DOI: 10.1002/bse.2285

CALL FOR PAPERS

WILEY Business Strategy and the Environment

Business models for the circular economy: Opportunities and challenges

1 | INTRODUCTION

The circular economy is receiving increasing attention as a way to overcome the linear economic model, which is characterized by a "take–make–dispose" pattern. The circular economy aims at slowing (i.e., maintenance, repair, remanufacturing) and closing (i.e., recycling) resource cycles (Bocken, Ritala, & Huotari, 2017; Stahel & Reday-Mulvey, 1981) in order to obtain sustainable development leading to reduced amounts of natural resources used, wastes disposed of in landfills, and greenhouse gas emitted to the atmosphere (e.g., Ghisellini, Cialani, & Ulgiati, 2016; Kirchherr, Reike, & Hekkert, 2017; Korhonen, Honkasalo, & Seppälä, 2018). In this scenario, companies and policymakers are called to design and implement circular economy strategies.

A recent business concept, developed in the literature to advance circular strategies, is the business model (Bocken, de Pauw, Bakker, & van der Grinten, 2016). The business model concept first advanced in the strategic and innovation management literature and refers to the conceptual logic of how firms create and appropriate economic value (Richardson, 2008). Linked to sustainability (Stubbs & Cocklin, 2008) and advanced towards "business models for sustainability" (Boons & Lüdeke-Freund, 2013; Schaltegger, Hansen, & Lüdeke-Freund, 2016), they are understood to "create competitive advantage through superior customer value and contribute to a sustainable development of the company and society" (Lüdeke-Freund, 2010, p. 23; see also Bocken, Short, Rana, & Evans, 2014; Boons & Lüdeke-Freund, 2013; Lüdeke-Freund, Carroux, Joyce, Massa, & Breuer, 2018; Schaltegger, Lüdeke-Freund, & Hansen, 2012, Schaltegger, Lüdeke-Freund, & Hansen, 2016, Schaltegger, Hansen, & Lüdeke-Freund, 2016). Business models for circularity (BMCs) can be considered a subset of this broader category. They explicitly link the business model to the product life-cycle (Hansen, Grosse-Dunker, & Reichwald, 2009) and are a vehicle to slow and/or close (additionally also narrowing) resource cycles (Bocken, Ritala, & Huotari, 2017, Bocken, de Pauw, Bakker, & van der Grinten, 2016).

While the link between product life-cycle management and business model innovation was established early on (e.g., Hansen, Grosse-Dunker, & Reichwald, 2009), few studies on BMCs have been undertaken to date. Many of the works are of a conceptual nature, aimed at developing taxonomies or typologies (Bocken, de Pauw, Bakker, & van der Grinten, 2016; Lewandowski, 2016; Lüdeke-Freund, Gold, & Bocken, 2018). In this regard, the lack of case studies, as well as other empirical evidence, makes it challenging to understand how companies can design and implement BMCs (Evans, Vladimirova, Holgado, Van Fossen, Yang, Silva, & Barlow, 2017). Furthermore, the proposed contributions usually adopt the perspective of the single company, which is borrowed from the traditional business model literature, and focuses on the idea that the boundaries of the business model coincide with the boundaries of the firm (Evans, Vladimirova, Holgado, Van Fossen, Yang, Silva, & Barlow, 2017). This is problematic because integrating sustainability and circularity into business models requires a systemic view covering entire value networks and the consideration of different elements of the system and their interrelations (e.g., Zucchella & Previtali, 2018).

Against this background, there is the need to investigate how companies can further develop their current business from the perspective and through adoption of BMCs; how they can identify and manage risks stemming from implementing these models (e.g., cannibalization of circular and conventional business); and how policymakers can support the design and adoption of BMCs at company, industrial ecosystem, and societal levels. Furthermore, it is important to study how the adoption of BMCs might impact on traditional production and supply chains. Finally, from the methodological point of view, further investigation is required to design methods and metrics for assessing the environmental and social sustainability impacts of BMCs (e.g., de Jesus & Mendonça, 2018; Evans, Vladimirova, Holgado, Van Fossen, Yang, Silva, & Barlow, 2017; Perey, Benn, Agarwal, & Edwards, 2018).

This special issue aims at collecting original and high-quality studies on how business models inform the perspective of the circular economy. We seek works that analyze BMCs at the level of individual managers (and their decisions), single companies, value networks, and industrial ecosystems. Particularly welcome are economic, management, and sustainability theories and applications that specifically address the current challenges of designing, implementing, and diffusing BMCs. We are also interested in bridging the gap between and integrating other relevant fields (e.g., supply chain management, digitalization, innovation, marketing/commercialization). We are open to all methods including qualitative, quantitative, and mixed-methods and also seek conceptual, theoretical, and literature review papers if they advance the field in significant ways.

Topics of interest in this special issue include, but are not limited to, the following:

 © 2019 John Wiley & Sons, Ltd and ERP Environment

- Organizational and individual aspects of BMCs:
  - How companies can integrate and/or coordinate new BMCs with their current business models and related cannibalization
  - Business models for addressing different circular strategies (maintenance, repair, remanufacturing, recycling) in different industries
  - Managing risks in BMCs
  - Business models innovation in the context of cradle-to-cradle certified products/organizations
  - Individuals' mental frames, decision making, and sense-making within BMCs
  - The role of use-oriented (e.g., rental, leasing) and performance-oriented (e.g., pay-per-use) product–service systems for BMCs
  - Decoupling of BMC strategies and (actual) operations
  - What we can learn from the rediscovery of declining BMCs such as returnable bottles, shoemakers, and tailors
- Interorganizational, life-cycle, and cross-sector aspects of BMCs:
  - BMCs for industrial ecosystems and supply chains
  - Business models for eco-industrial parks and industrial symbiosis
  - Impact of BMCs on traditional production and supply chains
  - Cross-sector business models for secondary resource retrieval and use
  - The role of public sector in supporting BMCs
- The customer interface of BMCs:
  - Consumer acceptance of BMCs
  - Business model redesign for successful product take-back
  - Linking business models, the Internet of Things (e.g., smart products), and circularity
- Impacts of BMCs:
  - Environmental and social contributions of BMCs
  - Methods, metrics, and performance management for assessing the sustainability of a BMC
  - BMCs in developing countries

2 | SUBMISSION PROCESS AND DEADLINES

- Submissions should be prepared using the BSE Author Guidelines, available via https://onlinelibrary.wiley.com/page/journal/10990836/homepage/forauthors.html
- Manuscripts should be written in English, between 6,000–8,000 words in length
- Manuscripts should be submitted by e-mail to Luca Fraccascia at luca.fraccascia@uniroma1.it with the subject: "Special Issue BMC" - and last name of the first author.
- Papers will be reviewed according to the BSE double-blind refereed process
- Any queries relating to the Special Issue, proposed topics, and potential fit to the Special Issue should be directed to guest editors.

Initial submission deadline	August 30, 2019
Editor's decision on fit of topic and quality	September 30, 2019
Peer review results	January 31, 2020
Resubmission deadline	April 30, 2020
Final decision	August 30, 2020
Publication	End of 2020

Luca Fraccascia[1,2]
Ilaria Giannoccaro[3]
Abhishek Agarwal[4]
Erik G. Hansen[5]

[1]*Department of Computer, Control, and Management Engineering "Antonio Ruberti", Sapienza University of Rome, Rome, Italy*
[2]*Department of Industrial Engineering and Business Information Systems, University of Twente, Enschede, The Netherlands*
[3]*Department of Mechanics, Mathematics, and Management, Polytechnic University of Bari, Bari, Italy*
[4]*Department of Management, Aberdeen Business School, Robert Gordon University, Aberdeen, UK*
[5]*Institute for Integrated Quality Design (IQD), Johannes Kepler University Linz, Linz, Austria*

Correspondence
Abhishek Agarwal, Department of Management, Aberdeen Business School, Robert Gordon University, Aberdeen, UK.
Email: a.agarwal@rgu.ac.uk

REFERENCES

Bocken, N. M. P., de Pauw, I., Bakker, C., & van der Grinten, B. (2016). Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering*, *33*, 308–320. https://doi.org/10.1080/21681015.2016.1172124

Bocken, N. M. P., Ritala, P., & Huotari, P. (2017). The circular economy: Exploring the introduction of the concept among S&P 500 firms. *Journal of Industrial Ecology*, *21*, 487–490. https://doi.org/10.1111/jiec.12605

Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, *65*, 42–56. https://doi.org/10.1016/j.jclepro.2013.11.039

Boons, F., & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *Journal of Cleaner Production*, *45*, 9–19. https://doi.org/10.1016/j.jclepro.2012.07.007

de Jesus, A., & Mendonça, S. (2018). Lost in transition? Drivers and barriers in the eco-innovation road to the circular economy. *Ecological Economics*, *145*, 75–89. https://doi.org/10.1016/J.ECOLECON.2017.08.001

Evans, S., Vladimirova, D., Holgado, M., Van Fossen, K., Yang, M., Silva, E. A., & Barlow, C. Y. (2017). Business model innovation for sustainability: Towards a unified perspective for creation of sustainable business models. *Business Strategy and the Environment*, *26*, 597–608. https://doi.org/10.1002/bse.1939

Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, *114*, 11–32. https://doi.org/10.1016/j.jclepro.2015.09.007

Hansen, E. G., Grosse-Dunker, F., & Reichwald, R. (2009). Sustainability innovation cube—A framework to evaluate sustainability of product innovations. *International Journal of Innovation Management*, *13*(4), 683–713. https://doi.org/10.1142/S1363919609002479

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, *127*, 221–232. https://doi.org/10.1016/J.RESCONREC.2017.09.005

Korhonen, J., Honkasalo, A., & Seppälä, J. (2018). Circular economy: The concept and its limitations. *Ecological Economics*, *143*, 37–46. https://doi.org/10.1016/J.ECOLECON.2017.06.041

Lewandowski, M. (2016). Designing the business models for circular economy—Towards the conceptual framework. *Sustainability*, *8*, 43. https://doi.org/10.3390/su8010043

Lüdeke-Freund, F. (2010). Towards a conceptual framework of "Business Models for Sustainability." Rochester, NY.

Lüdeke-Freund, F., Carroux, S., Joyce, A., Massa, L., & Breuer, H. (2018). The sustainable business model pattern taxonomy—45 patterns to support sustainability-oriented business model innovation. *Sustainable Production and Consumption*, *15*, 145–162. https://doi.org/10.1016/J.SPC.2018.06.004

Lüdeke-Freund, F., Gold, S., & Bocken, N. M. P. (2018). A review and typology of circular economy business model patterns. *Journal of Industrial Ecology*. in press. https://doi.org/10.1111/jiec.12763

Perey, R., Benn, S., Agarwal, R., & Edwards, M. (2018). The place of waste: Changing business value for the circular economy. *Business Strategy and the Environment*, *27*, 631–642. https://doi.org/10.1002/bse.2068

Richardson, J. (2008). The business model: An integrative framework for strategy execution. *Strategic Change*, *17*, 133–144. https://doi.org/10.1002/jsc.821

Schaltegger, S., Lüdeke-Freund, F., & Hansen, E. G. (2012). Business cases for sustainability: The role of business model innovation for corporate sustainability. *International Journal of Innovation and Sustainable Development*, *6*, 95. https://doi.org/10.1504/IJISD.2012.046944

Schaltegger, S., Hansen, E. G., & Lüdeke-Freund, F. (2016). Business models for sustainability: Origins, present research, and future avenues. *Organization & Environment*, *29*, 3–10. https://doi.org/10.1177/1086026615599806

Schaltegger, S., Lüdeke-Freund, F., & Hansen, E. G. (2016). Business models for sustainability: A co-evolutionary analysis of sustainable entrepreneurship, innovation, and transformation. *Organization & Environment*, *29*, 264–289. https://doi.org/10.1177/1086026616633272

Stahel, W. R., & Reday-Mulvey, G. (1981). *Jobs for tomorrow: The potential for substituting manpower for energy* (1st ed.). New York: Vantage Press.

Stubbs, W., & Cocklin, C. (2008). Conceptualizing a "Sustainability Business Model". *Organization & Environment*, *21*, 103–127. https://doi.org/10.1177/1086026608318042

Zucchella, A., & Previtali, P. (2018). Circular business models for sustainable development: A "waste is food" restorative ecosystem. *Business Strategy and the Environment*. in press, doi:https://doi.org/10.1002/bse.2216