Sustainability in the collaborative economy: A bibliometric analysis reveals emerging interest

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ABSTRACT

The growing field of the collaborative economy is expanding geometrically and little retrospective work on this evolution has been made so far. A number of literature reviews have been focusing on specific business models of the collaborative economy deemed sustainable such as car-sharing, sharing, peer-to-peer business models, crowdsourcing, access-based consumption, community, or specific platforms (e.g. Uber, Airbnb), and some others with broader areas of focus. This paper presents a thorough bibliometric and network analysis combining both Scopus and Web of Science databases that provides fresh new insights into the evolution of the collaborative economy research field and its increasing coverage of sustainability-related topics. A first step identifies 729 published studies and uses bibliometrics to provide a description of the research field. A second stage involves networks analysis to identify influential authors, impactful publications, as well as established and emergent research clusters. A more thorough content analysis identifies key research topics, the attention granted to sustainability, interrelations, and collaboration patterns in the field. Data mapping techniques graphically depict the evolution of publications over time and identify areas of current research interests and potential directions for future research, namely in sustainability.

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1. Introduction

The collaborative economy (hereafter, CE) has developed. This emergent field has been growing in less than a decade into a 1000 + works sphere. Besides, the CE is receiving increased attention and fathered emerging research topics. Yet, the pattern of research in this field remains blurred. Some of the works on the CE focus on the conceptual foundations and the nomological network of the CE (Belk, 2014a; 2014b; Ertz et al., 2016; Schor, 2016; Eckhardt and Bardhi, 2015), whilst others discuss specific aspects pertaining to the CE, such as trust in platforms (Mazzella et al., 2016; Ert et al., 2015; Guttentag, 2015), reputation systems (Owyang and Samuel, 2015; Cockayne, 2016; Luca and Zervas, 2016; Schor and Fitzmaurice, 2014), the dual role of the consumer or prosumer (Ritzer, 2015; Ahluwalia and Miller, 2014), taxation and regulation issues (Miller, 2016; Leaphart, 2016), workforce issues (Carboni, 2015; Horpedahl, 2015), governance (Davidson and Infranca, 2015), the freelancization phenomenon (Lomas, 2016),

and incidentally, environmental benefits (Mangiaracina et al., 2015).

These works have revealed various topical issues covered within the emergent research literature. They resulted essentially from the media coverage, consultant reports and conferences, as well as venture capitalists and hedge funds investments, which altogether spurred the CE, especially since 2010. Each subsequent study then provided additional insight into the field from a variety of perspectives, methodologies, theoretical framework, research paradigms, and disciplines. This process resulted in a highly rich but unorganized field, which has started to fragment into several subareas discussed above. Some works recently tried to make sense of the vast morass of research by taking an integrative stance, discussing several topics simultaneously, often critically (e.g. Slee, 2016; Murillo et al., 2017; Ertz et al., 2016; Langley and Leyshon, 2017).

We posit that despite the valuable knowledge brought by these works, additional analysis of this literature using objective bibliometric tools and network analysis potentialities can provide additional insights that were not understood so comprehensively in past research. Drawing on the latest methods and techniques in bibliometrics, scientometrics, and informetrics, bibliometric tools

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offer an alternative perspective on the field of CE. As stressed by Fahimnia et al. (2015), bibliometric analysis:

> "Network analysis through bibliometric tools can prove very powerful for identifying established and emerging topical areas. It can also help identify the clusters or research and researchers showing how the various areas of thought may have emerged based on author and institutional characteristics. Identifying the more influential researchers within the clusters sets the stage for determining additional emergent study fields through capturing of more recent topics covered by these researchers" (p. 102).

Bibliometric tools provide therefore a better understanding of the past evolution of CE as well as an identification of the emerging research areas within the CE domain. This is especially true regarding sustainability, which is often considered germane to the collaborative schemes in the likes of product-service systems (Mont, 2002; Piscicelli et al., 2015), while this may not always the case (Ertz et al., forthcoming). In this article, sustainability is defined as "the elimination of mechanisms of systematic degradation of essential aspects of both the ecological and the social system" (Missimer et al., 2017, p. 43).

This paper contributes to the literature on the CE by presenting a comprehensive examination of the exponentially growing field of the CE. More specifically, the study analyzes the characteristics and relationships of all the publications that have been made in the field of CE during a specific timeframe to present a broader and holistic perspective on the domain. It goes therefore beyond mere literature review which is not necessarily comprehensive enough or meta-analyses which do not highlight as well the relationships between the publications within the field. As such, using the powerful machine learning-based capabilities of bibliometric tools and network analysis, the paper provides a comprehensive review of the field to the reader. The research starts with 729 published studies and filters this pool to more influential publications and researchers. Afterwards, a comprehensive network analysis is completed and identifies 4 major clusters. These clusters are then used for topical classification of published works, identification of research topics and potential schools of thoughts, as well as an examination of the temporal evolution of the clusters (i.e. from 2010 to 2017). Based on these results, additional insight accrues on the current research topics and the place of the study of sustainability in the CE research rea. Finally, the discussion provides potential directions for future research.

2. Background

The debate has not settled yet regarding what CE encompasses and whether this is an appropriate notion to use as opposed to that of the more popular constructs of sharing economy or collaborative consumption. Two issues are worth mentioning in this regard. First, the use of the "sharing economy" concept seems to prevail over the collaborative consumption one, in the literature. However, many other constructs (e.g. access-based consumption, gig economy, on-demand (service) economy, crowd-based capitalism) have been introduced to squarely refer to the same practices as those covered under the sharing economy term. Second, the sharing economy has consequently been considered as an umbrella term which encompasses a variety of behaviours and business models (Schor et al., 2016) involving obtaining, giving and sharing access to goods and services (Hamari et al., 2016).

The term sharing economy is improper for several reasons. That concept draws heavily from the popular press (Cheng, 2016). Many authors have also denounced its misuse, confusing nature and

inaccuracy with regards to the practices it is supposed to encompass (Habibi et al., 2017; Ukolov et al., 2016; Scholz, 2016; Slee, 2016). Meanwhile, the sharing economy term has been related to Botsman and Rogers, 2010a initial collaborative consumption notion by many authors (Belk, 2014b; Hamari et al., 2016). To Murillo et al. (2017), the sharing economy concept has even further been conflated with many others (e.g. gig economy, do-it-yourself economy). Overall, this indicates that there are many different concepts referring squarely to a set of similar exchange configurations, often tech-centered ones. A piece of evidence to this is that the authors using different concepts refer to each other quite heavily. For example, in his conceptualization of CC, Belk (2014b) states that Bardhi and Eckhardt (2012) conflate CC and sharing in their concept of "access-based consumption". As another example, although Belk (2014b) sought to conceptualize CC, this paper has been extensively used in articles dealing with the sharing economy, not collaborative consumption per se. With the exception of a few (e.g. access-based consumption centered on temporary access to goods or services; or app/gig/platform economy referring to Web-mediated exchanges) they appear thus interchangeable.

With regards to the specific nature of the exchange practices, with slight nuances (e.g. Belk, 2014a, b) does not recognize gift-giving as collaborative consumption or sharing economy), the variety of concepts that have emerged tend to espouse Botsman and Rogers, 2010a initial classification comprising: mutualisation of goods (i.e. product-service systems) and non-goods (i.e. collaborative lifestyles), on one hand, and redistribution marketplaces for goods, on the other (e.g. Hamari et al., 2016).

We resolve both issues by using the notion of collaborative economy (CE), which is emerging in the literature (e.g. Cohen et al., 2016; Chase, 2015) in replacement of the oxymoron sharing economy and the too narrow notion of collaborative consumption. More specifically, despite the ongoing debate regarding the appropriate concept to use, we chose a middle-ground by conflating the terms sharing economy, collaborative consumption and CE together into the notion of CE. That is, although the publications that we cite and study in our analysis may not use the terminology collaborative economy explicitly, we have chosen to conflate the terms for the purpose of this analysis. We have done so for consistency purpose but more importantly, because CE eloquently synthesizes both collaborativity, with consumers exchanging, either directly or through an intermediate, and the economy notion brought about with the sharing economy expression, and which captures more adequately the broader perspective of an entire new parallel economy (Kostakis and Bauwens, 2014). The focus will be put on CE which are defined as resource circulation systems, which allow any individual to either act as a provider or obtainer of a given resource directly with another individual or through an intermediary (Ertz et al., 2016). Such a conceptualization leaves aside those business models preventing individuals from endorsing the aforementioned two-sided role (Ertz et al., 2016).

Encompassing reviews of the CE have thus been developed recently (Cheng, 2016; Anwar, 2017; Muñoz and Cohen, 2017). Their focus has been on organizing meaningfully past work, proposing future research agenda, identifying the multifaceted discourses and applications of the CE literature, and mapping out the CE. However, the linkages of the literature across criteria such as topics, affiliation, place, or authors has not been done. Moreover, there is a dearth for a thorough network analysis in these past works. Such a rigorous and robust network analysis offers a tremendous contribution to the literature because:

> "A network analysis is valuable for mapping the scope and structure of the discipline, identifying the most authoritative papers, and discovering key clusters of research. Without a