

Contextualizing the Sharing Economy

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ABSTRACT The Sharing Economy (SE) has demonstrated unprecedented capability in large-scale mobilization of dispersed and underutilized private assets for collective usage. We argue that the SE represents a unique governance structure with dual nature of two-sided market platform and modular architecture. Although the emergence of the SE is enabled by the rise of digital applications and changes in consumption attitudes, the effectiveness of this governance structure is not uniform across contexts. We analyse the roles of disparate actors in the SE and the relationships among them, in order to identify the contexts under which the SE is most likely to be the effective governance structure compared with traditional governance structures such as markets and firms, and new governance structures such as other platform economies and collaborative ecosystems. Two comparison frameworks are developed to illustrate the contextual factors that determine the effectiveness of the SE vis-à-vis other governance structures.

Keywords: matching efficiency, modular architecture, resource complementarity, sharing economy, two-sided platform

INTRODUCTION

When Garrett Camp and Travis Kalanick launched their black car sharing business in 2011, neither of them could have imagined seeing their service covering 785 cities around the globe in 2019. This new peer-to-peer ridesharing business, together with the rise of other similar businesses in the sharing of apartment rooms (e.g., Airbnb), expertise (e.g., Upwork) and many other categories, is now commonly referred to as the Sharing Economy (SE).

The emergence of the SE is often associated with two general trends. First, it is widely acknowledged that the SE has been enabled by the rising application of digital

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technologies, especially those that enhance connectivity between people. Second, there has been a dramatic shift, in recent years, in consumers' consumption attitude from 'owning' to 'accessing' (Hamari et al., 2016). This change is motivated by both monetary and non-monetary drivers, including consumers' need for social bonding (Hawlitschek et al., 2016), enhanced ecological and environmental awareness (Demailly and Novel, 2014), and reputational gains (Yang and Ahn, 2016).

Although 'sharing' is a key component in the term 'sharing economy', it is important not to confuse all activities involving 'consumers granting each other temporary access to underutilized physical assets' (Frenken and Schor, 2017) as being part of the SE. Unlike 'sharing' as a social practice, in which the sharing activities normally take place between people who are embedded in a close community, i.e., family members, neighbours, friends and acquaintances, the SE is characterized by large-scale sharing among strangers. And unlike traditional rental businesses, which rent out the assets they own, the sharing economy platforms (SEPs) succeed in mobilizing decentralized private assets for collective purposes (Weber, 2014).

Some of the previous research on the SE conceptualized it as a form of 'collaborative consumption' and emphasized the changes in consumption modes and the potential social benefits of the SE (Botsman and Rogers, 2010; Hamari et al., 2016; Heinrichs, 2013). Some other researchers conceptualized the SE as a new business model enabled by the development in digital technologies and investigated the challenge it might pose to traditional businesses (Belk, 2014; Kathan et al., 2016). Yet others examined the design of the SE, especially the SEPs, in order to advance our understanding on how different platform designs enhance or impede social sharing (Ert et al., 2016; Weber, 2014).

In contrast to the literature to date on the SE, in this paper, we propose that the SE represents a unique governance structure, i.e., a set of coordinative mechanisms that engage participants in a collaborative process, resolve conflicts, and yield certain collective performance (Provan and Kenis, 2007). What the SE exhibits is an unprecedented capability in enhancing the efficiency of utilizing dispersed private assets by facilitating large-scale collaborative activities among individuals. This capability is associated with new ways of mobilizing resources and aligning relationships among economic actors. Thus far, little is known about (1) the specifics of the SE as a governance structure, and (2) the contexts under which it would be the most effective, compared with traditional governance structures, such as markets and firms, and modern ones, such as other types of platform economies and collaborative ecosystems. Our theoretical contribution consists of providing insights into these two aspects of the SE.

The paper is organized in three parts. The first part explicates the organizational aspects of the SE. We argue that the SE demonstrates the dual nature of a transactional platform and a modular architecture of value co-creation, depending on how we delineate the relationships among the three key types of actors in the SE, i.e., the asset owners, the asset users and the SEP. We then juxtapose these specific organizational characteristics of the SE with other organizational forms from the perspective of information communication and processing.

The second part contextualizes the effectiveness of the SE in comparison with other governance forms. As we conceptualize the SE as having the dual nature of a two-sided market platform and a modular architecture of value co-creation, our analyses

are anchored in two theoretical streams, i.e., transaction cost economics (TCE) and the resource-based view of the firm (RBV), with an emphasis on the characteristics of transactions and characteristics of tasks respectively. The aim of this part is to develop comparison frameworks that illustrate the contextual attributes that allow the SE to be more effective vis-à-vis other forms of governance, leading to (1) the SE yielding higher economic performance, compared with other governance structures; (2) the SEP being able to appropriate value without owning the shared assets; and (3) the asset owners having enough incentives to participate in the system.

The final part then synthesizes the above analyses and points out the managerial implications and the possible directions for future research.

THE DUAL NATURES OF THE SHARING ECONOMY

In this paper, we define the SE as a digital platform-enabled governance structure that aligns large-scale peer-to-peer transactions among economic actors for the episodic usage rights of decentralized private assets, which serve both private consumption and collective productive purposes. As we regard the efficient utilization of privately owned, decentralized assets as a core characteristic of the SE, in this paper we exclude from our discussion those platforms that provide the sharing of assets owned by the platform providers themselves (such as the bike sharing platform Mobike in China, and the scooter sharing business Lime), as we believe there is not enough differentiation between this type of business activities from traditional rental services except for the use of digital technologies.

Although home sharing (Airbnb, Couchsurfing) and car sharing (Uber, Didi, Turo) platforms are very popular and are most frequently associated with the sharing economy, there are other categories too in which sharing takes place. Examples include Upwork and Taskrabbit (sharing of white collar and blue collar expertise in programming, editing, copywriting, design, plumbing, carpentry, etc.), Justpark and Neighbor (sharing of unutilized private parking and storage spaces respectively), Rover (pet care sharing), and SitterCity (child care sharing). There is variation between the different sharing economy categories in terms of the network structure and scalability, which are functions of the characteristics of the asset or service being shared.

One of the difficulties in understanding the SE as a governance structure is that there are at least three distinct types of legally independent participants in the system: the asset owners, the asset users, and the sharing economy platform providers (SEPs). This multiplicity of actors leads to multiplicity of relationships among these actors, and the corresponding conceptual complexity. As a result, depending on the perspectives one applies, the phenomenon can be understood in different ways, leading to conceptual confusion, or to making arguments that are too broad and ambiguous (Belk, 2014).

The Sharing Economy as a Transactional Platform for Episodic Usage Rights

Most of the current literature on the SE examines the phenomenon from a transactional point of view (Hamari et al., 2016; Puschmann and Alt, 2016; Scaraboto, 2015). As the

SE connects individuals who have underutilized assets with people who intend to use/rent these assets on a short-term basis (Cusumano, 2015), it assumes a typical structure of what industrial economists call a ‘two-sided market platform’ (Gawer, 2014) (see Figure 1). The SE is characterized by peer-to-peer sharing/rental relationships. These are bilateral relationships, much like the exchange relationships in a market (Martin, 2016). Looking at the SE from this perspective, we perceive an SEP as ‘merely an intermediary to orchestrate and facilitate the exchange of resources amongst other actors’ (Breidbach and Brodie, 2017, p. 764).

A major limitation of this perspective in explaining the governance structure of the SE is that it assumes the inclination to exchange episodic usage rights between the two sides of the market, i.e., asset owners and asset users, is exogenous to the design of the platform. Such exogeneity might be true for a payment platform, such as Visa or MasterCard, where both sides (the customers that need to pay and the shops that need to receive the payment) have an intrinsic need to transact. Yet, in the case of the SE, the shared assets serve primarily the purpose of private consumption. Thus, there is no compulsory reason for the asset owners to engage in a sharing activity, nor for the users to necessarily opt for sharing rather than owning. In fact, under normal circumstances, it would be infeasible to have peer-to-peer sharing among strangers on such a large scale. First, there is the ‘trust problem’. During temporary usage of the shared assets, asset owners might have concerns about the potential damage caused by the unobservable actions of users (Weber, 2014). In social sharing, the dense social relationships among sharers and users provide the basis for trust. In sharing between strangers, however, such social capital is lacking. Consequently, for sharing between strangers to occur, alternative mechanisms are needed to compensate for this lack of social capital and to diminish the risk of moral hazard, which could occur in sharing activities.

Another problem that is associated with sharing between strangers is the ‘information problem’. As the asset owners and users are not acquainted with each other, they do not have everyday channels to exchange information about the possession and potential usage of private belongings. Let us take the simple example of a car owner who is looking for a user. There could be a potential user waiting on a nearby street, and yet it is very likely that neither the driver nor the potential customer realize that they are very close to each other, resulting in either considerable delay in the transaction taking place, or not taking place at all. This type of demand and supply occur at a particular location at

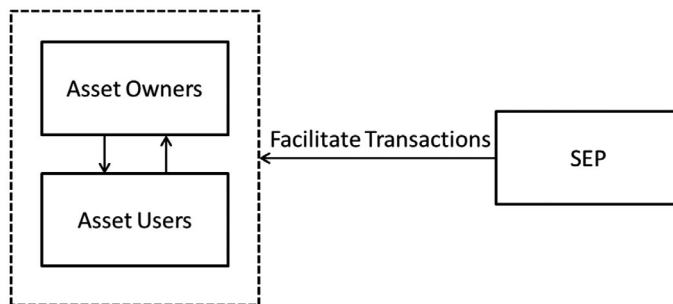


Figure 1. The SE as a two-sided market platform

a particular time and are ephemeral. If matching cannot be achieved in a time efficient manner, the value-in-use of assets will lapse. Although the price mechanism is strong in coordinating transactions, it is arguable how strong a role it can play in facilitating the time efficiency of such a searching and matching process, let alone orchestrating large-scale sharing among peers as is done by the SE.

Clearly, the design of the SEP has significant impact on asset owners' willingness and capability to share and on asset users' preference for temporary usage rights over ownership of the asset. A deeper examination of the role of the SEP is needed for us to further understand how the SE could have such an unprecedented capability of mobilizing underutilized dispersed private assets on such a large scale.

The SE as a Modular Architecture for Value Co-creation

When viewed as a transactional platform for episodic usage rights, the digital platform does not represent a distinct service in and of itself (Breidbach and Brodie, 2017). Rather, it facilitates peer-to-peer transactions between asset owners and asset users. However, while we often refer to e-commerce platforms as virtual markets, an important reason we find the SE striking is that it performs tasks often carried out by firms. From this perspective, an SEP such as Uber is not merely providing intermediation for the exchange of resources. Rather, it is providing key resources (e.g., algorithms, marketing capabilities, coordinative capabilities), which are then integrated with productive resources (e.g., cars and services provided by owners) to engage in a collective endeavour of co-creating value-in-use (e.g., transportation, accommodation and a host of other services). Even if we only examine the individual services provided, such as one Uber ride, or one night of Airbnb stay, it is clear that such services are the results of joint efforts of both the platform providers and asset owners. For instance, an Uber ride can hardly be realized without the location services provided through the global positioning system technology (GPS) by the platform to locate the riders and guide the itinerary. An Airbnb landlord will also find it difficult to rent out a spare bedroom without the marketing activities carried out by the SEP. This perspective emphasizes the collaborative relationship between the SEP and the asset owners, and shows us a picture of the SE through a more organizational lens (see Figure 2).

Such a view of the SE can be compared with arguments that treat the platform economy as a 'modular technological architecture' (Gawer, 2014, p. 1239; McIntyre and

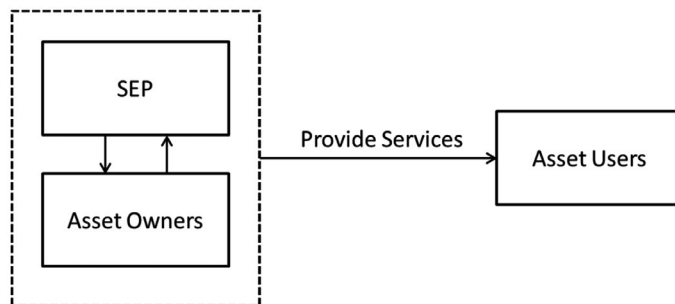


Figure 2. The SE as a modular architecture of value co-creation

Srinivasan, 2017; Reuver et al., 2018). From this perspective, the SEP provides a stable shared set of core structures (e.g., the normative, algorithmic, and institutional arrangements) and standard interfaces for individual asset owners to plug into the system. The asset owners who participate in the SE can be viewed as a variable set of components. As the stable components (provided by the SEP) and the variable set of components (provided by the asset owners) complement each other in a collective productive process, and the variable components enjoy flexibility in terms of their participation in the system, the modular architecture, as an organizational design, enables the SE to widely mobilize dispersed and privately owned assets in a joint production of value-in-use.

However, the governance mode of the SE still demonstrates its own peculiarities. A main rationale for applying the modular architecture in the past was for the reduction of complexity at both system and subsystem levels. At the system level, a modular architecture breaks a complex task into discrete components with standardized interfaces; at the subsystem level, peripheral participants (individuals or teams) can enjoy a more autonomous sphere of action with further specialized focus and reduced scope of information (Felin and Zenger, 2014; Garud and Kumaraswamy, 1995; Gawer, 2014). Thus, the modular architecture perspective is especially powerful in explaining innovation platforms (Gawer, 2014). However, it is unclear how much the SE as a governance structure has decreased task complexity at the system level, since the interdependencies among participants/subsystems (e.g., Uber drivers) are relatively low to begin with for most SEs. In fact, as the SEP assumes a central role of coordinating activities in the SE, the complexity of its tasks, especially in information processing, is greater with the increase in the number of SE participants.

What is more, modular architectures have traditionally been adopted when the diversity provided by the peripheral participants benefits the whole system with ‘economies of scope’, which refer to the efficiencies gained from variety, rather than from volume (Goldhar and Jelinek, 1983; Panzar and Willig, 1977, 1981; Teece, 1980). However, in the case of the SE, the services provided are often fairly homogeneous (e.g., car driving or room renting). As a result, the ability of the SE to benefit from economies of scope is relatively limited. Indeed, too much diversity in the peripheral components might affect the scalability of the SE. For example, Upwork, which is a platform offering professional expertise (which is highly diverse) has not scaled as much as Uber or Didi. This is in sharp contrast to innovation platforms where the peripheral subsystems are considered to be the engines of innovation.

The above analyses thus beg the question: what are the value co-creation mechanisms for the SE, in adopting a modular architecture? We address this question in the next section.

The SE as a Unique Governance Form

The duality in the nature of the SE makes it difficult to fit cleanly into the traditional categories of governance structures. When viewed from the two-sided market perspective, with peer-to-peer sharing/rental transactions between asset owners and asset users in the spotlight (Martin, 2016), the SE has some similarities to a market (Hamari et al., 2016; Puschmann and Alt, 2016; Scaraboto, 2015). However, unlike a market that emerges

more or less spontaneously, the SE would not be able to emerge without the construction of a digital platform and other coordination mechanisms provided by the SEP.

When the emphasis is placed on the collaborative relationship between the asset owners and the SEP, the SE exhibits similarities to a firm. Indeed, as our analysis has showed, the SE cannot come into existence without certain firm-like structures provided by the SEP (Horton and Zeckhauser, 2016). However, in the SE, the SEP and the asset owners neither have a typical employment relationship, nor would the peer-to-peer transactions be possible without the asset owners being highly integrated into the SEP from a technological perspective.

A full comprehension of the SE requires us to jump out of the dichotomy of market and firm, by acknowledging the enrichment of organizational forms that were not possible earlier because of technological constraints, especially information technologies. A perspective from information communication and processing might help us better juxtapose the differences between the SE and other organizational forms. Organizational theorists have long underscored the impact of information processing needs and capabilities on organizational design (Baum and Haveman, 2020; Galbraith, 1973; March and Simon, 1958; Puranam et al., 2012; Thompson, 1967; Van de Ven et al., 1976; etc.). Organizations, from this perspective, can be viewed as systems of coordinated activities under uncertainty (Galbraith, 1973), relying on communication and decision making (Hubert, 1990; Thompson, 1967) to yield certain collective performance (Provan and Kenis, 2007). The development of ICTs has strong implications on both information communication and decision making, and opens up new possibilities in organizational forms. As Huber (1990) rightly pointed out: 'although power and politics influence organizational design, intelligence, and decision making, so too do information technologies. For advancement of their own interests, organizational participants will use advanced information technologies in ways that increase their effectiveness in fulfilling organizational goals'. With the wide application of ICT, the SE, together with other new organizational forms, such as various other platform economies and ecosystems, represents new possibilities in aligning collaborative activities.

From the perspective of information communication, easy and inexpensive information transmission has the potential to enable several organizational changes. First, the decrease in time and effort involved in communicating can potentially allow more information nodes (individuals or organizations) to be involved in a collective effort. In other words, the realm of effective communication and coordination can be enlarged. Second, easy and inexpensive communication facilitates more direct (or peer-to-peer) communication with less intermediation, which can lead to the emergence of less hierarchical, and less formal forms of coordination. Summing up, on one hand, coordination can be achieved on a larger scale; on the other hand, the form and participation in a collective effort can be more spontaneous and flexible. Such changes in communication thus strongly contribute to the emergence of new forms of organizing, such as platform economies and ecosystems, with large numbers of participants (individuals or organizations), who are loosely coupled together with relatively open organizational boundaries.

From the perspective of decision making, the effect of ICT on organizational design can be complicated. On one hand, as information is more easily available, traditionally peripheral members of organizations can now potentially carry out tasks that require

higher decision making responsibilities. On the other hand, as ICTs enable data to be stored, accessed and processed more efficiently, it is also more feasible to have information processed in a more centralized manner, especially when the information involved is factual, such as information about availability, time, geographical location, quantity, etc. Furthermore, with the aid of advanced data-driven analytics and prediction models, organizational knowledge can be accumulated in the form of digital databases and algorithms, to further enhance the reliability and decrease the cost of information processing at the system level (Felin and Zenger, 2011). Consequently, the efficient and effective realization of organizational goals might be more reliant on such central components.

When we put the *boundary of information exchange* and the *reliance on centralized information processing* on two axes, we can see how different organizational forms differ in these two aspects. Figure 3 provides a visual illustration.

What is quite peculiar about the SE is that it is a fairly open system with wide information exchange among its participants, and at the same time possesses strong centralized coordinative mechanisms, especially for information dissemination and processing. Such a peculiar structure allows the SE to have two salient features. The open and flexible boundary allows wide participation of private asset owners into the SE and enables market-like peer-to-peer transactions; at the same time, centralized information processing plays a key role in solving the aforementioned ‘information problem’ and to a large extent the ‘trust problem’, which makes the SE a collective body of production with centralized organizational components.

Apparently, not all organizational goals require such a structure. In other words, there are certain types of transactions and tasks, which would be more efficiently and effectively carried out in the SE. In the rest of the paper, by distinguishing the characteristics of transactions and tasks involved, we identify the contexts under which the SE is most likely to be the effective governance structure compared with traditional ones such as markets and firms, and new ones such as other platform economies and collaborative ecosystems.

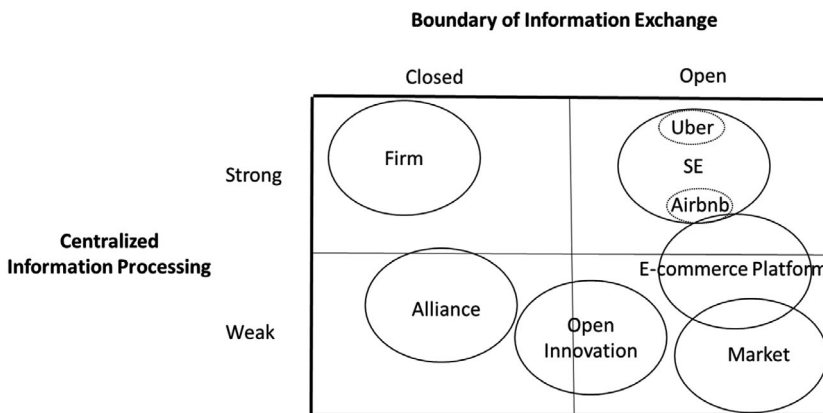


Figure 3. A comparative framework of organizational forms from the perspective of information communication and processing

Moreover, we argue that contextualization of the effectiveness of the SE in comparison with other governance forms requires us to dig deeper into the specific roles of new types of economic actors, such as platform providers. Our theoretical understanding of such new economic actors is still rather limited, yet they play increasingly important roles in the organization of economic activities and are creating innovative ways of collaboration. The emergence of these new actors leads to new relationships. Take the SE for example. The relationships between the asset owners and asset users and those between the SEP and asset owners have demonstrated specific characteristics distinct from those in traditional governance structures. In fact, as the participants of many new governance structures are legally independent individuals, such as the asset owners in the SE, even the level of analysis has become difficult to define. This might be one of the reasons why few scholars have examined the SE as a governance structure before. Nevertheless, we believe that these are increasingly prevalent phenomena that organizational researchers should tackle.

An Integrative Approach to the Contextualization of the Sharing Economy

As the SE has the dual nature of a two-sided market platform and a modular architecture of value co-creation, we believe two streams of literature, transaction cost economics (TCE) and the resource-based view (RBV), are applicable for further analysis of the contexts for the effectiveness of the SE as a governance structure.

TCE is the most widely applied theory in the existing literature to explain choices in governance structure (Henten and Windekilde, 2016). According to Williamson (1985), TCE as the ‘science of contract’ is an alternative lens to the ‘science of choice’ of neo-classical economic theory through which to look at economic phenomena. The basic unit of its analysis is the transaction and the basic question it seeks to answer is: why are some transactions organized in markets (using the price mechanism) and others in firms (using hierarchy)? Coase (1937) theorized that a particular transaction will be organized within a firm if the costs of organizing it in the market are higher than those of organizing it in a firm. Transaction costs are those that economic agents incur in searching (for buyers or suppliers), bargaining, and enforcing market transactions. Costs for managing transactions within firms are those related to supervision, monitoring and metering of performance in team based production (Alchian and Demsetz, 1972). Governance choice, from this theoretical perspective, is related to the characteristics of the transactions conducted.

Another stream of literature represents the resource- and capability-based views of the firm (Barney, 1986, 1991; Penrose, 1959; Rumelt, 1984, 1987; Wernerfelt, 1984), broadly referred to as the resource-based view (RBV). This stream of literature emphasizes how considerations about the capabilities of the firm affect firm actions and performance, including choices of organizational forms. As Jacobides and Winter (2005) note:

‘This approach, which has its roots in Penrose (1959), and more recently Wernerfelt (1984) and Barney (1991), emphasizes the importance of resources in guiding firm action, and the management of a firm’s resource and capability portfolio as the central concern of strategy. Of late, this research has used principles suggested by evolutionary

economists (Nelson and Winter, 1982) and the focus has shifted to dynamic capabilities (Teece et al., 1997). That line of thinking would suggest that vertical scope is affected by the dynamics of resource management and the selection environment (Teece et al., 1994). (Jacobides and Winter, 2005, pp. 395–6)

In recent years, a synthesis between these two theories has been called for (Foss et al., 2000; Jacobides and Winter, 2005; Leiblein, 2003). Indeed, if we recognize that organizations are not only efficiency-seeking entities but also powerful levers of value creation (Moran and Ghoshal, 1999; North, 1990), it would be unfortunate to separate efficiency-oriented theories from performance-oriented theories (Leiblein, 2003; Leiblein et al., 2002; Zenger et al., 2011). Transaction costs and capabilities for value creation and capture are fundamentally intertwined in the determination of organizational forms (Jacobides and Winter, 2005).

Digitization decreases the cost of information transmission and enhances information processing capabilities. How do such changes affect the cost calculations of various transactions, and the relative values of different resources and capabilities for firms' competitive positions? The answer depends on the characteristics of the transactions conducted and the tasks carried out. Studying the SE provides us a unique opportunity to explore the possibilities of integrating transaction cost theories and theories on organizational capabilities to further our understanding of governance structures (Jacobides and Winter, 2005; Leiblein, 2003).

Contextualizing the SE through Transaction Characteristics

As illustrated in Figure 3, compared with other governance forms, the SE exhibits a rather open organizational boundary with frequent peer-to-peer transactions. At the same time, it features a strong dependence on central coordination and information processing provided by the SEP. What transactional characteristics would require such organizational features?

Efficiency of matching and organizational choices. The key set of transactions in the SE is the exchange of episodic usage rights between the asset owners and asset users. For an exchange to take place, Coase (1937) theorized that economic agents incur search costs (to discover sources of demand and supply) and costs for bargaining and concluding the transactions. Lack of information about demand (for suppliers) and supply (for potential customers) leads to high transaction costs, in that both sets of economic agents need to incur costs of discovery, followed by costs of bargaining and contracting.

Generally speaking, digital technologies enable every economic actor with proper equipment and internet connectivity to have access to a wider range of information. That is to say, the area of search is enlarged. However, at the individual level, the enlargement of the area of search does not necessarily mean the enhancement of matching efficiency, as the individuals have limited information processing capabilities. Thus, they can quickly face information overload, and it can be costly for them to sort through large amounts of information.

When we examine the situation at the integrative level, however, new possibilities open up. In the case of the SE, the SEP directly brokers the peer-to-peer transactions between the asset owners and asset users by making algorithm-sorted information instantaneously available to both sides. It leverages location-based technologies, algorithms for searching and matching (Bhargava and Choudhary, 2004; Codagnone and Martens, 2016; Slee, 2016), and efficient recommendation systems backed by big data analytics and machine learning, to alleviate the ‘information problem’ and enhance matching efficiency.

Thus, for an SE to function, the SEP plays an indispensable and centralized role in the transactions for the episodic usages rights. It contributes to the changes in the cost-benefit calculus for both asset owners and users, systemically decreasing transaction costs for activities carried out on the platform, mitigating risks, and enabling rich ties among autonomous agents, thus enabling sharers to become individual entrepreneurs (Turner, 2006) and offer their own assets for others to use, and enabling consumers to share others’ assets instead of purchasing their own.

Although the efficiency of matching is important for almost all peer-to-peer transactions, the dependence of the SE on matching efficiency is especially salient. This is due to some features of the SE in driving participants’ motivation for the exchange and the characteristics of the exchange.

First of all, matching efficiency enhances the ‘divisibility’ of the usage of a focal asset because it is now economically and technologically feasible to partition its usage into smaller time units. Under this condition, the effective amount of ‘slack’ resources in a society increases, even if the total amount of physical resources does not change.

Moreover, matching efficiency directly impacts people’s willingness to share, both for resource owners and users (Hawlitschek et al., 2016). A person would choose to pay-per-use rather than own an asset if the combined cost of using and the transaction cost of finding and obtaining that resource is smaller than the cost of owning it. Similarly, a person would choose to share his/her asset, if the return for sharing it, both economic and non-pecuniary, exceeds the transaction costs and the depreciation of sharing the resource. *Ceteris paribus*, improvement in matching efficiency would encourage both the resource owners and resource users to engage in sharing activities, thanks to the corresponding changes in cost calculation.

Last but not least, since the SE involves the episodic usage of assets, the transactions are typically time-sensitive. Benkler (2004) noted that a resource is prone to be shared when ‘the rate at which it decays is greater than the rate at which one user can consume its capacity’ (Benkler, 2004, p. 300). He refers this kind of resource as ‘rapidly decaying resource’. For instance, the owner of an apartment might not need all the living space that apartment can provide. Thus the functionality of that apartment is considered to be ‘rapidly decaying’ as the value-in-use of the excess space (e.g., a spare bedroom) will be wasted unless used by others. What is more, the sharing activity often involves human-capital together with the physical asset, such as with ride sharing. That makes sharing a service. If matching cannot be achieved in a time efficient manner, the value-in-use of assets will elapse, because episodic uses and services cannot be inventoried. Therefore, there are significant efficiency gains, both at the micro and macro levels, from ensuring that demand is efficiently allocated to supply such that there is minimal loss in terms of unmet demand and consequently of service capacity. Thus, an immediate match

between supply (of ride services or home rentals, for example) and demand is crucial for the viability of the SE.

The requirement for such high levels of efficiency in matching is not uniform across product and service categories. For example, e-commerce portals that facilitate transactions in goods do not face the same criticality in terms of making a timely and location-specific match, since the goods can be inventoried and sold later, and can be transported across long distances between supplier and customer. As a result, e-commerce type of double-side platform will be less reliant on central coordination capabilities.

Summing up, large-scale sharing among strangers requires high matching efficiency for the discovery of demand and supply, before the price mechanism can come into play. Digital platforms enable ‘information relevant to predicting the demand for and supply of goods to be more readily and broadly available than at any point in history’ (Josefy et al., 2015, p. 754), and as a result, such technological advancements in information transmission and processing enable efficient large-scale sorting and matching to be achieved (Cramer and Krueger, 2016; Zenger et al., 2011). With the augmentation of participants on both sides of the exchange (e.g., asset owners and asset users), efficiency gains in searching and matching with SEP-provided digital tools and algorithms can be further enhanced. This leads to the so-called ‘cross-side network effect’ (Boudreau and Jeppesen, 2015; McIntyre and Srinivasan, 2016).

Asset specificity and organizational choices. One important assertion of TCE is that opportunistic behaviours and the corresponding hold-up risk rise with the specificity of the investments to a transactional relationship (Williamson, 1979). Asset specificity exists when investments have a higher value within one transactional relationship than they have outside this relationship. According to TCE, parties (for example, suppliers) that make investments specific to one transacting relationship are exposed to risks because the other party (for example, customers) could stop purchasing the product and in this way holdup the supplier. This is because the investments made by the supplier are of less value in other transactional relationships. Similarly, there could also be the risk of moral hazard where the supplier provides products or services with bad quality or high price, if no alternative suppliers are available. The early literature has contended that the greater the asset specificity, the greater the incentive for a firm to bring that transaction inside the firm through vertical integration (Williamson, 1975, 1985). More recent studies have taken a more nuanced view of the phenomenon (see for example, Klein, 2010; Nooteboom, 1996). It is beyond the scope of this article to do a full survey of the literature. Suffice it to say that, *ceteris paribus*, the degree of asset specificity will influence whether the firm will internalize or externalize certain transactions.

A key asset of the SE is the shared goods. Benkler (2004) identified two features that define ‘shareable goods’. First, they have to be ‘lumpy’, meaning the resource has to be provisioned in discrete packages. For example, a car is ‘lumpy’ in the sense that if you want to own it, you have to purchase the whole car, whether you need all the riding capacity the car provides or not. A lumpy resource is prone to be underutilized. Therefore, being lumpy is a necessary condition for a resource to be shared. The second feature of ‘shareable goods’ is that it is ‘mid-grained’, which means that there is relatively widespread private ownership of this resource and it exhibits a system-wide slack (Benkler, 2004).

These two features mean that the shared assets require significant investments yet are widely available in society. In other words, the specificity of these shared assets for the transactions of 'sharing' is relatively low. Take Uber-style car sharing for example. Although cars and drivers are indispensable for the provision of car-hailing services, digital technologies enable wide search for underutilized cars. This means that the firm that operates the ride-hailing service can easily find substitutes if one of the car drivers decides not to provide the service. Consequently, the risk of holdup of this asset drops, as the behaviours of individual drivers have little impact on the performance of the system. Moreover, enhanced connectivity across organizational boundaries further decreases the coordinative costs for managing these drivers. Digital tools, such as rating, can also be applied to mitigate the risks of potential bad behaviours of the drivers, for instance, failure to pick up passengers, or wrong choice of itinerary. All the above-mentioned mechanisms indicate less need for SEPs to internalize (i.e., own) the productive assets, which contributes to the rise of peer-to-peer transactions, and decentralized productive processes we observe in the SE. If the specificity of the shared assets were to be high, a traditional rental firm would have been a better governance choice.

Asset specificity affects the investment decisions of the asset owners and asset users as well. For the asset users, the wide availability of the assets, and the instantaneity in meeting their usage demands allow them to more comfortably rely on usage rights, instead of ownership rights. And from the perspective of the asset owners, as the assets shared serve primarily their consumption needs, they do not have to make specialized investments when participating in the SE, nor do they need to acquire specific additional skills, such as driving or doing housework, to provide the necessary services. Such low asset specificity is an important reason why the participants of the SE can be common people, instead of professionals, which would be the case in other kinds of double-sided platforms, for example, the developers of mobile apps for the iOS AppStore.

To sum up, low asset specificity allows the SE to enjoy an open and flexible organizational boundary and the SEPs to operate asset-light business models. Since no single car owner or home owner is critical to the functioning of the SEP, the potential risk of externalizing such productive activities is low. At the same time, the asset owners do not have to make specialized investments for participating in the SE, making it possible to widely mobilize their personal assets for productive purposes. Low asset specificity is thus a necessary condition for the viability of the SE as a governance structure.

Taking efficiency of matching and asset specificity as two dimensions, we can have an integrated framework (see Figure 4) to help us contextualize the SE through transaction characteristics, vis-à-vis other governance structures.

In this framework, we can see that the SE is situated at the upper left quadrant, with high reliance on matching efficiency and low asset specificity. This combination is unconventional in the sense that traditionally, we would regard efficiency improvement with non-price mechanisms to happen within the firm, where efficiency gain is mostly achieved by authoritative order based on ownership rights or hierarchy over the resources used in the transactions. However, in the SE, the specific role played by the SEP enables efficiency gains in matching without altering the legal independence and information processing capabilities of subsystem actors. Such a role would not be possible without the application of digital technologies. The combination of low asset specificity and high

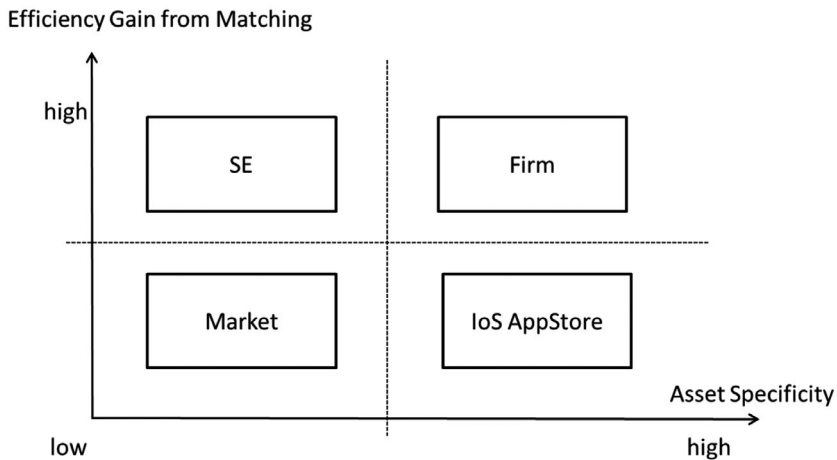


Figure 4. Contextualizing the SE through transaction characteristics

matching efficiency enables the SE to be at the same time reliable and flexible. This is exactly the right context where the SE can be more effective in mobilizing resources that are previously dispersed and underutilized in society.

The bottom right quadrant also represents a very specific context. This context features transactions that are not highly dependent on matching efficiency and have high asset specificity. A good example of this category can be operating systems-based platforms such as the IoS AppStore and the Google Play Store, which are channels for the distribution of mobile applications and content (for example, music and books). This kind of context is normally only viable when the platform provider has exclusive rights over certain software, hardware or standards. Such exclusive rights, which preclude the applications developers and content providers from distributing applications or content developed for the same operating system through other competing platforms, enable them to externalize the productive activities to partners, even if the asset specificity is high. Unlike the SE though, participants to such kinds of platforms are typically professionals or firms, due to the high asset specificity.

Proposition 1: The greater the reliance on matching efficiency and the lower the asset specificity, the more likely the transaction will be organized in a sharing economy governance structure.

Contextualizing the SE through Task Characteristics

The resource-based approach focuses on how firm-specific, difficult-to-copy, and costly-to-trade resources contribute to firms' competitive advantage (Barney, 1986, 1991; Conner, 1991; Conner and Prahalad, 1996; Leiblein, 2011; Rumelt, 1984, 1987). Firms are much more likely to internalize scarce, difficult-to-copy and non-tradable resources as they can bring differentiation, and thus can help them to strengthen their competitive positions in the market (Barney, 1991). This is especially true for firms that operate in

industries with high volatility and disruptions, which would prefer to externalize parts of their value chain activities for flexibility and adaptability.

Previously, the RBV has been mostly applied to study market competition, i.e., how resources and capabilities affect the competitive position of a firm. More recent research has begun to pay attention to the application of the RBV in platform competition (Sun and Tse, 2009). One interesting direction is to understand how the size, structure, and conduct of networks can be strategic resources for platform economies (Afuah, 2013; Shankar and Bayus, 2003). What is more, as the platform economy can be understood as a collaborative architecture with the platform provider and platform participants providing complementary resources, the RBV is also a powerful theoretical lens to examine the relative value creating and value appropriating capabilities of these complementary resources. Such understanding sheds light on 'where strategic resources originate and how they translate into economic rents' (Afuah, 2013, p. 258) for platform economies.

Task interdependence and organizational choices. When understanding the SE as a modular architecture for value co-creation, two sets of relationships are of great importance. One is the relationship between the core and peripheral components, i.e., between SEP and asset owners, and the other is the relationship among the peripheral components, i.e., among the asset owners. In the first relationship, the coordinative components provided by the SEP and the productive resources provided by the asset owners are complementary to each other. Without the coordinative mechanisms provided by the SEP, the asset owners would not be able to provide the services to the users effectively. At the same time, the value added of the coordinative resources is dependent on the number of participants in the system. Therefore, for the SE to be effective and the SEP to have significant return, the effective scale of the coordination should be significantly large. Task interdependence has significant impact on these two sets of relationships.

It has been theorized that the higher the interdependence among tasks, the higher the value adding potential of coordinative capabilities, since resolving the interdependency requires communication and coordination (Campbell, 1988; Haerem et al., 2015). With this line of reasoning, it has been argued that the application of digital technologies can enhance the coordinative gain more when task interdependence is high (Afuah, 2013; Provan and Kenis, 2007). This is one of the rationales that justify the viability of the firm.

However, most of the previous literature about task characteristics focuses primarily on individual tasks (Campbell, 1988; Wood, 1986). In recent years, researchers have found that such conceptualization of task complexity does not properly explain the increasing prevalence of collaborations that cross levels of analysis. Haerem et al. (2015), for example, pointed out that when evaluating task complexity, we should no longer only look at the individual tasks, but understand that one collective task can represent constituent tasks that involve multiple actors with interdependent roles at different levels of analysis. A key insight from this understanding is that 'the complexity of a collective task is not merely the sum of the complexities of the constituent tasks, because interdependence between multiple actors can have an exponential effect on task complexity. Focusing only on task complexity at the individual level tends to mask this effect' (Haerem et al., 2015, p. 447).

Thus, the relationship between task interdependency and the value added of central coordination might actually be curvilinear. When we take larger-scale collaboration into consideration, the exponential effect of task interdependence on task complexity might soon challenge the limits of central coordinative capability and consequently limit the effective size and the cumulative coordination gain of the collaborative network. This is one of the rationales that justify the prevalence of a market economy over a Soviet-style planning economy.

Yet, when we understand the platform economy as a modular architecture for value co-creation, the platform provider and the participants form a collaborative relationship, with each providing complementary resources. Such resource complementarity indicates that (1) for platform economies, competitive advantage is dependent on the ability of platform providers to motivate more participants with complementary resources to engage in this value co-creation process (Adner and Kapoor, 2010); and (2) the competitive performance of one resource is influenced by the others (Teece, 1986; Wade and Hulland, 2004).

In the case of the SE, the collective value creation is highly dependent on the amount of shared assets mobilized. The size of the network is a strategic resource for the SE. When task interdependency among subsystem-level tasks is too high, such scaling capability would be capped at a low level. In other words, the value creating capability of the SE would be hampered. However, the beauty of a modular architecture lies in how it can include wide participation with low marginal coordinative costs. Therefore, low task interdependency among the activities of the asset users is a prerequisite for the effectiveness of the SE. Only when the interdependence among the tasks carried out by asset owners is fairly low can the SEP-provided algorithms and processing capability have the potential to orchestrate collaborative activities at a fairly large scale, without incurring exponentially higher coordinative costs. Within this context, the SEP can create and appropriate enough value and afford not to fully integrate important physical and human resources by employment contract or ownership, leaving these productive units legally independent.

Value-added of centralized coordination and organizational choices. The question is: if task interdependency among subsystem-level tasks is low, why would central coordination provided by the SEP be needed, and why is such SEP-provided central coordination adding value?

First, the SEP provides the structural components of the modular architecture. A prerequisite for having a modular architecture of value co-creation is that the subsystem-level tasks (e.g., individual rides) should be easily decomposable (Langlois, 2002, p. 19) and susceptible to being easily re-integrated for value co-creation. The SEP enables the integration by providing the standard interface for the asset users to plug into the collaborative system. Once a standard interface is adopted by the asset users, it forms a routine which is firm-specific, thus contributing to the competitive advantage of the SEP. The more the number of asset owners adopting the same interface, the higher the value such interface has. As the adoption of routines is path-dependent, early SEPs in the market can enjoy a 'first mover advantage', posing entry barriers for late comers (Cozzolino et al., 2018; Ozalp et al., 2018). At the same time, the SEP also accumulates knowledge

about how different modular components can function together (Asmusen et al., 2016), and in this way continuously enhances the integrative coordination of the SE.

Second, the SEP provides core technological resources and capabilities that systematically facilitate linkage and coordination among its users. In addition to the matching mechanisms, the SEP provides other key technological resources and capabilities that are value adding for the overall collaboration. For instance, the SEP provides reviews and other information to enhance the transparency and accountability of behaviours (Allen and Berg, 2014; Finley, 2013). These features signal the trustworthiness of the SE participants, thus helping to counter the 'trust problem'. It is worth noting that the review system does not just enhance trust at the dyadic level, but also enhances the density of trust ties among all participants of the SE. Only with such pervasive perception of trust can widespread collaborations in SE be realized (Provan and Kenis, 2007).

Last but not the least, as the SE involves sharing among strangers, it faces the challenge of aligning the behaviours of quite heterogeneous actors. As Stofberg et al. (2019) argued, how participants perceive the relationships on a sharing platform significantly affects the behavioural outcome. As a result, coordination for the SE often goes beyond managing the processes, to 'reshaping of incentives'. Without the availability of employment contracts and many other formal coordinative rules and mechanisms, the SEP also relies on both regulative (e.g., defining the qualification of the participants) and informal mechanisms (e.g., engagement practices, norms of conduct for the participants) to align the behaviours of heterogeneous actors with a high degree of self-identity and autonomy (Tello-Rozas et al., 2015).

Hence, although the SEP does not provide assets that are used by the users (such as cars and homes), it provides indispensable coordinative components that help to mobilize and coordinate owner-provided assets in an integrated way. These coordinative components are highly firm-specific and contribute to the value co-creation of the SE, thus endows the SEP strong capability in value capture. The SE is more viable when the value-addition of these coordinative components is high.

It is important to underscore that while all these coordinative resources provided by the SEP are indispensable for the mobilization of dispersed assets in the SE, the value-addition of these resources is dependent on how many owner-provided complementary resources they can mobilize. The larger the scale, the higher the system-level synergy, and the more effective the system-level coordination. Unlike an innovation platform that benefits mostly from economies of scope, the SE benefits strongly from economies of scale.

When we put the value-adding potential of centralized coordination and the task interdependency into one integrated framework (see Figure 5), we can clearly see that the SE is situated at the upper left quadrant.

From a traditional point of view, this combination is quite unlikely, since low task interdependence would indicate low need for task coordination. Under such circumstances, the market should be the preferred governance structure. On the other hand, if task interdependence is high, the high requirement on coordinative efforts would make the firm a good governance choice.

However, for platform competition, the size of the network is a critical strategic resource that contributes to competitive performance. The low interdependence among constituent tasks allows the tasks to be highly analysable at the integrative level, and

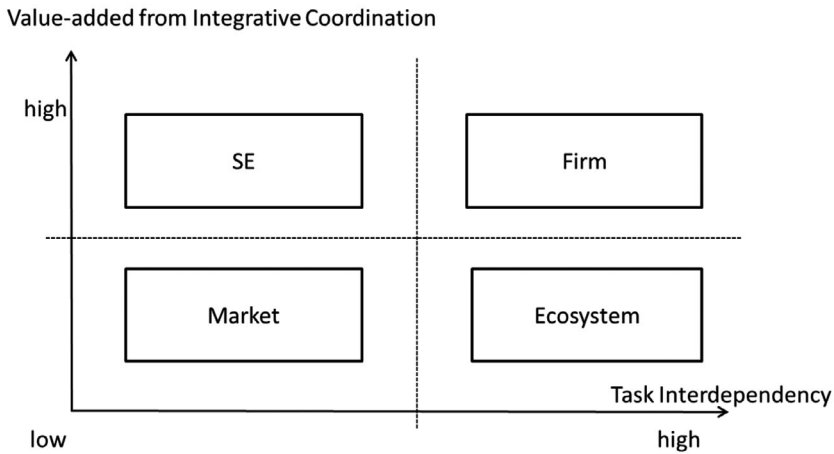


Figure 5. Contextualizing the SE through task characteristics

hence enables the scalability of the modular architecture to be realized in full, allowing the cumulative value-added of coordinative components provided by the SEP to achieve a high value. Thus, when the coordinative components are highly contributive to the overall performance of the SE, and the interdependence among subsystem-level tasks is low, the coordinative components can benefit the most from economies of scale, i.e., the economic benefits from volume of transactions. This is one of the main engines of value creation for the SE. As the coordinative components provided by the SEP are highly scalable yet the physical and human assets provided by the asset owners are not, this makes the SEP enjoy a strong position for value appropriation with the enlargement of the network.

When task interdependence is high, if the complexity of the tasks is still manageable with the level of coordinative capabilities allowed by current technologies, the activities should be organized in a firm. On the other hand, if task complexity exceeds the coordinative capability, and at the same time there is synergy among the tasks, the capability for value creation and capture from the central coordination would be rather low. This is the ideal contextual setting for more loosely organized collaborative ecosystems.

Proposition 2: The greater the system level value-adding potential of central coordination and the lower the interdependence between subsystem level tasks, the more likely is it that the tasks will be performed under a sharing economy governance structure.

DISCUSSION AND FUTURE RESEARCH

The advancement and prevalent application of internet and other digital technologies allow information to be communicated and processed in ways that were not conceivable before. These technological changes have allowed room for organizational innovations. In recent years, new ways of organizing production, innovation, and other kinds

of collaboration have been observed. Among them, the SE has attracted wide attention from researchers and practitioners alike. The capability of the SE in mobilizing dispersed and underutilized private assets for collective usage on such a large scale has never been witnessed before. This capability is associated with new ways of aligning the activities among various economic actors, and therefore represents the emergence of a unique governance form.

One of the most important objectives of this paper is to identify the uniqueness of the SE as an organizational form and the specific contexts in which the SE is an effective governance form, in comparison to traditional governance forms such as firms and markets, as well as to more modern ones such as other types of platforms and collaborative ecosystems. As the SE is a complex structure composed of multiple actors and multiple sets of relationships, we place our examination of the effectiveness of the SE not only on the integrative level, but also on the cost and benefit for each of the key actors, especially the SEP. Thanks to this approach, we were able to distinguish between the two key facets of the sharing economy, i.e., as a two-sided transactional platform and as a value co-creation architecture, and better juxtapose the SE with other organizational forms from the perspective of information communication and processing.

This approach also helped us to develop two comparison frameworks to distil the characteristics of transactions and tasks that are most likely to be effectively carried out under an SE governance structure. Two key characteristics of transactions, i.e., time sensitivity and asset specificity, and two key characteristics of tasks, i.e., task interdependency and integrative coordination, are argued to be important variables that could affect the effectiveness and efficiency of the SE. The SEPs have solved the important problem of matching time-sensitive demand with available supply, which before the advent of modern technologies could not easily be solved, leading to significant market inefficiencies. The SEPs thus illustrate the problem solving approach to building firm-specific competitive advantage, which has been proposed in the recent work of Felin and Zenger (2016, 2017). Our framework on transaction characteristics (Figure 4) illustrates what types of transactions SEPs are best at adding value to, and the one on task characteristics (Figure 5) illustrates why SEPs are able to build long term competitive advantage.

Although our paper has been focused on the SE, we believe our analyses are relevant to a larger wave of organizational research on new organizational forms enabled by the development in new technologies that facilitate wider information transmission and stronger information processing. In this new wave of organizational research, existing theories and analytical tools are still going to demonstrate their explanatory power (such as our application of TCE and RBV). At the same time, radical changes and advancement in theoretical approach and perspective might also be called for (Baum and Haveman, 2020). The emergence of the SE as a governance structure, for example, reflects two salient tendencies of change in organizational life. On the one hand, we observe deepening specialization and decomposition of tasks. This tendency can be evidenced by the rise of outsourcing activities, especially business-process outsourcing (Srikanth and Puranam, 2010), which means a rise in activities that a focal firm chooses to conduct in the market. On the other hand, cheaper and stronger information processing enables higher capabilities for integrative coordination both within and beyond organizational boundaries,

which means that more and more activities, both within and outside firm boundaries, can be efficiently and effectively coordinated by the focal firm.

Some researchers have already called for greater academic attention to be directed to new organizational phenomena arising from these tendencies. For instance, Gulati et al. (2012) proposed a concept called ‘meta-organization’, where economic agents, either firms or individuals, pursue a system-level goal, although they are not bound by any formal authoritative relationship, such as employment. Similarly, Adner raised the concept of ‘ecosystem’, or more specifically, ‘ecosystem as structure’, which refers to ‘the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize’ (Adner, 2017, p. 42). No matter which term one applies, what these researchers have noted is the multiplicity in the levels of analysis for collaborations between actors that ‘work effectively as single organizations’ (Gulati et al., 2005, p. 572). In other words, we should be paying more attention to collaborative bodies that go beyond a single firm, but behave more like an ‘organization of organizations’. Although the SE has many of its own specificities, understanding the SE would contribute to the overall theoretical development in the study of these network organizations.

Possible Future Research on the SE

The SE as a theoretical domain is still in its infancy. At this stage, we believe our paper, as a conceptual piece, can contribute to the literature by providing theoretical perspectives to examine the phenomenon, developing theoretical frameworks to juxtapose its peculiarities *vis-à-vis* other governance structures, and deepen our understanding about its contextualization. In the future, we hope our propositions can provide potential possibilities for developing more empirical studies on the SE and organizational theories in general. For instance, the relationship between task interdependency and the scalability of a collaborative network can be worthy of examination. Such research could shed light on important issues such as investment strategies for platform economies.

What is more, although our paper has only focused on a deeper understanding of the SE and in distinguishing it from other governance forms, future research could explore differences within SE categories. For instance, Zhu, Li and Valavi have noted that some networks tend to be fragmented into local clusters (Zhu, 2019), with each local cluster largely independent of each other. Ride-sharing platforms such as Uber, Didi and Lyft can serve as good examples of such a fragmented network structure. As the demand and supply for short-distance ride services are usually clustered in relatively small geographical areas (within a city, for example), the ride-sharing platform cannot transfer the benefits of scale from one city to another, and has to build its network structure from scratch in every new city that it enters. The high investments they need to enter new cities and the high costs they need to incur to defend themselves against competitors might be major reasons why most are still not profitable. In contrast, a home-sharing network such as Airbnb offers significant advantages to its users in one city by expanding into more and more cities, thus helping it leverage its scale across cities. Thus, the network structures of different SE categories are different and they influence scalability and profitability. In addition to network characteristics and their impact on performance (scalability and profitability), there are other research questions that can be asked in the

study of SE organizations. For example, why have SEPs that dedicate themselves to the sharing of human capital (for example, Upwork and Task Rabbit) not achieved the same scale as others such as ride-sharing and home sharing platforms? Could the lack of standardization and the resultant difficulty in signalling the quality of services for certain types human capital impede their scalability and profitability? These are only some of the questions that are worth exploring in future research on the SE.

Managerial Implications

A widespread belief about the impact of the internet and digital transformation on businesses is that there is a tendency for disintermediation. However, our analysis indicates that the strongest value creation mechanisms in the SE rely on the centralized role of the SEP to broker transactions and to coordinate collaborations. The interesting aspect of the SE is how such intermediation and coordination is achieved. Technologies, in particular location based technologies and data capture and analysis tools such as algorithms, have replaced the traditional intermediary agencies to broker transactions not on a transaction-by-transaction basis, but in a systemic and automated manner. Coordination is not carried out by managers but realized through architectural designs, technological solutions, and other institutional arrangements. Thus, for its business success, an SEP actually needs to work on how to better play the intermediary and coordinative roles so as to enable and enlarge the collaborative activities among peers for the benefits of itself and all its participants.

Our analyses also show that the value of the SE and the ability of the SEP to appropriate value depend heavily on achieving a large scale, measured by the number of participants in the collaborative network. For the users of a two-sided market platform, such as the SE, they can benefit from the so-called ‘cross-side network effect’, which means that users on one side of the platform (e.g., asset owners in the SE) can benefit from the growth of users on the other side of the platform (e.g., asset users in the SE), and vice versa (Boudreau and Jeppesen, 2015; McIntyre and Srinivasan, 2016). Such ‘cross-side network effects’ emerge because the growth of participants on both sides of the exchange further enhances the efficiency gain in searching and matching with SEP-provided digital tools and algorithms, thanks to network externalities.

For the SEP, the scale of the network directly influences how much value can be created and appropriated from the matching and coordinative mechanisms and the other capabilities it can provide to the users. Of the three main actors in the SE, i.e., the SEP, the asset owners and the asset users, the SEP is the one that benefits the most from economies of scale. Thus, when running an SEP, ‘enabling’ is becoming a key word for success. Managers need to understand that the characteristics of the SE category they choose will determine its scalability, the time to profitability and the level of profitability of the platform.

ACKNOWLEDGEMENTS

We acknowledge the valuable comments and suggestions on earlier versions of this manuscript of Yu Zhang, Terry Wang, Weiru Chen and Shameen Prashantham. We acknowledge generous research funding from the China Europe International Business School (CEIBS) for this study.

REFERENCES

- Adner, R. (2017). 'Ecosystem as structure: An actionable construct for strategy'. *Journal of Management*, **43**, 39–58.
- Adner, R. and Kapoor, R. (2010). 'Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations'. *Strategic Management Journal*, **31**, 306–33.
- Afuah, A. (2013). 'Are network effects really all about size? The role of structure and conduct'. *Strategic Management Journal*, **34**, 257–73.
- Alchian, A. A. and Demsetz, H. (1972). 'Production, information costs, and economic organization'. *The American Economic Review*, **62**, 777–95.
- Allen, D. and Berg, C. (2014). *The Sharing Economy: How Over-regulation Could Destroy an Economic Revolution*. Melbourne: Institute of Public Affairs.
- Arenius, P., Sasi, V. and Gabriellsson, M. (2005). 'Rapid internationalization enabled by the Internet: The case of a knowledge intensive company'. *Journal of International Entrepreneurship*, **3**, 279–90.
- Asmussen, C. G., Larsen, M. and Pedersen, T. (2016). 'Organizational adaption in offshoring: The relative performance of home- and host-based learning strategies'. *Organization Science*, **27**, 911–28.
- Barney, J. B. (1986). 'Strategic factor markets: Expectations, luck, and business strategy'. *Management Science*, **32**, 1231–41.
- Barney, J. B. (1991). 'Firm resources and sustained competitive advantage'. *Journal of Management*, **17**, 99–120.
- Barua, A., Prabhudev, K. and Whinston, A. B. (2004). 'An empirical investigation of net-enabled business value'. *MIS Quarterly*, **28**, 585–620.
- Baum, J. A. C. and Haveman, H. A. (2020). 'Editor's comments: The future of organizational theory'. *Academy of Management Review*, **45**, 268–72.
- Belk, R. (2014). 'You are what you can access: Sharing and collaborative consumption online'. *Journal of Business Research*, **67**, 1595–600.
- Benkler, Y. (2004). 'Sharing Nicely: On shareable goods and the emergence of sharing as a modality of economic production'. *Yale Law Journal*, **114**, 273–358.
- Bhargava, H. K. and Choudhary, V. (2004). 'Economics of an information intermediary with aggregation benefits'. *Information Systems Research*, **15**, 22–36.
- Botsman, R. and Rogers, R. (2010). *What's Mine is Yours: The Rise of Collaborative Consumption*. New York: Harper Collins.
- Boudreau, K. J. and Jeppesen, L. (2015). 'Unpaid crowd complementors: The platform network effect mirage'. *Strategic Management Journal*, **36**, 1761–77.
- Breidbach, C. F. and Brodie, R. J. (2017). 'Engagement platforms in the sharing economy: Conceptual foundations and research directions'. *Journal of Service Theory and Practice*, **27**, 761–77.
- Campbell, D. J. (1988). 'Task complexity: A review and analysis'. *The Academy of Management Review*, **13**, 40–52.
- Coase, R. H. (1937). 'The nature of the firm'. *Econometrica*, **4**, 386–405.
- Codagnone, C. and Martens, B. (2016). *Scoping the Sharing Economy: Origins, Definitions, Impact and Regulatory Issues*. Digital Economy Working Paper 2016/01, JRC100369, Institute for Prospective Technological Studies.
- Conner, K. R. (1991). 'A historical comparison of resource-based theory and five schools of thought within industrial organization economics: Do we have a new theory of the firm?'. *Journal of Management*, **17**, 121–54.
- Conner, K. R. and Prahalad, C. K. (1996). 'A resource-based theory of the firm: Knowledge versus opportunism'. *Organization Science*, **7**, 477–501.
- Cozzolino, A., Verona, G. and Rothaermel, F. T. (2018). 'Unpacking the disruption process: New technology, business models, and incumbent adaptation'. *Journal of Management Studies*, **55**, 1166–202.
- Cramer, J. and Krueger, A. B. (2016). 'Disruptive change in the taxi business: The case of Uber'. *The American Economic Review*, **106**, 177–82.
- Cusumano, M. A. (2015). 'How traditional firms must compete in the sharing economy'. *Communications of the ACM*, **58**, 32–34.
- Demailly, D. and Novel, A. S. (2014). 'The sharing economy: Make it sustainable'. Studies N°03/14. Paris, France: IDDRI.
- Ert, E., Fleischer, A. and Magen, N. (2016). 'Trust and reputation in the sharing economy: The role of personal photos in Airbnb'. *Tourism Management*, **55**, 62–73.

- Felin, T. and Zenger, T. R. (2011). 'Information aggregation, matching and radical market-hierarchy hybrids: Implications for the theory of the firm'. *Strategic Organization*, **9**, 163–73.
- Felin, T. and Zenger, T. R. (2014). 'Closed or open innovation? Problem solving and the governance choice'. *Research Policy*, **43**, 914–25.
- Felin, T. and Zenger, T. R. (2016). 'CROSSROADS – Strategy, problems, and a theory of the firm'. *Organization Science*, **27**, 222–31.
- Felin, T. and Zenger, T. R. (2017). 'The theory-based view: Economic actors as theorists'. *Strategy Science*, **2**, 258–71.
- Finley, K. (2013). *Trust in the Sharing Economy: An Exploratory Study*, Centre for Cultural Policy Studies. Warwick: University of Warwick.
- Foss, N. J., Lando, H. and Thomsen, S. (2000). The theory of the firm. Bouckaert, B. and De Geest, G. (Eds), *Encyclopedia of Law and Economics, Vol. III -- The Regulation of Contracts*. Cheltenham: Edward Elgar, 631–658.
- Frenken, K. and Schor, J. (2017). 'Putting the sharing economy into perspective'. *Environmental Innovation and Societal Transitions*, **23**, 3–10.
- Galbraith, J. R. (1973). *Designing Complex Organizations*. Reading, MA: Addison-Wesley.
- Garud, R. and Kumaraswamy, J. J. (1995). 'Technological and organizational designs to achieve economies of substitution'. *Strategic Management Journal*, **16**, 93–110.
- Gawer, A. (2014). 'Bridging differing perspectives on technological platforms: Towards an integrative framework'. *Research Policy*, **43**, 1239–49.
- Goldhar, J. D. and Jelinek, M. (1983). 'Plan for economics of scope'. *Harvard Business Review*, **61**, 141–48.
- Gulati, R., Lawrence, P. and Puranam, P. (2005). 'Adaptation in vertical relationships: Beyond incentive conflict'. *Strategic Management Journal*, **26**, 415–40.
- Gulati, R., Puranam, P. and Tushman, M. (2012). Meta-organization design: rethinking design in interorganizational and community contexts. *Strategic Management Journal*, **33**, 571–586.
- Haerem, T., Pentland, B. T. and Miller, K. D. (2015). 'Task complexity: Extending a core concept'. *Academy of Management Review*, **40**, 446–60.
- Hamari, J., Sjöklint, M. and Ukkonen, A. (2016). 'The sharing economy: Why people participate in collaborative consumption'. *Journal of the Association for Information Science and Technology*, **67**, 2047–59.
- Hawlicschek, F., Teubner, T. and Gimpel, H. (2016). *Understanding the Sharing Economy-Drivers and Impediments for Participation in Peer-to-Peer Rental*. 49th Hawaii International Conference on System Sciences (HICSS), Koloa, HI, 2016, 4782–91. <https://doi.org/10.1109/HICSS.2016.593>
- Heinrichs, H. (2013). 'Sharing economy: A potential pathway to sustainability'. *GAI*, **22**, 228–31.
- Henten, A. H. and Windekilde, I. M. (2016). 'Transaction costs and the sharing economy'. *Info*, **18**, 1–15.
- Horton, J. J. and Zeckhauser, R. J. (2016). *Owning, Using and Renting: Some Simple Economics of the 'Sharing Economy'*. Working Paper 22029, NBER.
- Huber, G. P. (1990). 'A theory of the effects of advanced information technologies on organizational design, intelligence, and decision making'. *Academy of Management Review*, **15**, 47–71.
- Jacobides, M. G. and Winter, S. G. (2005). 'The co-evolution of capabilities and transaction costs: Explaining the institutional structure of production'. *Strategic Management Journal*, **26**, 395–413.
- Josefy, M., Kuban, S., Ireland, R. D. and Hitt, M. A. (2015). 'All things great and small: Organizational size, boundaries of the firm, and a changing environment'. *Academy of Management Annals*, **9**, 715–802.
- Kathan, W., Matzler, K. and Veider, V. (2016). 'The sharing economy: Your business model's friend or foe?'. *Business Horizons*, **59**, 663–72.
- Klein, B. (2010). 'Asset specificity and holdups'. *The Elgar Companion to Transaction Cost Economics*, 120–26.
- Langlois, R. N. (2002). 'Modularity in technology and organization'. *Journal of Economic Behavior and Organization*, **49**, 19–37.
- Leiblein, M. J. (2003). 'The choice of organizational governance form and performance: Predictions from transaction cost, resource-based, and real options theories'. *Journal of Management*, **29**, 937–61.
- Leiblein, M. J. (2011). 'What do resource- and capability-based theories propose?'. *Journal of Management*, **37**, 909–32.
- Leiblein, M. J., Reuer, J. J. and Dalsace, F. (2002). 'Do make or buy decisions matter? The influence of organizational governance on technological performance'. *Strategic Management Journal*, **23**, 817–33.
- March, J. C. and Simon, H. A. (1958). *Organizations*. New York: Wiley.
- Martin, C. J. (2016). 'The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism?'. *Ecological Economics*, **121**, 149–59.
- McIntyre, D. P. and Srinivasan, A. (2017). 'Networks, platforms, and strategy: Emerging views and next steps'. *Strategic Management Journal*, **38**, 141–60.

- Moran, P. and Ghoshal, S. (1999). 'Markets, firms, and the process of economic development'. *Academy of Management Review*, **24**, 390–412.
- Nelson, R. and Winter, S. (1982). *An Evolutionary Theory of Technical Change*. Cambridge, MA: Belknap Press of Harvard University Press.
- Nooteboom, B. (1996). 'Trust, opportunism and governance: A process and control model'. *Research Article*, **17**, 985–1010.
- North, D. C. (1990). 'A transaction cost theory of politics'. *Journal of Theoretical Politics*, **2**, 355–67.
- Ozalp, H., Cennamo, C. and Gawer, A. (2018). 'Disruption in Platform-Based ecosystems'. *Journal of Management Studies*, **55**, 1203–41.
- Panzar, J. C. and Willig, R. D. (1977). Economies of scale in multi-output production. *The Quarterly Journal of Economics*, **91**, 481–493.
- Panzar, J. C. and Willig, R. D. (1981). 'Economies of scope'. *American Economic Review*, **71**, 268–72.
- Penrose, E. (1959). *The Theory of the Growth of the Firm*. Oxford: Blackwell.
- Provan, K. G. and Kenis, P. (2007). 'Nodes of network governance: Structure, management, and effectiveness'. *Journal of Public Administration Research and Theory*, **18**, 229–52.
- Puranam, P., Raveendran, M. and Knudsen, T. (2012). 'Organization design: The epistemic interdependence perspective'. *Academy of Management Review*, **37**, 419–40.
- Puschmann, T. and Alt, R. (2016). 'Sharing economy'. *Business and Information Systems Engineering*, **58**, 93–99.
- Reuver, M., Sorensen, C. and Basole, R. C. (2018). 'The digital platform: A research agenda'. *Journal of Information Technology*, **33**, 124–35.
- Rumelt, R. P. (1984). 'Towards a strategic theory of the firm'. In Lamb, R. B. (Ed.), *Competitive Strategic Management*. Englewood Cliffs, NJ: Prentice-Hall, 566–70.
- Rumelt, R. P. (1987). 'Theory, strategy, and entrepreneurship'. In Teece, D. J. (Ed.), *The Competitive Challenge: Strategies for Industrial Innovation and Renewal*. Cambridge, MA: Ballinger, 11–32.
- Scaraboto, D. (2015). 'Selling, sharing, and everything in between: The hybrid economies of collaborative networks'. *Journal of Consumer Research*, **42**, 152–76.
- Shanker, V. and Bayus, B. L. (2003). 'Network effects and competition: An empirical analysis of the home video game industry'. *Strategic Management Journal*, **24**, 375–84.
- Slee, T. (2016). *What's Yours Is Mine: Against the Sharing Economy*. New York: Or Books.
- Srikanth, K. and Puranam, P. (2010). Integrating distributed work: comparing task design, communication, and tacit coordination mechanisms. *Strategic Management Journal*, **32**, 849–875.
- Stofberg, N., Bridoux, F., Ciulli, F., Pisani, N., Kolk, A. and Vock, M. (2019). 'A relational-models view to explain peer-to-peer sharing'. *Journal of Management Studies*. <https://doi.org/10.1111/joms.12523>
- Sun, M. and Tse, E. (2009). 'The resource-based view of competitive advantage in two-sided markets'. *Journal of Management Studies*, **46**, 45–64.
- Teece, D. J. (1980). 'Economics of scope and the scope of the enterprise'. *Journal of Economic Behavior and Organization*, **3**, 39–63.
- Teece, D. J. (1986). 'Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy'. *Research Policy*, **15**, 285–305.
- Teece, D. J., Pisano, G. and Shuen, A. (1997). 'Dynamic capabilities and strategic management'. *Strategic Management Journal*, **18**, 509–33.
- Teece, D. J., Rumelt, R., Dosi, G. and Winter, S. (1994). Understanding corporate coherence: theory and evidence. *Journal of Economic Behavior and Organization*, **23**, 1–30.
- Tello-Rozas, S., Pozzebon, M. and Mailhot, C. (2015). 'Uncovering micro-practices and pathways of engagement that scale up social-driven collaborations: A practice view of power: Micro-practices and pathways of engagement'. *Journal of Management Studies*, **52**, 1064–96.
- Thompson, J. D. (1967). *Organizations in Action*. New York: McGraw-Hill.
- Turner, F. (2006). 'How digital technology found utopian ideology: Lessons from the first hackers' conference'. In Silver, D., Massanari, A. and Jones, S. (Eds), *Critical Cyberculture Studies*. New York: NYU Press, 255–69.
- Van de Ven, A., Delbeq, A. and Koenig, R. Jr. (1976). 'Determinants of coordination modes within organizations'. *American Sociological Review*, **41**, 322–38.
- Wade, M. and Hulland, J. (2004). 'The resource-based view and information systems research: Review, extension, and suggestions for future research'. *MIS Quarterly*, **28**, 107–42.
- Weber, T. A. (2014). 'Intermediation in a sharing economy: Insurance, moral hazard, and rent extraction'. *Journal of Management Information Systems*, **31**, 35–71.
- Wernerfelt, B. (1984). 'A resource-based view of the firm'. *Strategic Management Journal*, **5**, 171–80.

- Williamson, O. E. (1975). *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Collier Macmillan Publishers.
- Williamson, O. E. (1985). *The Economic Institutions of Capitalism*. New York: Simon and Schuster.
- Wood, R. (1986). 'Task complexity: Definition of the construct'. *Organizational Behavior and Human Decision Processes*, **37**, 60–82.
- Yang, S. and Ahn, S. (2016). 'Impact of motivation in the sharing economy and perceived security in attitude and loyalty toward Airbnb'. *Advanced Science and Technology Letters*, **129**, 180–84.
- Zenger, T. R., Felin, T. and Bigelow, L. (2011). 'Theories of the firm-market boundary'. *The Academy of Management Annals*, **5**, 89–133.
- Zhu, F. & Iansiti, M. (2019). 'Why some platforms thrive and others don't: What Alibaba, Tencent, and Uber teach us about networks that flourish. The five characteristics that make the difference'. *Harvard Business Review*, **97**, 118–25.