



EMERGING THEMES IN CIRCULAR BUSINESS MODELS RESEARCH

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RESUMO

Negócios circulares visam reutilizar continuamente produtos e materiais. Apesar do apelo sustentável, muitas empresas ainda não sabem como tornar seus negócios circulares. Este artigo apresenta um panorama da pesquisa sobre Modelos de Negócios Circulares. A partir da análise de registros bibliográficos recuperados do banco de dados da Web of Science, mostra que o debate deslocou-se de designs circulares para servitização. Esses resultados podem contribuir para orientar futuras pesquisas na área.

PALAVRAS-CHAVE: Economia Circular, Modelos de Negócios, Temas emergentes.

ABSTRACT

Circular businesses aim to continuously reuse products and materials. Despite the sustainable appeal, many companies still do not know how to make their businesses circular. This article presents an overview of research on Circular Business Models. From the analysis of bibliographic records retrieved from the Web of Science database, it shows that the debate shifted from circular designs to servitization. These results can contribute to guide future research in the area.

KEY WORDS: Circular Economy, Business Models, Emerging Themes.

INTRODUCTION

Circular Business Models are economically viable ways to continually reuse products and materials (BOCKEN et al., 2016; LEWANDOWSKI, 2016). The model structure covers issues related to product design, product use and replacement, second-hand use, product discard, and finally, collection and processing for product recycling (FRANCO, 2019). Furthermore, circular business innovation allows firms to go beyond prevalent sustainable business model configurations that focus only on efficiency, productivity, and green the supply chain (BAKKER et al., 2014; GEISSDOERFER et al., 2018). This has the potential to address many of the complex challenges, including the loss of biodiversity, climate change, finite resource depletion (MORENO, 2016).

Despite the sustainable appeal, practitioners and scholars, are still struggling with a lack of a framework explaining how companies willing to become circular adapt their existing business model or create a new one. Understanding about what makes a business model circular is diverse, hampering the theoretical development and practical application of circular business models (NUBHOLZ, 2017). Some articles provide an overview of the barriers that prevent the adoption of circular business models (GULDMANN and HUULGAARD, 2020), investigates and discusses implications of the business model in creating value for the firm (NUSSHOLZ, 2020; NUBHOLZ, 2020). However, no studies have been found that highlight the emerging themes in this field of research.

PURPOSE

To investigate the research trends in Industry 4.0 and Sustainable Supply Chain Management.

METHODS

Bibliometric data was gathered to search for emerging themes in the Circular Business Model. This methodology allows us to process a large number of data and identify the patterns between them, identifying more research trends (TROTTA and GARENGO, 2018). In March, 31 2020, the search term "Circular Business Model*" applied as a topic in Web of Science (WoS). Were retrieved articles and proceedings paper published from 1945 to 2019.



To identify the emerging themes in Circular Business Models were used co-word analysis, which was proposed by Callon et al. (1983). Co-occurrence analysis is used to group keywords with a high relevance in clusters (2014). Each cluster can be interpreted as a research theme. Co-occurrence analysis is commonly utilized in identifying established and emerging research themes, or tracing patterns (DAI, DUAN and ZHANG, 2020; NÁJERA-SÁNCHEZ, 2020; PAULE-VIANEZ et al., 2020). VOSviewer® (van ECK and WALTMAN, 2010, see www.vosviewer.com), were employed to conduct a co-occurrence analysis the keywords used by the authors.

RESULTS

Were identified 87 documents, including 72 articles and proceedings 15 papers. Figure 1.1 shows that Circular Business Model research is recent and the number of works published annually is growing. Sweden is the country with the largest number of publications (Figure 1.2) and Journal of Cleaner Production is the main source of scientific publications, responsible for 19 articles (Figure 1.3), and he area most interested in the subject is Green Sustainable Science Technology (Figure1.4). Table 1 (Appendix) shows the others highlights on Circular Business Model research publications.

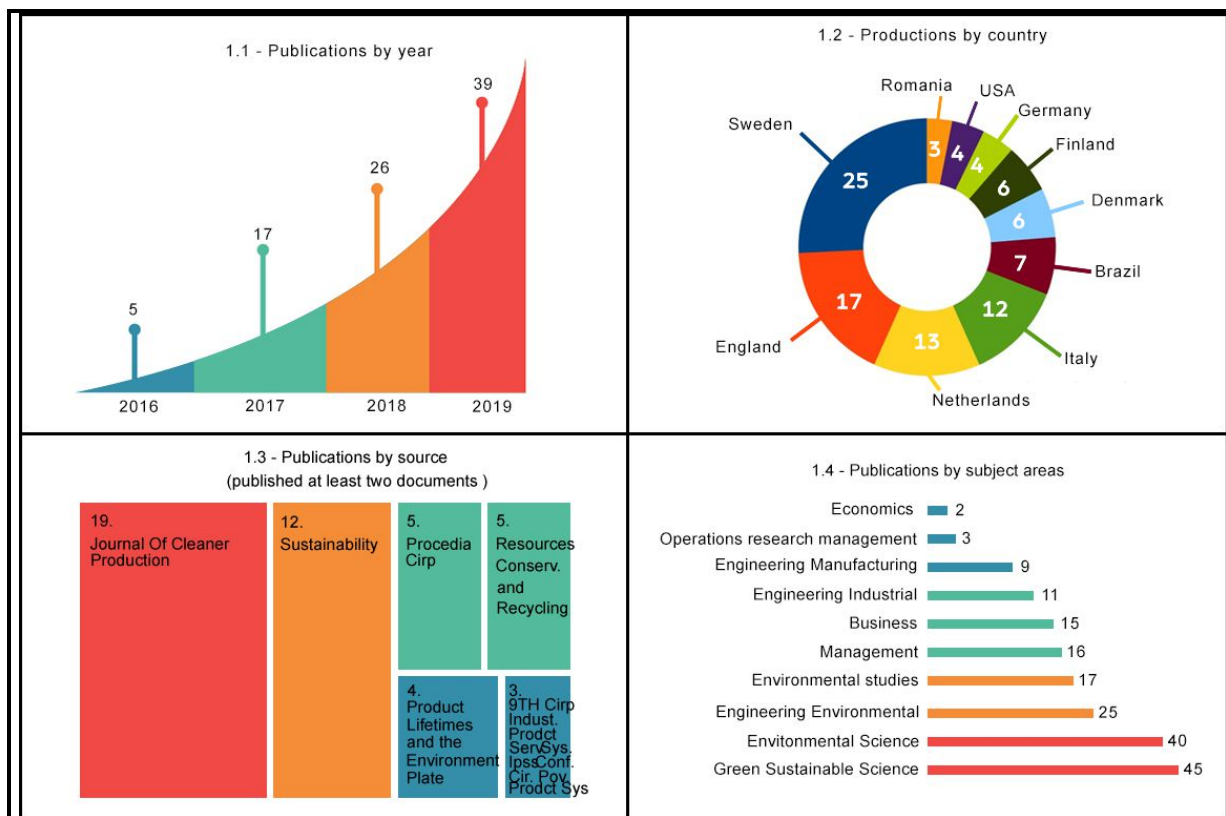


Figure 1: Circular Business Model research publications panel

Of the 87 publications, 260 keywords were extracted. Before the analysis, were separated the similar terms that appeared, to obtain exclusive words. After verification, 15 words appeared at least three times in the publications (Figure 2).

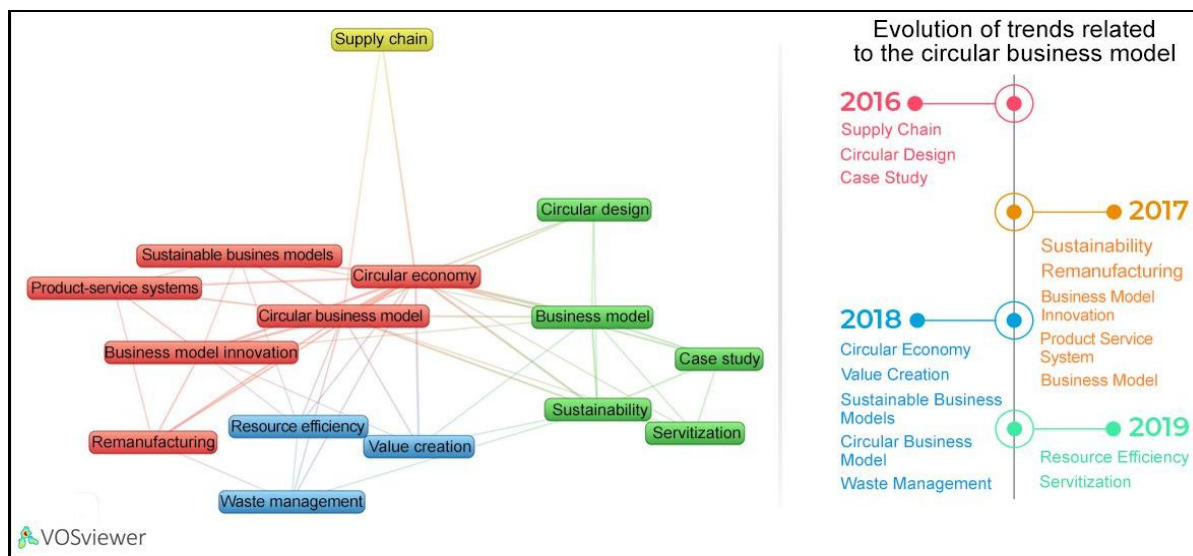


Figure 2: Most commonly used keywords in Circular Business Models publications.

When analyzing the relationships between the most frequent keywords, four well-defined groups are revealed. In recent years, the number of shared economy business models (SEBMs) has increased dramatically and there is much interest in the potential of these models to create sustainable value, that is, to reduce the environmental burden, to increase social welfare and to provide economic benefits (LAUKKANEN and TURA, 2020). Circular Business Model, aligned with the circular Supply Chain, can contribute to sustainable development, promoting economic, environmental and social objectives; proactively manage stakeholders; including a long-term perspective; and close, decrease, intensify, narrow and dematerialize resource loops (GEISSDOERFER et al., 2018).

At the bottom, the blue cluster explores the idea of creating value through resource efficiency and waste management, for better monitoring throughout the production cycle. The European Commission's resource efficiency platform describes resource efficiency as "using Earth's limited resources in a sustainable manner and minimizing impacts on the environment". (HUYSMAN et al., 2015). In this context, the waste management that comprises the collection, transportation, pre-treatment, processing and final waste reduction (DEMIRBAS et al., 2011).

The red cluster indicate strong connection related to the Circular Economy, an economic system that replaces the concept of 'end of life' (KIRCHHERR; REIKE; HEKKERT, 2017). Sustainable Business Models are important for driving and implementing corporate innovation, they can help to incorporate sustainability into business objectives and processes and serve as a key factor of competitive advantage (BOCKEN et al. 2014). Based on service-based value propositions, product service systems (PSS) are commonly understood as a means of achieving circular economy (FERNANDES et al., 2020). These systems focus on meeting customer needs, not buying products (UNEP, 2015).

In green cluster have the relationship between the circular designer in which the product is designed to remain in a state closer to the original product (FRANCO, 2019). Traditional manufacturers are increasingly shifting from a product-oriented focus to a service-oriented one, a strategic repositioning called servitization (KOWALKOWSKI et al. 2017; RADDATS et al. 2016). Thus, perceive a tendency to attend, in order to add value and make the customer loyal.

CONCLUSIONS

There is an increasing trend of Circular Business Model research in two last years. Europe is the continent that contains more funding bodies for research support. Circular Business Model and Servitization are the latest hot spots, and can to direct the research in the next few years. These results not only provide an overview of research on circular business models, but can also contribute to guide future research in this field.

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APPENDIX

Table 1: Publications highlights Circular Business Model theme

Reference	Citations	Title	Contribution
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Most Cited/ Pioneers	Bocken, Nancy M. P.; de Pauw, Ingrid; Bakker, Conny; van der Grinten, Bram (2016)	283/1215	Product design and business model strategies for a circular economy	Through questions and answers, it brings the broad concept of the changes necessary for the installation of the transition process between the linear to the circular economy.
Most Recent	Bianchini Augusto; Rossi Jessica; Pellegrini Marco (2019)	-	Overcoming the Main Barriers of Circular Economy Implementation through a New Visualization Tool for Circular Business Models	It mentions a new tool to guarantee the quantification of circular initiatives and the method to define it. It is a new CBM visualization tool, which overcomes the limitations of existing models, to explain the concepts of Circular Economy.