



The sharing economy and digital platforms: A review and research agenda

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ABSTRACT

Over the last few years the sharing economy has been changing the way that people share and conduct transactions in digital spaces. This research phenomenon has drawn scholars from a large number of disparate fields and disciplines into an emerging research area. Given the variety of perspectives represented, there is a great need to collect and connect what has been done, and to identify some common themes, which will serve as a basis for future discussions on the crucial roles played by digital platforms in the sharing economy. Drawing on a collection of 435 publications on the sharing economy and related terms, we identify some trends in the literature and underlying research interests. Specifically, we organize the literature around the concept of platform mediation, and draw a set of essential affordances of sharing economy technologies from the reviewed literature. We present the notion of platform centralization/decentralization as an effective organizing principle for the variety of perspectives on the sharing economy, and also evaluate scholars' treatment of technology itself. Finally, we identify important gaps in the existing literature on the relationship between digital platforms and sharing economy, and provide directions for future investigations.

1. Introduction

As many researchers of the sharing economy have pointed out, the act of sharing is not new; bartering systems and communal ways of life have a long history (Albors, Ramos, & Hervas, 2008; Belk, 2010; Sundararajan, 2016). However, it is only in the last few years that an intense discussion of sharing and economic collaboration has risen up around the term 'sharing economy' (Cheng, 2016). This is in part due to the fact that, although sharing has been around for a very long time, digital platforms and other large-scale mediating technologies have not. Indeed, much of the excitement over the sharing economy (hereon SE) and collaborative consumption surrounds digitally-supported businesses and communities which have enjoyed commercial success in recent years, upsetting established institutions (Geron, 2013; Zervas, Proserpio, & Byers, 2014). As a result, the presence of such technologies has been put forward as a defining characteristic, separating those businesses and communities under the term "sharing economy" from traditional sharing contexts (e.g. Hamari, Sjöklint, & Ukkonen, 2016; Bardhi & Eckhardt, 2012).

At the heart of the rising concept of the SE is the role of digital technologies. In many conceptions, the SE system is predicated on some kind of efficient, scalable technology, which brings large networks of people together and matches them to the goods or services they need

(Allen, 2017; Botsman & Rogers, 2010; May, Königsson, & Holmstrom, 2017). The market successes of SE businesses, as well as the social features of collaborative networks, are often tightly associated with the technologies on which they run (Frenken, 2017). More broadly, the SE presents some novel contexts for the use of technology, and for the types of social relations which are carried out through digital channels (Schor & Fitzmaurice, 2015).

A few recent studies have investigated the roles of mediating technologies (May et al., 2017; Lee, Kusbit, Metsky, & Dabbish, 2015) in the SE, but accounts of what exactly this technology is, and how it facilitates new social and economic configurations are scattered. In some discussions this technology is an 'algorithm' (Lustig et al., 2016; Möhlmann & Zalmanson, 2017), while in others it is a 'platform' (Cheng, Fu, & Vreede, 2018; Scholz, 2014), and in many more it is simply 'technology' (Cohen & Kietzmann, 2014; Heinrichs, 2013). Furthermore, there is not always agreement on these terms, as researchers have different definitions of an 'algorithm' and some publications describe the technology as a platform, but only concern themselves with one algorithmic process of that platform. In other cases, technological changes are reduced to quantifiable trends, such as increasing computational power, speed of match-making, or the ubiquity of personal devices, observations which circumscribe but do not explain technology's role. This miscellany of perspectives is perhaps

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due to the dispersal of SE research across a number of fields, and it has spawned a number of explicit calls for a better conceptualization of SE technologies and mediation (e.g. Hamari et al., 2016; Martin, 2016). Prior agendas have focused on the economic or social aspects of the SE (Cheng, 2016; Oh & Moon, 2016), but there has been no purposeful development of a shared understanding of the technological elements of the SE, and how it supports the SE's observed sociotechnical phenomena.

As the notion of the SE is the culmination of a large number of economic, technological, societal, political, and environmental trends, perspectives on it vary widely (Acquier, Daudigeos, & Pinkse, 2017; Dillahunt Tawanna et al., 2017; Oh & Moon, 2016). There have been a number of reviews which have previously sought to collect this literature into a coherent perspective, each taking a particular focus and disciplinary direction. Cheng (2016) reviews the SE literature from the perspective of SE business models and their implications for tourism services and sustainability development. Oh and Moon (2016) examine common definitions and articulations of the SE to describe its key components (i.e., open accessibility, trust, value creation, and peer to peer transactions). More recently, by reviewing articles published in the ACM (Association for Computing Machinery) digital library, Dillahunt Tawanna et al. (2017) provide a useful perspective into the state of computing literature relative to the SE. With a specific focus on human-computer interaction (HCI) they highlight major themes in this literature such user experience, design perspective, working conditions of gig workers, and business or pricing models. These reviews offer a thorough overview of common trends and perspectives in the SE literature, but their objective is not to examine the technological aspect of the SE or to engage the process of digital mediation directly. Some work still needs to be done to collect the variety of perspectives on digital mediation. Specifically, we must establish what is known (and what assumptions are made) about how platform technologies facilitate sharing and collaborative consumption.

The goal of this paper, then, is to surface the various assumptions about technology that are present in the research on the SE, and thereby deal with the presence of technology explicitly. We do this by describing a set of essential affordances assigned to SE technologies (explicitly or implicitly) in the literature. These affordances are presented as relations between the agencies of human actors and the material features of technology (Treem & Leonardi, 2013; Gibson, 1978). These should be read as a summary of how the existing literature has characterized the critical roles of SE technologies. Unlike Cheng (2016); Oh and Moon (2016), and Dillahunt Tawanna et al. (2017) treatments of the SE, our goal is not to distinguish intellectual traditions in the SE or to enumerate essential aspects of SE research, but to synthesize different approaches to one aspect of the SE, namely technological mediation, from these different traditions and research disciplines. Furthermore, in contrast to a number of prior, influential papers in the SE literature (Belk, 2014; Eckhardt & Bardhi, 2015; Ertz, Durif, & Arcand,

2016; Frenken & Schor, 2017), our treatment is not definitional. In the methods section we describe how we operationalize the SE as a number of concepts and related terms, and we evaluate the treatment of technology under this operationalization.

Following Webster and Watson (2002) recommendations about conducting a literature review on an emerging topic, we designed this review with the goal of exploring the sociotechnical nature of the SE, to explicitly engage with the mediating roles of digital platforms in these contexts, and to provide a theoretical foundation. In the discussion we set the stage for future work in this area by outlining some significant themes and weaknesses in the way that SE platform technologies have been described thus far, and ways in which technology has been blackboxed or taken for granted. We evaluate the current perspectives on technology in this area, and note some theoretical and analytical tools which could be applied to the SE context. Specifically we find that concepts from the literature on digital platforms would be useful in exploring the technological components of the SE. We also discuss two models of the SE platform, centralized platforms and decentralized platforms, which have served as central themes for organizing academic concerns, assumptions, and research interests. From these two analyses we identify some promising areas for future research.

2. Method of review

Overall, the review approach adopted in this paper was concept-centric (Webster & Watson, 2002), meaning that it followed the SE as a concept (specifically, a set of terms), rather than a particular research perspective or academic discipline. The review took two phases: an initial exploratory investigation, followed by a more extensive, guided collection. In the first phase of the review, the researchers followed the terms “collaborative consumption,” and “sharing economy” in order to identify a first set of salient articles. Because the literature on the SE is new, fragmented and interdisciplinary (Cheng, 2016; Puschmann & Alt, 2016), we did not rely on a single set of journals or a single research area, but rather followed these two concepts into the various research areas where they have sparked interest, which range from marketing research to computer science to transportation. This first search was concerned primarily with papers which attempted to describe essential elements of the SE, either in its own right or in relation to an associated concept, and so most of the papers collected in this first search were those that provided a definition of the SE. Because the SE is an emerging research area, there are a number of associated terms in the literature, and not much strong consensus about the boundaries between them. The motivation for this first collection was to gain a handle on the variety of these concepts and to generate what Bates (1976) calls “entry terms” (see Table 1) for conducting a literature search and review. The result of this process was a set of core papers defining the SE and a set of relevant terms/concepts, which would serve as access points into the nebulous space of the SE literature and guide the second,

Table 1

Terms and concepts extracted from the exploratory search.

"sharing economy", "shareconomy"	(e.g. Botsman & Rogers, 2010; Sundararajan, 2016; Ertz et al., 2016; Cheng et al., 2018)
"collaborative consumption"	(e.g. Hamari et al., 2016; Ertz et al., 2016; Möhlmann, 2015b)
"collaborative economy"	(e.g. Kostakis & Bauwens, 2014; Botsman & Rogers, 2010; Martin, 2016; Avital et al., 2014)
"gig economy"	(e.g. Martin, 2016; Friedman, 2014; Ferrell, Ferrell, & Huggins, 2017; Acquier et al., 2017)
"access-based consumption"	(e.g. Eckhardt & Bardhi, 2015; Belk, 2014; Dredge & Gyimóthy, 2015)
"platform economy"	(e.g. Cusumano, 2014; Kenney & Zysman, 2016; Langley & Leyshon, 2017)
"peer-to-peer economy"	(e.g. Sundararajan, 2016; Cheng, 2016; Kostakis & Bauwens, 2014; Einav et al., 2016)
"on-demand economy"	(e.g. Sundararajan, 2016; van Doorn, 2017; Einav et al., 2016; Chen, 2017; Cockayne, 2016)
"microtask", "microwork", "micro-tasking", "micro-working" (with spaced and hyphenated variations)	(e.g. Dillahunt Tawanna et al., 2017; Cefkin, Anya, & Moore, 2014; Taihagh, 2017)

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