



Review

Conceptualizing the circular economy: An analysis of 114 definitions



Julian Kirchherr*, Denise Reike, Marko Hekkert

Innovation Studies Group, Copernicus Institute of Sustainable Development, Utrecht University, The Netherlands

ARTICLE INFO

Keywords:

Circular economy
4R framework
Sustainable development
Definitions
Content analysis

ABSTRACT

The circular economy concept has gained momentum both among scholars and practitioners. However, critics claim that it means many different things to different people. This paper provides further evidence for these critics. The aim of this paper is to create transparency regarding the current understandings of the circular economy concept. For this purpose, we have gathered 114 circular economy definitions which were coded on 17 dimensions. Our findings indicate that the circular economy is most frequently depicted as a combination of reduce, reuse and recycle activities, whereas it is oftentimes not highlighted that CE necessitates a systemic shift. We further find that the definitions show few explicit linkages of the circular economy concept to sustainable development. The main aim of the circular economy is considered to be economic prosperity, followed by environmental quality; its impact on social equity and future generations is barely mentioned. Furthermore, neither business models nor consumers are frequently outlined as enablers of the circular economy. We critically discuss the various circular economy conceptualizations throughout this paper. Overall, we hope to contribute via this study towards the coherence of the circular economy concept; we presume that significantly varying circular economy definitions may eventually result in the collapse of the concept.

1. Introduction

The circular economy (CE) concept is trending both among scholars and practitioners. This is indicated by the rapid growth of peer-reviewed articles on CE: More than 100 articles were published on the topic in 2016, compared to only about 30 articles in 2014 (Geissdoerfer et al., 2017). On the other hand, many consultancy reports have been published on the topic recently (with consultancies attempting to signal expertise on trending topics to clients via such reports (Kipping and Clark, 2012)). For instance, the major consulting firms Accenture, Deloitte, EY and McKinsey & Company all have published on CE in the past two years (Gartner, 2016; Hannon et al., 2016; Lacy et al., 2015; Hestin et al., 2016; EY, 2015).

The CE concept is of great interest to both scholars and practitioners because it is viewed as an operationalization for businesses to implement the much-discussed concept of sustainable development (Ghisellini et al., 2016; Murray et al., 2017). The latter concept has been called too vague to be implementable and has thus started to lose momentum (van den Brande et al., 2011; Peltonen 2017, p.2 ff.) with Naudé (2011, p.352) even calling it a “theoretical dream [rather than] implementable reality” and Engelman (2013, p.3) writing that “we live today in an age of ‘sustainable’”, a cacophonous profusion of uses of the world ‘sustainable [development]’ to mean anything from environmentally better to cool”. Notable concepts also supposed to

operationalize sustainable development for businesses are the green economy and green growth concepts (UNEP, 2011; OECD, 2016), whereas the CE concept is argued to be the one with most traction these days (Ellen MacArthur Foundation, 2014; EY, 2015).

A concept with so much traction is usually employed by various stakeholders. These can blur the concept since they frequently operate in significantly different worlds of thought (Gladek, 2017; de Vries and Petersen, 2009). Blurriness has been raised as a criticism against concepts such as the green economy one (Loiseau et al., 2016) and it has also been raised against CE in various CE review articles we identified (Ghisellini et al., 2016; Lieder and Rashid 2016; Blomsma and Brennan, 2017; Sauvé et al., 2016; Murray et al., 2017; Geissdoerfer et al., 2017; Lewandowski, 2016; further details in Table 1) and beyond. For instance, Lieder and Rashid (2016, p.37) point out that “there are various possibilities for defining [CE]”, while Yuan et al. (2008, p.5) write that “there is no commonly accepted definition of [CE]”. However, not a single study until now, as far as we are aware, has comprehensively and systematically investigated CE definitions.

Yet it is both of academic and practical relevance to comprehensively and systematically investigate CE definitions which we view as an operationalization of CE understandings throughout this paper (further discussed in Section 2). After all, a concept with various understandings may ultimately collapse or remain in a deadlock due to permanent conceptual contention (Hirsch and Levin, 1999; Bocken

* Corresponding author at: Innovation Studies Group, Copernicus Institute of Sustainable Development, Utrecht University, Heidelberglaan 2, 3584 CS Utrecht, The Netherlands.
E-mail address: j.kirchherr@uu.nl (J. Kirchherr).

Table 1
Previous reviews of the circular economy (CE) concept.

#	Study	Focus
1	Ghisellini et al. (2016)	Summary of 155 articles on CE
2	Lieder and Rashid (2016)	Summary of CE literature on the manufacturing industry
3	Blomsma and Brennan (2017)	Explanation of the emergence of the CE concept
4	Sauvé et al. (2016)	Comparison of CE concept, environmental sciences and sustainable development
5	Murray et al. (2017)	Comparison of CE concept and sustainable business
6	Geissdoerfer et al. (2017)	Comparison of CE concept and sustainability
7	Lewandowski (2016)	Conceptualization of circular business models

et al., 2017; Blomsma and Brennan, 2017). Meanwhile, further theoretical development of the concept can help cohere it and thus circumvent this (Hirsch and Levin, 1999; Blomsma and Brennan, 2017). This theoretical development requires, as a first step, transparency regarding current understandings of the concept in the discourse (Hirsch and Levin, 1999; Blomsma and Brennan, 2017). The aim of this paper is to provide this transparency. Hence, the research question addressed in this paper is: What are current understandings of the CE concept among scholars and practitioners?

The remainder of this paper is organized as follows. Section 2 outlines methods adopted (including a description of our coding frame). Meanwhile, Section 3 presents and discusses the results of our analysis of 114 CE definitions. Our argument is summarized in Section 4.

2. Methods

There are at least two methods to investigate the understanding of a concept, as discussed by Dahlsrud (2008, p.2 ff.). First, interviews asking for the understanding of a concept can be conducted with relevant stakeholders, but it has been found that these stakeholders oftentimes struggle to provide thoughtful responses ad hoc (Johnston and Beatson, 2005; O'Dwyer, 2003; Dahlsrud, 2008). Second, written definitions of a concept can be gathered and then analysed. This method is believed to provide a more valid view on the current understanding of a concept in the discourse since written definition are usually more deliberate than ad hoc ones provided in interviews (Carroll, 1999; Moir, 2001; Dahlsrud, 2008). This second method is thus chosen as a base method for this paper.

Still, we acknowledge that definitions can be rather narrow operationalisations of the understanding of a concept – particularly those published in peer-reviewed journals. Authors face (sometimes severe) space restrictions in most of these journals and may thus choose to only present an abridged definition of a complex concept that focuses solely on the aspects of the concept investigated in their paper. An example may be Geng et al. (2013) whose CE definition presented in *Science* only counts 41 words. *Science* allows a maximum of 4500 words including references for a research article (Science, 2017). Meanwhile, this journal, *Resources, Conservation and Recycling*, allows 7000 words excluding references (RCR, 2017) with one recent CE definition presented in it, Saidani et al. (2017), counting 112 words. We also hypothesize that authors may find some aspects of a concept so self-evident that they thus do not choose to include these aspects in their definition even if no space restrictions are faced. Hence, the understanding of a concept may be broader than the written definition presented.

To (at least partially) address this, we considered not only the definition, but also the neighbouring text (which could also include visualizations if a comprehensive definition is absent) and at times the entire paper for cues regarding the authors' understanding of the CE concept. A definition is thus our main, but not our only

operationalization of CE understanding.¹ Nevertheless, our study may exaggerate the negligence of certain dimensions in CE understandings, given that a CE definition is likely narrower than the CE understanding of a selected author (at least at times).

The remainder of this section is divided in three sub-sections. First, we describe how we gathered 114 definitions on CE. Second, we describe our coding framework. Third, we outline the procedure based on the coding framework for coding the various definitions identified.

2.1. Sample development

We decided to gather definitions published in peer-reviewed journals as well as definitions from works that are not peer-reviewed (e.g. policy papers and reports such as Ellen MacArthur Foundation (2012), Schut et al. (2015) and Dupont-Inglis (2015) – all of these items are called 'articles' throughout this paper) – since much of the work on CE (including conceptual work) is driven by non-academic players, as noted inter alia by Schut et al. (2015). Ghisellini et al. (2016) also consider works that were not peer-reviewed in their literature review on CE. Similarly, Geissdoerfer et al. (2017, p.767) explicitly propose in their conceptual contribution on CE to consider non-peer-reviewed works for future conceptual discussions relating to it.

Our method to gather definitions on CE consists of three approaches. These were designed with the intention to develop a representative sample of CE definitions. First, we retrieved definitions from the CE literature sample developed by Ghisellini et al. (2016) which is said to be representative for writings on CE (Ghisellini et al., 2016). The sample includes 155 articles, but only 74 of these mention the term 'circular economy', and of those 54 define it, according to our analysis. Second, we conducted searches in Elsevier's Scopus for the term 'circular economy'. We then skimmed the results of these searches specifically for conceptual literature assuming this literature would contain definitions. We also skimmed the bibliographies of identified conceptual articles. Definitions included based upon this approach were inter alia definitions provided in Geissdoerfer et al. (2017), Murray et al. (2017), Zhu et al. (2010a, 2010b) and definitions outlined by the Circular Academy (2017). Thirdly, we also included all definitions outlined in a recent special issue on the circular economy in the *Journal of Industrial Ecology* (Bocken et al., 2017) as well as additional recent literature, e. g. Skene (2017), as suggested by one reviewer of this paper. We note regarding this overall approach that no distinct search was undertaken for definitions for works that are not peer-reviewed. Rather, the first approach (with the Ghisellini et al. (2016) sample including works that are not peer-reviewed, as outlined earlier) as well as the second approach (with bibliographies gathered via it frequently including practitioner writings) ensured the inclusion of definitions that are not peer-reviewed in our sample. Overall, we collected 114 CE definitions via the described approaches.

This sample size was deemed sufficient upon comparing it to the sample sizes of papers that have adopted similar methods. For instance, Dacin et al. (2010) analyze 37 definitions on social entrepreneurship, Zahra et al. (2009) 20 definitions on social entrepreneurship and entrepreneurs, while Dahlsrud (2008) considers 37 definitions on corporate social responsibility. We note that we do not claim that our collection of definitions on CE is representative. However, we are confident that the set of definitions is at least *fairly representative* regarding the written definitions on CE by scholars and practitioners, given the approach adopted. We thus claim throughout our paper that our analysis of CE definitions is based on a *comprehensive* – our synonym for *fairly representative* – set of definitions. An overview of all 114 definitions is provided in the supplementary materials.

¹ We only refer to definitions (and not the neighbouring text/visualizations, the entire text) throughout this paper to enhance readability.

Download English Version:

<https://daneshyari.com/en/article/5118603>

Download Persian Version:

<https://daneshyari.com/article/5118603>

[Daneshyari.com](https://daneshyari.com)