

How Do Stakeholders Understand Sustainable Circular Economy – Consensus or Contradictions?

***H. Salminen¹, M. Marjamaa¹, R. Tapaninaho¹, A. Heikkinen¹, L. Gonzalez Porras¹
and J. Kujala¹**

¹Tampere University, Faculty of Management and Business, Kanslerinrinne 1, FI-33014 Tampere
University, Finland

*hanna.salminen@tuni.fi

Abstract

A transition from linear economy towards sustainable circular economy (CE) is high on the political agenda in many countries at the moment (Geissdoerfer et al., 2017; McDowall et al., 2017). Planetary boundaries and climate change are major reasons for the transition towards CE (Ellen McArthur Foundation, 2020; Korhonen, Honkasalo & Seppälä, 2018a). Furthermore, CE is seen as a way to promote sustainable business models (Murray, Skene & Haynes, 2017), economic growth and create new jobs (Antikainen & Valkokari, 2016).

CE has received increasing attention among scholars in recent years. Although, there has been literature reviews on CE (see e.g. Merli, Preziosi & Acampora, 2018; Prieto-Sandoval, Jaca & Ormazabal, 2018; Winans, Kendall & Deng, 2017), the concept of CE remains rather vague and it is unclear how CE is linked to sustainability (Geissdoerfer et al., 2017). Furthermore, it has been argued that environmental aspects have been dominated in the discussions of CE and less attention has been given to the social dimension of sustainability (Witjes & Lozano, 2016; Murray et al., 2017).

This study investigates how CE and its linkage to sustainability are understood among key stakeholders involved in the promotion of circular economy in Finland. This study is a part of CICAT2025 Circular Economy Catalysts: From Innovation to Business Ecosystems -research project, funded by the Strategic Research Council, Academy of Finland. Totally 26 qualitative semi-structured interviews were made among professionals representing ministries, federations, research and development organizations, regional actors, cities and companies. A qualitative content analysis was used for analyzing the data.

Resource efficiency, sustainable use of natural resources, circling of non-renewable and renewable materials and waste management as central components of CE among the studied stakeholders. Also, new service concepts were closely related to CE. In the broadest sense, CE was understood as a new economic and societal model - a totally new way of thinking and acting. There were also several concepts which were closely related to CE, such as bioeconomy, green economy, sharing economy and industrial symbiosis, but it was somewhat unclear, how CE differs from those concepts. Majority of the professionals perceived CE as a way to promote sustainability at the society. However, while, ecological and economic sustainability were clearly linked with CE, the association between CE and social sustainability was not that explicit. In order to accelerate the transition towards sustainable CE, it is vital that the key stakeholders share a mutual understanding of what constitutes CE and how it can promote ecological, economic and social sustainability.

Keywords: Circular Economy; Sustainability; Stakeholders; Finland

Introduction

Currently, promotion of circular economy and sustainable development are high on the political agenda globally (Pieroni, McAloone & Pigosso, 2019; Geissdoerfer et al., 2017; McDowall et al., 2017). Planetary boundaries, climate change and other challenges related to sustainable development are major reasons for the transition from linear economy towards circular economy (CE) (UN, 2020; Ellen McArthur Foundation, 2020; Korhonen et al., 2018a). United Nations (UN) has introduced 17 mutually reinforcing sustainability goals, which serve as a blueprint for future direction (UN, 2020.) In European level, the European Union (EU) has committed to those goals and aims to achieve those goals through its internal and external policies (European Commission, 2020). Similarly, the Finnish government has set an ambitious goal to achieve socially, ecologically and economically sustainable society by 2030 and be a forerunner in CE (Prime Minister's Office, 2019). In practice, this means, for example, achieving carbon neutral Finland by 2030 (Prime Minister's Office, 2019).

In recent years, several conceptualizations regarding CE has been presented in the literature (see e.g. Kirschherr, Reike & Hekkert, 2017). There have also been comprehensive literature reviews on CE (see e.g. Merli et al., 2018; Prieto-Sandoval et al., 2018; Winans et al., 2017). However, the concept of CE still remains somewhat unclear as well as its linkage to sustainability (Pieroni et al., 2019; Geissdoerfer et al., 2017). For example, it has been criticized that the concept of CE is mainly empirically driven and thereby it lacks solid theoretical background (Murray et al., 2017). Furthermore, the connections between CE and different dimension of sustainability remain unexplored (Witjes & Lozano, 2016; Murray et al., 2017).

In this study, we investigate, how sustainable CE is understood among different stakeholders. We define stakeholders as those who influence or can be influenced by CE (see e.g. Freeman, 1984; Kujala et al., 2019). The contribution of this study is twofold. First, although, there has been comprehensive literature reviews on CE (Merli et al., 2018; Prieto-Sandoval et al., 2018; Winans & Deng, 2017), little is known, how different stakeholders promoting CE in different levels of the society define and understand CE. Second, this study furthers the understanding of the linkage between CE and sustainability, which has been highlighted in recent CE studied (Geissdoerfer et al., 2017; Merli et al., 2018; Pieroni et al., 2019). Thus, the empirical results of this study provide insight into the current understanding of CE and its connections to ecological, economic and social sustainability among key Finnish stakeholders. The research question is: *how do stakeholders understand the concept of CE and its linkage to sustainability?*

This paper is organized in the following way. After the introduction section, the theoretical underpinnings and conceptualizations of CE and sustainability are shortly introduced. This is followed by methodology section. After that, the results are presented and finally conclusions are provided.

Theoretical framework

CE is a multidisciplinary research topic and it has been studied, for example, in the fields of industrial economy as well as environmental and ecological ecology (Korhonen et al., 2018b; Murray et al., 2018). Recently, CE has received also interest among management scholars and for example, CE-oriented business models (Centobelli et al., 2020) and stakeholder perspective on CE has been explored (Kujala et al., 2019).

The diverse theoretical background of CE concept has resulted in various CE definitions (Korhonen et al., 2008b; Kircherr et al., 2017). So far, there is no single agreed definition for CE (Merli et al., 2018). But, the main principles of CE are often described by three Rs (Reduce, Reuse and Recycle) (Ranta, Aarikka-Stenroos & Mäkinen, 2018; Murray et al., 2017), although more fine-grained classifications have also been presented (see e.g. Reike, Vermeulen & Witjes, 2018). Reduce refers to a reduction in consumption and in

the use of materials, but also more efficient production (Ranta et al., 2018). Reusing concerns the reuse of discarded products or components, and recycling relates to transforming waste into raw materials, which can be further utilized (Yang et al., 2014; Ranta et al., 2018; Murray et al., 2017). For example, Geissdoerfer et al. (2017, 759) have defined CE as

a regenerative system in which resource input and waste, emission, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops. This can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling.

In the literature, CE is considered a way to promote different sustainable development goals (Geissdoerfer et al., 2017; Pieroni et al., 2019). For instance, Korhonen et al. (2018b, 547) make an explicit link between CE and sustainable development by defining CE in the following way:

CE is a sustainable development initiative with the objective of reducing the societal production-consumption systems' linear material and energy throughput flows by applying materials cycles, renewable and cascade-type energy flows to the linear system. CE promotes high value material cycles alongside more traditional recycling and develops systems approaches to the cooperation of producers, consumers and other societal actors in sustainable development work.

As a concept, sustainable development refers to actions aiming to promote the needs of current generations without compromising the needs of future generations (Brundtland Report, 1987). Sustainable development comprises of ecological, economic and social pillars of sustainability (Elkinton, 1997; Geissdoerfer et al., 2017; Murray et al., 2017). The basic idea of sustainable development is to achieve balance among these three pillars of sustainability (Murphy, 2012). However, in the context of CE, environmental and economic aspects have dominated (Witjes & Lozano, 2016; Zink & Geyer, 2017) and it is rather unclear, how CE can promote social sustainability goals, such as equality and diversity among individuals (Murray et al., 2017). Thus, a clarification regarding the linkage between CE and sustainability has been called for and more research is needed to explore how CE can promote sustainable development at societal and global levels (Geissdoerfer et al., 2017; Korhonen et al., 2018b).

Methodology

The empirical data of this study has been collected as a part of a research project, called CICAT2025 Circular Economy Catalysts: From Innovation to Business Ecosystems. Purposive sampling method was used for collecting the data. Totally 26 professionals representing key stakeholders promoting circular economy in Finland were interviewed during May 2019-February 2020. The total length of the interviews was over 27 hours. The tape-recorded interview data was transcribed verbatim resulting totally 388 pages.

The interview questions covered wide areas regarding the promotion of CE such as interests, actions, challenges, obstacles, collaboration and future trends. Also, the connections between sustainability and CE were explored and the role of stakeholders in promoting CE. In this paper, the focus is on the definitions given to circular economy, how it is understood and how it is seen to be related to sustainability among different stakeholders.

An inductive qualitative content analysis was used for analyzing the data. The analyzing process started by carefully reading all the interview data. After that the interview data was organized by using Atlas.ti software. Meanings given to CE and its linkage to sustainability formed the coding frame (see. e.g. Schreier, 2014). One sentence or multiple sentences was used as the unit of analysis (see e.g. Tuomi &

Sarajärvi, 2009). In the analyzing process, different categories were formed into higher order categories as a part of abstraction process (see e.g. Schreier, 2014).

Findings

All interviewed professionals were involved in the promotion of CE in their daily work. Thus, there was a consensus among the professionals of the importance and urgency for CE. When discussing about CE as a concept, some of the informants relied on the well-known definitions provided by Ellen McArthur Foundation or The Finnish Innovation Foundation Sitra, which have been forerunners in promoting CE. Also, commonly used expressions such as “*from cradle to cradle*” (see e.g. Murrari et al., 2018, 373) and “*one’s waste is another one’s treasure*” were used to describe the basic idea of CE.

Resource efficiency, sustainable use of natural resources, circling of non-renewable and renewable materials and waste management were seen as central components of CE. But, new service concepts and sharing economy were also closely related to CE.

CE is the effective utilization of existing materials and finding ways to constantly enhance the efficiency of circles. (H22, Company)

There were some contradicting views regarding, how broadly different components of CE were defined and understood. There were diverse views among the studied stakeholders, for example, in terms of what should circulate. For instance, one informant stressed the circulation of non-renewable materials, while another professional highlighted that the circulation covers all kinds of materials, products, even knowledge and value. In the narrowest sense, CE was only related to recycling or waste management. This was also considered problematic for the promotion of CE in Finland.

In Finland, CE still spins too much around waste. (H3, City).

In the broadest sense, CE was understood as a new economic and societal model - a totally new way of thinking and acting. In other words, it was seen as a paradigm shift from current linear economy to more sustainable economic model. In addition to societal level changes, CE was seen to require new ways of acting at all levels of the society.

CE requires an all-encompassing transition in the whole society, although the basic issue is the circulation of materials, it means also change in the mindset. We cannot always take new resources into use. There are not infinity reserves to deploy. (H11, Ministry)

Although, CE was envisioned as a new economic model, which encompasses all sectors and levels at the society, it was mainly discussed in the context of certain fields, such as manufacturing and construction. Thus, it was rather unclear among the studied professionals, what CE can mean, for example, in the social- and healthcare sector. In terms of business, CE was closely linked to changing business models and changes in the operational logic.

...we do not talk only about recycling or wiser use of resources, instead we talk about core business logic (in the context of CE)... (H12, Federation).

Some of the interviewed professionals perceived the concept of CE itself problematic, because it was defined and used differently among different actors. There were also several concepts which were closely related to CE, but it was unclear, how CE differs from those concepts. For example, concepts such as bioeconomy, green economy, sharing economy and industrial symbiosis were closely related with CE.

For some of the professionals, CE was only a ‘media-sexy’ buzzword, which will eventually be replaced by a new concept. For them, the aim was to accelerate a transition towards more sustainable way of acting. Thus, the concept of CE itself was not important, rather than the actions promoting sustainability.

There is green economy and circular economy and bioeconomy and all kinds of economy... In our administrative field, we aim to promote sustainability... and then these concepts come and go.” (H13, Ministry)

Although, the importance of CE for promoting sustainable development was acknowledged among the professionals, there was a variation, how closely CE and sustainability were seen to be linked together. Majority of the informants perceived CE as a way to promote sustainability at the society. In other words, CE was considered as an operational model, which makes it possible to act in accordance with the principles of sustainable development. For most of the professionals, sustainability was an objective or a driver for CE actions. In the broadest sense, CE was considered as way to promote different dimensions of sustainability.

For me the core (of CE) is that we generate as much value as possible in the broadest sense, not only economic value, but value for humans, society and nature as a whole in a way that as little waste as possible is produced... and that we use as little resources as possible.” (H12, Federation)

However, for most of the studied professionals, CE was mainly seen as a way to promote ecological and economic sustainability. There were also contradicting views regarding whether or not ecological sustainability precedes economic sustainability. For example, some of the interviewed professionals argued that ecological sustainability should dominate other areas of sustainability due to the planetary boundaries.

...ecological sustainability, it is for me always the first (priority), ...it is only a fact that we have only one planet. Money can be printed more at any time, and then there is this social sustainability... (H11, Ministry)

Contrary to this view, there were professionals who stressed the importance economic sustainability. For them, economic sustainability and profitability were driving forces and preconditions for CE actions.

It is only a fact, that this world does not spin, even if we produce as environmentally friendly as possible, if the costs get out of hand, then it is not sustainable doing. (H22, Company)

Compared to economic and ecological sustainability, the link between social sustainability and CE was looser and more distant. Only few of the interviewed professionals mentioned social sustainability as an outcome or objective for CE actions. At the company level, socially sustainable CE was linked to the safe working environment, well-being and fair treatment of employees at different stages of the production cycle. Whereas, at the societal level, human rights and inclusion of all individuals to the transition towards CE was related to social sustainability. For Finland, CE was considered an opportunity to create new jobs and promote sustainable living arrangements for citizens.

It (CE) creates opportunities for Finland - new jobs, sustainable jobs, sustainable services and material solutions. It (CE) can be, due to our high competence level, a business advantage, which enables (us) to survive in product development...and replace our current export, based on virgin materials, with new sustainable CE solutions. And at the local level, it (CE) is important because it is our local economy. It (CE) happens in certain geographic area... and (it) creates, in a way, the local well-being (of citizens) and success. (H14, City)

Interestingly, the ecological, economic and social sustainability objectives were often considered competing instead of being mutually reinforcing. Social sustainability, in particular, was seen as something that can be excluded if necessary. Some of the professionals also contested the idea that CE could promote all aspects of sustainability and especially social sustainability.

...does it (CE) take into account all aspects of sustainability - that is another question. In other words, is it (CE) socially and culturally sustainable? And...we must keep in mind that, if we do not act in planetary boundaries, there will be no social and cultural sustainability. (H5, Research organization)

Based on the finding, a distinction can be made between narrow and broad understanding of CE. In the narrowest sense, CE is mainly related to recycling or waste management and it concerns only certain actors and sectors in the society. Whereas, in the broadest sense, CE is understood as a paradigm shift and a new economic model which encompasses all levels of the society and requires the active involvement of all stakeholders. When it comes to the linkage between CE and sustainability, the views varied from fragmented to integrated. The fragmented view on sustainability refers to a situation in which only one or two of the sustainability pillars are seen to be related to CE. Whereas, the holistic view on sustainability aims to integrate economic, ecological and social sustainability goals with CE. Furthermore, in the ideal situation these pillars are mutually reinforcing (see. e.g. Murphy, 2012).

Conclusions

This study investigated, how key stakeholders understand CE and its linkage to sustainability. Thereby, this study answers to the current call to explore the connections between CE and sustainability (Pieroni et al., 2019; Geissdoerfer et al., 2017). So far, only studies have investigated multiple stakeholders and their perceptions regarding CE (see e.g. Kujala, 2019).

Our findings demonstrate that there was a consensus among the studied stakeholders regarding the importance and urgency for CE. However, contradicting views existed among the stakeholders how broadly CE was understood and defined. In the narrowest sense, CE was mainly related recycling or waste management. Whereas, in the broadest definition, CE was considered a new economic model which encompass all levels at the society and requires active involvement and actions from all stakeholders. The diverse understandings regarding CE concept highlight the need for conceptual clarity in line with previous studies (Korhonen et al., 2018a).

In the academic and public discussion, transition towards CE has been justified by the notion that it promotes sustainable development (Geissdoerfer et al., 2017). In general, there was a consensus among the studied stakeholders regarding sustainability as an objective or driver for CE actions. But, contradicting views existed, to what extent CE can promote different dimensions of sustainability. The linkages between CE and ecological and economic sustainability were evident. But, the association between CE and social sustainability was no that explicit. Furthermore, instead of mutually reinforcing each other, the goals for ecologic, economic and social sustainability were often competing. For example, there were diverse views whether the promotion of ecological sustainability should precede economic sustainability or vice versa. Therefore, a more holistic view regarding the sustainability outcomes of CE is needed.

Acknowledgements

The authors gratefully acknowledge the financial support from the Strategic Research Council at the Academy of Finland, decision numbers 320194 and 320206.

References

- Antikainen, M. & Valkokari, K. (2016). A framework for sustainable circular business model innovation. *Technology Innovation Management Review*, 6(7), 5–12.
- Brundtland, G. H. (1987). *Our common future: Report of the 1987 World Commission on Environment and Development*. Oslo. United Nations.
- Centobelli, P., Cerchione, R., Chiaroni, D., Del Vecchio, P. & Urbinati, A. (2020). Designing business models in circular economy: A systematic literature review and research agenda. *Business Strategy and the Environment*, 2020, 1–16.
- Elkington, J. (1997). *Cannibals with Forks: The triple bottom line of 21st century*. Oxford: Capstone.
- Ellen McArthur Foundation 2020. *What is the circular economy?*
<https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy> [Accessed 18 May 2020].
- European Commission. (2019). *Reflection paper. Towards a Sustainable Europe by 2030*.
https://ec.europa.eu/commission/publications/reflection-paper-towards-sustainable-europe-2030_en
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Marshfield, MA. Pitman.
- Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, J. E. (2017). The circular economy - new sustainability paradigm? *Journal of Cleaner Production*, 143, 757–768.
- Kirchherr, J., Reike, D. & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation & Recycling*, 127, 221–232.
- Korhonen, J., Honkasalo, A. & Seppälä, J. (2018a). Circular economy: The concept and its limitations. *Ecological Economics*, 143, 37–46.
- Korhonen, J., Nuur, C., Feldmann, A. & Birkie, S.E. (2018b). Circular economy as an essentially contested concept. *Journal of Cleaner Production*, 175, 544–552.
- Kujala, J., Heikkinen, A., Tapaninaho, R., Marjamaa, M. & Gonzalez Porras, L. (2019). Stakeholder interests in a transition towards sustainable circular economy. In H. Lehtimäki & A. K. Dey (Eds.) *Sustainable Business and Competitive Strategies, Retail Industry and E-marketing* (pp. 72–83). New Delhi: Bloomsbury.
- McDowall, W., Geng, Y., Huang, B., Barteková, E., Bleischwitz, R., Türkeli, S. Kemp, R. & Doménech, T. (2017). Circular Economy Policies in China and Europe. *Journal of Industrial Ecology*, 21(3), 651–661.
- Merli, R., Preziosi, M. & Acampora, A. (2018). How do scholars approach the circular economy? A systematic literature review. *Journal of Cleaner Production*, 178, 703–722.
- Murphy, K. (2012). The social pillar of sustainable development: a literature review and framework for policy analysis. *Sustainability: Science, Practice and Policy*, 8(1), 15–29.
- Murray, A., Skene, K. & Haynes, K. (2017). The circular economy: an interdisciplinary exploration of the concept and application in a global context. *Journal of Business Ethics*, 140, 369–380.
- Pieroni, M. P. P., McAloone, T. C. & Pigosso, D. C. A. (2019). Business model innovation for circular economy and sustainability: A review of approaches. *Journal of Cleaner Production*, 215, 198–216.

- Prieto-Sandoval, V., Jaca, C. & Ormazabal, M. (2018). Towards a consensus on the circular economy. *Journal of Cleaner Production*, 179, 605–615.
- Prime Minister's Office. (2019). Programme of Prime Minister Antti Rinne's Government 6 June 2019. *Inclusive and competent Finland –a socially, economically and ecologically sustainable society*. Publications of the Finnish Government 2019:25. <http://urn.fi/URN:ISBN:978-952-287-760-4> [Accessed 18 May 2020].
- Ranta, V., Aarikka-Stenroos, L. & Mäkinen, S. J. (2018). Creating value in the circular economy: A structured multiple-case analysis of business models. *Journal of Cleaner Production*, 201, 988–1000.
- Reike, D., Vermeulen, W. J., & Witjes, S. (2018). The circular economy: new or refurbished as CE 3.0?—exploring controversies in the conceptualization of the circular economy through a focus on history and resource value retention options. *Resources, Conservation and Recycling*, 135, 246–264.
- Schreier, M. 2014. Qualitative Content Analysis. In U. Flick (Ed.) *The SAGE Handbook of Qualitative Data Analysis*. London: SAGE Publications Ltd. <http://dx.doi.org.libproxy.tuni.fi/10.4135/9781446282243/> [Accessed 18 May 2020].
- Tuomi, J. & Sarajärvi, A. (2009). *Laadullinen tutkimus ja sisällönanalyysi* [Qualitative research and content analysis]. Helsinki: Tammi.
- United Nations. 2020. *Sustainable development goals*. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/> [Accessed 18 May 2020].
- Winans, K., Kendall, A. & Deng, H. (2017). The history and current applications of the circular economy concept. *Renewable and Sustainable Energy Reviews*, 68, 825–833.
- Witjes, S. & Lozano, R. (2016). Towards a more circular economy: proposing a framework linking sustainable public procurement and sustainable business models. *Resources, Conservation and Recycling*, 112, 37–44.
- Yang, Q.Z., Zhou, J. & Xu, K. (2014). A 3R Implementation Framework to Enable Circular. *Consumption in Community Conservation and Recycling*, 112, 37–44.
- Zink, T. & Geyer, R. (2017). Circular economy rebound. *Journal of Industrial Ecology*, 21(3), 593–602.