of opportunities and how such opportunities are used to gain a competitive advantage. It can, therefore, be concluded that entrepreneurs in the informal sector cannot succeed in the long term without efficient survival strategies.

Most entrepreneurs fail because they are unable to establish, build, defend, and maintain their competitive advantage. Thus, they are unable to use strategic decisions to enhance the competitive edge taking into consideration the threats and opportunities in the informal sector.

Access to finance, high competition, and macroeconomic factors are fundamental issues confronting the survival of entrepreneurs in the informal sector. Though there are several sources to access credit, many entrepreneurs are unable to access them from such institutions due to their high-interest rates. This contributes to the low-profit margins, high operational costs, and delays in operation, faced in the business of these entrepreneurs. Poor management competences, lack of skilled labor, and deficiencies in marketing strategies are the major internal factors confronting the growth of entrepreneurs in the informal sector.

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KEY TERMS AND DEFINITIONS

Best Practices: Application of relevant principles by business people to their operations.

Credit Facilities: Capital lent to entrepreneurs to enable them to operate their business.

Entrepreneurship Strategy: It applies to the measures taken by entrepreneurs to address the issues they face in the marketplace.

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Makola Market: Any unofficial marketplace where entrepreneurs participate in business transactions.

Market Trader Challenges: These are the problems that entrepreneurs face in their business operations.

Market Woman: An adult female that engages in an informal type of business, particularly at the marketplace.

Poor Infrastructure: Insufficient facilities for entrepreneurs available on the market for the efficient use of profit.

ENDNOTES

¹ Pseudonyms

² Pseudonyms

Chapter 20

Sustainable Entrepreneurship in Indigenous Communities in Colombia

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ABSTRACT

Indigenous communities in Colombia have been characterized by an economy of subsistence, influenced by the nomadic population that has allowed them to take advantage of the abundance of the environment in which they live and by the cultural context of these communities. The authors document a project initiative to co-create a sustainable entrepreneurship model for indigenous communities, to identify sustainable income alternatives adjusted to the culture and living conditions of indigenous people. First experiences of this project took place in La Fragueta Community in the Department of Caquetá at the south of Colombia, where a social entrepreneurship incubation process was deployed, identifying different productive activities, selecting grounded organic chili pepper as a pilot for the implementation of a culture-based and local product income alternative, with added value provided by the community.

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INTRODUCTION

The research project *Sustainable Entrepreneurship in Indigenous Communities*, arises as an initiative of Ean University's Entrepreneurship research group, in order to determine viable opportunities for entrepreneurship and the generation of strategies and actions for the implementation of productive activities.

For the development of the project, a joint work was carried out with another EAN University's research project and key stakeholders such as the National Organization of the Indigenous Peoples of the Colombian Amazon -OPIAC- and the National Agency for Overcoming Extreme Poverty -ANSPE-, to define a methodological framework of social innovation for the Colombian territory (Adapted from Jiménez, 2017), to create a toolkit of methods and tools according to the context and nature of the project and to gather a series of recommendations for intervention in indigenous communities.

Given the current political and economic conditions of Colombia, and the wide possibilities of economic development that has Caquetá, a southeast region in the country, the diversification of its productive activities and the identification of new opportunities can allow the department not only to depend on the employment generated by the State, the small amount of agriculture and illegal mining, but to generate different alternatives to improve inhabitants' quality of life and better conditions that can be offered to a large percentage of their population, including indigenous people, in particular, those with whom this project is carried out.

The research project seeks to co-create a model of sustainable entrepreneurship for the indigenous community JAtNEI DtONA (orphan tobacco), also named La Fragüita, located in the Municipality of San José de Fragua, in the Department of Caquetá, with the participation of all the productive actors of the community, seeking integration between the indigenous culture and productive processes that do not invade nor damage the indigenous own values and traditions. In contrast, it is an engine to strengthen their culture and customs. A process of these characteristics can only be carried out based on the identification of the capacities, resources, regional vocations, and motivations of the community, given their indigenous status. Also, all the work developed with the community must be delivered and communicated effectively, following the principles and values of the community.

With this framework, for the development and interventions of this project, a specific methodology for social innovation and sustainable entrepreneurship was designed to generate lasting impacts on the economy and quality of life of indigenous communities. Given that, the process must seek to eliminate the high dependence that indigenous communities have on the territorial and national entities present in the region. This dependence is due to several factors, among which the ones that stand out are: ignorance or lack of importance given to elements of the cultural context, lack of support for own and pertinent initiatives of indigenous communities and the fact that the strengths of the inhabitants themselves are not explored nor developed. Finally, the project seeks to generate opportunities for economic development and new alternatives for a population that, for so many years, was mired in the violence that the country experienced.

This work presents a qualitative model based on an exploratory study that exposes a review of the current situation of the indigenous population, specifically with the community of La Fragüita. It also describes the methodological proposal based on social innovation to identify a sustainable entrepreneurial project and finally describes the experiences lived on the field's visits and conclusions of the most significant achievements.

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THEORETICAL FRAMEWORK

Social Entrepreneurship and Sustainable Entrepreneurship

To understand the basis of this project, we are going to delve into what we understand by social entrepreneurship, sustainable entrepreneurship, and social innovation.

Drucker (2007) highlights in his book *Innovation and Entrepreneurship* that those considered entrepreneurs are those who make a difference and do things differently with unique characteristics that differentiate them from the general, “create something new, something different; transmute values.” Additionally, it specifies decisions and actions that allow it to bring these ideas to reality with a prior risk analysis, according to Covin and Slevin (1986), and Sullivan, Weerawardena, and Carnegie (2003). Based on this definition of what an entrepreneur is, we can broaden the definition to which the social entrepreneur is an entrepreneur who also develops the ability to take advantage of opportunities for innovation focused on generating impacting ideas that promote positive adjustments and modifications in society. Following Martin and Osberg (2007), the social entrepreneur’s value proposition targets an underserved, neglected, or highly disadvantaged population that lacks the financial means or political influence to achieve the benefit on its own. According to Yunus (2008), where there is a social problem, there can be a social enterprise. He defines that social enterprises are based on sustainable production models, aimed at achieving social benefits whose economic activity tends to improve the living conditions of marginalized groups and generates opportunities for economic and human growth. They are also companies that identify themselves because they are in environments with a high index of government isolation, which lack basic goods and services because they do not have access to them (Prahalad, 2005).

The social angle of this type of undertakings, allows the development of new ideas to provide products and services that directly or indirectly minimize social needs and thus achieve sustainable development (Seelos & Mair, 2005). With this approach, we must take advantage of the situation to rethink traditional thoughts where the particular benefit prevails and to transform the habitual business behaviors, balancing, even more, the economy and making progress a non-exclusive process (López, 2012).

Sustainability seeks to achieve long-term beneficial interaction between human and ecological systems; therefore, the concept of sustainability implies social and environmental well-being (Saiz-Álvarez & Palma-Ruiz, 2019; Pacheco, Dean, & Payne, 2010). This vision is in resonance with the nominations of Sachs (2014), who stated that the future is at stake and that economic growth needs to be inclusive, avoiding leaving behind millions of people. It must also be a development that does not damage the life support systems of the earth. If economic growth cannot be combined with social inclusion and environmental sustainability, likely, the economic benefits will not last too long either, since social instability and natural catastrophes will follow them.

The competitiveness of a productive process is closely linked to the well-being of the community around it, since a productive project is only prosperous, where a community is prosperous (Porter & Kramer, 2011). That is why the concept of sustainable entrepreneurship is one of the possible approaches to developing innovative, productive activities; the main purpose of sustainable entrepreneurship is to meet and solve the needs derived from the environment for the human being but also with the previous care of it. The idea is that productive projects generate impact, creating value for society and the environment.

Sustainable entrepreneurship is essentially the realization of sustainable innovation, which provides benefits to a large part of society. Entrepreneurs who make environmental and social progress their main

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activity can be called sustainable entrepreneurs, generating new products, services, techniques, and organizational methods that substantially reduce the impact on the ecosystem and increase the quality of life (Schaltegger & Wagner, 2011). Sustainable entrepreneurship is then a multidimensional activity that generates abundance in social, environmental, and economic issues.

Social Entrepreneurship and Sustainable Entrepreneurship Models

Models illustrate how social value and economic value are created within different enterprises. They articulate the logic, provide data, and other evidence that demonstrates how a business creates and delivers value to customers. It also outlines the architecture of revenues, costs, and profits associated with the business enterprise delivering that value (DaSilva & Trkman, 2014). Entrepreneurs of various industries have shown themselves more concerned with their competitive advantages and the competitiveness of their business models (Jablonski, 2017). In this sense, entrepreneurs must continuously analyze their business model in order to assess if there is a model or parts of the model that make the most of an opportunity or defend themselves from changes imposed by internal or external factors.

Business models have caught the attention of many managers and researchers around the world who are seeking more information on how a business can benefit from models in order to survive in a dynamic market. For social enterprises, models impart prototypes for replication, inspire creative approaches for value generation, inform design by establishing operational blueprints, and motivate new methodologies for not-for-profit mission accomplishment (Nicholls, 2006). The integration of business tools and practices within not-for-profits builds organizational capacity that can improve performance and increase their ability to generate lasting change. For example, the usefulness and predictable power of business models are expected to help entrepreneurs make more informed decisions, thus increasing the chances of success (Trimi & Berbegal, 2012).

Entrepreneurial activities, in general, are related to sustainable development by promoting or impeding it, but in fact, only a few contribute positively to it. Thus, the aggregation of social and environmental dimensions to this economic dimension of entrepreneurship contributes to the maximization of global value. This is why the model for Sustainable entrepreneurial orientation includes an adaptive, innovative, and externally-oriented capability of the organization and predisposition to accept proactive, innovative, and risk-taking processes, practices, and behaviors towards sustainable development (Criado, Cervera, & Iniesta, 2017).

Based on Aragón and Sharma (2003), this dynamic capability for strategic change towards sustainability is a multidimensional construct involving exploration, identification, and reconfiguration capabilities, as well as the interpretation of environmental issues as opportunities. Therefore, organizations with a sustainable orientation and dynamic capabilities can reexamine their competitive strategies and thus achieve long-term growth while implementing their sustainable development strategy. Organizations can address environmental pressures that are often dynamic, complex, and ambiguous (Bowen & Sharma, 2005) and then turn potential threats into competitive opportunities (Schrettle, Hinz, Scherrer-Rathje, & Friedli, 2014).

On the other hand, sustainable entrepreneurship pursues a triple bottom line approach of economic, social, and ecological goals. Business leaders with a superficial understanding of sustainability think it is a distraction, but this is a fundamental misunderstanding, the truly sustainable companies would not deprive the community or its shareholders but will enrich them (Savitz & Weber, 2006). The sweet spot

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is the place where the pursuit of profit blends seamlessly with the pursuit of the common good. This concept embodies the literal meaning of sustainability, making a company viable for the long term by managing according to principles that strengthen the environment, the social fabric, and the economy. According to Belz and Binder (2015), the triple bottom line model for sustainable entrepreneurship, includes six phases: 1) recognizing a social or ecological problem; 2) recognizing a social or ecological opportunity; 3) developing a double bottom line solution; 4) developing a triple bottom line solution; 5) funding and forming of a sustainable enterprise; 6) creating or entering a sustainable market. To what Nuringsih, Nuryasman, and IwanPrasodjo (2019) would add in phase 0 the sustainable entrepreneurial intention. The difficulty of developing models for sustainability is related to the complexity and uncertainty of such systems. This complexity appears from the early stages of the modeling exercise, especially in the problem identification and conceptualization phase (Fakhimi, Mustafee, & Stergioulas, 2015).

Another approach to developing social and sustainable entrepreneurship is the Triple Helix Model, where universities, firms, and governments each take the role of the other in triple helix interactions. The university takes the role of the industry by stimulating the development of new firms, with the capitalization of knowledge. Firms develop training to ever-higher levels and share knowledge through joint ventures, acting like universities, and governments act as public venture capitalists while continuing their regulatory activities (Etzkowitz & Zhou, 2018). In contrast to theories that emphasize the role of government or firms in innovation, the triple helix focuses on the university as a source of entrepreneurship and technology as well as critical inquiry. Although there is great importance in the role of universities in this model, only with excellent communication and coordination across institutional boundaries, the realization of improving national innovation capability will occur (Yoon & Park, 2017). Moreover, based on Saiz-Álvarez and Palma-Ruiz (2019), the Quadruple Helix Model involves the participation and involvement of the civil society towards the attainment of sustainable goals in the long-term.

This suggests that these relations create an effective institutional arrangement for knowledge-based innovation systems, among which there is no sharp boundary between the knowledge producers and users (Champenois & Etzkowitz, 2018). Zhanga, Chenb, and Fu (2019), underlined that the bilateral and trilateral interactions among research institutes, industries, and universities would positively influence the performance of participants, moreover, according to the knowledge-production.

Social Innovation Models

Abreu (2011) stated that innovations are deliberate interventions designed to initiate and establish future developments in technology, economics, and social practices. In the Oslo Manual (Echeverría, 2008), innovation refers above all to economic and business values, but social innovation, on the other hand, refers to social values. Here lies the difference of why in this research, we refer mainly to social innovation.

In the book *Creative communities*, people inventing sustainable ways of living (Meroni, 2007), social innovation is defined as how individuals and communities use the resources they have available in a creative way, introducing new social organizations. A novel solution to a social problem that is more effective, efficient, sustainable (Phills, Deiglmeier, & Miller, 2008) and for which the value created accrues primarily to society as a whole rather than private individuals. In the particular case of this project, the indigenous thoughts about the territory and the environment determine the foundation that has organized their communities, their rituals, their economic exchanges, and their daily life (Salazar, Gutiérrez, & Franco, 2006).

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In order to generate social innovation, Murray, Caulier, and Mulgan (2010) define the six stages of social innovation, which are not necessarily sequential, but there are stages of feedback between them:

1. **Inspirations and diagnoses:** This stage consists of diagnosing the problem and elaborating the challenge question in such a way that the fundamental causes of the problem, not only its symptoms, are addressed. If the right question is framed, half of the way has already been traveled in search of the correct solution.
2. **Proposals and ideas:** This is the stage of generating ideas. Here formal methods are involved - such as design methods and creativity to reach the highest number of options.
3. **Creation of prototypes and pilots:** This is where ideas are tested in practice. This can be done through merely testing things or through more formal pilots, prototypes, and randomized controlled trials. The process of refining and evaluating ideas is particularly important in the social economy because it is through iteration, trial, and error, that the parties appropriate innovation.
4. **Sustainability:** This stage is when the idea becomes a daily practice. It consists of perfecting ideas and identifying sources of income to ensure the long-term financial sustainability of the community, which will carry forward innovation.
5. **Enlargement and dissemination.** In this stage, there is a series of strategies for the growth and diffusion of an innovation. Through inspiration and emulation, or by providing support and know-how from one to another in a more organic way and an adaptive type of growth.
6. **Systemic change:** This is the ultimate goal of social innovation. Systemic change usually involves the interaction of many elements: social movements, business models, laws and regulations, data and infrastructures, and an entirely new way of thinking and doing. Social innovations commonly face the barriers and hostility of an old order.

The Social and Political Context of Indigenous Communities

The special situation of vulnerability and defenselessness of indigenous people jeopardizes their survival, maintenance, and strengthening of their institutions, cultures, and traditions. According to the National Planning Department (DANE, 2018), 63% of the Colombian indigenous population lives below the poverty line, and 47.6% do not have a basic income to cover the minimum daily food requirements, this is an equivalent of being under a line of misery. Furthermore, 34.53% have no access to health, and the illiteracy rate between 15 and 49 years is 24,1% (PNUD, 2013). According to the United Nations Development Program (PNUD, 2013), 88 indigenous groups are officially recognized in Colombia, with a population of about 1.9 million people, equivalent to 4,4% of the national total. However, the National Indigenous Organization of Colombia (ONIC, 2018) reports the existence of 115 indigenous settlements, 32 of them at high risk of disappearing because they have less than 500 people, especially in the Orinoquia and the Amazon; and United Nation Refugee Agency (ACNUR, 2012) reports that 35 groups out of 87 recognized by the Constitutional Court (Acts 004 from 2009 and 382 from 2010) are in high risk of disappearing both physically and culturally.

In the Permanent Forum of the United Nations Organization on Indigenous Issues in 2006, it was identified that the indigenous perspective was not considered in the processes related to the Sustainable Development Goals and that such processes should be adopted at the national level and should have full and effective participation of indigenous people (PNUD, 2015). That is why it must be incorporated the vision of indigenous development from the “Law of Origin” (PNUD, 2015, p. 19), which is understood as

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the basis of culture, which describes the roots and guiding principles of the different indigenous groups. The model of indigenous development is oriented towards a solidary economy (PNUD, 2015), where the *self* is prioritized, in order to *be* and then to *have*, instead of *having to be*, since this last conception expropriates, robs, banishes and homogenizes indigenous thinking and culture.

According to the PNUD (2015) for indigenous people, there is no concept of “poverty;” they believe in the concept of “living well,” which can be understood as a *platform of thinking* to build development alternatives. Although each indigenous community, depending on its origin, has a different way of expressing what it is to live well, there are some aspects in common that we can expose in the following way (Gudynas, 2011). Starting from the bases of the ideology of good living, where man and nature are the only ones that have been built and transformed collectively, territory is thus the most important factor that identifies and strengthens them, where ethnic characteristics such as sustainable agriculture in the *Chagras*, among other activities are specific to each ethnic group.

Therefore, the actions taken concerning the territories directly influence the relationship of the people with nature, since indigenous cultures “have been models of a man-nature relationship, this reality has been changing. By the pressure of diverse factors, such as the loss of territories, processes of colonization, economic models of articulation to regional, national and international economies; the processes of cultural changes generated by the educational system and by the insertion of the indigenous people in modernity and in general by the unconscionable public policies that impact them” (PNUD, 2015, p. 41).

METHODOLOGY

The methodological framework is based on the double hexagon model (Jiménez, 2017), which is based on models of design thinking such as the double diamond model of the Design Council (2007) and the social innovation model proposed by Murray et al. (2010) in his book “The open book for social Innovation,” adapted by Buckland and Murillo (2014) for the Latin American context.

The double hexagon model maintains the key milestones of the double diamond model: Initial situation, problem or opportunity, and solution, between which the two hexagons are drawn. The first corresponding to the diagnosis phase and the second to the development and implementation phase that includes knowledge transfer and technology components to empower the community (Jiménez, 2017, p. 126). This model proposes interventions accompanied by the figure of a facilitator rather than a consultant, which is coherent with the people-centered approach of design thinking, where the involvement of people throughout the innovation process is key since they are the ones who experience the problems, dilemmas, and opportunities at first hand. Therefore, they are a key source to generate alternative solutions, to prove them, and to implement those solutions that are relevant and generate real impact (Ruiz Arias, Patiño, & Echeverry Pérez, 2018, p. 204).

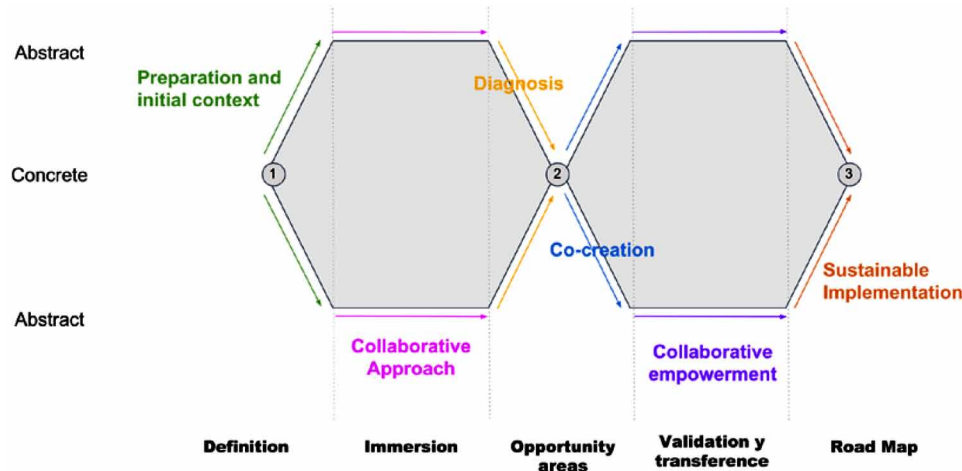
The phases of the double hexagon model were tuned for the intervention in indigenous communities and complemented with tools for business models innovation and practices for the development of creative business models, as seen in Figure 1.

1. **Phase 0:** Preparation. Its objective is to plan the activities to be carried out during the project and promote the first approach to the situation, in order to define the basic aspects, scope, objectives, equipment and work plan:
 - 0.1. Identify and define the starting situation

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Figure 1. Double hexagon adapted for intervention in indigenous communities

Source: Adapted from Jiménez (2017)



- 0.2. Formulate the project framework
- 0.3. Socialize the project with the community
2. **Phase one:** Initial context. In this phase, the objective is to understand the elements of the context that will influence the activities that will be carried out to redefine them, if necessary:
 - 1.1 Characterization of the community
 - 1.2 Context where the community is immersed
3. **Phase two:** Collaborative approach. Its objective is to design and define final tools and schedule of activities, and to conduct the first field research:
 - 2.1. Preparation of work field
 - 2.2 Field research with ethnographic and people-centered methods
4. **Phase three:** Diagnosis. In this phase, all the information is analyzed; the meaning is given. Conclusions and findings are generated then presented to the community:
 - 3.1. Interpretation of data
 - 3.2. Socialization and validation of findings
5. **Phase four:** Alternatives, co-creation. This is a collaborative stage in which facilitators and the community design and propose possible initiatives based on local potentialities, vocations, and personal motivations.
 - 4.1. Defining areas of opportunity
 - 4.2. Design of business models
 - 4.3. Deepening of business model alternatives
 - 4.4. Selection of final models
6. **Phase five:** Collaborative empowerment. This is the moment to strengthen the proposed projects and establish commitments that allow the community to take ownership of projects and implement them without relying on external actors.
 - 5.1. Validation and prototyping.
 - 5.2. Project specification and roadmap

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7. **Phase six:** Sustainable implementation. This phase's objective is to promote and ensure that the proposed business model is sustainable, scalable, and positively impacts the community.
 - 6.1. Sustainability strategy and impact measurement

DEVELOPMENT

Community Characterization

The relocation of indigenous settlements is a fact that has been increasing in the last 20 years in Colombia. After forced displacement, due to security issues and to the intention of fleeing from rubber slavery among others, indigenous people have been regrouping in new territories, where they intend to rescue the customs and values of their community (Ruiz Arias, Patiño, & Echeverry Pérez, 2018, p. 205).

Fragüita community, whose indigenous name is JAtNEI DtONA (orphan tobacco), is in the process of consolidation, adding up to 22 families, with 76 people in total, most of them descendants of the Atofe Murui, an ancestral indigenous community known as Huitotos. It is located approximately 90 kilometers south of Florencia, capital of the department of Caquetá, and about 40 kilometers from San José de la Fragua, the nearest town, over a road that joins the entire Amazonian region in Colombia

The community has a Governor, a vice governor, a secretary, a prosecutor, a treasurer, and a chieftain. The economy of the community is based on self-sustainability, through hunting and fishing activities, mainly practiced by men, and the production of products derived from cassava (a type of edible root), mainly made by women. Commercial activities are incipient, and some operations are carried out by bartering.

Basic sanitation is covered, and diseases are treated with traditional indigenous medicine, which is also recognized by other inhabitants of the region and by tourists who come to the Maloka (main space that represents the community) in the search for natural solutions for their health problems. Although kids have the possibility of attending school near the Maloka, there is a permanent concern to maintain the most important aspects of their culture such as language and dances, which are being transmitted to the youngest members.

Pre-Field Preparation: Preparation and Initial Context

For the development of this phase, sessions with OPIAC, ANSPE and with representatives of the indigenous community of La Fragüita were held, in order to align the objectives and scope of the project, try some tools and methods for fieldwork and validate information about the context.

In the pre-field sessions, the following activities were developed:

1. **Semiotic and conceptual agreements:** The objective of this activity was to clarify the key concepts and tune the language to be used in the fieldwork. Some of the concepts that were discussed were:
 - a. **Entrepreneurship:** Understood by the community as “work alternatives or own initiatives for income generation,” identifying two different approaches: community initiatives (which benefited all the community, with no individual income and managed by the council) and family members labor (to generate income to each family). 90% of the income of the com-

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munity is based on the production and commercialization of *mambe* (Made based on the coca leaf), the remaining 10% comes from work as day laborers.

- b. **Sustainability:** Understood mainly as durability, and partly related to environment preservation.
2. **A day in the life of ...:** The objective of this activity was to understand the community's daily activities from the perspective of different actors, identifying times, places, activities, people, and habits. This exercise helped to understand the role of women in the community (support for Maloka, food, handicraft manufacture, consolidation of the ancestral culture and education of children), and the ones of the traditional doctor, who serves everyone in the community, but is not remunerated. It was identified the importance of the Maloka for the community, a place for community activities, and the circle of the word, a mechanism of communication and transmission of knowledge, central to the community.
3. **Map of actors and relationships:** The objective of this activity was to identify other key actors and roles within the community, elements of exchange, hierarchies, and key people to support the development of the project. The organization of the community is led by the council. There is a governor, a cacique, the traditional doctor, some young leaders, women, children, hunters, and fishermen. The activities in the *Maloka* are led by the cacique, which defines the daily activities with the governor and influential women and men. The space of the *Maloka* is meant to transmit the culture and ancestral knowledge through the *word*.
4. **Map of social problems vs. opportunities:** The objective of this activity was to identify, from the perspective of the representatives of the community, main problems, and opportunities to generate income for the community. Among the most relevant is tourism, driven by easy land access and the existence of the river (Fragüita) that attracts tourists and is connected to its culture. Use of an ecological calendar for their cultivation practices, not intensive, protecting the land to ensure that it is always productive, connected with the potential to encourage barter with other communities, including goods and services. Moreover, the production of agricultural products, some with some processing, including those derived from coca, to leave the exclusive dependence on *mambe* and reach broader markets.

This exercise validated the importance of preserving the culture, which has been affected by different social and economic phenomena, including drug trafficking. Finally, the need to relate the indigenous to the *western* in aspects such as the use of money, which is not part of its ancestral traditions, but is currently necessary for their interaction with the *western* world.
5. **Levels of trust and codes:** This activity aim to identify codes of behavior that should be considered in the field visits, in order to prevent harmful situations and communication problem. Key elements were defined such as: being clear about the objective of the project and each activity to be developed, programming all the activities in the *Maloka*, defining in advance which people are needed for each activity, the agenda to be developed, and the importance of participating in community's daily activities to engage with the people.
6. **Identify communication channels and critical partners for fieldwork:** identification of key people and channels to convene the community. It was established that the cacique and the governor are the ones who will summon them.
7. **Mapping of physical resources for fieldwork:** definition of physical conditions and resources that are counted in the field to identify elements to be considered for the design of specific activities. For example, in the field, there is no cell phone connection nor the Internet.

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Field Visit 1 - Collaborative Approach, Diagnosis, and Co-creation

For the phases of the collaborative approach, diagnosis, and co-creation of alternatives, the first field visit was developed, and the following activities were developed (Ruiz Arias, Patiño, & Echeverry Pérez, 2018, p. 209):

1. Day 1
 - a. **Social cartography (Current and future):** With the participation of all the main community actors (Cacique, governor, women, men, children and the elderly), a map of their territory was drawn in a collaborative way to identify the context and physical resources with which they count and those that they plan to have according to the expansion plans of the community. Other aspects that were identified in this activity were covered and uncovered needs, access to goods and services, spaces related to income generation activities, problems, opportunities, and dilemmas.
 - b. **Guided tour:** This activity aims to recognize the territory and complement what was discussed in the social cartography.
 - c. **Map of actors and relationships:** The objective of this activity was to identify the actors and their relationships through a collaborative exercise in which each person drew himself in a post-it and described their relationships and exchanges with others. Relationships were categorized as intellectual, emotional, tangible, and economical.
2. Day 2
 - a. **A day in the life of... in three years:** A three-year projection exercise was performed in which each of the groups identified in the actors' map: leaders, hunters, farmers, women support of the *maloka* and women craftswomen, had to project what would be an ideal day in three years, by drawing, pasting images or writing, in a timeline of an entire day, identifying key activities, people involved and the resources necessary to perform those activities. This exercise helps to visualize future scenarios, identifying opportunities around unexploited products such as handicrafts, traditional chili, and other by-products from the coca leaf.
3. Day 3
 - a. **Socialization and validation with community:** The objective of this activity was to raise awareness about the concept of sustainable entrepreneurship and to reflect about how the community was aligned with social and environmental aspects of sustainability, its ancestral practices, and its community vocation, but they need to strengthen its initiatives to achieve economic impact for the community. Additionally, activities carried out in previous days were discussed resulting in the identification of different projects with potential for income generation: (1) production of *mambe*, anvil and salt, (2) the possibility of cultivating chili pepper to be processed and packed into individual presentations, (3) the elaboration of handicrafts with region materials and alluding to community's culture (4) commercialization of local products, (5) the manufacture of personal care products with natural ingredients and (6) chicken eggs.
 - b. **Co-creation of business models:** The objective of this activity was to indicate the steps to create a sustainable business model, using the chili project as an example. It was explained how to define a business model and how to validate its value proposition through an exercise of simple questions that the community had to answer. It was indicated that to achieve the economic viability of the initiative, it was necessary to quantify the entire process of produc-

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tion and delivery of the products or services proposed. Additionally, a business system map was co-created, to help them understand how their business model should operate, make sure that all processes were aligned with their values and capabilities and help them identify their revenue model. Subsequently, work teams were defined to answer the business model questions and to start validating it.

Collaborative Empowerment A: Prototyping and Validation

Between the first and the second field trip, the community deployed research about two of the selected initiatives: chili pepper cultivation, processing and commercialization, and manufacture of soap with natural ingredients. This research aimed to define details about the production process, its technical characteristics, and the associated costs, along with answering the business model questions for the two projects:

- Who is my client, and what am I going to deliver/offer him?
- What should I do and what do I need in order to develop and produce my product (raw materials, machinery, tools, infrastructure, detailed process)?
- Who is needed in the production and delivery process?
- Who might be allies and partners to facilitate and promote such processes?
- How do I deliver my product to the clients (When, where, and how much it costs)?
- How do I promote my product/service?

In order to answer most of the questions and to validate such answers, the community prototyped the production processes and started simulating the delivery process. They sent the results to the team by email and were in touch throughout this process through one of the young leaders, so it was possible to send them feedback and suggestions on how to continue the validation.

The community received during this research and validation process a fortunate visit, an expert on chili pepper farming, who gave to the community technical tips and guidance on how to start an organized crop, how to prepare the ground, how to do the nursery, how to make organic fertilizer, among others. Such a visit gave them huge motivation and empowerment, which resulted in the start of a formal pilot of the chili pepper project.

Furthermore, during this prototyping phase, the community was also visited by Natural National parks of Colombia, a government organization that deploys projects in indigenous or rural communities that are located in preserved areas. They heard about the process that the EAN University research team was performing and decided to sum up the project by supporting the community in the implementation phase.

Field Visit 2 - Collaborative Empowerment and Sustainable Implementation

The second visit was conducted in collaboration with Natural National Parks of Colombia (Entity in charge of the administration and management of the National Natural Park System and the coordination of the National System of Protected Areas), as they were already supporting the community with the implementation of the pilot and the documentation of a proposal to apply for funding.

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1. Day 1
 - a. **Research and pilot socialization:** The second field visit started with the socialization of the research process and pilot development. The community focused on the Chili pepper project as it was the one that could involve all the community, and they have now more technical details learned. After the visit of the chili pepper expert, the community started the pilot with the deployment of the nursery and the preparation of the ground. They documented all the details of the technical process, quantified the materials, production costs, and other critical resources for the project. They prototyped different product presentations and quantified their differences in timing, raw materials, and productivity. Some interesting findings are that the accountable process of the project is also held daily during the *word circle* and that they started thinking about involving other communities as raw material suppliers and commercial channels.
 - b. **Process blueprint:** The second exercise on the first day was to detail the production process from the very initial phase until de commercialization in a blueprint format. With this exercise, it was possible to look into each step in the process in order to map the description, resources, key measures, people involved, and reflections and new questions to be solved. This activity helped the community to reflect on the learnings they obtained by conducting the pilot and validations, and more importantly, they defined new questions or details to be validated.
2. Day 2
 - a. **Business model Canvas:** The first exercise of the day was to design the final model by filling in a business model canvas in a collaborative session. The starting point for the business model was the system mapping that was visualized in the first field visit, which was revised and detailed. Essential results from this activity were the differentiation of client segments, the value proposition definition, channels, and relations with clients. Many reflections came away with this activity, such as the importance of including the history of the community and instructions in the product, the opportunities in alternative packaging that is environmentally sustainable, and possible allies or support organizations that can potentialize and facilitate the project implementation.
 - b. **Roleplay:** Once the business model structure was clear for the community, the canvas was drawn in the ground, in a way that each person could walk to the part of the canvas where they want to have a role. Such activity, facilitate the definition of the different roles that the project requires and generates team empowerment. Four teams resulted from this activity: Production team, commercial team, financial team, and documentation team.
 - c. **Road Map:** In order to plan the steps to follow in the project implementation, a road map was defined with the community where the following key activities were defined:
 - i. Production development: verify production process (Quantities and time) and document procedures and answers to the new questions from the blueprint activity; organize a group to participate in a manufacturing best practices course (SENA or other institution in the region), supported by the National Natural Parks organization.
 - ii. Infrastructure development: review requirements and finish the documentation of the proposal for the National Natural Parks organization for funding.
 - iii. Market development: define the final presentation, sustainable packaging, name, and logo, along with the definition of the price.

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- iv. Financial structure: define a detailed production cost structure, expenses control and sales objectives.
- v. Organizational structure: define responsibilities, rules, protocols, and activities by the culture and the *own government* practices and expected behavior.

Each activity was assigned to the correspondent team(s), and a deadline was defined.

FINDINGS AND FURTHER DEVELOPMENT

Traditionally, it has been considered that indigenous communities have a survival concept of life and that their interests of insertion in a market economy are not evident. Most of the indigenous communities, faithful to tradition, divide their work between housework, harvesting, and hunting, being the first responsibility of women and the second of adult men.

Daily activities include the preparation of food, among the most frequently prepared, are casabe and chili pepper. From yucca, they extract the different varieties of casabe, and from the chili, they extract the juice that serves as a seasoning for most of their meals.

On the other hand, there are coca leaf and tobacco transformation processes, whose final products are ambil, and the mambe. Finally, as one of the only activities that have a commercial connotation, in the community, is the handmade production of products for personal cleaning (soaps and shampoos).

With the work that was conducted in the field, it was possible to demystify that the indigenous communities have no intention of inserting themselves in a productive market that generates resources to be invested in the benefit of the whole community. For that reason, the understanding that the productive activities can be the vehicle for the improvement of living conditions has been the best driver for community members to show concern for the exploration of those possibilities that can become an income generator.

In the process of identifying activities that the community can develop, it is important to establish what the productive vocation may be, in which areas they have a higher level of development and which tasks they develop with more significant skills; also, as it is an activity that goes beyond everyday life, the existence of people capable of performing those tasks must be verified and, finally, the production process and the final product must be an integral part of the community culture which allows them to generate a differential for marketing strategies and thus positioning their products.

As activities and products that can be systematized in such a way that they can be profitable, the following were identified: production of ambil, production of mambe, production of handicrafts and production of chili, being chosen, by the same community, the latter as that activity upon which the pilot project was developed.

The lack of knowledge of cultivation techniques for production purposes is one of the limitations with which the start of the project had to face. Therefore, it is important that in the process the indigenous people have specialized and technical accompaniment in the areas in which they want to carry out their initiatives, in the specific case of chili, it was necessary to have an expert in agronomy, which accidentally happened in this case.

It is vital that in addition to technical support, support in business design and strategy exists, that allows the community to define the cost structure, establish the marketing strategy, define the positioning

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of the product, set the sale price, among other activities that facilitate the start-up and consolidation of business initiatives.

The accompaniment of Ean's left the project in its initial phase of development, later, as it has happened, the community had to seek the support of different private or public entities that would facilitate the consolidation of the initiative with resources for the production's expansion and the consolidation of the commercial process.

In this sense, from National Parks resources for \$90,000,000 Colombian pesos (about US \$28,000 at May 2019 change rate) are invested in the project, with which they purchasing machinery, equipment, and supplies that allow them to increase production volumes, improve infrastructure with the construction of a production warehouse that complies sanitary standards for food production, a fact that will open new doors for the mass selling of their products.

The community is learning several aspects that may favor the sustainability of the project over time. From the commercial point of view, they have participated in several local fairs which have allowed them to determine the reception that the product can have, not only between the channel through which they currently market, wholesale distributors, but also between restaurants and public in general, with which they can achieve a better price and as a consequence, greater profitability.

Another aspect to consider is the production process. Due to entirely social situations related to the community, the workforce has rotated rapidly, which is why the processes do not have a precise follow-up, and there are problems in production continuity.

Since its operation, there are some first sketches of organizational structure and distribution of profits. The community has decided that there are four functions in the total process of chili, production, transformation, marketing and administration, so that each of these tasks has been allocated a percentage of the utility: 30% for the first three and 10 percent for the last, important development given that in the beginning, the profits were for the community in general without there being a benefit or recognition for the individual contribution.

Although on the product, there is a significant breakthrough, in the packaging, they still have much work to do. Problems with the supplier have meant that the sale of small presentations, with which the volume of income could improve, was discarded, leaving only the 1-kilogram size presentation for sale.

CONCLUSION

During more than 50 years of insecurity and war lived in Colombia, indigenous communities, especially the ones located in the southeast of the country, were forced to leave their territories in order to survive. Such migrations inside the country resulted in the dispersion of the communities, which put in danger of extinction its cultural background and traditional practices.

Among the conversations that were held to finish the guerrilla and paramilitary conflict in Colombia, many of these communities that migrated initiated a process to resettle, reuniting some of its members in new territories, in most of the cases far from the original settlement. Such a process has been slow and difficult, not only for the cultural issues but for the limitations of the new places where they are trying to get used to and to survive from what they found there.

Therefore, from the numerous original communities, today many reunited smaller communities are trying to find a balance between their cultural traditions, the different situations that they suffered

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throughout the conflict and the migration process, and the new territories and life conditions, far from what they were used to have in their original communities.

Such conditions resulted in new expectations and needs that were not experimented before by the members of these communities. This situation implies that these communities need special guidance to help them identify alternatives to generate sustainability for the newborn communities, that are focused on benefiting each individual and the entire community, with a positive impact also in the environment, both cultural elements that must be followed and also the possibility to generate income, as in this new territory. With the newcomers, there is a new need to integrate to the occidental economy.

In this order of ideas, communal property and work, the fundamental basis of its social and economic development, are key elements on which any proposal that tends to generate income must be prepared. In the same way, it is the identification of activities that respect their traditions, like the protection of the environment that provides them with necessary food for their subsistence or the active participation of women in productive processes, an integral part of indigenous culture with whom the research work was carried out.

Because production, beyond own sustenance needs, and trade are not activities that are immersed in indigenous culture, a process of accompaniment must go from the identification of productive vocations to the consolidation of products, distribution, and sale processes.

Given that business initiatives are based on activities that are part of the daily life of the community, it is of vital importance, for the development of the process, that its members understand that, despite their daily routine, their work may contain a high added value that is clearly perceived in society, a fact that is evident in the price that potential buyers and consumers would be willing to pay for the product offered.

It is not the goal, at any time, to introduce communities into a consumer economy that they do not see as necessary, the effort should be directed towards raising awareness that in the midst of their culture, with total respect for their traditions, communities can generate internal processes that lead them to improve their living conditions and ensure their sustainability.

The importance that business initiatives, as shown, can have for the communities can not be underestimated, for this reason, this type of enterprise must go hand in hand with the consolidation of business criteria that allow them to advance from the early stages of the first production, towards more business schemes in which all the activities necessary for business growth are identified, such as finance, marketing, logistics, among others - considering that products from indigenous communities, with a high component of their culture in production, are desired by captive markets that are in search of an offer increasingly respectful of nature.

By the above, a model of intervention in vulnerable communities, with the principles of social innovation and sustainable entrepreneurship as a basis, must be flexible, considering the specific needs of the population and their particularities. As a general framework, it should be considered that, before fieldwork, the customs, traditions, and habits of the community must be known in order for the first experience to be assertive. On the other hand, in the methodological development the fieldwork should be directed towards the achievement of the objectives, considering the participants' profile, since the summons of them may not conform to the planned, so possible adjustments should be contemplated, depending on the degree of involvement they have in the project.

It is of fundamental importance that the start is impactful enough in such a way that the attention is captivated and with it the disposition for the development of the activities.

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On the other hand, the understanding of the ideology and culture of the communities under study allows establishing the communal nature of the activities and the final destination of the benefits obtained from the business activity that they have determined.

The final model for intervening in indigenous communities contemplates the following phases:

0. Preparation: Project planning and scoping with members of the community.
1. Initial context: Understand in field elements of the context that can influence the following activities, the definition of tools and exercises tuned to indigenous community culture and habits.
2. Collaborative approach: Infield activities to identify capacities and opportunities with the community.
3. Diagnosis: Identification of an opportunity for the development of an impact idea in which the community will love to work.
4. Alternatives co-creation: Definition of a triple bottom line business model with the community with dynamic capabilities oriented towards sustainability.
5. Collaborative empowerment: Define key internal and external actors and establish commitments, plan the implementations, and further steps.
6. Sustainable implementation: Further actions to ensure sustainability with a triple helix approach for the strengthening of initiatives.

FUTURE RESEARCH DIRECTIONS

As a complement to this project, research processes can be developed with other indigenous communities to take advantage of the experience gained and continue with the validation of the double hexagon model that was applied in this project. The confrontation of experiences and the identification of successes and mistakes made in the accompaniment to the production process can result in a robust model of serving as the axis for the development of productive projects that meet the needs of each community, being completely respectful of their traditions and their culture. Other research projects can be designed to focus on the last phase of the methodology, sustainable implementation, as it implies many activities and significant efforts to ensure de continuity of the project and the establishment of a social enterprise.

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KEY TERMS AND DEFINITIONS

Ambil: Tobacco mixed with vegetables and salt, that with a cooking process is transformed into a black paste that is used in the word circle sessions. Both women and men use Ambil.

ANSPE: Agency for Overcoming Extreme Poverty. Colombian State strategy to give a comprehensive response to the multidimensionality of extreme poverty.

Casabe: Type of bread made from cassava flour whose preparation and consumption dates back to pre-Hispanic times in America.

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Chagras: Spaces or areas for agriculture in indigenous cultures that may have temporary and perennial crops with a production period that varies depending on climate and cultural specificities of each indigenous community.

Maloka: Ancestral communal house, where the heart is collectively cleansed, and the spirit is released; stories, myths, rites, customs, and customs are transmitted orally; advice is given to children, youth and adults; the way of working the chagra (orchard), the mother tongue, the hunting, the crafts are taught; The positive and negative aspects of each day's work are analyzed and reflected; wisdom is planned, organized and shared; the body, mind, and spirit of people and the environment are healed; restorative justice is legislated and imparted.

Mambe: Coca powder that is obtained after roasting, grinding, and sifting process out of coca leaves and ashes, which has healing and nutritional properties, in addition to the sacred power that is granted to it by the Colombian indigenous people. Men only use Mambe in the word circle session. It helps to boost them and give them energy in these social meetings.

OPIAC: The National Organization of Indigenous Peoples of the Colombian Amazon, is a nonprofit indigenous public law institution that exercises a political representation of the indigenous peoples of the Colombian Amazon before institutions of National and International orders.

Word Circle: A millenary tradition used by Indigenous People of Colombia. The purpose is to transmit knowledge from oral tradition. It is the only way for tradition to last, to transmit it from generation to generation, is like spinning a craft in time, the DNA and genetics of a person. Through this process, which has the following order, LISTEN, ASK, and THEN REFLECT, all the issues of a community, their development, thoughts, and customs are agreed upon.

Chapter 21

Steps to Success: Competitive Advantage of Modern Enterprises in Poland

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ABSTRACT

Nowadays, successful companies are those that build their adaptability by improving business processes, optimizing costs, increasing customer satisfaction, and responding quickly to their customers' needs. The company can choose two ways: keep its status quo, without going forward or backward, or to act on the opportunities that appear in the market. The reality consists of opportunities that the entrepreneur faces, and also, there are barriers, limitations, and disappointments that arise. Still, if they use innovative solutions, they gain a competitive advantage. In the modern world, the necessary resource is knowledge, which allows entrepreneurs to improve the position of the company in the market. This chapter presents the results of a study among economics and management students, who defined their way of understanding entrepreneurship, and indicate motives of starting-up a business and ranked the features that they believed are the attributes of a successful businessperson.

INTRODUCTION

Success is currently defined through the prism of profits achieved by the company, which is associated with the number of customers. Enterprises entering the market have to reckon with high competition if their activities are not strictly related to innovations and patents introducing new products and services to the market (Białek-Jaworska, Ziemiński, & Zięba, 2016). Therefore, when opening a business, one should analyze both the strengths and weaknesses of the enterprise, as well as its chances and threats resulting from functioning in a given environment. This will allow building a company's strategy on the market.

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Being an entrepreneur is a big challenge of independence, an opportunity for professional and financial success, often also the implementation of passion and professional ambitions. Entrepreneurship is stereotypically associated with unlimited income, flexible working time, freedom, independence, lack of a boss, and implementation of own ideas. The advantages of one's own business are one of the parties; the other is the disadvantages associated with the uncertainty of staying in the market, the risk of failure and loss of funds invested, insufficient qualifications, and knowledge to run a business. Therefore, the decision about starting a business should be preceded by market analyzes, resources held, and assessment of the business skills.

Drucker distinguished seven sources of opportunities for an entrepreneur and his/her company. He divided them into internal and external conditions (Drucker, 1992). The former included unsuspected success or lack of success, as well as an unexpected external event. This can be related to the situation of an opportunity or its non-use, which generates a change in the situation of a given company. It can be said that this is a significant step in developing the company, following trends, adapting to the environments. Otherwise, the company can keep its status quo, without going forward, going backward. Secondly, the inconsistency between the reality and the image of it, which results in a positive motivation for the opportunities that the entrepreneur faces, or on the contrary, barriers, limitations, and disappointments that arise. The last aspect of the internal factors, that is, those that depend on the entrepreneur, may be innovations that result from the need for the process and changes occurring in the market structure. In order to effectively implement activities, it is necessary to be up to date and be oriented in terms of the requirements set for market participants.

In turn, to external sources, Drucker included those that refer to changes in the company's environment. These include demography, changes in perception, moods, values, as well as knowledge in exact and other sciences (Oslo Manual, 2005). These sources are independent of the entrepreneur; hence, in order to be successful on the market and be successful, it is necessary to respond to them. An entrepreneur who will effectively use occasional opportunities has a great chance to win with the competition.

The use of resources such as knowledge and management process are a step to success on the market. They are used to identify opportunities and opportunities on the market, aim to improve the competitive position, build a dynamic and learning organization, and strengthen the values of the company. The management process requires today's entrepreneurs for a specific behavior that is distinguished by creativity, learning ability, and openness to change. Companies that want to build their potential are required to become learning organizations today. The concept concerns the focus on continuous improvement of its products, processes, and services; it aims to support employees in the process of individual and group learning and also incorporates the process of learning from each other (Dziekoński & Jurczuk, 2009).

The necessity of developing knowledge and the ability to make uncertain decisions and introduce innovative undertakings is a requirement today.

Another element of building competitiveness is the use of Internet capabilities in company management. It becomes a communication platform for implementing a strategic goal, close cooperation, data exchange, and providing new possibilities for implementing business models. Today, the importance of gathering, processing, and sharing information, often of a multimedia nature, in the creation of a knowledge-based economy is underlined. It is the knowledge that drives the development of enterprises.

Today's successful companies are those that build their adaptability by improving business processes, optimizing costs, increasing customer satisfaction, and responding quickly to their needs.

In order to be able to talk about a successful company, the most important aspect will be people, in the person of the entrepreneur and possibly employees. It is the entrepreneur's policy that depends on the

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values that are important in the company, development directions, and how to manage human resources. Its features determine how the company will be perceived.

The ethos of a businessman defines the hierarchy of features that create a pattern of predispositions, competencies, and skills required of the entrepreneur. In the ever-changing social, economic, and political conditions, learning entrepreneurial skills is the key to adopting a pro-active attitude. The market economy, and above all based on knowledge, places high demands on its participants. Both employees and entrepreneurs (above all) are required to show initiative, compete in the labor market, adapt to constantly changing conditions.

The article will present the results of research among students of specialties in the field of social sciences, i.e., economy, finance, and accounting, as well as management and coaching. Students will define their way of understanding entrepreneurship and will indicate, among others, a ranking of features that they think are the attributes of a businessman. They will change the motives of starting their own business. They will define expectations towards employers in terms of knowledge, skills, and competences. They will indicate the chances that they currently appear in the Świętokrzyskie market and the risks that entrepreneurs must cope with. The assessment made by the students will indicate the perspective of entrepreneurship and entrepreneurs' perception in the assessment of students of Kielce universities.

For a detailed analysis, the students participating in the survey are employees/entrepreneurs in the sector of small and medium-sized enterprises. Hence their perspective of entrepreneurship will be shown. It is the sector of small and medium enterprises that is defined as the one that is more flexible in accepting the rules of the single market and adapts faster to its requirements (Strużycki, 2004).

The article will also answer the question of what constitutes the main help according to students and what is a barrier to the development of entrepreneurship in Poland.

The purpose of the article is to draw attention to the factors affecting the development of entrepreneurship, which is the basis for economic development, and thus achieving success in terms of profit and satisfaction. This understanding of success refers to the concept of homo economicus. Outstanding in the article is to draw attention to the multidimensionality of the phenomenon. Capturing entrepreneurship in a legal, social, or personality context is insufficient. The article draws attention to the multiplicity of components, entrepreneurship models, or behavior motives and ways to achieve success. Various motivations and paths are leading to the goal of success on the market. The article presents how difficult it is to indicate specific steps that allow achieving success. It is not enough for the state to help if entrepreneurial qualities are not met. However, at present and undeniable, the importance of innovation and entrepreneurship for achieving market success is what the article tried to prove.

BACKGROUND

The Polish Agency for Enterprise Development reported that in 2016, 2.0 million enterprises were operating in Poland. In Polish law, an enterprise is defined as an organized set of intangible and tangible assets intended for running a business.

Such an approach to an enterprise is treated as running a business of a different nature, yielding profit, and this is the subject-related approach. In terms of the subject, the enterprise is an entity of rights and obligations related to the pursuit of business activity, carried out on its account, bearing the risk related to the activity and acting on its responsibility (Duraj, 2000). The latter approach and way of seeing the company is a functional context. It defines them as: "an entity (entity) running a business aiming to

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satisfy the needs of other entities of social life (people and / or institutions) by producing products or providing services, while this activity is motivated by the desire to obtain property benefits and carried out independently at risk owner or owners” (Sudoł, 2006, pp. 36-37).

The adoption of any definition of an enterprise brings it to the tasks - which it implements, the jobs it offers - the risk and profit. According to statistics, in 2016, 9.7 million people were working in enterprises in Poland, which is 63.4 percent of all people working in the economy (in total, 15.3 million employees in 2016). Enterprises generated PLN 1.3 trillion of added value, which accounted for 74.0% of Polish GDP and PLN 4.2 trillion of revenues. The exports of products and services of enterprises amounted to almost PLN 1 trillion (PARP). The above data shows how important are the enterprises and how they affect the development of the country's economy.

In the modern world, the necessary resource is knowledge. It is also the basis of today's economy. This knowledge allows us to manage better and thereby improve the position of market players. Both in individual and collective terms, the knowledge resource gives tangible results, and the process of identifying and acquiring it facilitates discovering new values for the company (Evans, 2005). Knowledge is also the basis for the process of creating and implementing innovations in enterprises. Together with creativity and entrepreneurship, it is the basis for building a competitive advantage on the market. The current knowledge-based economy includes knowledge concerning innovation, management, and development of human resources and ICT infrastructure (Czemiel-Grzybowska, 2011); innovations and ICT are the driving force behind progress.

Therefore, it is advanced technologies, high level of education, socio-economic system, functioning according to the principle of the minimum of the state, the maximum of the market and the lack of barriers to entrepreneurial activity, are the foundation for the development of modern economy (based on knowledge) (Mansfield, 2002).

In an era of times when success is said in almost every perspective, success can be perceived through the prism of an enterprise that generates profits, or the entrepreneur himself who achieves personal success develops professionally, has the opportunity to self-improve. Entrepreneurship is both a human feature (not all given) and a skill. On the one hand, it can be pointed out that it is talent, and on the other hand, practice it as a skill. Hence, the best way to acquire it is (Kołodko, 2008). Therefore, the future shape of the market depends on the education of the staff and the strengthening of the intellectual capital potential.

Entrepreneurship is combined with action, and its foundation is to create something new based on available resources, using practical skills. The basis for these activities is an idea that was invisible to others and used the potential underlying the new idea (Piecuch, 2010). This definition is close to Schumpeter's approach to entrepreneurship as an innovation process, where the idea generates solutions, those that have a chance to meet the expectations and requirements of customers, while using the environment for their development (Decyk, & Juchniewicz, 2014, p. 379).

A good business idea is still a key factor in business success. It should result from the assessment of customer needs and market demand. Creating a business involves using market opportunities and counteracting the threats that arise in the environment. Among the opportunities associated with the individual characteristics of the entrepreneur are indicated, among others: having education - preferably higher, experience in the industry, living in a city with more than 50,000 inhabitants, commitment and fresh view of doing business, and thus a more creative and bolder approach, interdisciplinary connected with the versatile interests and skills of young people.

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Threats include, among other things, the bravado of the undertaking, resulting from the ingenuity and frequent sense of omnipotence of young and determined young people. As a result, the prevalence of wishful thinking over the rationality of decisions can be related to this. Among the obstacles and barriers that should be taken into account when conducting their activity, regardless of their age, are issues independent of a single entrepreneur, i.e., related to the economic situation, including the rate of economic growth, income or financial situation of the society, strengthening of competition. Also, start-ups usually have a limited amount of financial resources, can badly estimate expenditures and investments, have low brand recognition, which requires the acquisition of regular customers and conducting intensive promotional and marketing activities (Czemiel-Grzybowska, 2011, pp. 133-134).

According to Białasiewicz, favorable conditions for the development of entrepreneurship are the environment of the enterprise, the economic situation, technologies, and social, demographic, political, and legal factors as well as the international environment (Białasiewicz, 2002).

The enterprise environment itself can generate opportunities and threats. Changes taking place in the nearer environment (which include entities with which the company cooperates or competes), as well as further (related to the system, including rules and conditions imposed by the state), affect the enterprises, and the manner of reacting to changes determines the success of the undertaking.

An important aspect is an economic situation in which the conditions for the functioning of enterprises on the market depend. The condition of the economy is of long-term importance for the company and determines decisions that may be beneficial or not in terms of competitiveness (Białasiewicz, 2002). In the modern economy, success is also determined by the use of modern solutions, patents, and utility models. The process of commercialization of knowledge and its flow from universities to business allows for the development and introduction of innovations. However, this is a long-term, labor-intensive, and capital-intensive process; hence, often, there is a lack of such cooperation between sectors. This is a huge problem in the contemporary development of the Polish economy. According to Eurostat data, in 2017, Poland allocated 1.03 percent of GDP to research and development, which means spending EUR 4.83 billion on R&D. The indicator obtained by Poland is lower than the European one, which is 2.07 percent of GDP. According to statistics, ten years ago, Poland spent more than 0.5 percent more than current spending. For too low amounts spent on this area, state actions are not only characteristic for Poland but even for the entire EU. The highest expenditure on R&D is recorded in Sweden (3.33%), Austria (3.16%), then Denmark (3.06%), and Germany (3.02%). In turn, among countries devoting less than 1 percent of GDP to this area are Romania (0.5%), Latvia (0.51%) and Cyprus (0.56%). Hence, among the 2020 strategic goals, the EU distinguishes raising the level of competitiveness by increasing the expenditure on R&D to 3 percent (Palen, 2019).

The knowledge-based economy requires research and development expenditures, and this is one of the priorities of states as well as of the European Union. Besides, the entrepreneurs themselves see great potential in the area of R&D, which translates into the expenses they incur in this area.

The number of trademarks and industrial designs, investments in human capital, public sector expenditure on R&D is all conducive to creating a pro-innovative environment (Białek-Jaworska et al., 2016, p. 12). In 2016 according to PARP, enterprises in Poland incurred 188.6 billion PLN of investment outlays, and expenditures on company innovations - with the number of employees over nine people, amounted to 39.0 billion PLN. According to the Central Statistical Office, entrepreneurs spend the most on innovations for the same year. They financed 46 percent. Investments in R&D, significantly ahead of universities (28%) and the government sector (24%) (Cieślak-Wróblewska, 2009).

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In order to gain a competitive advantage, companies outdo each other in new products. They often build their dominance based on quality competition, creative solutions, or the innovations they have just applied (Bieniok, 2016a). Hence Hisrich and Peters (Hisrich, Peters, Shepherd, 2017) pointed out five sources of innovation. The first is consumers with their opinions and need that can become an inspiration for the activities undertaken. The second reason that generates pro-innovative behavior is the observation of competition in the field of competing, complementary, and substitutive products, which may motivate them to improve their own. The third source is distribution channels, including people directly involved in distribution, who are best informed about current market expectations. The fourth reason for implementing innovations are governmental decisions that introduce new requirements. Finally, the ultimate source is research and development, which provides the most significant number of new ideas and ideas (Czemiel-Grzybowska, 2011; Filipczuk, 2009).

The overriding goal of innovation is changing, which is why they are such an important aspect of building the competitive advantage of enterprises as well as the economy itself.

Innovation is an indispensable element of the knowledge-based economy and the exemplification of the learning process. Innovations arise from the accumulation of knowledge and information useful for business. Also, supporting and creating financial and incentive conditions for promoting creative and innovative activities allows each organization to learn (Kasperkiewicz, 2009).

Innovation is also associated with the development of technology, which streamlines management processes, and not incorporating modern technology into its activities excludes the company from the market today.

The social and demographic conditioning are critical external factors that generate conditions for farming. It is the expectations and needs of customers that drive the company's profits, hence the observation of trends, as well as the population changes themselves, affect how these needs and expectations are shaped. Following changes in society is an indispensable element for adapting solutions and ideas in enterprises.

Necessary aspects are also political and legal conditions because they constitute a formal framework for business activity in a given country. They can hinder business operations, generate costs, encourage limiting operations, or influence the company's development. Knowledge of these conditions is the basis for running the company because it regulates its activity to the greatest extent.

The background presents many components that create an environment conducive to achieving economic and social success. On the one hand, it allows us to determine what competing entities are, indicate what is conducive to the development of entrepreneurship, and to place entities in a national context. What remains essential is the strength of the enterprise itself, and in this respect, the vast importance of innovation in building competitiveness has been pointed out. Countries increasingly recognize the importance of investing in research and development to support competitive advantage and support development. All elements are located in a society that can be stimulated adequately for the needs of the knowledge-based economy, which is why the human aspect next to innovation is a step to success. In every aspect of entrepreneurship, it is essential to dealing with a human factor, hence its significant contribution to building a competitive advantage. Hence, student reviews and considerations about their perceptions of entrepreneurship perception and success show us what elements form the basis for assessing what is termed market success.

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ENTREPRENEURSHIP IN POLAND

Being an observer of modern economic processes, there are many trends towards change. Among them are liberalization and market integration, acceleration of the development of the knowledge-based economy, placing an emphasis on sustainable development (Saiz-Alvarez & Palma-Ruiz, 2019). Moreover, investment in innovation and commercialization of knowledge, and lastly, development of entrepreneurship as a motor of progress, exemplification of the development of democracy and economic freedom.

In Poland, the field of entrepreneurship is educated from high school, and in college, strives to equip students of all faculties to develop their skills and social competences in the field of management, teamwork, and entrepreneurial and creative attitudes. Therefore, a better understanding of what entrepreneurship is for modern young people who enter the labor market, or are already on the job market, and go to study for additional qualifications becomes an essential factor.

Used to the entrepreneurs were engaged exclusively in entrepreneurship, and their main goal and motivator was the will to profit. Today, entrepreneurship is also a life attitude characteristic of proactive people who engage in personal development.

An important division of the definition of the concept of entrepreneurship was made by Piasecki (2001), indicating various criteria for looking at this issue, distinct economic functions performed by the entrepreneur, considered individual personality traits, and pointed to the way of management proceedings.

In the first criterion, the most critical element is to assess the opportunities that appear on the market. They are also associated with possible threats, which is why the assessment of the occurrence of both situations and based on taking appropriate actions is the basis for them. The choice of activities should be dictated by considering the risk incurred, hence the knowledge of the area in which the business is undertaken is the essence of success. Bravura and courage do not always go hand in hand with the rationality of decisions made. In their selection, an entrepreneur should be able to use not only opportunities that are already available but also be able to recognize those that can be the basis for innovation.

The criterion concerning individual traits is somewhat contrary to the approach of Drucker, who pointed out that entrepreneurship is not a psychological approach or character traits of entrepreneurs, but it is their actions (Drucker, 1992). However, this approach is common in both the subject literature and business practice. This approach indicates specific psychosocial conditions that predispose some to be more effective in activities than others. Entrepreneurship requires the involvement of a specific capital, time, and energy in starting a business. By becoming the owner of the company, it is essential to bear the responsibility and risk for making decisions. Thus, the success of the undertaking will depend on whether the managing person is an innovator or can respond to the needs and expectations of recipients (Brzeziński, 2007).

The article about the state of the sector of small and medium enterprises in Poland prepared by the Polish Agency for Enterprise Development (PARP) for the year 2018 has been the inspiration for the article. The Agency has been presenting data on entrepreneurship in Poland for many years, pointing to the role of especially the small and medium-sized enterprise sector (SMEs) in the Polish economy.

Among the advantages mentioned, among others, the fact that they constitute the largest group of companies in Poland and are a significant employer. In the reports, one can find a broad view of the concept of entrepreneurship, which also became a suggestion for the resulting deliberations. Entrepreneurship is seen as the determinant of success in the global economy. Entrepreneurship and innovation applied widely in the following activities: organizational, product, process, and marketing will bring companies a competitive advantage. The agency emphasizes the importance of entrepreneurship in the

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context of independent search for ways to solve problems and organize their work, which is similar to the assumptions of higher education curricula. This approach requires the skill of continuous learning and social support. PARP combines this with mechanisms of cooperation and information exchange as well as effective human resource management. In the future, not only will the lifelong learning process be promoted, but also the transformation of enterprises into learning organizations (PARP).

The other inspiration was the report published in May 2019 illustrating the perception of barriers to the development of entrepreneurship, indicated by a randomly selected group of 10,000 representatives of middle and large companies' management boards in 33 major world economies, including Poland (200 companies were included in the survey). The research conducted at the turn of 2018 and 2019, as part of the International Business Report cycle by Grant Thornton International, emphasizes that barriers rather than opportunities determine the development of companies (Grant Thornton International, 2019). The respondents were to determine how many of the eight areas indicated constitute a barrier to the development of entrepreneurship in a given country. Among the brakes in the assessment of company representatives in Poland as a "strong" or "very strong" barrier in development are indicated in the order of labor costs (68%), bureaucracy (65%), energy prices (64%), availability of staff (58%), lack of orders (51%), economic uncertainty (48%), access to finance (46%) and transport infrastructure (37%) (grantthornton.pl).

Research on the conditions for developing entrepreneurship is an important issue because of its significant impact on economic development, and thus the well-being of society.

METHODOLOGY

The professional experience of the authors and the professional practice allowed them to prepare a background for research based on several years of conducting educational and didactic activities at the university. Based on the workshops, it was possible to create a sketch of the answers to the prepared entrepreneurship survey. The answers indicated in the sheet are those that for years have appeared as answers to entrepreneurial classes, intellectual property protection, management, and the basics of law. The obtained answers were collected as the results of brainstorming or focus groups.

The authors intended to present the way students perceive entrepreneurship in the context of required traits, motivation, and understanding of entrepreneurship.

The research was conducted in the School of Economics Law and Medical Sciences in Kielce at the end of the academic year 2018/2019 and included 80 part-time students of economics, finance, management, and coaching studies in the second and third year of study. The questionnaire survey was anonymous. The questionnaire survey consisted of ten questions of a different character (closed and open questions), and the respondents were asked to choose the answer that matched their opinion or to select the best answer to the respondent. The results of the study are presented in percentages.

Research conducted on students is limited in scope and has been reduced only to those aspects of the subject of entrepreneurship that young people could confront because the study group was people from two age groups 19-25 and 26-30. Due to the preliminary nature of the conducted research, the analysis of the results was based on a total sample of all respondents. Among the students were people living in towns and villages from the Świętokrzyskie Province. The study will be presented in percentages and numerical form and placed in tables, as well as in charts, to give a general picture of the results obtained.

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Study Analysis

The world is changing, and people have to keep up with these changes. Decisions taken today have an impact on the future, and those related to professional careers will affect finding oneself on the labor market. Today, in order to be competitive, knowledge is not enough, and skills and competencies are also needed, as demonstrated by analyzes carried out on behalf of the European Union. Among attitudes, proactivity and entrepreneurship are the most appreciated, which are somehow elements that form the basis of personal success.

In the survey addressed to students, it was the definition of success that was placed first. The word “success” comes from the Latin word “*successus*,” which means going something, the successful outcome of some undertaking, event, achieving success, triumph (Skorupka, Auderska, & Łempicka, 1989). In the context of running a business successfully, the process is called the highest level of possibilities aimed at achieving the set goals (Majewska-Opiełka, 2007). The measure allowing to assess the company in terms of achieved success is to achieve a favorable position in the sector, and even a competitive advantage, in the face of other participants of the market game, that is, gain a relatively large market share, which is to ensure a secure income allowing further development (Filipczuk, 2002)

Success means a successful outcome of a business, success, and triumph. Referring this term to the enterprise, it is associated with successful results of the company’s operations, successfully implemented in its system of production and commercial undertakings, with its triumph on the market (Pabian, 1998). Individual success has its measures, and success perceived through the prism of an enterprise can affect many areas. For each entrepreneur, success can mean something else, such as setting up a business, overcoming barriers to enter the market despite stiff competition, increasing profits or turnover from business operations, increasing the number of satisfied customers of the company, and still others just survival on the market.

Students were answering a question about the issue, perceiving their success most often pointed to achieving their life goals /plans. In these answers, there were two versions of the approach: the first was that success was pursuing the goals set, sometimes even according to the Machiavellian rule: “the end sanctifies the means,” the second indicated that success was just fulfillment, achieving the intended goal. Some students indicated that success is overcoming difficulties on the way to the goal. Other definitions of students were focused on fulfillment, including personal, professional, even sports, including through “achieving a happy life in prosperity;” “good management of your backyard: finances, family, career;” “health and happiness;” “professional fulfillment;” “promotion at work or opening your company;” “balance between work and family life”. For young people surveyed, success also means “achieving dreams” and “living.” They also succeeded typically in issues related to entrepreneurship, which is consistent with the neoclassical concepts of *homo economicus*: “maximum income with minimal expenditure;” “earning a lot of money on what you like;” “earn worthily;” “prestige, recognition, and strengthening of the brand on the market.” There are also answers in the humanistic trend defining success as a “measure of own abilities and constant development;” and “self-fulfillment, self-fulfillment, the satisfaction of their ambitions.” Among the answers, there was also an aspect of moral behavior, following the concept of sustainable development: “ethical behavior towards other people.” The answers of the students quoted above show that success is most often reduced to achieving the goals set by them. In the survey, however, they did not indicate what constitutes this goal. It may well be material, financial, or spiritual goals. Hence it is difficult to determine the motivation, whether material or non-material factors dictate it.

Bieńkowska (2004) divided the success factors into three groups:

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1. Factors related to the entrepreneur's person: For example, the experience an entrepreneur has as both a business entrepreneur and the responsibility for company management, education level, age, personality traits, aspirations, motivation (Bieniok, 2016a). The psychologist Rotter pointed out that one of the psychological variables that differentiate people is a sense of control over their life situation. What seems to be an essential factor affecting the reference to successes and failures. An entrepreneur is usually an example of a person with so-called internal positioning of the sense of control, which means that he, not himself, assigns control over rewards and punishments to what he experiences.
2. Factors related to the company: For example, the size of the company, legal form of the company, organizational structure, staff, pace of development, investments, innovations, the company's brand (Białek-Jaworska et al., 2016).
3. External factors: These are independent of the entrepreneur himself, which brings both opportunities, as well as risks and threats. These are the factors that constitute the further environment of the company, i.e., market dynamics, competition structure, entry/exit barriers, the industry in which the company operates, macroeconomic factors, natural disasters, and legal regulations (Bieńskowska, 2004).

The entrepreneurial attitude indicated by students is consistent with the concept of entrepreneurship categorization. According to the personality traits of the entrepreneur, it is possible to divide because it is his behavior, willingness to take risks, or the time that gives the development of his business affects the perception of entrepreneurship. In this perspective, a distinction is made between ethical, spontaneous, evolutionary, and systemic entrepreneurship (Podlasiak, 2009, p. 62; Flaszewska, Lachniewicz, & Nowicki, 2013, pp. 70-71).

In the second question, students were asked to indicate three to five traits of a successful person. Since students defined success, their next task was to identify the traits that characterize those who succeed. Among them, 32 people indicated their ambition. It was subsequently answered that the person of success is characterized by perseverance/stubbornness in pursuing a goal (18), is diligent, scrupulous and reliable (18), courageous (18), hard-working (15), responsible (15), creative / inventive (14), determined, having a fighting spirit (13), persevering, self-discipline and self-denial (12), professional / competent (11). In addition to the answers provided on the graph, many features are less associated with success to a lesser extent. In the order from those who obtained the highest number of ratings were loyalty (valid for 9 students), self-confidence (indicated 7 people), optimism and enthusiasm (7), intelligence (6), honesty (6), commitment (5), patience (5), openness (5), regularity (5), communicativeness (4), assertiveness (4), persistence (4), charisma (4), punctuality (3), entrepreneurship (3), realism/rationalism (3), resourcefulness / cunning (3). Individuals have also scored other features. The catalog of features shows that many positive attributes are expected from successful people, although among the answers given by men, there were also features such as dishonest and ruthless, while women showed happiness.

This approach combines two models of entrepreneurship:

1. **Ethical:** It is associated with compliance with the generally accepted system of values and ethical rules, characterized by honest work and reliability so that the authors can be mentioned forms of behavior, such as diligence, diligence, perseverance, and precaution.
2. **Spontaneous:** It combines action with the awareness of bearing high risk. The goal of success is enlightened by the means used, which is a denial of ethical principles. However, such activities can

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be characterized by great creativity, ingenuity, and innovation (Podlasiak, 2009, p. 62; Flaszewska et al., 2013, pp. 70-71).

In terms of the features indicated, due to their number, the results were presented without a breakdown by gender. The characteristics indicated by men and women did not differ from those in addition to those indicated above. The contemporary image of a successful man is much more positive than it used to be in Poland, where the successful person was combined with activities outside the law or unethical.

Targielski (2003) indicated an example of a set of characteristics of an entrepreneur: self-confidence, faith in success and belief in the possibility of achieving it, persistent pursuit of goals, failure to fail, learning, innovative ability - not so much an inventor, what the ability to perceive the opportunity and opportunity on the market, the ability to change, results-oriented, succeed (success), willingness to take calculated risks, willingness to spend time and time, as well as perseverance.

The next question concerned values important in running the company. If it is considered that "an enterprise is a basic, independent enterprise, running a production, service or commercial activity on its own, separated in economic, legal and organizational terms, which has specific resources of production factors and is primarily aimed at their effective development under the aim of achieving a favorable financial result, satisfying the needs of the market, individual consumers and enterprises," to run it one should be guided by a particular hierarchy of values (Żurek, 2007, p. 16). Entrepreneurship is also the ability to seize opportunities to implement perceived needs that require taking risks.

Among the key elements necessary for the success of economic activity at the stage of its creation, the five most important are identified (Matusiak & Mażewska, 2005):

1. Acquiring specialist knowledge and experience in the industry in which the company is to operate.
2. Having an idea for a product or service that is innovative or new enough for a given market to gain customers.
3. Personal contacts that allow for improvement at the beginning of operations, for example in the field of marketing, dissemination of activities, and financial support.
4. Access to the necessary resources (capital, qualified workforce), allowing to start operations.
5. Guarantee of orders from the first customers, i.e., acquire those whose needs are met by the good or service.

The analysis of two sets of results regarding values shows how the surveyed people evaluate potential entrepreneurs and what values they attribute to themselves. Values are an important evaluation aspect that can be hierarchic. For the analysis, a distinction was made on students' gender, because the results in these groups, though mostly coherent, differed in terms of integrity, which is more important to men than for women (refer to Table 1). The most important values for entrepreneurs in the assessment of students are quality for 67% women and 77% men, professionalism for 57% women and 64% men, customer satisfaction 57% women and 60% men, profits for 57% women and 50% men. As the least CSR (CRS) 7% women and 4% men, specialization 12% women and 9% men, and time savings, 17% women and 9% men were evaluated.

An entrepreneur is perceived as a person who cares about the quality of the offered products, a professional who cares about customer satisfaction and who values his or her profit (Bieniok, 2016a). However, it is not a person who is interested in corporate social responsibility, specialization, or the issue of time management.

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Table 1. The most important values for entrepreneurs in the modern economy

Values	% of Answers		Values	% of Answers	
	Women	Men		Women	Men
Quality	67	77	Trust	45	41
Customer's satisfaction	57	60	Professionalism	57	64
Specialization	12	9	Saving time	17	9
Competitive advantage	29	32	Innovation	31	32
Enthusiasm	9	18	Ambition	26	36
Spirit of rivalry	26	27	Involvement	38	50
Authenticity	21	27	Loyalty	28	23
Profit	57	50	Brand	34	36
Responsibility	38	41	Ethics	22	18
Honesty	34	55	Corporate social responsibility	7	4

Source: Own elaboration

When self-assessing their values, the results obtained by women and men turned out to be very consistent, the most important were quality, professionalism, and honesty. The lowest value for them is time savings and corporate social responsibility. Detailed data is included in Table 2.

Table 3 lists characteristics that describe various concepts of man in the economy, i.e., homo economicus, human nature in terms of behavioral economics, and humanistic economics. Due to the differences in the answers given by men and women, both assessments were compared with each other. For 59% of men indicated the pursuit of self-development as a feature of the entrepreneur in the modern market. For 55% of men, these characteristics are guided by the desire to accumulate wealth and strive to meet their own needs. The entrepreneur, in the opinion of men, also cares for sustainable develop-

Table 2. The most important values for students in the modern economy

Values	%		Values	%	
	Women	Men		Women	Men
Quality	69	55	Trust	41	36
Customer's satisfaction	50	50	Professionalism	62	77
Specialization	17	27	Saving time	7	18
Competitive advantage	17	23	Innovation	26	36
Enthusiasm	17	18	Ambition	22	27
Spirit of rivalry	14	14	Involvement	50	55
Authenticity	21	18	Loyalty	36	27
Profit	36	41	Brand	38	45
Responsibility	40	41	Ethics	40	32
Honesty	59	55	Corporate social responsibility	5	14

Source: Own elaboration

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Table 3. Description of a person in the modern market

Feature	%		Feature	%	
	Women	Men		Women	Men
Egoistic	26	41	Guided by the desire to accumulate wealth	55	55
Vain	2	14	Rational	38	32
Autonomous	5	14	Strives to satisfy needs	36	55
Altruistic	0	4	Limited by social role	7	0
Emotional	9	0	Contributes to the good of the public	16	23
Caring for sustainable development	31	45	Striving for self-development	43	59
Caring for good relations	36	41	Solidary	26	14
Conformist	5	9	Cooperating	36	41
Is guided by socially determined values, standards and patterns	16	23			

Source: Own elaboration

ment (45%) and is selfish and at the same time, cares about good relations. Men did not indicate in their assessments the traits of emotionality and limitations on the part of their social role. Such descriptions are more characteristic of the situation of women.

Entrepreneur in the opinion of women is guided by the desire to accumulate wealth (55% of women pointed to this feature), strives for self-development (43%), is rational (38%), strives to meet their needs, cooperates and cares for good relationships (36%). In the opinion of women, entrepreneurs are neither altruistic nor vain.

The next question in the survey concerned the selection of business motivations for entrepreneurs, and the results are presented in Table 4. Among the motives, the most significant number of students indicated the answer: “having an interesting business idea” (94%). Economic practice shows that a good idea is one of the components of success in the market, so the choice of students is consistent with reality. The next answer is the willingness to develop further, which was indicated by 91% of respondents. For 85% of students, business motives are: “having a passion that can be turned into a business,” “willingness to take responsibility for your future,” and “willingness to earn more.” Seventy-nine percent, indicated as a reason, “dissatisfaction with the current job.” Subsequent motifs are: “easy to convince others of their ideas” (74%), “I feel” the business (73%), “I like to feel independent” (68%). As the least-chosen motive of starting a business activity is indicated, “having much free time.”

In the literature, one can find various motivations and sources of entrepreneurial behavior among which he is and which is in opposition. The motives of the behavior of some young people are, as pointed out by Brafman (2015), “achieving success against expectations,” which means that you can overcome external factors (adverse social and living conditions of such people), a certain fortitude.

In the next question, the task of the students was to organize in order from the most important to the least important factors influencing the development of entrepreneurship. Based on individual ratings, a ranking has been made. The individual categories obtained average marks for points, according to which they were presented in graph 2, in the order: having an idea for a product or service (2.6); acquisition of specialist knowledge and experience (3); access to necessary resources (capital, qualified workforce)

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Table 4. Motives for starting a business

Reason / Motive	Important		Not Important	
	Points	%	Points	%
I am unhappy with my current job	63	79	17	21
I'm unemployed	44	55	36	45
I want to show myself and others what I can do	54	68	26	33
I want to earn more	67	84	13	16
I have the ease to convince others of my ideas	59	74	21	26
I "feel" the business	58	73	22	28
I want to be my boss, I do not like subordination	45	56	35	44
I have a lot of free time	21	26	59	74
I have a passion that I would like to turn it into business	68	85	12	15
I have an interesting idea to set up business	75	94	5	6
I would like to still developing myself	73	91	7	9
I want to take responsibility for my own future	67	84	13	16
I like feel independent	54	68	26	33
I want to have flexible working time	35	44	45	56

Source: Own elaboration

(3.7); personal contacts (4.3); favorable regulations (4.3); State aid (4.9); guarantee of orders from first customers (5.2).

The third model of entrepreneurship that is emerging is evolutionary entrepreneurship - it is based on the gradual introduction of changes. This is not a revolution of actions, a sudden change, but a gradual achievement of the goal. It combines with multi-stage and systematic action. This entrepreneurship model is the most socially accepted (Podlasiak 2009, p. 62; Flaszewska et al., 2013, pp. 70-71).

Table 5 presents the answers given to the question regarding the characteristics of entrepreneurs. For the most important feature students indicated courage in action and thinking (88%), risk (76%), goal setting (74%), self-confidence (73%), as the least important indicated rapid recovery of psychophysical forces (18%), the need to learn new things (21%) and having dreams (26%). The importance of personality traits associated with faith in one's strength and having dreams can be emphasized, which is related to the concept of success contrary to expectations (Brafman, 2015).

It seems consistent with the conditions presented in the literature required to undertake an economic activity, including dynamism, readiness, and courage in decision making, innovation (Bieniok, 2016).

Diversification in the scope of running a business also depends on the cultural context. Tradition and culture influence the way of running a business in a given country. Cultural factors are associated with values and beliefs recognized in a given society. They set the direction of thinking and perceiving phenomena, feelings, and conduct.

In the assessment of students, the issue of financial management is among the most significant difficulties in running a business. The students emphasized that this applies both to the situation in which the company operates on the market, but also at the beginning, when the company is assumed and costs are high, and there are no profits (22 people). The other very important barrier is the changes in legal

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Table 5. Features of the entrepreneur

Characteristic	Points	%
Having dreams	21	26
Setting ambitious goals,	59	74
Making plans for the future	23	29
Courage in acting and thinking	70	88
The desire to learn new things	17	21
Ability to quickly regenerate psychophysical strength	14	18
Persistence in acting for a long time	57	71
Faith in your own strength	58	73
Appreciating one's own skills, self-confidence	46	58
The ability to take risks /the ability to assess the risks	61	76
Optimism	32	40

Source: Own elaboration

regulations and their number as well as the difficulty of implementation and interpretation (18 people). This answer is consistent with the barriers indicated in the Grant Thornton Report. For each company, it is also important to acquire clients (13 people), which can cause significant difficulties, as well as human resources management, including selecting the right team of people (15) and time management (9). Other problems are brand retention, company management, and responsibility for it, operation in conditions of economic uncertainty and lack of state support, lack of self-confidence, laziness.

In the context of formal and state conditions, the fourth model of systemic entrepreneurship can be distinguished. It requires the state to support activities that support the development of entrepreneurship through various mechanisms. State aid and the creation of legislation favoring the creation of economic activity affects the development of an entrepreneurial society (Flaszewska et al., 2013, pp. 70-71).

A serious problem may appear at the very beginning when the business idea is not original, and the competition on the market is significant.

In the literature on the subject, the following are the most common characteristics of enterprising people: "need for achievement and independence; perseverance and determination; risk counting; faith in your own abilities; the ability to accept failures and draw conclusions from them; life optimism and enthusiasm for work; creativity and innovation; leadership skills" (Sudoł, 2006, pp. 25-26).

Students also made their own choice of these motives, features that they think are important for entrepreneurs. In this way a hierarchy was created in which the most important meaning according to students is: courage in action and thinking, chosen by 88% of respondents, then over 70% ability to take risks and the ability to assess the risks associated with it, setting ambitious goals, perseverance and persistence in acting for a long time and self-confidence. They assessed the appreciation of their skills and self-confidence lower than that. They rated the desire to learn new things the most and the ability to regenerate psychophysical forces quickly.

The catalog of the features mentioned above is not exhausted and closed. However, it is not possible to list all the characteristics of enterprising people. The analysis of human entrepreneurial traits shows, however, that the dynamic, proactive, and extra-career attitude is more conducive than the one oriented only on profit.

SOLUTIONS AND RECOMMENDATIONS

Summing up the above considerations, it can be concluded that the topic has been limited to the elements used to define the primary areas in which enterprises currently operate. There are many questions left, which this article did not answer, and what would require further analysis. However, the presented considerations become a contribution to further research concerning the subject of entrepreneurship, especially in the perception of students of social sciences, including management and economics, who acquire theoretical knowledge during their studies and then use it in the practice of economic life.

In the context of the Grant Thornton report, the results obtained by students are mostly consistent with the barriers indicated in the document. As the only ones that have not been mentioned: energy prices and transport infrastructure, this indicates a lack of knowledge of the issue of running business activity by students.

The research itself was designed for students of the Higher School of Law and Medical Sciences in Kielce. Based on focus groups, a questionnaire was created containing the answers that most often appeared in the students' answers, and based on which research was conducted, which proved to be consistent with the presented answer proposals. On this basis, you can learn about the perception of success by young people and the values that they think are important. The survey gives an image of looking at these issues through the eyes of people who are just entering the labor market or are relatively short on it.

Based on the analysis of the answers received, one can conclude what features students recognize as characterizing entrepreneurs, what behaviors are particularly expected, and what values are valued.

Indication of the motives of undertaken business activity results from differences in the approach to life, requirements, and values.

Most of the differences concern the assessment of individual characteristics characterizing an entrepreneurial person result from the experience of individual students and their perception of the importance of a given feature in professional activity.

Because there are three ways of perceiving entrepreneurship as a trait, as a way of management and as a function, hence it seems that this is an area that can be subjected to educational and didactic interactions. If the way of understanding entrepreneurship as a characteristic connects it with sources that are imagination, initiative, creativity, knowledge, self-control and self-esteem, risk-taking, that is why it seems that classes for creativity training, as well as strengthening self-esteem and coping with self-control may to strengthen and build the entrepreneurial potential of the individual. Entrepreneurship, as a way of management, requires orientation on innovations, introducing changes, and undertaking complex undertakings. In the case of functions that entrepreneurship fulfills, the basis is the acquisition of the ability to search for and use market opportunities, high innovation and focus on the needs of customers who are buyers of goods and services (Białek-Jaworska et al., 2016).

Steps to success require the perception of both internal factors, such as the development of personality traits or soft skills, as well as external incentives, improvements provided by the state, and social support. These elements cannot appear separately. A step to ensure success is being innovative in the approach of actions as a driving force for development. Innovations are the most critical element, which the article wanted to focus its attention.

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FUTURE RESEARCH DIRECTIONS

The purpose of the article was to determine what entrepreneurship is in the assumptions and who the entrepreneur is. The research conducted among the students made it possible to get to know their perception of these concepts, as well as to outline the background for building an image of contemporary success.

Previous research and analyzes, including reports, indicate that one of the main factors hampering innovation and competitiveness of Polish enterprises is the lack of suitably qualified staff. Therefore, an attempt to identify areas requiring support through training, courses and independent acquisition of knowledge would be relevant. The European Union published a list of eight key competences needed in the modern labor market a few years ago.

The forecasts concerning the labor market emphasize the importance of qualified staff, which is the resource of companies, builds the company's potential, and determines its competitiveness. Therefore, it will be necessary to correctly identify the demand for staff, especially in those sectors that have the highest potential for innovation. The research should also include trends in employment. The Polish Agency for Enterprise Development in its reports forecasts the demand for specialists in modern industries, but it is not enough to know who is missing; what is essential is what knowledge, skills, and competences the potential candidate should have.

Among them are the ability to learn and solve problems, the ability to logically think, ie, to see causality and complexity of phenomena, or the ability to search, segregate and use information from various sources. Besides, the importance of self-development and improvement of their skills is emphasized, making it easier to respond to changes and seek new solutions (<https://eur-lex.europa.eu>).

Indisputable today is the ability to communicate interpersonally, also required from entrepreneurs who do not function independently on the market and are still addicted to someone. This area of functioning also emphasizes the ability to design activities and take responsibility for them, which is an important element of being an entrepreneurial person. Future research could address the best ways to acquire knowledge in this field, acquire the skills and expectations of people who operate on the market, and lack the required competences. Employees and others will declare other expectations by management. There are different hierarchies of needs in terms of developing skills and gaining motivation to act.

Universities educate more employees and entrepreneurs, not only for the needs of the local market but also for the European market. All of Europe needs staff with qualifications and skills adapted to the needs of the modern economy. The conducted research indicates the importance of education in finding oneself in the labor market. Supporting the educational process with a properly implemented program teaching practical skills may additionally equip a person who wants to be active on the market. What young people lack is the motivation to set goals, creativity, initiative, self-awareness, internal locus of control, perseverance. Subsequent research would allow determining to what extent these skills and competences are being made aware and to what extent there is a real need in young people to develop them.

The application objective of the conducted research would be to prepare a curriculum in the field of creating modern attitudes by developing new methods of working with students instead of using standard procedures. The owners of the firm are mainly responsible for the market success of enterprises, which is why the education of future entrepreneurs should be implemented at various stages of education.

CONCLUSION

Penc emphasized that “the activities of each business are currently taking place in an atmosphere of uncertainty, complications, and variability, and each enterprise must introduce changes and act flexibly, with imagination, adapting, often in advance, its strategy, structure, and culture to changes in surroundings” (Penc, 2010, p. 27).

The company is not only a legal form, it is also a team of mutually connected elements, such as an entrepreneur, as the owner and chief business manager, with its characteristics, attitude and values, offer, which is what potential buyers offer: goods and services, also relations he builds with co-operators, clients and competitors, and finally the needs and expectations of the market. It is a system whose creation requires taking many formal steps that are intended to set up a business entity, but the right steps to achieve success are already uncertain.

There are very many conditions for the development of enterprises and entrepreneurship, only some of which are depended on the entrepreneur himself. The company needs to find its place in order to be successful. The economic, legal, socio-cultural, and even local conditions influence each company, and hence, the personality traits of the entrepreneur himself are important to guide the management processes leading the company to success. Predispositions, talents, and charisma are innate attributes, but some skills and competencies can be learned. Strużycki presented the view that entrepreneurship is not a sphere of ideological activity, but a well understood interest for every entrepreneurial entity and enterprise (Strużycki, 1992).

The success of an enterprise depends on the assessment of individual success factors. A tool for strategic company analysis can be a helpful tool for estimating the position of the company. They allow the analysis of internal conditions, i.e., opportunities, strengths of the company, as well as external (enterprise environment). Based on the obtained data on opportunities and threats, the company manager assesses whether it is parts or potential scenarios and makes a decision.

An important aspect that should always be taken into account is comparing the success factors of competing companies, as this can be used in a more productive company's operation on the market. The factors that influence the success of the company include personal factors characterizing the entrepreneur, as well as those characterizing the enterprise itself, such as technological level and innovation, type of products, efficiency, and type of organizational structure in the company, its market position, and efficiency. It is difficult to recognize that there is one pattern of business success. Each company sets its level, which it intends to reach. The issue of success in business management seems to be a broad issue, explored from various angles, which is why it is so difficult to determine the steps an enterprise must take to achieve the expected success, so differently defined after all.

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KEY TERMS AND DEFINITIONS

Business: A coherent area of economic activity; is an organizational structure that connected entrepreneurs with costumers, provides relevant services or products to generate profit.

Competitiveness: The ability to compete and to generate advantage. The similar entities compete to gain an advantage the same or similar goals, at the same time and in the same environment.

Enterprise: An organizational unit conducting a business activity, operating according to the law, which manages material and non-material resources.

Entrepreneurship: It is a feature of people characterized by a proactive attitude, activities aimed at ensuring rational and effective organization of resources, involving the perception of needs and improvement of ideas and the use of opportunities and readiness to take risks.

Market: The mechanism coordinating the behavior of entitles who offers their products or services and buyers in the process of exchanging it.

SMEs: Small and medium-sized enterprises - the sector grouping medium-sized, small enterprises, and micro-enterprises; which are mainly local and regional.

SWOT Analysis: One of the primary methods of strategic analysis of the company in its environment, in the context of the company's strengths and weaknesses, and the opportunities it can use and the threats it should avoid.

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