AISME
2020

Le scienze merceologiche nell'era 4.0

a cura di
Benedetta Esposito, Ornella Malandrino,
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XXIX CONGRESSO NAZIONALE DI SCIENZE MERCEOLOGICHE 2020

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FrancoAngeli
OPEN ACCESS

70. CLOSING THE LOOP: CIRCULAR ECONOMY AND BS8001 AS VALUE CHAIN OPTIMIZATION TOOLS FOR SME'S

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Abstract

The application of the principles of the circular economy with the closure of cycles, the improvement of resource efficiency, the recycling of materials, the reduction of waste with a view to overcoming linear models have led to an innovative concept of products and services for the optimization of resources and virtuous circular behavior. Competitiveness from both an economic and an environmental point of view has made SME's aware that the adoption of the new business model is the objective to be pursued in order to reach a path of sustainability that is long-lasting and that becomes a fundamental pillar of the responsibility that every citizen and every company should apply as an enabling factor for a paradigm shift at national and international level. The study was conducted on seven companies from the Region of Tuscany in the agri-food and livestock sector that were selected through the web platform "Atlas of circular economy" engaged in the circular economy sector. The aim of the research was to compare the principles of the circular economy useful for the optimization of value in SME's with those of the guidelines BS 8001 and to verify whether companies have fully adapted to the practices of circularity.

Keywords: circular economy, sustainability, SME's, BS 8001, ISO TC/323

Introduction

The current economic system is based on a linear model. From the raw materials through processing, a finished product is produced which is used

and then disposed of as waste. This process is accompanied by open flows of energy and material and outgoing flows of processing waste and polluting processes. The "take make produce and dispose" model has created negative externalities, both environmentally and economically, aggravated by the scarcity of resources and by the greater growth in the well-being of the population. Overcoming the current model is therefore necessary in order to steer economic growth in line with sustainable development and social objectives. A model that is able to implement an alternative overcoming and rethinking of consumption for sustainable and responsible production such as the circular economy (Yuan, Bi, & Moriguichi, 2006). The circular economy model has been of great interest to the community in recent years. This holistic way of rethinking the economy is supported by many actors in the national and international paradigm and more recently supported by the Ellen MacArthur Foundation which describes it as a solution to the sustainability of the planet that brings in itself environmental interests and business opportunities (Geissdoerfer, Morioka, de Carvalho, & Evans, 2018). Concepts such as re-generation, recycling, reuse are key terms on which the circular economy is based (Huang, Guo, & Xu, 2009) with a rethink of an industrial model that uses only safe, compostable and recyclable materials. Supporting growth is now a priority, we must count on a plan of public investment, reversing the policy of a linear economic model in favour of a circular one. The concept of the circular economy has evolved over time and is an elaboration of the thought of different scholars as a discipline able to mimic the "ideas" of nature applying the processes for the improvement of human activities (Pathak, 2019) between the theoretical concepts that led to the evolution of this new model we find: *sustainable development* is certainly one of the most important concepts of the circular economy in that it concerns development that meets the needs of society without compromising those of future generations (Wilkinson, Hajibandeh, & Remoy, 2016).The *Green Economy* is a concept that involves an analysis that includes both the economic and environmental aspects in relation to the entire life cycle of a product until its disposal trying to propose ideas and alternative solutions with less impact on the environment (Loiseau et al., 2016), the concept of *functional economy*, also known as performance economy, is one of the main concepts of the circular economy to encourage circular consumption *ecodesign* is an approach to product design with particular attention to environmental impacts during the entire life cycle (Biron, 2016) and the *industrial ecology* studies the flow of materials and energy, the objective of which is to close production cycles (Korhonen, 2004).

1. BS 8001 and circular economy principles

The Circular Economy Package adopted by the European Commission aims to introduce increasingly competitive measures for the transition to a competitive and green economy. These measures will have a significant impact on the organizational and management improvement of SME's through strategies that support circular economy practices such as the principles of: use and share, life extension and service support, reuse and redistribute/recondition, refurbish and remanufactur/recondition, closed loop recycling and open loop recycling/cascading (Kirchherr, Reike, & Hekkert, 2017). In the transition to this new business model, a BS 8001 standard was created, which defines guidelines for companies through principles such as: systems thinking,innovation,stewardship,collaboration, value optimization, transparency, that allow them to communicate the degree of compliance with the standard for the application and implementation of circular economy principles (BSI Group, 2017) (Niero & Rivera, 2018). An international ISO TC/323 committee has recently been created, taking up the concepts of BS 8001 with the aim of standardising the circular economy sector to implement guidelines to support all organisations in maximising sustainable engagement and studying behavioural changes in society.

2. Methodology

We have taken into consideration for a comparative analysis within the reference database "Atlas of circular economy "seven companies of the Region of Tuscany of the agri-food and livestock sector because the one that best expresses the circularity. For each circular economy principle or concept of the BS 8001 present in the companies of reference and reported in the table have been assigned asterisks *** best, ** present, *marginal, absent--- that determine the presence. The document adopts a qualitative methodological approach based on the protocol for the study of a multiple case of a descriptive type defined by (Yin, 2003) in order to examine recurrent processes and situations and with the aim of hypothesizing conclusions following the study of real situations. The selection of case studies followed the logic of literal replication based on their current state to obtain similar results. The data preparation and collection phase was planned according to the sequence of topics to be discussed and analysed according to the research protocol followed, as well as the material used, the documents and the sites consulted in order to obtain greater completeness of the data itself. The analysis of the data, documents and information was selected through the documentation

present on the company's websites. The companies selecte for multiple benckmarking are: Bio al Sacco, Funghi espresso, Disco Soupe Firenze, Solo Peso Netto, Bioxplosion, Centro Lombricoltura Toscano, General Beverage.

3. Discussion and results

From a comparative analysis carried out through the reference database "Atlas of circular economy" and from the respective websites of the companies and from the information on the web, we proceeded to analyze seven award-winning companies in the agri-food and livestock sector of the Region of Tuscany as representative of the circularity model and as economic realities with a strong commitment not only to environmental awareness but also to communication, transparency and collaboration activities with all stakeholders involved. We proceeded to compare the so-called principles for value optimization within SME's such as usage and share, life extension and service support, reuse and redistribute and repurpose, refurbish and remanufactur/ recondition, closed loop and recycling, open loop recycling and cascading with the factors of the standard BS 8001 such as: system thinking, innovation, stewardship, collaboration, value optimization and transparency.

After analyzing the case studies and verifying the level of application of the principles of the circular economy with those of BS 8001 within the same companies, it emerges from each factor that the companies pay particular attention to the practices of packaging reduction with consequent reduction of waste, the reduction of CO_2 emissions, the application of natural processes for the reuse of resources and food waste by collecting unsold food. In addition, companies are engaged in communicating information services on circular economy practices, innovation of organizational management systems and sharing of business technologies. They are committed to policies of transparency and collaboration with the stakaholeders. The results also show that compared to the application of BS 8001 factors, companies seem to be in line with the requirements dictated by the standard, while circular economy principles are not fully implemented within them, such as repurpose, refurbish, recondition, remanufactur or life cycle assesstment methods, product system service and circular design.

Tab. 1 – Comparison between some of the principles of the circular economy and the standard Bs 8001 to verify whether companies classified as circulars apply the circular business model in efficient way

BIO AL SACCO					
Usage/share	Life exten-sion	Reuse/Redi-stribute	Refurbish	Closed loop/	Open loop /recycling
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BS 8001					
Innovation	Steward-ship	Collaboration	Value op-timization	Traspa-rency	System thinking
**	**	-------------------	***	----------	**

FUNGHI ESPRESSO					
Usage/share	Life exten-sion	Reuse	Refurbish	Cloded loop	Open loop/recy-cling
***	***	***	-----------	***	***

BS 8001					
Innovation	Steward-ship	Collaboration	Value op-timization	Traspa-rency	System thinking
***	**	**	***	***	***

DISCO SOUPE FIRENZE					
Usage/share	Life exten-sion	Reuse/Redi-stribute	Refurbish	Closed loop	Open loop /recycling
****	***	***	----------	__------- -	**

BS 8001					
Innovation	Steward-ship	Collaboration	Value op-timization	Traspa-rency	System thinking
***	***	***	***	***	***

SOLO PESO NETTO					
Usage/share	Life exten-sion	Reuse/Redi-stribute	Refurbish	Closed loop	Open loop /recycling
***	***	***	---------	__------	-----------

BS 8001					
Innovation	Steward-ship	Collaboration	Value op-timization	Traspa-rency	System thinking
***	***	***	***	***	***

BIOXPLOSION					
Usage/share	Life exten-sion	Reuse/Redi-stribute	Refurbish	Closed loop	Open loop /recycling
***	***	***	-----------	------------- ---	***

BS 8001					
Innovation	Steward-ship	Collaboration	Value op-timization	Traspa-rency	System thinking

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***	***	***	***	***	***
CENTRO LOMBRICOLTURA TOSCANO					
Usage/share	Life exten-sion	Reuse/Redi-stribute	Refurbish	Closed loop	Open loop /recycling
***	***	***	--------	--------	***
BS 8001					
Innovation	Steward-ship	Collaboration	Value op-timization	Traspa-rency	System thinking
***	***	***	***	***	***
GENERAL BEVERAGE					
Usage/share	Life exten-sion	Reuse/Redi-stribute	Refurbish	Closed loop	Open loop /recycling
***	***	***	------	--------	------
BS 8001					
Innovation	Steward-ship	Collaboration	Value op-timization	Traspa-rency	System thinking
***	***	***	***	***	***

Legend: *** Best, ;Present, **Marginal, * , Absent:------

Conclusion

The multiple implications of the existing circular economy model, both from a technical and theoretical point of view, make it difficult to read and apply it immediately. In particular, there is no practical framework to help organisations simplify and identify what is relevant to them. The BS 8001 is a guiding standard that does not provide parameters to which companies must adapt or requirements to be met to certify their organization, but merely provides advice and recommendations in the form of a flexible framework and adaptable to their needs. The aim of the research was to compare in double comparison the principles of the circular economy useful for value optimization in SME's and the recommendations provided in the guidelines of BS 8001 for the practical application of the new circular model, in order to obtain useful information for the exchange and dissemination of best practices to support this transition. One of the main obstacles in SME's is the lack of technical and management knowledge, skills and information, and the usability of the new models(Rizos, Behrens, Kafyeke, Hirschnitz-Garbers, & Ioannou, 2015). After analyzing the evolution of the concepts that led to the idea of circular economy, the new model that could become in a holistic perspective a "competitive and sustainable global advantage", the study continued through the method of case study to understand "how" and "why" companies currently apply circular economy. The seven companies analyzed in

the study are from the agri-food and livestock sector of the Region of Tuscany and from the comparison between the synthesis of the principles of circular economy and the guidelines of BS 8001 it was possible to verify that in most cases companies are seriously convinced of the validity of the new model but today there are obstacles due to the lack of transparency, collaboration and effective use of the new models. Given the small sample of companies examined, the results should only be considered as indicative of the difficulties and shortcomings encountered in the transition. The interpretation of the results also considering the limit of the use of some case studies as a research methodology has led to the hypothesis that most of the companies practice behaviours that can be traced back to circular economy models, but that are not yet completely sufficient for the implementation of the new economic model. The next phase of the research will also be developed through information that will be collected through more in-depth semi-structured surveys (Corbetta, 2011)with direct interviews, questionnaires, etc. From the analysis, therefore, it appears that the new circular business model is still "unripe" and not fully structured to face the challenges of long times and costs expected for the transition in order to obtain solid benefits for the company. Today, companies often lack awareness, knowledge and the ability to put circular economy solutions into practice. Therefore, knowledge of the new model and its potential becomes essential to put it into practice in an effective and replicable way and ensure an economy that cannot remain just the paradigm of a vast literature.

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