

Business Model Innovation in the Circular Economy: A Paradox Perspective

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Abstract

The circular economy and its promise of delivering prosperity whilst decoupling economic growth from the consumption of finite natural capital, is attracting the interest of corporate leaders and small innovators, who are engaged with circular business model innovation. Despite the attractive narrative - which should encourage a quick adoption of circular principles across different businesses – current implementation is not happening at the fast pace that would have been anticipated. Scholars are investigating the reasons why this is the case through the perspective of different types of ‘macro’ barriers and mostly technological, economic, financial, market, socio-cultural and regulatory. Nonetheless, there is a paucity of studies that are theoretically anchored and view those challenges from a business model perspective. By contrast, this article argues that ‘paradox theory’ is suitable to inform circular economy studies pertaining to challenges to implementation and the effects these can have on value proposition, value creation and delivery and value capture.

Keywords

Circular economy; paradox; business model innovation

Introduction

There is no doubt that the circular economy (CE hereafter) has been very successful in gaining traction across so many different quarters recently. Why this is the case can be easily explained if we concur with De Angelis and Ianulardo (2020), who have argued that the CE model “is a cognitive framework instrumental to the emergence of a credible, shared and persuasive imaginary of more environmentally, economically and socially sustainable production and consumption systems, by positively engaging, focusing, evoking and planning how to achieve an integral human betterment” (p. 15).

Amongst the many stakeholders captivated by the CE thinking and narrative, innovators from established corporations and emerging enterprises across different sectors have started exploring the possibilities for integrating circular principles in products and processes (Franco, 2017; Ranta *et al.*, 2018). However, despite the existence of several drivers encouraging the shift towards more circular production and consumption systems, the business community has been slow on the uptake of circular principles (Babbit *et al.*, 2018; Prieto-Sandoval *et al.*, 2018). Bianchini *et al.* (2019) argue that “there is a big gap between CE business model design and implementation, which means that promising ideas are not further developed, concepts are not fully implemented and innovative business models fail in the market” (p. 2). Whilst this has been ascribed to the existence of ‘macro’, practical challenges such as regulatory, technological, cultural, market and organisational (Kirchherr *et al.*, 2018; Tura *et al.*, 2019), there is a dearth of studies anchoring analyses of those challenges to a theoretical as well as business model perspective.

The purpose of this article is to sketch a line of enquiry for advancing the emerging strand of the CE literature based on circular business models and business model innovation for circularity. To accomplish its goals, this article draws on ‘paradox management theory’ (Smith & Lewis, 2011) as useful theoretical lens for the study of the tensions stemming from the implementation of CE principles and their implication for value creation, delivery and capture. In the following sections, the reasons why CE thinking and circular business models (CBMs hereafter) are becoming

salient in the context of the transition towards a more sustainable economy and their evolution in the literature are briefly summarised. Next, paradox theory in management, corporate sustainability and CE studies is synthesised. Drawing on Smith & Lewis's (2011) paradox theory, the article concludes by suggesting potential lines of research bridging CE and paradox lenses.

Circular Economy and Circular Business Models

As an economy modelled upon the functioning of the ecosystem and so more eco-efficient, eco-effective and resilient, unleashing a new wave of innovation and growth (EMF & McKinsey, 2012), the CE has triggered the engagement of a diverse audience. The possibility of attaining multiple forms of value decoupled from further pressure on finite natural resources (EMF *et al.*, 2015) is attracting the interest of global corporate leaders and innovative pioneers, who are making commitments to innovate for increased circularity and are starting reaping the benefit offered by the CE (Ünal *et al.*, 2019). For instance, a global public-private collaboration known as *Platform for Accelerating the Circular Economy* (PACE) and launched at the *World Economic Forum* in 2018, includes more than 50 global CEOs that are dedicated to enhance the circularity of key sectors such electronics, plastics and food among others (WEF, 2018).

To gain the so-called 'circular advantage' (Lacy & Rutqvist, 2015), a transformation of existing BMs or the emergence of entirely new ones is crucial (Nußholz, 2018; Zucchella & Previtali, 2019). A BM describes "the rationale of how an organisation creates, delivers and captures value" (Osterwalder & Pigneur, 2010, p. 14). For one, in a circular production and consumption system, shifting from selling products to offering access (a change in the value proposition), will have an impact on a company's value chain and so on its value creation and delivery structure (e.g., new partnership downstream a supply chain, new skills in maintenance need to be developed) but also on its value capture mechanisms, i.e. revenues are not earned through a sale transaction but on a pay per use/pay per access scheme. Hence, it is clear that what value is offered to the customer, how it is delivered and then captured back needs rethinking.

BM innovation for circularity is now emerging as a field of enquiry within scholarly literature (Rosa *et al.*, 2019). Yet the literature on CBMs is still in its early days (Diaz Lopez *et al.*, 2019) and studies about why the uptake of CBMs is slow need to be more fine-grained from theoretical and level of analysis standpoints (Stål & Corvellec, 2018). Particularly, this article argues that the implementation of CE principles is accompanied by the emergence of organisational tensions, which have an impact on value proposition, value creation and delivery and value capture, and that these tensions can be analysed through paradox theory. Next the article explores the typology of organisational tensions according to paradox management theory (Smith & Lewis, 2011) and application of paradox management theory in corporate sustainability literature.

Paradox Lenses in Management and Corporate Sustainability Literature

A paradox can be defined as "contradictory yet interrelated elements that exist simultaneously and persist over time" (Smith & Lewis, 2011, p. 382). Companies operate in very complex environments wherein paradoxical demands are very likely to emerge (Smith & Lewis, 2011). In the light of the current severe ecological and social crises, firms, for instance, are requested to attend to the conflicting yet valuable demands of multiple stakeholders (Scherer *et al.*, 2013).

Smith & Lewis (2011) grouped types of organisational paradoxes in learning, organizing, belonging and performing paradoxes. *Performing paradoxes* are linked to the existence of multiple stakeholders with diverse and conflicting goals (*ibid.*). *Learning paradoxes* surface during efforts to innovate, most typically between exploration and exploitation (*ibid.*). *Organizing paradoxes* are linked to internal processes and dynamics (*ibid.*). Studies have explored, for instance, the organising tensions between alignment and flexibility, controlling and empowering employees (Schad *et al.*, 2016). *Belonging paradoxes* manifest through competing individual versus collective identities and values (Smith & Lewis, 2011).

Paradoxes of sustainability can manifest in three different ways (Soderstrom & Heinze, 2019). Firstly, they may arise because of conflicting triple bottom line goals (*ibid.*). Secondly, they can surface in the battle between self-interest and the prosperity of the whole system within which companies operate (*ibid.*). Finally, they can manifest in the engagement with diverse stakeholders posing diverging demands (*ibid.*). Facing competing demands

with a paradoxical mental frame means that it is through a dynamic process involving ‘splitting’ and ‘synthesis’ - and not by favouring one goal over others - that multiple demands are met and long-term organisational success is attained (Smith & Lewis, 2011). When paradoxes become salient, splitting occurs and implicates to focus on a pole of the paradox (the most relevant) to identify a short-term strategy to cope with it (*ibid.*). However, the tension that is not accommodated becomes latent to surface again in a point in future. This involves continuous splitting over time and in the long-term a dynamic equilibrium emerges by “purposeful iterations between alternatives in order to ensure simultaneous attention to them over time” (Smith & Lewis 2011, p. 392).

Sustainability-related paradoxical tensions have been mostly studied with ‘win-win’ and ‘trade-off’ approaches, which eliminate tensions via either seeking alignment or obliging a choice respectively (van der Byl & Slawinski, 2015). A win-win scenario, or the business case for sustainability, suggests that corporate sustainability objectives are not competing with each other and can be achieved simultaneously (Ozanne *et al.*, 2016). Several studies have sought to demonstrate that in the pursuit of environmental and social goals superior financial performances can be attained (e.g., Margolis & Walsh 2003; Porter & Kramer, 2011). By contrast, trade-off studies emphasise the incompatibility of corporate sustainability goals and consequently argue that managers have to choose which objective to pursue and dismiss the others (Ozanne *et al.*, 2016). The underlying instrumental logic in both ‘win-win’ and ‘trade-off’ strategies is unfortunate because it prevents from assessing more satisfactorily the tensions intrinsic to corporate sustainability (Hahn *et al.*, 2015). An emerging line of enquiry in corporate sustainability studies is using a paradox lens instead (e.g., Hahn *et al.*, 2014; Hahn *et al.*, 2018; Ivory & Brooks, 2018; Ozanne *et al.*, 2016). This approach “holds promise for finding creative solutions to some of our most vexing sustainability challenges” (van der Byl & Slawinski, 2015, p. 73) and superior business contribution towards a more environmentally and socially sustainable economy (Hahn *et al.*, 2018). For one, if in the process of designing a vehicle, the contradictory goals of producing a high-performance car and of contributing to a cleaner environment are attended simultaneously, this can trigger a more creative response that breaks the trade-off such as designing a high-performance electric vehicle (Jay *et al.*, 2017).

Paradox Management Theory: A new Perspective for Circular Economy Research

Environmental sustainability issues are typical manifestations of ‘wicked problems’ (Schad & Bansal, 2018), i.e. complex problems with cause and effect difficult to establish, and thus hard to solve (Rittel & Webber, 1973). Paradoxical thinking - with its underlying both/and logic requiring conjunctive rather than disjunctive mental frames - is apt in the context of managing complexity (Schad & Bansal, 2018). Analogously, CE thinking rests on systems and complexity thinking (EMF *et al.*, 2015). The underlying assumption qualifying both CE and paradox theory is one of the reasons why it is appropriate to use paradox theory in CE research. In both cases, holistic and systems thinking embrace the interconnections existing across the many parts in a system rather than viewing them separately.

The CE is viewed as a “holistic approach to techno-economic paradigm change” (de Jesus *et al.*, 2019, p. 1506) involving “genuinely systemic innovation” (p.1496). One of the consequences of the systemic and paradigmatic nature of the changes qualifying circular innovations, is that implementation in corporate strategies is entwined with the emergence of organisational paradoxes. For one, closing materials loops do not involve a single organisation but the participation of a more encompassing, networked group of actors and so a tension between interdependency and independency can manifest (Bianchini *et al.*, 2019). This is just another reason why application of paradox theory in CE research carries huge potential for advancing its theoretical foundations as well as analyses of the challenges associated with its implementation.

Furthermore, paradoxical thinking opens up a different and more fruitful approach to the study of the CE and its implications. Firstly, it enables to synthesise the too often polarised and siloed sides of the academic debate culminating into either ‘yes’ or ‘no’ stances towards the CE as a solution to current sustainability challenges, which reduces possibilities for cross-fertilisation and hence advanced understanding. The concept of sustainability itself is fraught with tensions (van der Byl & Slawinski, 2015) and therefore, any response to sustainability concerns will involve some levels of ambiguity (Ramirez, 2012), including the CE. Yet it must also be said that the CE can address the fundamental sustainability paradox humanity has yet to find an answer to, i.e. that “we consume the very biosphere we are part of and that we depend on” (Weber, 2013, p. 17). Secondly, corporate approaches for enhanced sustainability inspired by CE principles will inevitably encompass some levels of ambiguity but viewing this through a paradoxical stance offers an opportunity to embrace and to attend to tensions through a dynamic process that will unleash innovation, creativity and ultimately superior organisational outcomes.

Paradoxical thinking has only very recently started to emerge in the CE literature. Daddi *et al.* (2019) assess the existence of performing paradoxes in a CE, i.e. whether increased environmental sustainability via the use of secondary raw materials in the manufacturing may affect the quality of products and ultimately customers' satisfaction and profitability. Whilst opening up a paradox-grounded line of enquiry in CE, Daddi *et al.* (2019) do not address the implications of organisational tensions for BM components and do not explore in full Smith & Lewis's (2011) typology of organisational paradoxes. The latter is a complementary line of enquiry that could be taken in future CBMs studies. Particularly, following a descriptive approach to paradox theory - one of the possible stances for advancing paradox research in corporate sustainability (Hahn *et al.*, 2018), pertinent research questions for management scholars in the field would be: *what types of organisational paradoxes are likely to emerge in the process of business model innovation for circularity? What are their implications for value proposition, creation, delivery and capture? What types of organisational outcomes are likely when tensions are approached with a paradoxical mental frame?* These questions are useful to advance not only CE literature and understanding of tensions in CE implementation but also the sustainable BMs literature (van Bommel, 2018), the research grounded in paradox, which has mostly taken an individual or organisational perspective (Jarzabkowski, 2013), and corporate sustainability studies wherein the instrumental approach (win-win, trade-offs) to the tensions arising from managing for sustainability prevails (Hahn *et al.*, 2018; van der Byl & Slawinski, 2015).

References

- Bianchini, A., Rossi, J., & Pellegrini, M. (2019). Overcoming the main barriers of circular economy implementation through a new visualization tool for circular business models. *Sustainability*, *11*, 6614.
- Babbitt, C., Gaustad, G., Fisher, A., Chne, W-Q., & Liu, G. (2018). Closing the loop on circular economy research: From theory to practice and back again. *Resources, Conservation and Recycling*, *135*, 1-2.
- Daddi, T., Ceglia, D., Bianchi, G., & de Barcellos, MD. (2019). Paradoxical tensions and corporate sustainability: A focus on circular economy business cases. *Corporate Social Responsibility and Environmental Management*, *26*, 770-780.
- De Angelis, R., & Ianulardo, G. (2020). Circular economy as fictional expectation to overcome societal addictions. Where do we stand? *Philosophy of Management*, <https://doi.org/10.1007/s40926-020-00128-y>
- de Jesus, A., Antunes, P., Santos, R., & Mendonça, S. (2019). Eco-innovation pathways to a circular economy: Envisioning priorities through a Delphi approach. *Journal of Cleaner Production*, *228*, 1494-1513.
- Diaz Lopez, F., Bastain, T., & Tukker, A. (2019). Business model innovation for resource-efficiency, circularity and cleaner production: What 143 cases tell us. *Ecological Economics*, *155*, 20-35.
- EMF, & McKinsey. (2012). *Towards the circular economy: Economic and business rationale for an accelerated transition*. <http://www.ellenmacarthurfoundation.org/business/reports> [Accessed 3 May 2013]
- EMF, McKinsey, & SUN. (2015). *Growth within: A circular economy vision for a competitive Europe*. Retrieved July 2015 from <http://www.ellenmacarthurfoundation.org/business/reports> [Accessed 10 October 2015]
- Franco, M. (2017). Circular economy at the micro level: A dynamic view of incumbents' struggles and challenges in the textile industry. *Journal of Cleaner Production*, *168*, 833-845.
- Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2018). A paradox perspective on corporate sustainability: Descriptive, instrumental, and normative aspects. *Journal of Business Ethics*, *148*, 235-248.
- Hahn, T., Pinkse, J., Preuss, L., & Figge, F. (2015). Tensions in corporate sustainability: Towards an integrative framework. *Journal of Business Ethics*, *127*, 297-316.
- Hahn, T., Preuss, L., Pinkse, J., & Figge, F. (2014). Cognitive frames in corporate sustainability: Managerial sensemaking with paradoxical and business case frames. *Academy of Management Review*, *39*, 463-487.
- Ivory, S. B., & Brooks, S. B. (2018). Managing corporate sustainability with a paradoxical lens: Lessons from strategic agility. *Journal of Business Ethics*, *148*, 347-361.
- Jarzabkowski, P., Lê, J., & Van de Ven, A. (2013). Responding to competing strategic demands: How organizing, belonging, and performing paradoxes coevolve. *Strategic Organization*, *11*, 245-280.
- Jay, J., Soderstrom, S., & Grant, G. (2017). Navigating the paradoxes of sustainability. In Smith, W., Lewis, M., Jarzabkowski, P., Langley, A. (Eds.) *The Oxford handbook of organizational paradox* (pp. 354-372). Oxford University Press.
- Kirchherr, J., Piscicelli, L., Bour, R., Kostense-Smit, E., Muller, J., Huibrechtse-Truijens, A., & Hekkert, M. (2018). Barriers to the circular economy: Evidence from the European Union (EU). *Ecological Economics*, *150*, 264-272.
- Lacy, P., & Rutqvist, J. (2015). *Waste to wealth: The circular economy advantage*. NY: Palgrave Macmillan.
- Margolis, J., & Walsh, J. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly*, *48*, 268-305.
- Nußholz, J. (2018). A circular business model mapping tool for creating value from prolonged product lifetime and closed material loops. *Journal of Cleaner Production*, *197*, 185-194.
- Osterwalder, A., & Pigneur, Y. (2010). *Business model generation. A handbook for visionaries, game changers and challengers*. New Jersey: John Wiley and Sons, Inc.
- Ozanne, L., Phipps, M., Weaver, T., et al. (2016). Managing the tensions at the intersection of the triple bottom line: A paradox theory approach to sustainability management. *Journal of Public Policy & Marketing*, *35*, 249-261.
- Porter, M., & Kramer, M. (2011). Shared value. How to reinvent capitalism and unleash a wave of innovation and growth. *Harvard Business Review*, January- February 2011, 62-77.
- Prieto-Sandoval, V., Ormazabal, M., Jaca, C., & Viles, E. (2018). Key elements in assessing circular economy implementation in small and medium-sized enterprises. *Business Strategy & the Environment*, *27*, 1525-1534.
- Ramirez, G. (2012). Sustainable development: Paradoxes, misunderstandings and learning organizations. *The Learning Organization*, *19*, 58-76.
- Ranta, V., Aarikka-Stenroos, L., & Mäkinen, S. (2018). Creating value in the circular economy: A structured multiple-case analysis of business models. *Journal of Cleaner Production*, *201*, 988-1000.
- Rittel, H., & Webber, M. (1973). Dilemmas in general theory of planning. *Policy Science*, *4*, 155-169
- Rosa, P., Sassanelli, C., & Terzi, S. (2019). Circular Business Models versus circular benefits: An assessment in the waste from Electrical and Electronic Equipment sector. *Journal of Cleaner Production*, *231*, 940-952.

- Schad, J., & Bansal, T. (2018). Seeing the forest and the trees: How a systems perspective informs paradox research. *Journal of Management Studies*, 55, 1491-1500.
- Scherer, A. G., Palazzo, G., & Seidl, D. (2013). Managing legitimacy in complex and heterogeneous environments: Sustainable development in a globalized world. *Journal of Management Studies*, 50, 259-284.
- Smith, W. K., & Lewis, M. W. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review*, 36, 382–403.
- Soderstrom, S., & Heinze, K. (2019). From paradoxical thinking to practicing sustainable business: The role of a business collective organization in supporting entrepreneurs. *Organization & Environment*, 1-25.
- Stål, H., & Corvellec, H. (2018). A decoupling perspective on circular business model implementation: Illustrations from Swedish apparel. *Journal of Cleaner Production*, 171, 630-643.
- Tura, N., Hanski, J., Ahola, T., Stähle, M., Piiparinen, S., & Valkokari, P. (2019). Unlocking circular business: A framework of barriers and drivers. *Journal of Cleaner Production*, 212, 90-98.
- Ünal, E., Urbinati, A., Chiaroni, D., & Manzini, R. (2019). Value creation in circular business models: The case of a US small medium enterprise in the building sector. *Resources, Conservation & Recycling*, 146, 291-307.
- van Bommel, K. (2018). Managing tensions in sustainable business models: Exploring instrumental and integrative strategies. *Journal of Cleaner Production*, 196, 829-841.
- van der Byl, C. A., & Slawinski, N. (2015). Embracing tensions in corporate sustainability: A review of research on win-wins and trade-offs to paradoxes and beyond. *Organization & Environment*, 28, 54–79.
- Weber, A. (2013). *Enlivenment. Towards a fundamental shift in the concepts of nature, culture and politics*. Heinrich Böll Foundation.
- WEF (World Economic Forum). 2018. *Platform for accelerating the circular economy*. from http://www3.weforum.org/docs/WEF_PACE_Platform_for_Accelerating_the_Circular_Economy.pdf [Accessed 14 February 2019]
- Zucchella, A., & Previtali, P. (2019). Circular business models for sustainable development: A “waste is food” restorative ecosystem. *Business Strategy and the Environment*, 28, 274-285.