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The public sector's roles in the sharing economy and the implications for public values

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ABSTRACT

Motivated by the growing significance of the sharing economy, we discuss the roles the public sector may play within the sharing economy and the corresponding implications for public values. The sharing economy represents a transformative agent for the public sector within the current landscape of digital transformation. While the public sector has so far acted mainly as a regulatory body in the sharing economy, we here discuss implications for other roles the public sector may take on, including the roles of customer, service provider, and platform provider. Framed within the context of the public value ideals (professional, efficiency, service, and engagement), we examine the opportunities and challenges of each role for the four public values. Finally, we identify areas for future research, focusing on the implications of public values for the public sector in the sharing economy.

1. Introduction

The public sector's actions are typically aligned with and guided by public values, which represent the public sector's underlying purposes and motivations and the rationale for its existence (Rose, Persson, Heeager, & Irani, 2015). Typical examples of public values include responsibility to the citizens, efficiency, effectiveness and fairness (Bannister & Connolly, 2014). In recent years, the processes of the digital transformation have challenged the public sector to respond to the evolution of a more digital society, influencing public value positions. Over the past 30 years, public sector organisations have evolved from rigid and bureaucratic structures into more decentralized forms of coordination (Rainey & Bozeman, 2000), replacing hierarchies with markets for the efficient allocation of scarce public resources (Hoggett, 1996). This has resulted in the introduction of the concept of new public governance, making way for new forms of public service delivery, such as "self-organizing inter-organizational networks" (Osborne, 2006, p. 381), that include both governmental and non-governmental actors. In line with this paradigm and facilitated by digitalisation, the new concept of the sharing economy exemplifies a new form of service delivery that has received significant attention in the private sector, and which the public sector is starting to explore.

The sharing economy represents a new form of economic exchange that promotes the consumption of goods and services based on the principles of resource sharing, temporary ownership and access to digital platforms (Belk, 2014). Despite the growing importance of the concept, few studies have focused on sharing economies in the public domain (Ganapati & Reddick, 2018; Glover, 2016), and most of these have regarded the public sector's role mainly as being responsible for setting the regulatory framework (Rut, 2016; Thoreson, 2016). However, "[g]overnment and regulators do more than set policy. They can also be active participants in the economy by supporting, encouraging or promoting collaborative economic activities that enable more efficient provision of public services" (Stokes, Clarence, Anderson, & Rinne, 2014, p. 30). The public sector may, for instance, actively offer and rent goods, such as machinery, via sharing economy platforms (Ganapati & Reddick, 2018). Still, beyond its role as a strictly regulatory body, we know little about the role of the public sector within the sharing economy. This knowledge gap represents the motivation for the work introduced here.

The sharing economy may generate both opportunities and tensions for the public sector. Regulated public services do not necessarily align with sharing economy applications, and the sharing economy may challenge the values promoted by the public sector (Ganapati & Reddick, 2018). A well-known example is the case of the transport company Uber and its private ride-sharing service, which has created tensions in areas where the need for taxi regulation has created public monopolies. However, the literature has not yet comprehensively examined the sharing economy's implications for public values, and more research is needed to understand how digitally enabled innovations,

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such as the sharing economy, influence public values (Bannister & Connolly, 2014; Cordella & Bonina, 2012; Williams & Shearer, 2011).

The sharing economy may be a relevant future transformative agent for the public sector if the public sector extends its role beyond that of a strictly regulatory body. Considering the currently limited understanding of the implications of sharing economy applications for public values, we aim *to explore both the public sector's potential roles in the sharing economy and the resulting implications for public values.*

To accomplish this, we perform a hermeneutic literature review to explore literature on sharing economy and more specifically on sharing economy within the public sector. We discuss this in light of the existing body of knowledge on the public value perspective, to reflect on the public sector's potential roles in the sharing economy. As a result, we develop an analytical framework for the subsequent discussion of how these roles influence public values and to identify salient research needs. Our paper contributes to both research and practice in public sector organisations. From a research perspective, we provide a starting point for a conceptualisation of the sharing economy in the public sector by offering a deeper understanding of the four different roles the public sector can play in a sharing economy environment. Furthermore, our analysis of the resulting implications for public values offers an approach to understanding the consequences of digitalisation-induced changes that go beyond the technical and the social. With regard to the practical work of public sector organisations, we collect potential application areas of the sharing economy and highlight both opportunities and challenges for the public sector.

Next, we will introduce the public value perspective, which represents a framework for our discussion of the sharing economy. Then we describe our method before presenting the result of our literature review and our suggested framework, followed by our discussion and implications for research and practice. We conclude the paper with a critical reflection on the potential challenges, tensions and benefits of the sharing economy for public values.

2. The public value perspective

Introducing new technology-driven paradigms (e.g. the sharing economy) into the public sector often involves changes in values and value systems (Bannister & Connolly, 2014). Values express the underlying purposes and motivations of the public sector (Rose et al., 2015) and represent modes of behaviour that are generally held to be good (Bannister & Connolly, 2014; Sikula, 1973). In the public sector context, values are not only restricted to an economic perspective, but also refer to the importance citizens assign to the results of government policies and public services (Ramesh & Fritzen, 2009; Scott, DeLone, & Golden, 2009), or the "government's ability to deliver social and economic outcomes that correspond to citizens' expectations" (Bonina & Cordella, 2009, p. 1). The focus on public values suggests the public sector should carry out practices to establish fair, equal, and just societies (Cordella & Bonina, 2012). Public values are context-specific and highly entangled with political processes and collective expectations (Cordella & Bonina, 2012), often resulting in plural and overlapping values (van der Wal & van Hout, 2009) being considered worthwhile and legitimate by various stakeholders (Rose, Flak, & Sæbø, 2018). The public values perspective argues that societal values are more than the sum of individual values, emphasizing the importance of values collectively representing what is good for society (Cordella & Bonina, 2012).

In general, values are related to desires and outcomes (what is wanted), aims and purposes (what is intended in the future) and prizing and appraisal (choices about how ends and means are prioritised) (Dewey, 1939; Rose et al., 2018). Public values define an ethos that is often distinct from the private sector by, for instance, focusing on public interest and the efficient use of taxpayers' money (Rose et al., 2018). Technology-driven projects within the public sector typically have implications for both public values and public expectations (Bannister & Connolly, 2014). Therefore, the transformational effect may be explored by investigating the effects such projects may have on public values to understand the projects' socio-political implications for the public sector (Cordella & Bonina, 2012).

A thorough review of the literature attempting to define representative sets of values for e-government (e.g. Bannister & Connolly, 2014; Persson & Goldkuhl, 2010) lies outside the scope of this paper (see Rose et al., 2015, for a more detailed review). Here, to explore the consequences of the sharing economy for the values of the public sector, we identify the public value framework suggested by Rose et al. (2015) as a useful conceptual framework for several reasons. First, the authors establish broad categories of value positions held by various stakeholders (rather than exhaustive lists of values) and associate them with technological frames. Hence, the framework focuses on how information technology (digital innovations) benefits (or not) good governance and increases its impact. Next, the value perspective is grounded in the existing literature (from public administration theory) and empirical analyses. Finally, it is rooted in the idea that conflicts and tensions might exist among various values, in line with Cordella and Bonina (2012, p. 518), who argue that "the creation of public value entails a multidimensional problem on balancing competing public values, rather than solely with the optimization of processes or procedure."

Rose et al.'s (2015) synthesised models of ideal value types distinguish among *professionalism*, *efficiency*, *service* and *engagement ideals*. Each ideal type is then measured according to different value dimensions. The introduction of these value perspectives allows us to reflect on how new paradigms (e.g. the sharing economy) may influence the overall purpose, motivation and shared goals of the public sector: henceforth, the principal criteria for the perception of success or failure (Rose et al., 2018). The relationship between the value perspective and digital technologies is relevant here, as digital technologies strongly support sharing economy applications (Za, Bardossy, & Scornavacca, 2019). The ideal value types represent the first key element in our paper.

The *professionalism ideal* focuses on the provision of an independent and consistent administration that governs based on laws and rules, resulting in a just and accountable governing structure. Within the professionalism ideal, the role of digital technologies is to provide flexible and digital public records and to support standardised administrative procedures (Rose et al., 2018). By providing the databases and document management systems needed to house modern public records and encourage standardisations, their purpose is to secure digital public records and adapt to standardised administrative procedures.

The *efficiency ideal* concerns the efficient and lean use of public resources gathered from taxpayers to minimise waste. The dimensions of this ideal type include value for money, cost reduction, productivity and performance (Rose et al., 2018, 2015). The efficiency ideal has been central in projects focusing on the use of ICT in the public sector, with the aim of enhancing internal effectiveness, efficiency and economy in public administration (Snellen, 2005). A key issue here is the automation of processes, which frees civil servants to focus on exceptions and difficulties (Rose et al., 2015).

The *service ideal* involves the provision of citizen-oriented public services, wherein quality represents an important value dimension. Digital technologies are introduced here to improve the availability, accessibility and usability of public services by providing services online (Rose et al., 2018), thereby improving the quality of public services (Snellen, 2005). Digital technologies change the ways in which citizens communicate with public service providers and represent a productivity tool that allows for a greater focus on citizens' and users' points of view than on the public sector perspective when designing services. Introducing digital technologies typically improves access, reduces response time, and provides special provisions for disabilities and cost-savings for citizens (Rose et al., 2015).

The *engagement ideal* relates to the engagement of civil society in policy development under democratic principles, including such key representative values as democracy, deliberation and participation. The role of digital technologies is to support interactions with the public and

the co-production of policy in order to involve citizens in democratic policymaking (Snellen, 2005).

3. Method: qualitative hermeneutic research approach

Based on a qualitative and hermeneutic research approach (Klein & Myers, 1999), we aim to review the existing studies of the sharing economy in the public sector, to conceptualise the roles actors may play in the sharing economy and to discuss the implications for public values that arise by the public sector playing these roles. Literature reviews allow for analysing, structuring and critically assessing existing knowledge to identify research gaps within a field (Boell, Cecez-Kecmanovic, & Dubravka Cecez-Kecmanovic, 2014) and form the basis for combining current findings on hitherto disparate topics (vom Brocke et al., 2015). From a methodological point of view, literature reviews can be distinguished on a continuum from systematically structured to adaptive, hermeneutic processes (Boell et al., 2014; Boell & Cezec-Kecmanovic, 2011). While systematic approaches may lead to less biased results, they are less appropriate when analysing new research topics due to their methodological inflexibility (Kitchenham & Charters, 2007). Since the implications of the sharing economy for public values have hardly been explored, we base our review on a hermeneutic literature review process (Boell et al., 2014). Hermeneutic reviews are a common approach in conceptual papers in the field of information systems (IS) and e-government (cf, e.g., Lindgren & Jansson, 2013; Morschheuser, Werder, Hamari, & Abe, 2017; Stendal, Thapa, & Lanamaki, 2016). In contrast to more structured literature review processes, the hermeneutic literature review approach acknowledges reviews as subjective and interpretative processes through which the researchers gain a deeper understanding of a subject over time by iterating two hermeneutic circles: (1) search and acquisition and (2) analysis and interpretation of the literature (Boell et al., 2014).

The starting point of our review was our previous knowledge in the fields of sharing economies and e-government research. We searched for literature iteratively and approached the topics of the sharing economy and sharing economy in public sector from several perspectives, which we considered first in isolation and later in combination (Alvesson & Sköldberg, 2009; Klein & Myers, 1999). The first review cycle focused on the sharing economy, while a second review cycle was performed to identify the current literature discussing the sharing economy within the public sector. See Appendix A for further information on the literature searches.

4. Analytical framework for public sector's roles in the sharing economy

The concept of the sharing economy refers to new forms of economic exchange that promote the consumption of goods and services based on the principles of sharing resources, temporary ownership and access to digital platforms (Belk, 2014; Ert, Fleischer, & Magen, 2016). While the term has been in use for about 10 years, the diffusion of ubiquitous information systems (Carillo, Scornavacca, & Za, 2017), the rise of peer-to-peer digital platforms and the growing need for environmental and economic sustainability have significantly intensified the debate surrounding this topic in recent years (Avital et al., 2015; Ganapati & Reddick, 2018; Heinrichs, 2013). The sharing economy supports a form of coordination among the consumption behaviours of individuals who agree on their consumption actions or the compensated acquisition and distribution of resources (Belk, 2014).

The term “sharing economy” can be understood as a broad umbrella (Berg & Hukkinen, 2011; B. Cohen & Kietzmann, 2014; M. Cohen & Sundararajan, 2015; Schor, 2014; Za et al., 2019). The literature uses several related terms to refer to specific aspects or dimensions of the sharing economy, often with overlapping definitions (Ganapati & Reddick, 2018; Martin, 2016). These terms include “collaborative consumption” (Lampinen, Huotari, & Cheshire, 2015; Owyang, Tran, & Silva, 2013), “collaborative economy” (Cohen & Muñoz, 2016), “crowd-based capitalism” (Sundararajan, 2016), “elancing” (Aguinis & Lawal, 2013), the “gig economy” (Graham, Hjorth, & Lehdonvirta, 2017), the “mesh economy” (Turi, Domingo-Ferrer, Sánchez, & Osmani, 2017), “on-demand economy” (Cockayne, 2016) and the “platform economy” (Kenney & Zysman, 2016) (see Appendix B for a detailed list of the definitions).

Sharing economy applications are supported by the diffusion ubiquity of digital platforms (e.g. social media) and digital eco-systems (Carillo, Scornavacca, & Za, 2014; Owyang et al., 2013). In a sharing economy context, information sharing guides individuals' behaviours. The use of digital platforms reduces the transaction costs for creating connections and sharing information among unacquainted members and for sharing information (Hamari, Sjöklint, & Ukkonen, 2016; Martin, 2016). People in these settings may also use rational reasoning to maximise utility and minimise costs (Möhlmann, 2015).

The sharing economy has the potential to stimulate sustainable consumption practices (Heinrichs, 2013) and promote a cultural shift from the ownership of resources to resource access and sharing (Botsman & Rogers, 2010). It represents an alternative form of consumption, bypassing mere economic benefits, while also focusing on ethical issues regarding overconsumption, environmentally driven resource utilization and the degradation of the natural environment. With respect to these aspects, sharing economy initiatives are suitable for integration into the scope of the public sector (Chasin & Scholta, 2015).

Sharing economy settings are characterised by triadic connections of actors, including a) the platform provider enabling the exchange, b) customers requesting access to the assets and c) a peer service provider granting such access (Benoit, Baker, Bolton, Gruber, & Kandampully, 2017). This constellation involves no transfer of ownership; instead, the peer service provider grants customers temporary property rights. A sharing economy can both be mediated by market mechanisms and rely more on social mechanisms. Consequently, a sharing economy includes actors with economic and other motives for participating in triadic connections with others.

Based on this background and on the public value perspective, we suggest an analytical framework for understanding the public sector's role in the sharing economy. This framework is summarised in Fig. 1 and discussed in detail below.

The *customer role* requests temporary access to the resources shared by the service provider and returns them when no longer needed. Customers contact the service provider through the platform and pay a form of compensation for the temporary use of the resources. The public sector may play this role as a customer of third parties (e.g., private companies, citizens and other public institutions) that offer services and goods via digital platforms. This role is exemplified by cases in which digital platforms managed by private companies allow public institutions to rent assets provided by others. For example, MyCommunitySpace (https://www.mycommunityspace.org.uk) allows public organisations to book meeting rooms. Similarly, MuniRent (https://www.munirent.co/) allows municipalities to use idle equipment (e.g. heavy machinery) provided by others. This latter example allows public sector organisations to forego purchasing their own specialised equipment, which they seldom use, and instead use taxpayers' money to access resources when needed. Public sector employees may also act as customers in a sharing economy when renting resources from public and private sector organisations. For example, they may use online platforms to rent housing (e.g. flats or sport halls) from citizens and organisations during emergencies, such as floods or hurricanes. During Hurricane Sandy, governments cooperated with private actors like Airbnb to find housing for the affected citizens (Newcombe, 2015).

Peer service providers offer services to customers (e.g. citizens or private or public sector institutions) through platforms provided by third parties (e.g., private companies). Public sector organisations may possess equipment that is seldom in use (e.g. dump trucks, excavators and guardrail cleaners) that can be offered to others and borrowed by citizens and private organisations for monthly or yearly fees (as in the

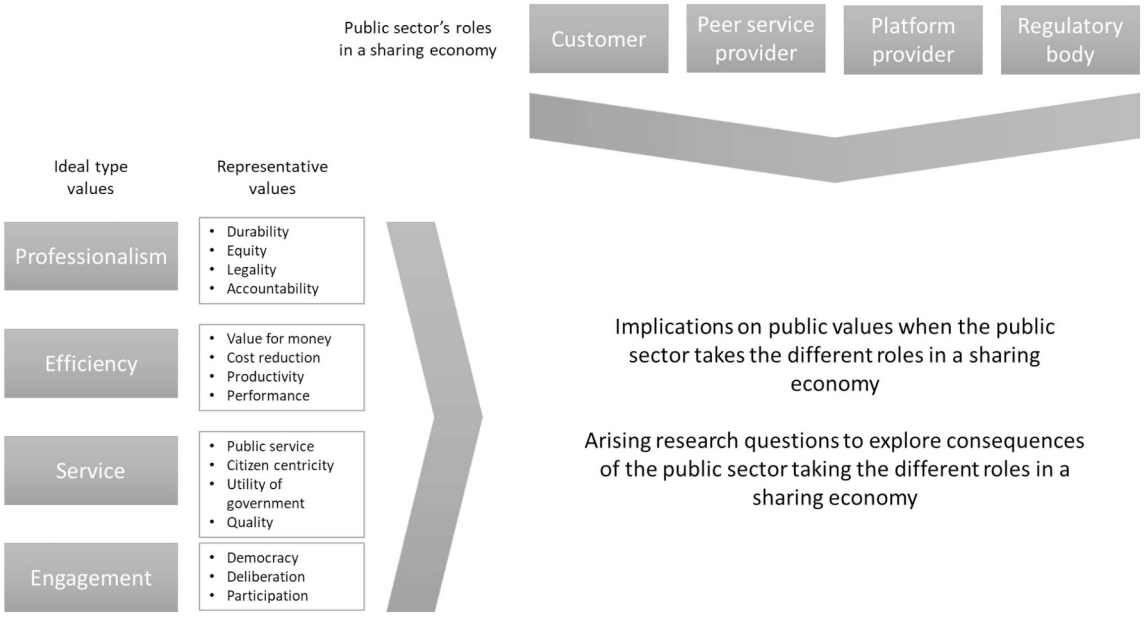

Fig. 1. Analytical framework.

abovementioned example of MuniRent). They may also act as peer service providers in the sharing of publicly owned cars via car-sharing apps.

A *platform provider* runs and controls digital platforms that mediate all transactions and information exchanges between the customer and the peer service provider. The public sector may play the role of platform provider by offering a digital platform that allows third parties (e.g., private companies, citizens or public institutions) to offer and rent or buy services and goods. This role is illustrated by Pick My Project (https://pickmyproject.vic.gov.au/), a platform provided by a public organisation to connect youngsters with business ideas and potential investors. The public sector could also play the role of a platform provider to support internal resource sharing, such as allocating personnel and equipment or scouting skilled competencies for temporary needs. Human and technical resources may be more mobile when their sharing is facilitated by such mechanisms as human resource recruiting platforms like Upwork (http://www.upwork.com) and Freelancer (http://www.freelancer.com).

The *regulatory body* in a sharing economy, a role we added to Benoit et al.'s (2017) triadic framework, sets the regulatory framework by which third-party platform providers, service providers, and customers must abide (Chasin & Scholta, 2015; Moon, 2017). Municipalities regulate the establishment and operation of urban sharing initiatives through a range of regulatory mechanisms (e.g. laws, taxes, bans and policies). Furthermore, they provide financial and infrastructural support to urban sharing organisations and act as facilitators by fostering collaboration among urban sharing organisations or creating partnerships with municipal actors to enable urban sharing to happen.

We argue that sharing economy applications in the public sector include all four roles introduced above: service provider, customer, platform provider and regulatory body. However, we do not imply that the public sector should assume all four roles simultaneously, although this may occur in specific sharing economy scenarios. We envision the sharing economy as a form of collaboration between the public sector and other stakeholders, such as private organisations, citizens and other public institutions. We explore this collaboration and its various forms in the following discussion.

5. Discussion and implications

Based on our conceptual framework of the roles in a sharing economy, we here discuss the implications for the public values. The discussion is based on how the four possible roles of the public sector in the sharing economy might have implications for the four public value perspectives: *professionalism*, *efficiency*, *service* and *engagement*. Each subsection considers one of the four roles and summarises the potential positive and negative consequences for the public values in a table. Finally, implications for practice and research, including needs for future research, are discussed.

5.1. The public sector as a customer

The public sector as a customer in a sharing economy implies changes for the *professionalism ideal*, which could challenge the public sector's independence. By acquiring services from private peer organisations on a sharing economy exchange platform, the public sector increases its dependencies on both the platform provider and the service providers (Li, Park, & Yang, 2018; Lulin, 2017; Moon, 2017). In a traditional procurement situation, in which the public sector is the customer, the private suppliers must comply with specific regulations set by the public sector for selling resources. In a sharing economy setting, given that the exchange takes place over the platform, the public sector as a customer is dependent on the functionality of the platform and the rules the platform provider has set for the platform. In addition, being dependent on the services offered by a third-party service provider can endanger the robustness of the public sector.

This role also has implications for the *efficiency ideal*. On the positive side, acquiring goods and services provided by other parties only when needed can be a cost-efficient alternative to owning resources needed only occasionally. It is also a viable strategy to promptly acquire resources, including human resources, in urgent cases (e.g., housing in emergencies) (Melo, Macedo, & Baptista, 2019). Since the digital platforms in a sharing economy application may reduce information asymmetry (Cohen & Sundararajan, 2015), they could improve the public sector's ability to compare costs and select the best value when acquiring resources. Efficiency gains manifest in terms of both cost reduction and an improved capability to react to urgent events. Furthermore, acquiring resources only when needed may stimulate more sustainable consumption practices by the public sector (Heinrichs, 2013; Möhlmann, 2015). Acting as a customer may also change the public sector's way of negotiating contracts with suppliers. While current calls for tenders often result in long-term contracts with private organisations, procurements in a sharing economy application may lead to shorter and more frequent agreements between the public sector and

its service providers. On the positive side, this may reduce the lock-in effect caused by depending on fewer long-term contract partners. On the negative side, more frequent contracts expose the public sector to potential fluctuations in resource performance and price, resulting in less projectable outcomes and costs. Although digital platforms reduce information asymmetry, they do not avoid the moral hazard risk (Cohen & Sundararajan, 2015). The public sector as a customer might fall victim to arrangements by service-providing organisations, as is the danger with public procurement platforms. Such platforms aggregate public administration needs and create more favourable cost conditions for suppliers, thanks to transparency of prices and suppliers. At the same time, the information offered by the platform allows for opportunistic behaviours by service providers, which could form cartels or artificially raise prices in niches.

The *service ideal* can be affected by the public sector's need to rely on other stakeholders, such as citizens and private organisations, for goods and services in the process of public service delivery. In such cases, the direction of the exchange between the public sector and external stakeholders' inverts, with the public sector becoming the receiver of the stakeholders' goods and services. A positive aspect of such inverted relationships is the possibility of the public sector as a customer utilising the specialised resources, talents and skills offered by the service providers to co-produce public services (Lulin, 2017). Less positive aspects arise in the need to balance the utility for individual actors in the sharing economy exchange (i.e. the service provider and the public sector as a customer) (Möhlmann, 2015) and the utility for civil society, which may manifest in a tension when the public sector struggles to manage these opposing needs. An example of such a tension comes from the private sector, in which the sharing of services through a digital platform offered by a private organisation may open new markets and offer customers new services (Schor, 2014), but reduce labour costs, as, for instance, in the case of drivers on food delivery sharing economy platforms (AAP, 2018). A further challenge for the public sector arises in how to control and ensure the quality of public service delivery based on resources acquired from peers in a sharing economy exchange (Stokes et al., 2014).

The public sector as a customer may also affect the *engagement ideal*. On the positive side, the public sector as a customer can leverage services delivered by citizens enacting forms of public service co-production (Bovaird & Löffler, 2015), increasing stakeholder engagement. An ongoing discourse exploring how to engage citizens in public sector service delivery has, so far, generated few reports about successful forms of co-production, but identified several challenges concerning the actors, the service management, and the misalignment between organizational capability and service needs (Bovaird & Löffler, 2015; Federici, Braccini, & Sæbø, 2015; Pestoff, 2012; Pestoff, Brandsen, & Verschuere, 2012). On the negative side, sharing economy environments might even further strengthen the democratic divide between citizens who have access to digital platforms and those who do not. Table 1 summarises implications concerning public sector as a customer.

5.2. The public sector as a peer service provider

The public sector as a peer service provider has implications for the *professionalism ideal*. A positive side effect of the public sector acting as a service provider could be an informal increase in its accountability. As the public sector increases its transparency by publicly displaying its unused resources, the public may gain a clearer understanding of the public sector's responsibilities and duties or even gain trust in the public sector, which will eventually reinforce the sharing economy exchange (Möhlmann, 2015). A potential difficulty is ensuring a consistent administration of public services governed by rules. Given that services are delivered through third-party digital platforms, changes introduced by the platform provider in how the platform works imply changes in how services are delivered. Such changes are beyond the control of the public sector and may lower the stability and durability of service provision. Furthermore, if the platform is provided by a private organisation, ways of maintaining equity in serving all citizens requires special attention, as the platform provider may not guarantee universal access to the platform.

The public sector as a service provider has also implications for the *efficiency ideal*. On the one hand, renting idle resources could sustain productivity and create new sources of revenue for the public sector. Since the efficient use of public resources is a key motivational factor in the e-government domain (Snellen, 2005), better use of resources may represent a motivation for the public sector to engage in the sharing economy as a service provider. On the other hand, offering new services involves creating new public sector roles and responsibilities—and, thus, new sources of expenses—to control and ensure service provision. Furthermore, lending out goods could hamper performance when the resources are needed on short notice and are not available or when the physical goods are returned in a damaged condition. Moreover, sharing economy exchanges are based on market mechanisms for coordinating efficient resource allocation (Benoit et al., 2017), which may be prone to opportunistic behaviours and free riding (Hardin, 1968).

An implication for the *service ideal* of the public sector acting as a service provider is the potential emergence of entirely new services, such as the sharing of idle municipal vehicles during weekends, creating unprecedented utility for civil society. Moreover, the public sector could support and strengthen sharing economy initiatives through the sharing of services (including financial ones) with private organisations, putting them in the position to deliver services that would be unprofitable or impossible to start without the public sector intervention and, thus, acting as a service enabler (Lulin, 2017). By taking on the role of the service provider, the public sector can offer services that citizens can then use to create their own services. Examples include urban gardening or urban district activities, for which the public sector could offer the required tools and equipment. On the negative side, service delivery by the public sector via third-party platforms will impact the service ideal when the public sector relinquishes control over its service delivery by relying on external stakeholders. On the one hand, this raises questions concerning responsibility in case of failure (e.g. when the platform is unavailable). On the other hand, since utility can only be achieved by

Table 1
Summary of positive and negative implications for public values of the public sector as a customer in a sharing economy.

Ideal type	Positive aspects	Negative aspects
Professionalism	Transactions are regulated by market rather than bureaucracy	Increased dependencies on platform and service providers
Efficiency	Sustainable use of resources	Exposure to short-term price fluctuations
	Cost reduction	Exposure to potential price arrangements
	Reduced lock-in effect with suppliers	Effort to find suitable service providers in a short-term contract environment
Service	Exploitation of specialised resources to co-produce public services	Tensions between public and individual utility
		Potential reduction in control over public service provision
Engagement	Increased engagement with citizens	Further deepening of the democratic divide due to dependence on digital platforms

Table 2
Summary of positive and negative implications for public values of the public sector as a service provider in a sharing economy.

Ideal type	Positive aspects	Negative aspects
Professionalism	Increased accountability	Instability of rules regulating public service provision
	Increased transparency	
	Improved public trust	Potential inequities in service provisioning
Efficiency	New value delivery from public resources	Potential unavailability of resources during emergencies
	New sources of revenue	Risk of free riding
Service	New utility for civil society	Decreased control of service delivery
	New private business opportunities	Decreased control of reaching the target audience
	New service delivery for the public sector	
Engagement	Increased engagement with citizens	Increased divide among citizens due to dependence on a digital platform
	Promotion of citizens to the role of enablers in participatory service delivery	

reaching the target audience, it is necessary to analyse what might happen if stakeholders play the role of the customer and provide services via external platforms.

The role of the service provider in the sharing economy could be an innovative strategy for the public sector to increase the level of participation and engagement in citizens' service delivery, thus affecting the *engagement ideal*. The engagement of the public sector with citizens and private organisations in service delivery could reinforce the latter's trust in the former, creating a self-reinforcing mechanism that further stimulates engagement in the sharing economy exchange (Möhlmann, 2015). A negative implication may be a divide between citizens who have access to the services offered by the public sector via a digital platform and those who do not. Table 2 summarises implications concerning public sector as a service provider.

5.3. The public sector as a platform provider

Concerning the *professionalism ideal*, the public sector as a platform provider has an improved chance to create consistent rule-based administration by enforcing rules for service providers' and customers' actions through a digital platform. The public sector may use this opportunity to induce, for instance, improved sustainable habits among citizens or business organisations (Li et al., 2018; Möhlmann, 2015). By controlling the platform, the public sector controls the actions of peers, guaranteeing regulatory respect and strengthening the effectiveness of sanctions by using big data analytics and machine learning with data produced by the digital platform to spot peers violating regulations promptly (Cohen & Sundararajan, 2015). Finally, releasing digital records of the platform's activities as open data may improve the accountability of not only the public sector, but all actors involved in service provision. On the downside, enforcing laws and regulations by serving as a platform provider necessitates an expansion of the public sector's competences to areas not previously covered. While this may strengthen justice and equality even for the delivery of non-public services by allowing the public sector to directly control or regulate the exchange of goods and services between citizens and other stakeholders, this role must not exceed the public sector's competences. An important aspect here is the possible violation of privacy.

When the public sector takes on the role of the platform provider, two implications arise for the *efficiency ideal*. On the positive side, the public sector as a platform provider can better coordinate public service provision. By creating a platform with specific rules and opening it to service providers and customers, the public sector saves resources, as it no longer needs to manage with the operational side of service provision and, instead, simply needs to coordinate customers and service providers (Lulin, 2017). The public sector can benefit from digital platforms' ability to reduce transaction costs for engaging customers and providers, which allows it to focus solely on the coordination effort (Möhlmann, 2015). These applications could have a highly transformative role in the public sector, supporting the model of public sector as a platform. On the negative side, offering a platform means that the public sector will incur costs and liabilities, such as the cost of the digital platform and the necessary specialised human resources, that might be wasted if the sharing economy application is a failure. Moreover, unlike traditional e-government services, which do not require permanent surveillance by an administrator, and traditional office administrative services, which are delivered only during office hours, sharing economy platforms typically require expert moderation and tech assistance beyond the limits of a nine-to-five shift.

The *service ideal* is also affected by the public sector taking on the role of platform provider. When the public sector is the provider of a platform for sharing public services, this shifts public services from the provision to the orchestration and mediation of the different resources offered by different actors over the platform (Lulin, 2017; Möhlmann, 2015). Thus, by engaging in platform provision, the public sector relinquishes further control over service delivery, which may increase service quality through market mechanisms but also allow for opportunistic behaviours or the dispersion of public resources in directions not in line with public values. For instance, in the case of public federated identity authorisation systems (e.g. the SPID in Italy, https://www.spid.gov.it), the government takes control of the digital platform specification and may open service provision to qualified third-party private organisations. In such scenarios, the third-party organisations are in a position to acquire citizens' data, which were previously collected and aggregated only by the government. This raises issues regarding the quality of security, privacy and confidentiality and the capability of the public sector to deal with third-party service providers. For example, the European Union has already imposed regulations (e.g. the General Data Privacy Regulation and the Copyright Regulation) to control the provision of services through digital platforms. Offering a sharing economy platform constitutes a new service for the public sector, requiring it to address new stakeholder needs and, thus, possibly increasing utility and citizen centricity. Such platform provision may also enable the delivery of services the private sector is reluctant to provide due to cost or risk, thereby allowing the public sector to replicate the model of monopolies over public infrastructures (e.g. the railroad) in sharing economy applications. This may facilitate the creation of new markets that can be opened to the competition only when there are enough users to make them profitable for private operators and remunerative for taxpayers (Li et al., 2018). However, when the public sector offers a platform that allows for the exchange of non-public services, it raises concerns about privacy, security and confidentiality regarding the data gathered via the platform, as mentioned in regard to the professionalism ideal.

Regarding the *engagement* ideal, the provision of a digital platform by the public sector could facilitate, support and steer a structured exchange of goods and services, positioning the public sector as a facilitator of participatory and democratic processes. Through the provision of the platform, the public sector needs only to focus on the management of collective action, while the platform itself facilitates the engagement of the individuals in the collective action (Braccini, Sæbø, & Federici, 2019; Lulin, 2017). By providing the platform, the public sector could avoid the prejudices and potential risks related to citizen engagement and participation in democratic or e-government processes, which currently take place through platforms provided by private organisations or self-made bricolage digital technologies (Braccini

Table 3
Summary of positive and negative implications for public values of the public sector as a platform provider in a sharing economy.

Ideal type	Positive aspects	Negative aspects
Professionalism	Ensures consistent rule-based administration Increased accountability Increased transparency Increased peers' actions control	Potential privacy issues
Efficiency	Increased service delivery coordination Increased quality and number of public services provided Decreased transaction costs	Extra costs for platform provision Cost-benefit balance
Service	Innovative service delivery strategies	Privacy, security and confidentiality issues Potential opportunistic behaviours in service provisioning
Engagement	Facilitation of participatory and direct democratic processes Enabling of citizen-to-citizen service provision	Decreased trust of citizens in the public sector and its stakeholders due to possible control mechanisms

et al., 2019). In an extreme case, this might lead to citizens exchanging services with one another. These scenarios are related to questions concerning trust among citizens—and, especially, between stakeholders and the public sector—that are relevant for the engagement ideal, since the public sector as a platform provider has increased control over the exchanged data. Table 3 summarises implications concerning public sector as a platform provider.

5.4. The public sector as a regulatory body

The role of the regulatory body differs from the three previously discussed roles because the public sector plays a passive role in the sharing economy exchange. As it sets the rules of the game but does not engage in the exchange between customers and service providers over the platform, this role's effects on public value perspectives are less direct. We therefore discuss this role more generally.

When the public sector takes on the role of the regulatory body, it sets the regulatory framework that shapes the actions and choices of service providers, platform providers and consumers in a sharing economy exchange. The role of the regulatory body of a sharing economy application is the de facto current situation for the public sector. Most existing studies focus on the implications of the new opportunities and challenges raised by the sharing economy phenomenon for public regulations (Cohen & Sundararajan, 2015; Katz, 2015; Posen, 2015). Specifically, the extant literature highlights two main issues relating to the regulation of the sharing economy by the public sector. The first issue is that most existing sharing economy applications push or explicitly violate existing regulations (Schor, 2014). The implication is that regulatory bodies must find an adequate balance between the prevention of violations or regulatory disruption (i.e. public monopolies) without discouraging innovation or new market opportunities (Posen, 2015). The second issue concerns the debate surrounding the need for specific regulations for the sharing economy and the extension of existing regulations to sharing economy applications. While it is acknowledged that the sharing economy is here to stay and the public sector must consider its regulation (Almirall et al., 2016), the extension of existing regulations to sharing economy applications is seen as challenging, since new services are often nothing like the old ones (Posen, 2015).

As has already happened for public services that were previously competitive markets and are now regulated (e.g. taxies) (Posen, 2015), sharing economy applications must also be regulated, as they have the potential to cause shocks to economic systems. Only through regulation it is possible to manage the positive and negative externalities of sharing economy exchanges by pushing forms of network, platform or device neutrality (Cohen & Sundararajan, 2015). The ride-sharing company Uber is exemplative of this dilemma because, while it is in direct competition with a public transportation service (i.e. taxies), it is nothing like a transportation company (Posen, 2015).

When acting as a regulatory body, the public sector affects public value perspectives less directly, since most sharing economy applications concerned by public sector regulation are run by private sector organisations and, thus, do not necessarily provide public services. At the same time, by becoming the regulatory body of the sharing economy, the public sector puts itself in a position to defend public values in private initiatives, avoiding existing tensions related to workers' rights or existing public service delivery and ensuring accessibility and universality as needed.

There is also a negative implication for the public sector *not* acting as a regulatory body for the sharing economy, as some sharing economy applications have potentially destabilising characteristics for existing institutions and may produce significant shocks for economic and societal systems. For instance, some sharing economy applications operate under the concept of individuals sharing free time in return for resources—link credits—that can be used to buy further services over a digital platform (Stokes et al., 2014). Since sharing economy applications are subject to the mass size effect and usually produce tippy markets (Piccoli & Pigni, 2016), the unregulated growth of such applications may create a separate digital economy run by a dedicated digital currency, which may produce tensions or enter into competition with the real economy and the official currency or create shocks in the real economy if currency assets can be moved from the digital to the real.

Unregulated sharing economy applications that deal with areas which are commonly the exclusive domain of the public sector (e.g. defence, security, currency and law enforcement) pose a significant challenge for the *professionalism ideal* (Lulin, 2017), as such applications could destabilise existing democratic institutions. Sharing economy applications that collide with public services exploit windows of opportunity created by the failure of the public sector to address citizens' needs (Posen, 2015). If, as a matter of instance, citizens' trust in services delivered by private organisations increases in a context of declining trust in services provided by the public sector, it could contribute to a potential long-term substitution of the legitimated subjects in charge of public service provision from the public sector to a private organisation. Similar mechanisms were used even before the birth of the sharing economy to turn democratic institutions into autocratic ones by first flanking and eventually replacing them with private organisations, thus affecting the *engagement ideal*. In a globalised context like that faced today, with several sharing economy platforms provided by several different countries, this risk is global and, if not regulated, could be inherited from outside national borders.

Another negative implication of the regulatory role of the public sector for the professionalism ideal relates to the hitherto relative novelty of the sharing economy. There is little precedent in terms of knowledge or examples concerning how to design rules to avoid shocks or negative externalities from the sharing economy. So far, the sharing economy has been a hotbed of experimentation from both existing applications and regulation. This leaves public sectors attempting to engage with the sharing economy in undefined legal terrain, which profoundly impacts claims to the professionalism ideal. Based on the different paces of changing rules in digital ecosystems (usually fast) and changing laws in institutional environments (usually slow) (Almirall et al., 2016), there is a need to investigate how the provision of services governed by rules in the digital platform aligns with the regulatory framework of public administration.

Table 4
Summary of positive and negative implications for public values of the public sector as the regulatory body in a sharing economy.

Ideal type	Positive aspects	Negative aspects
Professionalism	Mitigation of challenges related to the public sector playing other roles (customer, peer service provider or platform provider) in the sharing economy	Little previous experience in regulating sharing economy applications Risk of fundamental public service privatisation (e.g. defence or security) in unregulated sharing economy applications Risk of a separate and independent digital economy in unregulated sharing economy applications
Efficiency	Management of interactions and boundaries across the different roles	Changes in digital ecosystem rules and regulating laws could be not synchronised
Service Engagement		New public services delivery strategies not based on public monopolies In an unregulated sharing economy: risk of overturning democratic institutions into autocratic ones

Regulating the sharing economy could give the public sector opportunities to exploit different strategies for service delivery. A common mechanism used by the public sector to engage private actors in public service delivery is the creation of legal public monopolies through long-term contracts negotiated through open and public tenders. This design ensures stability in service provision but could reduce incentives for the service provider to innovate. Further, it permits competition among service providers only during public tenders, which normally take place at distant points in time. By imposing coherent regulations on the different roles of sharing economy applications, the public sector can exploit the possibility of delivering public services, thereby forcing different providers to compete not only when a public tender is opened, but continuously. In this way, by pushing private service providers to increase quality and value for the citizens of the services being offered, the public sector can promote the *efficiency ideal* and the *service ideal*. Table 4 summarises implications concerning public sector as a regulatory body.

5.5. Implications for research and practice

By discussing the different roles the public sector may play in the sharing economy and the implications these roles may have for public values, our paper contributes to both research and practice in public sector organisations, which we summarise in this section. Furthermore, we show the need for future research by highlighting open issues that warrant attention.

From a *research perspective*, our paper provides a starting point for a conceptualisation of the sharing economy in the public sector by offering a deeper understanding of the four different roles the public sector can play in a sharing economy environment. Furthermore, our analysis of the resulting implications for public values offers an approach for understanding the consequences of digitalisation-induced changes that go beyond the technical and social aspects. As our discussion has shown, there is a need for future research to investigate implications for public values in greater depth. An immediate implication is the need to address empirical settings. The limited availability of real-life examples of public sector engagement in the sharing economy is a significant barrier to future investigations. We encourage researchers to discuss empirical evidence in the light of the public values and invite the use of evidences from studies of existing applications to perform exploratory studies or simulations to shed light on the implications of broader engagement of the public sector in the sharing economy. The transformation of the nature of the public sector also requires more attention. The impacts of a public sector that takes active part in the sharing economy might exceed the public value perspective and influence overall society. Therefore, there is a need for further critical research in this area to discuss the positive and negative consequences of the sharing economy within the public sector and beyond from both technical and societal points of view.

When the public sector takes on the role of the *customer* in a sharing economy, it is vital to understand the mechanisms of co-producing public services through the public sector and external stakeholders. Related to this is the need to understand the consequences of the public sector leaving the platform and service provider roles to third parties, which may impact the political validity and viability of the allocation process of sharing economy-based public goods. Furthermore, the shift in roles when the public sector is a customer in a sharing economy exchange could produce a changed understanding of the public sector itself among both citizens and other stakeholders, which could raise questions regarding why the public sector is needed if the private sector is providing most of the services. We argue that the potential change in the perception and legitimacy of the public sector as a customer in the sharing economy deserves further investigation.

Regarding the role of the *service provider*, we call for more research to study the consequences of offering public services through a platform controlled by a third-party provider. Since such forms of private–public partnership based on sharing economy applications are unprecedented, we must understand how these constellations influence both public values and their actions. Furthermore, we find the need for more research to understand how taking on the role of the service provider in the sharing economy could be an innovative strategy for increasing citizens' participation and engagement in service delivery.

When the public sector acts as a *platform provider*, we need to understand the viability and validity of such a form of organizing the public sector for service delivery. When the public sector is the provider of platforms that go beyond public service delivery (i.e. that support the exchange of non-public goods and services), it is important to explore the legal boundaries of this novel business model and understand citizens' acceptance of such a new service.

With respect to the public sector's current role as the *regulatory body*, the challenge for future research is to better understand what the target of the regulation should be: the service, the platform or the cooperative model through which customers, service providers, and platform providers engage. In addition, future research is needed to investigate how the public sector can regulate the boundaries of and interactions among the roles of sharing economy in a coherent way while upholding actors' independencies and accountabilities.

Moving beyond specific roles, the literature discusses the idea that the sharing economy requires a cultural shift in the public sector and could challenge public perceptions (Almirall et al., 2016; Chasin & Scholta, 2015). More research is needed to understand the implications sharing economy initiatives may have on consistency and trust in public services when such services are provided by several actors. Finally, coming back to the public value perspective, we argue for the need to further analyse and understand the risks and opportunities for each of the public values when the public sector is more actively engaged in the sharing economy, as well as the tensions and trade-offs that will arise among the different public values.

From a more *practical perspective*, we have highlighted both opportunities and challenges for the public sector in the sharing economy. Furthermore, we have provided several examples of how the public sector can more actively participate in the sharing economy by taking on the roles of customer, service provider, platform provider and the regulatory body. These examples may motivate future initiatives within this context and serve as references for public administrators who would like to engage with the sharing economy. We encourage the public sector to explore the opportunities the sharing economy offers, and we have raised and discussed questions that are important for the public sector to consider as a starting point to plan its sharing economy activities. However,

the public sector faces various challenges when engaging in the sharing economy. Governments must adjust their legal frameworks, remove potential obstacles to sharing economy activities (Chasin & Scholta, 2015; Moon, 2017) and cooperate with external stakeholders, including private companies, non-governmental organisations, citizens and other public sector organisations (Li et al., 2018; Lulin, 2017; Moon, 2017). Relying on third parties requires governments to relinquish their monopoly on the provision of services and increase their dependency on the behaviours of actors beyond their control. Thus, adopting sharing economy applications in the public sector may require a cultural shift as governments learn to accept the idea of decreased ownership (Almirall et al., 2016), which might challenge perceptions of the public sector in the eyes of the public (Chasin & Scholta, 2015). Furthermore, governments need to access raw data from various citizen platforms (e.g. the Internet of things, sensors and open city-level data), which they are currently lacking (Almirall et al., 2016), and provide initial funding to promote sharing projects (Moon, 2017).

6. Concluding remarks

Our aim in this paper was to explore the potential roles of the public sector in the sharing economy from the perspective of public values and to provide a platform for discussing the various roles the public sector may take and the implications of so doing. To achieve this objective, we reflected on the implications of the roles of public values in the sharing economy for the motivations for the existence of the public sector, here represented by the four ideal value types: professionalism, efficiency, service and engagement (Rose et al., 2015). Consequently, we address the call to use the public values perspective "to generate multifaceted accounts of purpose that go beyond simple efficiency and transformation rhetoric" (Rose et al., 2015, p. 555).

Limitations of our work include the fact that our work reflects the current research discourse on the sharing economy within the public sector, which represents a somewhat limited literature base. Given the scarcity of relevant research, we built our work on a hermeneutic literature review, which runs the risk of being insufficiently structured and overly influenced by researcher biases. We aim to counterbalance these limitations, as the hermeneutic approach is coherent with the investigation of minimally explored fields (Boell et al., 2014) and helped us gain a deeper understanding of the foundational concepts of the public values and roles in a sharing economy. Further, we are fully aware that we describe the impacts of the sharing economy on public values in an archetypal and exemplary way and acknowledge that further research is needed to identify how other factors may also play a role. Finally, our work is conceptual, and more empirical work is clearly needed to elaborate the ideas suggested here.

Our work engages in the emerging academic debate about the sharing economy, and we contribute by expanding the discussion on which roles the public sector may have in the context of the concept of public values. As a continuation of this emerging discourse (Ganapati & Reddick, 2018), our work offers a more systematic conceptualisation of the concepts of the public sector's potential roles within the sharing economy landscape from the public values perspective.

Appendix A

A.1. Literature searches

This appendix provides details on the two literature search processes performed during the three hermeneutic cycles of our review. The literature searches were performed sequentially in 2018, and all three searches were finalised between August and September 2018.

A.2. Sharing economy in the public sector

We searched for relevant literature on the sharing economy in the public sector by running the following query on Scopus:

- (TITLE-ABS-KEY ("sharing econom*") AND TITLE-ABS-KEY (e-gov* OR egov* OR "public sector*" OR "public service*" OR "digital gov*"))

The query returned only 15 contributions, 10 of which were published in the last two years.

A.3. Sharing economy

The hermeneutic literature review cycle on the sharing economy helped us understand that the literature had different conceptualisations of the phenomenon. We searched the literature on Scopus for the concept "Sharing Economy" in articles' titles, abstracts and keywords for the time period up to September 2018. We found 998 papers distributed over the years as shown in Table 5.

Table 5
SCOPUS query results looking for papers on Sharing Economy.

YEAR	PAPERS
[a]2018	302
2017	376
2016	192
2015	73
2014	24
2013	10
2012	1
2011	2
2010	
1978	

[a] The data for 2018 are not complete, as we performed the query in September 2018.

In this step, we began analysing the dataset resulting from the query. We looked for the most-cited papers (those receiving more than 70

citations) to identify the relevant literature sources debating the "sharing economy" (we excluded one paper with a high citation number that was unrelated to the topic under investigation: number 4 in Table 6). The most cited papers, on which we performed a full-text analysis, are listed in the table below. Moreover, due to the number of relevant papers, we decided to perform a bibliometric analysis to analyse the topics discussed in the entire dataset. We considered the author keywords and their relations based on co-occurrences in the same paper and built the graph shown in the Fig. 2 below. We then calculated the "closeness centrality" for each keyword (node) in the resulting graph. "Closeness centrality" (a value between 0 and 1) defines how close a node is to all other nodes (in this case, how much a specific topic was connected to the others and relevant in the dataset).

Table 6
Most-cited papers returned by the query on sharing economy.

Nr.	Paper	Cited by
1	Belk (2014). You are what you can access: Sharing and collaborative consumption online. Journal of business research, 67(8), 1595–1600.	359
2	Hamari et al. (2016). The sharing economy: Why people participate in collaborative consumption. Journal of the association for information science and technology, 67(9), 2047–2059.	227
3	Möhlmann (2015). Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again. Journal of Consumer Behaviour, 14(3), 193–207.	133
4	Jensen, K. F., & Pedersen, S. (1990). Metabolic growth rate control in Escherichia coli may be a consequence of subsaturation of the macromolecular biosynthetic apparatus with substrates and catalytic components. Microbiology and Molecular Biology Reviews, 54(2), 89–100.	116 [Excluded]
5	Ert et al. (2016). Trust and reputation in the sharing economy: The role of personal photos in Airbnb. Tourism Management, 55, 62–73.	110
6	Cohen and Kietzmann (2014). Ride on! Mobility business models for the sharing economy. Organisation & Environment, 27(3), 279–296.	106
7	Martin (2016). The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism? Ecological Economics, 121, 149–159.	96
8	Heinrichs (2013). Sharing economy: A potential new pathway to sustainability. GAIA-Ecological Perspectives for Science and Society, 22(4), 228–232.	74

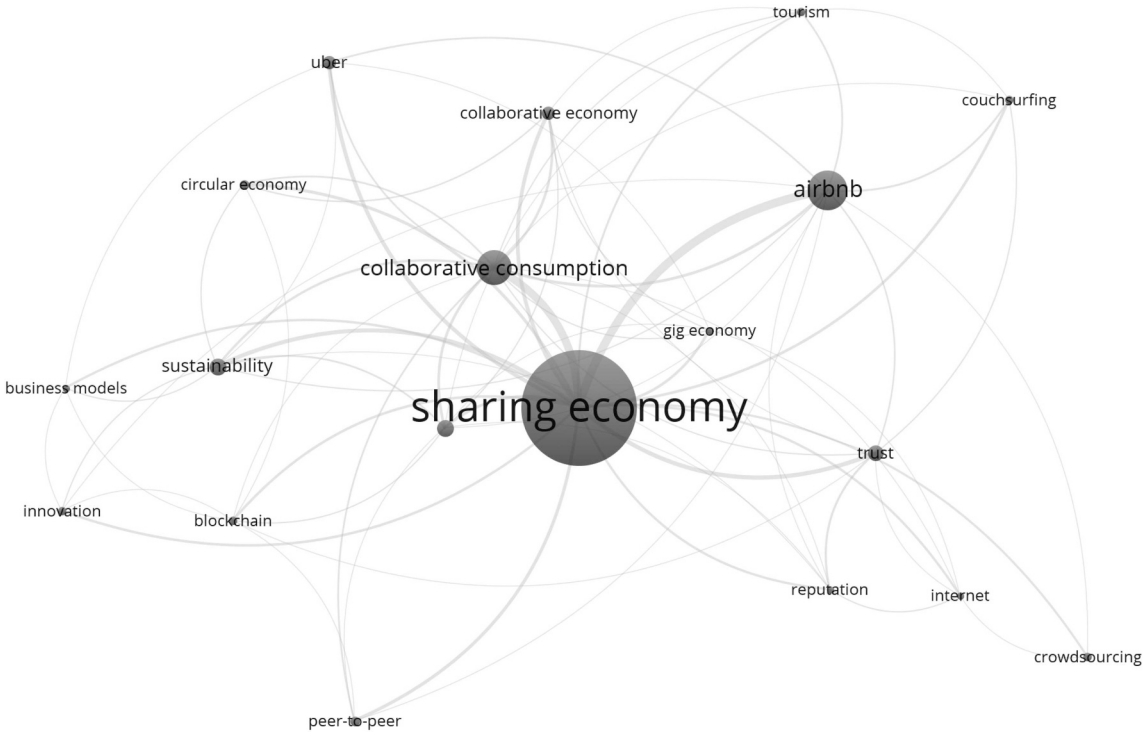

Fig. 2. Keyword co-occurrence graph.

Appendix B

B.1. Definitions of the sharing economy concept in the literature

Table 7 lists definitions of the sharing economy and related concepts that we identified in our literature sources.

Table 7
Collaborative consumption and related concepts.

Term	Definition
Collaborative consumption	"people coordinating the acquisition and distribution of a resource for a fee or other compensation" (Belk, 2014, p. 1597) "peer-to-peer-based activities of obtaining, giving, or sharing access to goods and services, coordinated through community-based online services" (Hamari et al., 2016, p. 2417)
Collaborative economy	"an economic model where ownership and access are shared between corporations, startups, and people. This results in market efficiencies that bear new products, services, and business growth" (Owyang et al., 2013, p. 4)

(*continued on next page*)

Table 7 (*continued*)

Term	Definition
Crowd-based capitalism	"an economic system with the following five characteristics: Largely market-based; […] High-impact capital; […] Crowd-based 'networks' rather than centralized institutions or 'hierarchies'; […] blurring lines between the personal and the professional: the supply of labor and services often commercializes and scales peer-to-peer activities like giving someone a ride or lending someone money, activities which used to be considered 'personal'; blurring lines between fully employed and casual labor, between independent and dependent employment, between work and leisure" (Sundararajan, 2016, p. 26–27)
Elancing	"a 'marketplace,' which is a website where individuals interested in being hired and employers looking for individuals to perform some type of work meet" (Aguinis & Lawal, 2013, p. 6)
Gig economy	"an economic development strategy to bring jobs to places that need them, it becomes important to understand better how this might influence the livelihoods of workers" (Graham et al., 2017, p. 135)
Mesh economy	"a system for the efficient utilization of the scarce human and physical resources through collaborative actions. […] [It] takes a more structured form of giving and take strategy or simply philanthropy" (Turi et al., 2017, p. 413)
On-demand economy	"digital platforms that connect consumers to a service or commodity through the use of a mobile application or website […] usually refers to digital media firms that connect users through two-sided platform-based marketplaces" (Cockayne, 2016, p. 73)
Platform economy	"a growing number of digitally enabled activities in business, politics, and social interaction" (Kenney & Zysman, 2016, p. 62)

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