PLATFORM GOVERNANCE IN THE SHARING ECONOMY

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Suggested citation:
Kyprianou, C., & Navis, C. (2021). Platform Governance in the Sharing Economy. *Academy of Management Proceedings*, *2021*(1), 11142. https://doi.org/10.5465/AMBPP.2021.11142abstract

Abstract

Dominant theories of platform governance—focused on innovation platforms and the technical compatibility of platform producers as a value creation imperative—overlook the importance of fostering the relational compatibility of both platform producers and consumers in sharing economy platforms. To address this oversight, we develop a theoretical framework of platform governance that accounts for the unique features and challenges of platform-based value creation in the sharing economy. Our framework is grounded in two essential governance levers shown to have general relevance to platforms: the selection of platform participants and the structuring of platform participant interactions. We build on these foundational levers to develop new theory, and provide examples of the distinct governance practices that sharing economy platforms utilize to 'pull' these two levers to opposing levels of intensity to create value. To further demonstrate the usefulness and novelty of our framework, we develop propositions linking attributes of transactions common in the sharing economy to the platform governance approach most suitable for fostering relational compatibility. Our work offers a conceptual foundation for future research interested in developing new knowledge on the heterogenous governance practices of platforms.

Key words: platforms, governance, sharing economy, value creation

PLATFORM GOVERNANCE IN THE SHARING ECONOMY

INTRODUCTION

Digital multi-sided platforms, such as Airbnb, Uber, TaskRabbit and Rover, have been powerful engines of the sharing economy, enabling myriads of private individuals to interact and transact directly with one another for temporary and on-demand access to assets or services, greater work flexibility, professional autonomy, and new sources of income (Belk, 2014; Botsman & Rogers, 2010; Colby & Bell, 2016; Gerwe & Silva, 2018; Kuhn & Maleki, 2017; Laamanen, Pfeffer, Rong, & Van de Ven, 2018; Mair & Reischauer, 2017; Sundararajan, 2016). An essential aspect of how these platforms create value for participants and sustain innovation over time is platform governance—the set of formal and informal rules that determine and influence the responsibilities, consequences, and desirable contributions of platform participants to platform-based value creation (Perren & Kozinets, 2018; Reischauer & Mair, 2018; Zhang, Pinkse, & McMeekin, 2020). As such, platform governance also has important implications for platform growth and performance, as it influences platform participants' willingness to join and stay on a sharing economy platform as well as their choice of one platform over competing alternatives (Benoit, Baker, Bolton, Gruber, & Kandampully, 2017; Bucher, Fieseler, Fleck, & Lutz, 2018; Kyprianou, 2018; Martin, Upham, & Klapper, 2017; Reischauer & Mair, 2018).

To date, research on platform governance has predominantly occurred in the context of innovation platforms such as video game technologies and operating systems, where value creation depends largely on third-party complementors developing platform-compatible software applications (e.g. Adner & Kapoor, 2010; Boudreau, 2010; Ceccagnoli, Forman, Huang, & Wu, 2012; Cennamo, 2019; Huber, Kude, & Dibbern, 2017; O'Mahony & Karp, 2020; Rietveld, Ploog, & Nieborg, 2020; Schilling, 2003; Wareham, Fox, & Cano Giner, 2014). In this space, platform governance generally involves the enforcement of decision rights, control mechanisms, and pricing

policies that encourage complementors' adoption of the platform's technical standards, operating policies, and innovation preferences (Tiwana, 2013, 2014; Tiwana, Konsynski, & Bush, 2010).

But value creation in sharing economy platforms involves distinct challenges, which cannot be overcome through technical and pricing controls alone, or by focusing primarily on the actions of platform producers (Benoit, Baker, Bolton, Gruber, & Kandampully, 2017; Gerwe & Silva, 2018; Kyprianou, 2018; Martin, Upham, & Klapper, 2017; Reischauer & Mair, 2018). This is because sharing economy platforms operate as transaction platforms, which create value for end users differently from innovation platforms (Cennamo, 2019; Cusumano, Gawer, & Yoffie, 2019). Whereas innovation platforms, such as video game consoles, serve as the foundation for building an ecosystem of interconnected technology products, transaction platforms create value by facilitating mutually beneficial matches between sellers or service providers and consumers (Cusumano, Gawer, & Yoffie, 2019; Jacobides, Cennamo, & Gawer, 2018). These differences provide a starting point to our upcoming discussion of the unique features and governance challenges of sharing economy platforms, the greater importance of platform participants' relational vs. technical compatibility, and thus the incompleteness and limited applicability of existing theories of platform governance to sharing economy platforms.

We begin our theorizing by first expanding on the need for developing a platform governance framework that accounts for the unique aspects of platform governance in the sharing economy, highlighting three key differences between innovation and sharing economy platforms, as well as the unique challenges facing the latter. We then establish our framework's requisite conceptual footings, identifying the selection of platform participants and the structuring of platform participant interactions as its two essential governance levers. From there, we introduce our framework's core features and content, explaining that platform owners in the sharing economy can "pull" these two different levers at different levels of intensity, theorizing the mechanisms for doing so, and elaborating their implications for value creation. Finally, we apply our arguments to

several transaction attributes common in the sharing economy, proposing the governance approach that best supports value creation for each one. Our paper culminates with a discussion of the core contributions, implications, and anticipated extensions of this work.

DISTINCT FEATURES AND GOVERNANCE CHALLENGES OF SHARING ECONOMY PLATFORMS

Organization scholarship has long recognized that firm survival and growth, innovation, and sustained competitive advantage require accessing and leveraging resources from outside firm boundaries. Although engaging in such external collaboration has historically occurred through alliances between dyads or a small number of firms (Baum, Calabrese, & Silverman, 2000; Deeds & Hill, 1996; Doz & Hamel, 1998; Gulati, 1998), technological advancements in the last two decades have dramatically expanded scale and scope at which this occurs, along with the possible channels for doing so (Amit & Han, 2017; Cutolo & Kenney, 2020; Puranam, Alexy, & Reitzig, 2014; Seidel, Langner, & Sims, 2017). Platform owners have led this transformation, utilizing digital technologies to orchestrate the interactions of myriads of external actors who voluntarily utilize their assets, knowledge, ideas, and effort to provide and purchase products, services and information from one another (Cennamo, 2019; Cusumano, Gawer, & Yoffie, 2019). At the same time, platform producers' and consumers' voluntary participation on platforms is accompanied by the understanding their participation must conform to the platform owner's rules, including technical standards and policies (Boudreau & Hagiu, 2009; Evans, 2012; Huber, Kude, & Dibbern, 2017; Wareham, Fox, & Cano Giner, 2014). Ultimately, setting rules around the collaborative creation of value as well as adhering to them fosters cooperation, reduces unnecessary conflict, and keeps opportunistic behaviors at bay (Albers, 2005; Doz & Hamel, 1998; Faems, Janssens, Madhok, & Van Looy, 2008; Williamson, 1996).

To date, the governance of platform-based value creation has been primarily informed by research on innovation platforms, such as video game and software platforms, where value creation

occurs primarily in collaboration with platform producers developing technological complements to the platform (e.g. Boudreau & Hagiu, 2009; Hagiu & Lee, 2011; Schilling, 2003). As such, theories of platform governance have emphasized the importance of putting in place a technological infrastructure and operating policies that standardize complementary products and services, as well as the processes through which platform participants interact to reduce transactions costs, reduce information asymmetries, and increase trust (Adner & Kapoor, 2010; Boudreau, 2010; Schilling, 2003; Wareham, Fox, & Cano Giner, 2014). Although highly important, such perspectives on platform governance do not recognize the unique aspects of participation on sharing economy platforms. Drawing on both the multi-sided platform literature and studies of the sharing economy, we highlight three key differences between innovation and sharing economy platforms that also illuminate the unique governance challenges facing the latter. Subsequently, we elaborate how these distinctions reflect the different priorities of the two types of platforms, with innovation platforms prioritizing the technical compatibility of supply-side participants and sharing economy platforms prioritizing the relational compatibility of both supply- and demand-side participants.

Amenability to Technical Controls.

The first distinction between innovation and sharing economy platforms stems from platform participant actions' amenability to technical controls. In innovation platforms, participants on the supply-side typically consist of business entities that bundle their technical resources into technological products such as software applications. The nature of supply-side participants, as well as the resources and activities they utilize to participate on innovation platforms, renders their participation especially amenable to technical controls, which platform owners utilize to vet the platform producers' qualifications as well as evaluate the functionality and quality of their offerings with relatively little ambiguity (Cennamo, 2018; Cennamo & Santaló, 2019). But in sharing economy platforms, supply-side participation depends on private individuals and independent professionals utilizing a broad range of knowledge and assets to provide both products and services

(Benoit, Baker, Bolton, Gruber, & Kandampully, 2017; Bucher et al., 2018; Hartl, Hofmann, & Kirchler, 2015; Kyprianou, 2018). As such, neither the qualifications of platform producers nor the functionality and quality of their offerings on sharing economy platforms are necessarily of a technical nature, or easily discernible. Thus, additional and alternative controls that look beyond platform producers' technical compliance are necessary for influencing platform participants' contributions to platform-based value creation.

Exogeneity of Consumer Demand

A second noteworthy distinction between innovation and sharing economy platforms is based on the exogeneity of consumer demand in the latter type. Much of existing research on platforms has viewed platform consumers as passive recipients of value, and thus peripheral to platform owners' governance decisions (Gawer, 2014). Indeed, prior research on innovation platforms considers demand-side factors, such as "willingness to pay […], risk preferences, preference for novelty, and search behavior" as endogenous drivers of complements' performance (Rietveld & Eggers, 2018: 6). In contrast, what consumers do on sharing economy platforms is largely driven by preferences that exist independently of the platform itself (Bucher, Fieseler, Fleck, & Lutz, 2018; Kyprianou, 2018). For instance, consumers' needs and preferences pertaining to where they need to go, or what they desire to eat—demand characteristics that exist outside the platform itself—provide the impetus for what happens on a ridesharing platform such as Lyft, or on a food delivery platform such as Deliveroo. In turn, platform owners can collect and leverage data on consumer preferences outside the platform, as well as data on what consumers do on the platform to fine-tune matching algorithms and identify unmet needs and new innovation opportunities (Amit & Han, 2017). These insights highlight not only the differing views the platform and sharing economy literature hold about the role of consumers in platform-based value creation, but also the relevance of both producers' and consumers' behaviors for platform governance decisions in the sharing economy.

Locus of Interactions

A final important difference between innovation and sharing economy platforms springs from the location of interactions that are critical to the value creation process. On innovation platforms, interactions between platform producers and consumers occur almost exclusively through the platform technology and under the direct purview of platform owners, such as when consumers purchase, use, and review a video game or a mobile application. By comparison, on sharing economy platforms, it is common for platform producers and consumers to interact off the platform in the course of completing a platform-mediated transaction, such as when Airbnb hosts meet guests in person during a guest's stay (Gerwe & Silva, 2018; Reischauer & Mair, 2018; Stofberg et al., 2019). By definition, off the platform interactions are not directly observable or monitored in real time by the platform technology, regardless of the operating policies or official rules by which platform owners ask participants to abide. For instance, even though Uber and Lyft safeguard platform participants by mandating background checks and identity verifications, tracking the location of drivers and passengers, and making ratings and reviews available to both sides, they have no direct or real time insight into how drivers and passengers treat one another during the course of a ride, or how new participants will behave. Studies of sharing economy platforms suggest that such blind spots in platform governance may be managed informally through education and training on how to act and interact off the platform (Kyprianou, 2018; Zhang et al., 2020). This can be seen, for instance, in Rover's communication with pet sitters—a pet sitting platform that encourages participating pet sitters to send pet owners pictures of their pets because "photo updates play an important role in building trust with your client to demonstrate your commitment to the wellbeing of their pet" (Rover, n.d.). Similarly, Uber and Lyft have disseminated safety tips for drivers (Lyft, n.d.; Uber, n.d.), and have propagated interactive norms such as fist-bump greetings, and complementary bottles of water and gum to influence interactions occurring outside their direct purview (Lawler, 2015; Uber Canada, 2018). Together, these insights point to the importance of

shaping and monitoring the informal, social interactions between participants—which often occur off the platform—as a distinct aspect of platform governance in the sharing economy.

Relational vs. Technical Compatibility

The aforementioned distinctions between innovation and sharing economy platforms speak more generally to fundamental differences in the goals and subjects of governance in each one. Specifically, we posit that the primary goal and subject of platform governance in innovation platforms is to foster the *technical compatibility of supply-side participants*, which we define as platform producers' overall conformity with the platform's technical standards and rules. For instance, overall technical compatibility exists when the majority of participating software developers adopt the platform's technical standards as well as integrate platform owners' suggested features into new releases of their software applications. In contrast, the non-technical, informal, social, and off the platform elements of participation in the sharing economy point to fostering *the relational compatibility of both supply- and demand-side participants* as the primary goal and subjects of governance in sharing economy platforms. We define relational compatibility as both platform producers' and consumers' overall conformity with desirable social norms and other informal rules of exchange between sides. Indeed, several studies have shown that the informal and social aspects of platform participation in the sharing economy—such as when platform producers and consumers utilize appropriate language in their communication, express commitment to similar values, or treat each other with respect—impact both sides' willingness to join and stay on a platform (e.g. Belk, 2014; Gerwe, Silva, & Castro, 2020; Hartl, Sabitzer, Hofmann, & Penz, 2018; Kyprianou, 2018; Möhlmann, 2015; Reischauer & Mair, 2018; Stofberg et al., 2019). Although such differences underscore the need for a platform governance framework that accounts for the unique aspects of governance in sharing economy platforms, we propose that such a framework—as we detail next—should be first grounded in existing theories of governing the collaborative creation of value.

ESSENTIAL LEVERS OF PLATFORM GOVERNANCE

Common to both traditional (e.g. inter-organizational alliances) and more modern (e.g. platform-facilitated) arrangements for collaborative value creation are two overarching and theoretically independent governance levers, which we propose are useful in developing theories of platform governance that are both parsimonious and comprehensive. The first such lever is concerned with setting or shaping expectations about *who* the ideal contributors are to collaborative value creation (Gulati, Puranam, & Tushman, 2012; Seidel et al., 2016). We refer to this lever as *selection of platform participants* and highlight its direct impact on who can access and stay on the platform on both the supply and demand side of the platform. The second governance lever specifies or influences *how* contributors participate in collaborative value creation (Fjeldstad, Snow, Miles, & Lettl, 2012; Stabell & Fjeldstad, 1998). Given that platform participation is a highly interactive process, we refer to this lever as *structuring of platform participant interactions* and argue its relevance for the process as well as outcomes of interactions between platform producers and consumers. Next, we elaborate these two overarching levers of governance, recognizing that both are utilized across innovation and sharing economy platforms, but subsequently explain that their implementation is supported through distinct governance practices in each type of platform.

Selection of Platform Participants

The first lever we advance as essential to platform governance in the sharing economy is the selection of platform participants. When designing collaborative value creation either with or without the use of digital technologies, selection is considered a critical mechanism for regulating the scope and quality of membership in such arrangements (Das & Teng, 2000; Rothaermel & Boeker, 2008; West & O'Mahony, 2008). Selection shapes membership by determining who joins and for how long as well as who can make decisions and accomplish tasks critical for value creation (Gulati, Puranam, & Tushman, 2012).

The importance of selection is also implicitly acknowledged by the platform literature in its

recognition that both the scope as well as quality of a platform's network of customers matter for value creation (Afuah, 2013; Chu & Manchanda, 2016; Hagiu & Rothman, 2016). To influence the quality of platform participation, platform owners may preemptively restrict who "gets in" (Gulati, Puranam, & Tushman, 2012: 573; Snow, Fjeldstad, Lettl, & Miles, 2011), as well as who stays (Casadesus-Masanell & Hałaburda, 2014; Ozalp, Cennamo, & Gawer, 2018). Such selection typically focuses on the (technical) quality of the supply side, which in turn enhances the value created for consumers (e.g. Boudreau, 2010; Nocke, Peitz, & Stahl, 2007). Owners of video game platforms, for instance, preemptively select complementors by either sponsoring qualified ones, or by producing their own complements to ensure the technical compatibility and quality of initial offerings (Schilling, 2003; Song, Xue, Rai, & Zhang, 2018). They may also determine which complements can continue participating on their platforms by limiting the number and variety of product categories (Casadesus-Masanell & Hałaburda, 2014; Sun, Rajiv, & Chu, 2016), enforcing exclusivity agreements (Corts & Lederman, 2009; Hagiu & Lee, 2011), identifying the highest performing complements based on consumer ratings and reviews (Dellarocas, 2003; Zervas, Proserpio, & Byers, 2017), and mandating technical certifications (Hagiu, 2014; Wareham et al., 2014). In determining who joins or stays on their platform, platform owners also shape the evolution and differentiation advantages of their ecosystem (Binken & Stremersch, 2009; Cennamo, 2018; Rietveld & Eggers, 2018; Zhu & Iansiti, 2012). For example, Both Zhu and Iansiti (2012) and Cennamo (2018) found that when innovation platform owners were more selective of the complements allowed on their platforms, they were able to better satisfy consumers' preferences and grow more quickly, enabling followers to catch up to and even surpass incumbent platform owners.

But participant selection is not only important to governance in innovation platforms, but also consequential for governance in sharing economy platforms, albeit with a few differences. Specifically, studies of the sharing economy indicate the need to manage the composition of

participants on *both* sides of the platform, and to use *non-technical* criteria to do so (Hamari, Sjöklint, & Ukkonen, 2016; Kyprianou, 2018; Reischauer & Mair, 2018). Moreover, selection of this sort involves efforts both *on and off the platform* to gauge ex ante who can and should join the platform, and to signal ex post who should stay on the platform. For instance, on the platform, platform owners may publicly spotlight or recognize platform producers and consumers who respect particular social norms and espouse certain personal values as a means of indicating the platform owners' selection preferences (Hamari, Sjöklint, & Ukkonen, 2016; Kyprianou, 2018). Off the platform, selection may involve interacting with prospective and existing participants at events, conferences, or other relevant venues where platform owners can identify and recruit platform participants with motivations, beliefs, and values aligned with those of the platform owner, such as one's interest in reducing their carbon footprint (Kyprianou, 2018). These examples illustrate the potential for sharing economy platform owners to use the participant selection lever to build and maintain a base of platform producers and consumers likely to conform to desirable social and interactive behaviors. As such, the selection of platform participants, as the first foundational lever of our platform governance framework, allows us to subsequently consider how and to what effect sharing economy platform owners regulate the scope and quality of membership on both sides of their platforms.

Structuring of Platform Participant Interactions

The second lever we submit as essential to governance in sharing economy platforms is the structuring of platform participant interactions. In traditional arrangements of collaborative value creation, such as alliances, structuring how "day-to-day interactions are managed" is considered a critical aspect of fostering collaboration and preventing conflict between partners (Doz & Hamel, 1998: 120). Even if full collaboration is not always feasible between partners, structuring the interactions of collaborators helps "ensure that partners' efforts 'click' and yield the desired outcomes with minimal process losses" (Gulati, Wohlgezogen, & Zhelyazkov, 2012: 537).

Likewise, platform scholars have recognized that the "design [of] the core interaction between producers and consumers" is critical for effectively coordinating their inputs to platform-based value creation (Parker, Alstyne, & Choudary, 2016: 38). In essence, structuring producers' and consumers' interactions shapes and influences how platform producers interact, as well as to what end.

In innovation platforms, the structuring of platform participant interactions is typically accomplished through the design of a technological architecture that rewards complementors' adherence to technical standards and operating policies, and encourages complementors' technical education and training (Adner, 2017; Hagiu, 2014; Jacobides, Cennamo, & Gawer, 2018; Parker, Alstyne, & Choudary, 2016; Wareham, Fox, & Cano Giner, 2014). According to these studies, the intended outcomes of such formal and technical structuring efforts are to support the continuous development of new complements as well as generate economic value for both complementors and consumers.

By comparison, studies of sharing economy platforms draw attention to the social and informal structures that shape the process and outcomes of platform-mediated interactions. For instance, it is common for sharing economy platforms to support informal exchanges of information that facilitate negotiation, or customization of key transaction terms, and to encourage bi-directional ratings and reviews that evaluate both the transactional and social behaviors of platform producers as well as consumers (Kyprianou, 2018; Leoni & Parker, 2019). Additionally, platform owners may support the propagation of shared social norms and shared identity, which fosters "the sense of unity or agreement of feeling and action that emerges among individuals with a community bond" (Fisher, 2019: 289), and "reduce[s] the need for formal controls" (Fisher, 2019: 282). They may also engage in education and training that targets not only commercial but also interpersonal performance (Benoit et al., 2017; Hamari et al., 2016; Hartl et al., 2015; Hwang & Griffiths, 2017; Kyprianou, 2018; Schor & Attwood-Charles, 2017) as well as support community-building efforts

that instill "a feeling of partnership" (Sundararajan, 2014: 3) and a sense of belonging (Celata, Hendrickson, & Sanna, 2017). Ultimately, governing platform participation through social and informal structures allows platform participants to clarify their expectations of one another and develop shared understandings, which in turn help build trust between the two sides, and lessen the need for more formal controls. (Benoit et al., 2017; Möhlmann, 2015; Sundararajan, 2016). Importantly, social and informal governance structures help create economic and non-economic value for platform participants such as when platform participants can increase both their use of a shared asset and interact with "similar others" (Lamberton & Rose, 2012: 120). Hence, the structuring of platform participant interactions as the second critical lever of our framework allows us to account for how and to what effect sharing economy platform owners regulate the process and outcomes of interactions both formally and informally.

ALTERNATIVE APPROACHES TO PLATFORM GOVERNANCE AND SUPPORTING PRACTICES IN SHARING ECONOMY PLATFORMS

Although the governance levers of selection and structuring provide the requisite conceptual foundation for our framework of platform governance in the sharing economy, they alone provide little insight into how, why, and under what conditions platform owners use them to support value creation. We attend to these questions by first recognizing that governance lies on a continuum, and thus the levers of governance can be "pulled" to different degrees of intensity to either constrain or unconstrain platform participation. We also consider how doing so matters for value creation, as well as how these differences may be meaningfully enacted by platform owners. In developing our framework, we continue to use innovation platforms as a point of comparison to illuminate the unique aspects of platform governance in the sharing economy.

Unconstrained vs. Constrained Selection of Platform Participants

To regulate the scope and quality of platform participation, platform owners may pull the participant selection lever with different levels of intensity by imposing few or many, or strict or

lenient participation requirements (Boudreau, 2010; Casadesus-Masanell & Hałaburda, 2014; Cennamo, 2018; Eisenmann, Parker, & van Alstyne, 2011; Nocke et al., 2007). Colloquially, this entails either leaving the gates of platform participation open or closing them for particular participants and offerings. We refer to such limited versus extensive control that platform owners exert over platform participants' access to the platform as the unconstrained versus constrained selection of platform participants.

The importance of distinguishing between less restrictive (i.e., unconstrained) or more restrictive (i.e., constrained) approaches to participant selection is research that recognizes the network's size and conduct (i.e. behavior) both matter in network-based value creation (Afuah, 2013; McIntyre & Srinivasan, 2017). Such work, for instance, has shown that different levels of constraint on platform participation create distinct value-creation possibilities and competitive differentiation benefits (Cennamo, 2018, 2019; Cennamo & Santaló, 2018; Sun et al., 2016). Specifically, when platform owners provide few or no restrictions on "who can get in" and "who can stay" on their platforms, their ability to acquire a large and diverse set of participants helps generate valuable network effects (Boudreau, 2010, 2012), as well as enhance the platform's capacity for continuous innovation, and thus its evolvability (Wareham et al., 2014). Conversely, when platform owners constrain selection, they can better manage the quality and consistency of offerings on their platforms by excluding unqualified and non-conforming platform participants (Casadesus-Masanell & Hałaburda, 2014; Evans, 2012; Evans & Schmalensee, 2010). In doing so, platform owners recognize that a relatively small number of participants can be responsible for the majority of valuable (or harmful) contributions to it (Lee, Lee, & Lee, 2006; Suarez, 2005). Overall, such work demonstrates the selection lever can pulled with less or more intensity to variably regulate the scope and quality of platform participation.

Although the above ideas apply equally well to both innovation and sharing economy platforms, the practices through which sharing economy platform owners control participant

selection differs from the practices of innovation platforms. In innovation platforms, unconstrained selection can be understood as a choice to foster technical compatibility only loosely, with the intention of generating both scale and variety in complements. This occurs, for instance, when platform owners welcome a broader range of product categories or genres (Rietveld & Eggers, 2018; Rietveld et al., 2019). Conversely, constrained selection in innovation platforms can be understood as a choice to govern technical compatibility more rigidly, so as to encourage and reward complementors' consistency in technical quality and commercial success. This occurs, for instance, when platform owners limit participation to select product categories that have already been popular with consumers (Rietveld & Eggers, 2018; Rietveld et al., 2019), or when they limit the degree to which complementors are allowed to introduce modifications to the platform technology's core functionality (Boudreau, 2010; Sun et al., 2016). And as platforms evolve and face rising competition (Huber et al., 2017), they may restrict the participation of complementors, or promote particular ones as a means of competing with new entrants or catching up with dominant platforms (Cennamo, 2018; Cennamo & Santaló, 2018; Rietveld et al., 2019; Sun et al., 2016).

In contrast, in sharing economy platforms, unconstrained selection can be understood as a choice to foster both sides' relational compatibility only loosely—including by encouraging variety in both commercial qualifications, as well as social behaviors and identities—whereas constrained selection reflects the platform owner's preference for platform producers and consumers with greater consistency on these dimensions, and thus with greater capacity for demonstrating their relational compatibility. Calibrating participation in these ways involves platform owners going beyond commercial criteria to constrain participation based on social behavioral criteria as well. For example, platform owners may recruit, reward, and evaluate platform producers and consumers on the basis of their resource relevance, their willingness to perform highly on both commercial and interpersonal dimensions, as well as their societal or environmental sensitivities (Kyprianou, 2018; Martin et al., 2017; Reischauer & Mair, 2018). Such selection activities align more generally with

the findings that individuals' entry and continued stay on sharing economy platforms is influenced by both economic and social motivations (Bucher, Fieseler, Fleck, & Lutz, 2018; Gerwe, Silva, & Castro, 2020; Lamberton & Rose, 2012).

Unconstrained vs. Constrained Structuring of Platform Participant Interactions

To regulate the process and outcomes of platform participants' interactions, platform owners may pull the structuring lever with different levels of intensity by increasing, reducing, or altering, for instance, the criteria they use (e.g. product genre, price, technical specifications, ratings) to match platform producers and consumers (Rietveld et al., 2019). In simple terms, unconstraining or constraining the structuring of interactions entails either allowing platform participants the autonomy to determine with whom they transact, how and with what outcomes or subjecting both the process and outcomes of platform participants' interactions to the oversight of the platform owner. We refer to these alternative approaches to structuring platform producers' and consumers' interactions as the unconstrained versus constrained structuring of interactions.

The importance of distinguishing between less restrictive (i.e., unconstrained) or more restrictive (i.e., constrained) approaches to structuring participant interactions rests on the implicit assumption in extant literature that platform owners variably regulate interactions (Casadesus-Masanell & Hałaburda, 2014; Evans, 2012; Evans & Schmalensee, 2010). For instance, some platform owners may constrain interactions more so than others—and thus pursue higher levels of technical compatibility—by introducing additional search and filtering features, transaction terms and conditions, and penalties for bad behavior whereas others may accept lower levels of technical compatibility by reducing the number and type of such controls.

In sharing economy platforms, however, the challenge of fostering platform participants' relational compatibility adds important nuance, complexity, and consequence to such structuring efforts. Specifically, sharing economy platform owners variably structure interactions by blocking or allowing information to be exchanged between producers and consumers at different stages of

the transaction cycle; specifying none or some of the transaction terms (e.g., pricing, timing of delivery); encouraging or discouraging cash payment options; and making available unidirectional or bidirectional behavioral ratings and reviews (Kyprianou, 2018). They may also variably shape the process through which transacting parties interact by defining the boundaries of the platform's community and identity, "nudging" participants' interactions in one way or another, and monitoring and sanctioning participants' inappropriate behaviors (Reischauer & Mair, 2018). Consistent with these approaches, unconstrained structuring can be understood as a choice to fosters both sides' relational compatibility only loosely by giving platform producers and consumers the freedom to specify both the commercial terms of their transactions as well as the social norms they expect one another to follow when interacting (Bucher et al., 2018; Kyprianou, 2018; Reischauer & Mair, 2018). Such a laissez-faire approach to structuring interactions is evident in TaskRabbit's terms of service, which state that TaskRabbit has "no control over the quality, timing, legality, failure to provide, or any other aspect whatsoever of Tasks, Taskers, Clients […]" (TaskRabbit, n.d.). In contrast, constrained structuring reflects the platform owner's preference for fostering relational compatibility strictly by determining and monitoring how and with what outcomes platform participants transact and socially interact. This regimented approach to structuring interactions can be found in Uber's and Lyft's full control over pricing, the types of information drivers and passengers can access prior to completing a ride, as well as the types of behaviors on which they can rate each other.

Noteworthy in these opposing approaches to structuring platform participant interactions are the underlying assumptions about platform participants' capacity for evaluating each other's conformity to either technical standards or relational norms. In the less constrained approach, platform participants are considered capable and willing to evaluate either complements' technical compatibility or each other's relational compatibility, and in turn free to decide whether, and with whom they interact. Without extensive involvement in the process and outcomes of interactions,

platform owners thus operate primarily as enablers of interactions. In contrast, the more constrained approach views the platform owner's involvement as a necessary element of platform producers' and consumers' capacity for evaluating each other's technical or relational compatibility. In this case, platform owners are not only the enablers but also the arbiters of interactions, ensuring to the extent possible that interactions occur around appropriate technical characteristics or social behaviors, and ultimately produce acceptable transaction outcomes.

Summary of Key Framework Components

To this point in our theorizing, we have argued that platform governance in innovation platforms aims at promoting the technical compatibility of platform producers, whereas in sharing economy platforms it prioritizes the relational compatibility of both producers and consumers. To foster either type of compatibility, platform owners may utilize two distinct levers: selection of platform participants and structuring of platform participant interactions. Although these governance levers are relevant for both innovation and sharing economy platforms, our theorizing highlights distinct practices of using each lever with different levels of intensity in each type of platform. Importantly, our work explicates the underlying value creation logics of alternative approaches to platform governance. Overall, our arguments, summarized in Table 1, demonstrate key platform governance differences between innovation and sharing economy platforms. Next, we consider the role that conditions relevant to the nature of transactions in the sharing economy play in how sharing economy platform owners may utilize each lever to either constrain or unconstrain platform participation.

Insert Table 1 about here

TRANSACTION ATTRIBUTES AND PLATFORM GOVERNANCE APPROACHES

In line with prior research, we recognize that a variety of conditions can drive platform owners' approach to governance (Huber et al., 2017), including the attributes of the platform itself,

such as its maturity (Cennamo, 2018; Rietveld & Eggers, 2018), and the characteristics of the political, regulatory, or competitive environment (Gerwe et al., 2020; Seamans & Zhu, 2013; Zhu & Iansiti, 2012). Given that we cannot consider all possible conditions in one paper, we focus on attributes that explicate the nature of transactions—an undertheorized driver of value creation in markets with network externalities such as platformed markets (Afuah, 2013). According to Afuah, "differences [in the nature of transactions] often imply differences in infrastructures, feasibility of transactions, distinctive capabilities, levels of trust, structural holes, and other constructs," which ultimately influence "what the network is used for" (2013: 267). Consistent with Afuah's argument, we postulate that transaction attributes influence platform owners' approach to governance, and develop propositions linking transaction attributes with a sizeable bearing on the relational compatibility of platform participants to platform owners' use of the selection and structuring levers.

Ex Ante Observability of Fit

Matching supply and demand is a key function of digital multi-sided platforms (Amit & Han, 2017; Perren & Kozinets, 2018). The strength of this match, i.e. the fit between platform producers' resources and consumers' preferences, is typically used as a proxy for the value platform owners create for both parties (Cennamo, 2018; Zhu & Iansiti, 2012). To create matches, owners of innovation platforms typically consider observable product attributes, such as a piece of software's compatibility with the platform technology, as well as its genre, functionality, and commercial performance. But in sharing economy platforms, offerings may consist of both products and services (Andersson, Hjalmarsson, & Avital, 2013; Gerwe & Silva, 2018). When a service component is involved in platform participants' transactions, creating a strong match is challenged by the difficulty of evaluating the quality of service before it is experienced (Mills & Margulies, 1980), and relatedly by the ex ante uncertainty facing consumers about their eventual satisfaction with it (Vandaele, Rangarajan, Gemmel, & Lievens, 2007).

Consider, for instance, the difference between evaluating the quality of a used lawn mower on the sharing economy platforms of OfferUp or Wallapop, and the quality of lawn mowing services on LawnGuru or LawnStarter. In the former case, sellers can easily communicate the quality of an offering by listing their lawn mower's technical specifications, which buyers can reference to evaluate the equipment's fit with their needs. But in the latter case, both evaluating the quality of lawn care services ex ante is rife with uncertainty surrounding the provider's knowledge, punctuality, and quality of service. These differences may explain why OfferUp and Wallapop impose few, if any, constraints on either the selection of platform participants or the structuring of their interactions, and why LawnGuru and LawnStarter vet providers, offer pricing suggestions, and provide quality assurances, such as "all of LawnGuru providers are background checked, insured and held to rigorous quality standards" (LawnGuru, n.d.). In other words, the ease with which platform participants can evaluate their fit prior to transacting, and independently of the platform owner's involvement, has a bearing on the intensity with which platform owners utilize either or both governance levers in their efforts to reduce the uncertainty surrounding the fit between the two sides. More specifically, we posit:

> *Proposition 1: The less observable platform producers' and consumers' fit is prior to transacting, the more that platform owners will constrain platform participant selection and/or interactions.*

Necessity of Off the Platform Interactions

Although some scholars consider offline interactions as a defining element of the sharing economy (e.g. Gerwe & Silva, 2018; Stofberg & Bridoux, 2019), such interactions may not always be required for platform producers and consumers to transact. For instance, certain Airbnb hosts may prefer to welcome guests and provide them with keys and instructions in person, whereas other hosts give guests access to their accommodation without ever meeting them in person. Off the platform interactions may also occur indirectly, such as when guests come into contact with hosts' art or other personal effects—interactions that sharing economy scholars have found to impact the

guest's perception and evaluation of their host (Reischauer & Mair, 2018). We thus define off the platform interactions as direct or indirect exchanges between platform producers and consumers, which are unmediated by the platform technology but necessary for completing a platform-mediated transaction.

In line with prior research, we recognize the importance and ubiquity of off the platform interactions in the sharing economy but also the varying degrees of their necessity for completing platform-mediated transactions. For instance, Uber drivers and travelers, or Table at Home chefs and homeowners have no choice but to interact off the platform, whereas Fiverr freelancers and customers can accomplish tasks without ever meeting or communicating off the platform. In the former case, the risk of platform participants behaving inappropriately is more acute since, by definition, off the platform interactions occur outside the platform owner's oversight. We thus expect that the extent to which off the platform interactions are necessary for completing transactions on the platform, the more intensely platform owners will engage with the selection and structuring levers of governance to ensure that appropriate behaviors carry from within the platform to outside of it. Specifically, we theorize:

> *Proposition 2*: *The more necessary off the platform interactions between platform producers and consumers are for completing on-the-platform transactions, the more that platform owners will constrain platform participant selection and/or interactions.*

Degree of Contact Intimacy

In addition to their varying levels of necessity, interactions between platform producers and consumers may also differ based on the degree to which they require the two sides to engage intimately (Rea, 2015; Schoenbaum, 2016). Importantly, such exchanges may occur both on and off the platform. For instance, in massage and wellness platforms, such as Soothe or Vagaro, off the platform interactions between the two sides require up close and personal physical contact that is distinctly different from the arm's length interactions in which Lyft drivers and passengers, or Airbnb guests and hosts, engage when they meet in person. Higher levels of intimacy may also

occur online, such as when transacting parties have to exchange confidential information, including medical information exchanged through online counseling platforms such as Betterhelp. Our assertion is that the degree of contact intimacy required between platform producers and consumers is relevant for governance decisions because higher levels of intimacy can render interacting parties more vulnerable to violations of privacy and endanger their physical and psychological safety (Reis, 2018). In a commercial setting, intimacy between a customer and a provider—defined as "a very close and valuable relationship with a supplier, characterized by high levels of mutual understanding"—has been found to influence customer commitment to that provider (Brock & Zhou, 2012: 371). Given intimacy's interpersonal nature, as well as its impact on both social and commercial exchanges, we highlight its bearing on interactions between platform producers and consumers. Specifically, we expect that the greater the degree of contact intimacy—physical or otherwise—in which platform producers and consumers must engage to transact, the more intensely platform owners will utilize the selection and structuring levers to protect both sides' confidentiality and safety. Specifically, we theorize:

> *Proposition 3*: *The more contact intimacy platform producers and consumers must have when transacting, the more that platform owners will constrain platform participant selection and/or interactions.*

Necessity of Specialized Knowledge

Much of the sharing economy has been predicated on the premise of private individuals using relatively mundane resources such as one's home, car, and even free time to satisfy consumer needs. But several sharing economy platforms also exist to facilitate the exchange of non-mundane resources, including specialized knowledge and skills (Perren & Kozinets, 2018). For instance, Skillshare is built on the premise that individuals can teach others specialized skills ranging from animation to creative writing. In Skillshare's case, specialized knowledge is an essential element of producers' qualifications as well as consumers' preferences. In contrast, on pet sitting platforms such as Rover, a dog sitter's knowledge of administering insulin shots to a diabetic dog may be

important for some dog owners, but not necessary for providing general pet sitting services and effectively participating on the platform. As such, the necessity of specialized knowledge in platform producers' and consumers' transactions introduces variance relevant for platform governance. Specifically, the absence or insufficiency of specialized knowledge when it is necessary challenges platform owners' ability to create high quality matches. Unsatisfactory matches create adverse selection costs that increase, rather than reduce, search and transaction costs for consumers (Dushnitsky & Klueter, 2011). As a result, consumers are likely to form negative perceptions of the platform itself, exit the platform, and even transition to a competitor. Drawing on these insights, we propose that the extent to which specialized knowledge is necessary for value creation influences the extent to which platform owners utilize the selection and structuring levers of governance to influence who is qualified to provide expert knowledge, how, and to what end. Specifically, we posit:

> *Proposition 4: The more necessary platform producers' specialized expertise is in their transactions with consumers, the more that platform owners will constrain platform participant selection and/or interactions.*

Permeability of Roles

In some cases, sharing economy platforms allow the same individual to participate on both sides of the platform, as producer and consumer, with relative ease (Mont, Palgan, Bradley, & Zvolska, 2020). For instance, on bicycle rental platforms such as Spinlister, bicycle owners can rent out their bicycles as well as rent bicycles from others when traveling outside their hometowns. The roles of producer and consumer are also quite permeable on Airbnb's platform, which in fact experienced its initial growth when initial guests traveled back to their homes and decided to become Airbnb hosts (National Public Radio, 2016). The permeability of roles in these cases is both feasible and likely because platform participants already possess the relevant resources for transacting as both producer and consumer. As such, the feasibility of such role duality may vary depending on the resources that platform participants possess or need independently of their actions

on the platform. From a governance perspective, greater permeability in roles allows platform participants to experience platform participation from different perspectives, thereby understanding the rules and norms on both sides of the platform. In turn, such understanding supports self-governance, and lessens the need for platform owners to constrain platform participation. We thus propose:

> *Proposition 5: The more permeable platform producers' and consumers' roles are, the less the platform owner will constrain platform participant selection and/or interactions.*

Level of Risk

The possibility that platform participants' 'bad behavior' (e.g. fraud, misrepresentation, negligence, assault, libel) can manifest as well as outweigh the benefits of platform participation has been recognized as a key challenge for platform-based value creation (Evans, 2012). In sharing economy platforms, curbing and monitoring bad behavior is a critical aspect of motivating strangers to interact directly with one another (Bucher et al., 2018; Mair & Reischauer, 2017). Bad behavior not only results in unsatisfactory transaction outcomes, but also challenges trust building, corrodes existing trust among platform participants, as well as reduces platform participants' trust in the platform owner's capacity for thwarting it (Querbes, 2018). At the same time, bad behavior can harm non-platform participants as well, such as when Airbnb guests threw a 50-person party—despite Airbnb's ban on parties in rented properties—during which three people were injured after a party attendee opened fire (Holmes, 2020).

The risk that emerges from bad behavior can vary in both nature and degree. Platform participants are often exposed to financial risk, the level of which may depend on the size of payment required, the length of the financial commitment, the likelihood a payment may be lost, or agreed upon price changes. For instance, a consumer hiring a contractor on HomeAdvisor to build a pool faces a much higher financial risk (given the high cost and the multi-month duration of such projects) than the one involved when hiring a courier on Rapidus to transport a package across

town. For platform producers, financial risk is also higher in the former case given the relatively higher level of financial responsibility contractors take on.

In addition to financial risk, sharing economy platforms also produce varying levels of personal risk, for instance, based on the extent to which bad behavior can cause injury or death, or its potential harm to the emotional wellbeing, social standing, or reputation of platform participants as well as the public. For instance, the connections that on-demand counseling platforms, such as Talkspace, make between mental health counselors and patients have graver implications for both the well-being of patients and counselors' reputations than those for individuals requesting and completing errands through Taskrabbit. Both the nature and level of risk may explain why Talkspace connects individuals in need of psychological or psychiatric counseling with "licensed, experienced, verified" professionals who have to submit both an application and receive peer training before they can be matched with clients. Similar constraints on platform participation have also been observed in a multi-case study of sharing economy platforms, where platform owners constrained both who could participate and how they could interact on the platform by requiring service providers to provide evidence of their industry-relevant certifications before they could transact, and by directing incoming customer requests to more experienced service providers (Kyprianou, 2018). We thus propose:

> *Proposition 6: The higher the financial or personal risk platform participants' transactions generate for platform participants, the platform owner or the public, the more that platform owners will constrain platform participant selection and/or interactions.*

Hedgeability of Risk

Despite the inevitability of risk, certain types and levels of risk may be amenable to hedging. In the sharing economy, the platform owner's involvement in hedging risk for itself and for platform participants, for example through platform-sponsored insurance or guarantees, is considered key in reducing platform participants' perceived risk, and activating their transactions (Kyprianou, 2018; Weber, 2014). However, platform participants may also be able to hedge their

risk independently of the platform owner's involvement. For instance, an independent jewelry designer in need of a new logo may hire multiple logo designers on the 99Designs platform to find one she likes without investing significant financial resources or time. But such hedging behavior is significantly costlier, in terms of money and time, if one tries to hire multiple app developers through the Upwork platform to create a mobile application. In other words, the hedgeability of financial risk in the latter case is much lower than in the former case.

Alternatively, platform participants can seek insurance instruments on their own and outside the platform, such as when Airbnb hosts hedge against the risk of damaged property by taking out home insurance, even if it is not required by the platform owner. Yet, the insurance industry has been slow to adapt to the needs of sharing economy platform participants, thus making it difficult for them to access appropriate insurance coverage (LLoyd's & Deloitte UK, 2018; Research and Markets, 2020). We therefore propose that the extent to which platform participants in the sharing economy can independently hedge against the risks of platform participation may depend on the complexity of the tasks involved in transactions, the time commitment required to carry out the tasks, and the availability as well as cost of insurance instruments. In turn, the hedgeability of risk can influence the intensity with which platform owners govern platform participation so as to reduce that risk for platform participants. Specifically, we submit:

> *Proposition 7: The less platform participants are able to hedge their financial or personal risk independently of the platform owner's involvement, the more that platform owners will constrain platform participant selection and/or interactions.*

Remediability of Failed Transaction Outcomes

In addition to preventing failed transaction outcomes and hedging risk, platform participants and platform owners may be able to correct failures after they occur. Remedial actions including replacements, refunds, and discounts are common for recovering from service failure in online transactions (Kuo, Yen, & Chen, 2011). But the extent to which transaction failures are amenable to remedial action can depend on the ease, cost, and feasibility of such action (Zhu, Sivakumar, &

Parasuraman, 2004). Compare, for instance, an Instacart grocery shopper who selects poor quality produce or damages it during transport with a drunk Uber driver who puts passengers' and the public's wellbeing at risk. The former may be remedied through a refund or by having another shopper redeliver better quality produce, whereas the latter cannot be corrected if it produces injuries and death. The latter also carries irreversible and costly personal, financial, and reputational consequences for platform and non-platform participants, as well as for the platform owner. It is thus unsurprising that Uber and Lyft mandate driver background checks, automobile insurance, age requirements, identity verifications for both sides, as well as multiple restrictions on when the two sides can directly communicate. In contrast, on demand delivery services, such as Instacart, Postmates, and DoorDash, impose far fewer restrictions on who participates and how. DoorDash's website explains that delivery platforms, when compared to ridesharing platforms, do not impose restrictions on the type of vehicle drivers can use, or the ways in which they should behave, other than to pick up, drive, and deliver an order (DoorDash, n.d.). Taken together, these insights suggest that the remediability of failed transaction outcomes can influence the extent to which platform owners assume the responsibility and costs of correcting such outcomes through their governance choices. Specifically, we theorize:

> *Proposition 8: The less amenable to remedial action failed transaction outcomes are, the more that platform owners will constrain platform participant selection and/or interactions.*

PLATFORM GOVERNANCE WITH MULTIPLE TRANSACTION ATTRIBUTES

We have so far theorized the relationship between eight key transaction attributes and the intensity with which the levers of governance are likely used. In doing so, we have opted for simplicity in our theorizing by considering the impact of only one transaction attribute at a time. Nonetheless, platform governance in practice is regularly influenced by a variety of conditions (Tiwana, 2014). Thus, we advance two additional propositions that explicate more complex relationships between multiple attributes of transactions and the intensity of platform governance.

First, we expect that governance choices concurrently informed by multiple transaction attributes with similar constraint requirements will result in the highest (or lowest) levels of constraint. Our assertion is that the more conditions exist that challenge value creation, the more platform owners will tighten their grip over platform participation. For instance, we have theorized that lower ex ante observability of fit, higher necessity of platform interactions, and lower hedgeability of risk, will each be associated with higher levels of control. We expect that in cases where these three conditions exist and are accounted for in platform owners' governance decisions, platform governance will exert the highest levels of constraint over platform participation selection and interactions.

Second, we propose that the presence and joint consideration of conditions with opposing constraint requirements will be associated with a balanced approach to governance, which seeks to concurrently exercise low and high levels of constraint (Wareham, Fox, & Cano Giner, 2014). For instance, when ex ante observability of fit is low, the necessity of off the platform interactions is low, and the hedgeability of risk is high, platform owners will be faced with a decision to either govern intensely so as to address challenges emerging from the first condition, or govern leniently so as to encourage platform participants' autonomy supported by the latter two conditions. But rather than pit these choices against each other, prior research on both innovation and sharing economy platforms suggests the integration of opposing priorities, such as concurrently encouraging the introduction of new offerings while reducing low quality offerings, enhances platform-based value creation, growth, and competitive advantage (e.g. Cennamo & Santaló, 2019; Hannah & Eisenhardt, 2018; Huber, Kude, & Dibbern, 2017; Kyprianou, 2018; Schor, Fitzmaurice, Carfagna, Attwood-Charles, & Poteat, 2016; Wareham, Fox, & Cano Giner, 2014). Drawing on these insights, we theorize:

> *Proposition 9. Platform owners will concurrently exercise the highest (or lowest) levels of constraint over platform participant selection and interactions when they account for multiple transaction attributes with similar constraint requirements.*

Proposition 10: Platform owners will concurrently balance high with low levels of constraint over platform participant selection and interactions when they account for multiple transaction attributes with opposing constraint requirements.

CONTRIBUTIONS

In this paper, we have enriched and extended theories of platform governance by accounting for the unique aspects of governance for value creation in sharing economy platforms. In doing so, we have aimed at developing new theory that strikes an appropriate balance between comprehensiveness and parsimony. The parsimony of our framework stems from two overarching and theoretically-grounded levers of governance—selection of platform participants and structuring of participant interactions—relevant for both innovation and sharing economy platforms. At the same time, our framework pursues comprehensiveness by recognizing the plurality of platform governance strategies as manifested in the distinct approaches with which essential governance levers are used, the value creation logics underlying each approach, and their relation to several transaction attributes familiar to the sharing economy and highly relevant for relational compatibility. We note here that these levers are also generalizable to other types of platforms (e.g. information and social networking platforms), and to firms that engage in a multi-actor and interactive value creation process across firm boundaries (e.g. in collaboration with firm-sponsored user communities) (e.g. Jeppesen & Frederiksen, 2006; Manchanda, Packard, & Pattabhiramaiah, 2015).

Our theorizing makes four key contributions to the platform literature and to the growing body of research on the sharing economy. First, it enriches and extends theories of platform governance by explicating how differences in platform participation across innovation and sharing economy platforms have bearing on the goals, subjects, and practices of platform governance (Table 1). Notably, the focus of governance on fostering platform participants' relational compatibility explicates the importance of influencing and monitoring social behaviors among both platform

producers and consumers on sharing economy platforms, as well as the usefulness of non-technical and informal controls in doing so. These arguments highlight the unique challenges and distinctly different activities of governance in the sharing economy while also recognizing the active role both sides of the platform have in shaping platform governance (Amit & Han, 2017; Gawer, 2014).

Our second contribution lies in integrating insights related to platform governance from the literatures on multi-sided platforms, the sharing economy, and collaborative arrangements for value creation. This integration has culminated into the recognition that the heterogeneity of platform governance practices can be parsimoniously decomposed into two, theoretically distinct control levers, which can be pulled to different degrees from the lowest to the highest levels of control. Thus, the extent to which platform owners pull these levers determines the location of their governance intensity on the low-high control spectrum. These conceptualizations help integrate and organize relevant insights as well as create a framework for studying "heterogeneous governance practices […] across platforms" (Rietveld & Schilling, 2020),

Our framework also recognizes that platform owners' choice of the intensity with which they exercise control over platform participation informs the type of value their platforms can create for their users. When it comes to selecting participants, less constraint is predicated on the logic that a larger network on both the supply and demand sides of the platform reduces platform participants' search and transaction costs, while the inherent heterogeneity of a large network encourages the continuous emergence of new needs and new innovation opportunities (Boudreau, 2010, 2012; Cennamo & Santaló, 2019). In contrast, higher constraint on selection aligns with the view that the quality of the network is an equally important driver of value because it supports consistency in participation, thereby reducing uncertainty surrounding transaction outcomes (Afuah, 2013; Cennamo & Santaló, 2019; Evans, 2012; Evans & Schmalensee, 2010). As far as structuring interactions is concerned, less constraint is based on the view that platform participants enjoy and experience benefits from determining the terms and outcomes of their interactions autonomously,

whereas higher constraint regulates interactions so that the variance and risk emerging from that autonomy is reduced. Together, these arguments elucidate the theoretical links between heterogeneous governance practices and heterogeneous types of value.

Third, our framework emphasizes that the drivers and suitability of platform governance cannot be judged separately from the context in which governance occurs. Building on prior research and illustrative examples, we have offered several propositions linking each of eight attributes of transactions common in the sharing economy with the intensity of platform governance in this space. Two additional propositions recognize that, in practice, platform governance is a complex undertaking informed by a variety of conditions (e.g. multiple transaction attributes). As such, we postulate that the concurrent consideration of several transaction attributes may, in some cases, have a cumulative effect on platform governance, resulting in either the least or the most control. In other cases, the effect may involve the reconciliation of opposing forces, which calls for integrating low and high control through a more balanced configuration of governance choices.

Last but not least, we contribute to scholarly conversations on the sharing economy as a theoretically relevant phenomenon for organization research (e.g. Gerwe & Silva, 2018; Laamanen, Pfeffer, Rong, & Van de Ven, 2018; Maurer, Mair, & Oberg, 2020; Mont, Palgan, Bradley, & Zvolska, 2020) by demonstrating that research on the sharing economy has moved beyond the "pre-paradigmatic discovery stage" and has already begun to offer new insights on topics such as designing new organizational forms (Laamanen et al., 2018: 213). Specifically, alternative approaches to selecting participants and structuring interactions present implications for who can assume what tasks, as well as how such efforts can be integrated, whereas the specific activities through which such choices are implemented crystallize the specific paths through which new forms are executed on (Maurer et al., 2020; Puranam et al., 2014).

Limitations and Future Research

As with any research, our work has limitations. Notably, our propositions linking the context

in which a platform operates to its governance choices are not exhaustive. We have focused on transaction attributes common in the sharing economy, but recognize that valuable insights can also be gained by examining the links between platform governance and external conditions (e.g. competitive, political, and regulatory), as well as internal conditions (e.g. venture funding, and founding team experience), both in sharing economy and other types of platforms. For instance, existing research has shown that the strength of a country's regulatory environment influences the strategies that sharing economy platforms, such as Airbnb and Uber, have used to gain legitimacy in a new geographic market (Uzunca, Rigtering, & Ozcan, 2018), whereas the degree of political competition in a city has impacted ridesharing platforms' ability to continue operating in a city (Paik, Kang, & Seamans, 2019). Additional research in this area, including large scale cross-country studies, can further explicate whether and how government regulation and political conditions compel platform owners to either adopt governance approaches that conform to existing institutional pressures or pursue governance practices that help change existing institutions in their favor.

Although we have distinguished sharing economy and innovation platforms based on the goals, subjects, and practices of their governance, additional distinctions across platforms can be useful foundations for scholars extending theories of platform governance while remaining sensitive to the diverse nature of platforms. Additionally, we have recognized that platform governance choices in practice can involve pursuing contradicting priorities, but we also acknowledge that our propositions do not address these challenges in great detail. For instance, prior research has shown that scaling up platform participation requires managing tensions between encouraging innovative offerings and ensuring their quality, and that such tensions can be resolved either by choosing between such competing priorities (Cennamo & Santaló, 2013, 2019; Huber et al., 2017), or by findings ways to balance them (Wareham et al., 2014). Yet, a more substantial body of knowledge is needed to understand when such tensions are most prominent, how they are managed both

strategically and operationally, and how such tensions may change over time.

Another limitation of our is framework is its focus on the governance activities of platform owners and thus its platform-owner-centric view on this topic. We believe the time is ripe for research examining platform governance from a participant-centric perspective to better understand this critical activity in platform-based value creation. Here, qualitative studies can be particularly useful in exploring whether, why, and when platform participants may or may not value or adhere to a particular approach to governance, or the impact that a particular governance approach may have on their socio-cognitive and affective processes. For instance, prior research has drawn attention to the role of platform governance in curbing racial discrimination on their platforms (Cui, Li, & Zhang, 2019; Edelman, Luca, & Svirsky, 2017; Todisco, 2014). In adopting a participant-centric perspective on governance, platform scholars will also be better positioned to uncover the 'dark side' of platforms as well as generate key insights on how owners can identify and prevent discriminatory and other harmful behaviors on their platforms.

Noteworthy here is that each of these extensions calls for new and robust measurements of platform governance. An especially promising opportunity for future research lies in the development and validation of measures related to the selection of platform participants and the structuring of their interactions. Our theorizing directs such efforts towards developing measures based on the number, the nature (e.g. formal vs. informal, economic vs. social), and the stringency (e.g. level of associated rewards or penalties) of platform owners' selection criteria, or of the constraints they impose on direct communication between the two sides. Such measures can be developed by analyzing publicly available archival data, such as 'terms and conditions' documents, social media communication, blog posts, news releases, and user community sites. Software-enabled text analytic techniques, including topic modeling, can be especially useful in analyzing such texts to derive quantifiable patterns in the content and level of platform control (Hannigan et al., 2019). The wealth of publicly available archival data also presents an opportunity to develop

and validate dictionaries that capture heterogeneous governance practices. In management research, dictionaries have been developed and validated to capture strategy-relevant cognitive constructs by analyzing letters to shareholders, 10Ks, and company announcements (e.g. Gamache, McNamara, Mannor, & Johnson, 2014). Platform governance research can utilize dictionaries to analyze governance-related texts (e.g. company announcements related to policies, features, and behavioral norms) and measure the linguistic markers of different types of restrictions, thereby extracting quantifiable evidence on differences across governance approaches.

We are hopeful that part of these future research efforts will pay special attention to developing measures of informal control. Process studies using interview and observation data can be particularly helpful in identifying the evolution of informal controls (e.g. community building, training) over the lifecycle of a platform. Ethnographic observations can further facilitate these efforts through observation of interactions occurring off the platform either among platform participants or with the platform owner (e.g. interactions in industry or company-hosted conferences). Importantly, the development of informal control measures makes it possible to compare the performance implications (e.g. financial returns, or growth rates) of informal versus formal controls. As such, they represent a crucial facet of examining sharing economy platform governance and its implications in a comprehensive, meaningful way.

CONCLUSION

In developing a framework of platform governance that accounts for the unique features and challenges of platform-based value creation in the sharing economy, we have demonstrated the importance of considering the diverse nature of platform participation in extending and enriching theories of platform governance. We hope our work provides a useful conceptual foundation and inspires new ideas for future research on platform governance both in and outside the sharing economy.

TABLE 1
Governance in Innovation Platforms vs. Sharing Economy Platforms

	Innovation Platforms	**Sharing Economy Platforms**
Primary goal and subjects of platform governance:	*Technical compatibility of supply-side participants*	*Relational compatibility of both supply- and demand-side participants*
Governance levers and supporting practices	*Selection of platform participants using:* • platform producers' technical resources and qualifications (e.g. prior expertise, and certifications) • complements' technical quality, and expected or historical commercial performance *Structuring of platform participant interactions using:* • technological standards for creating and accessing interconnected technological products • uni-directional ratings and reviews of the quality of complements • enforcement of contractual policies and rules • technical education and training	*Selection of platform participants using:* • platform producers' and consumers' non-technical resources, qualifications, interests, and identities • platform producers' and consumers' social behaviors, and expected or historical social performance *Structuring of platform participant interactions using:* • technology that facilitates matching, transparency, information exchange, negotiation, and customization • bi-directional ratings and reviews of the quality of offerings as well as the behaviors of both platform producers and consumers • propagation of shared social norms and shared identity • relational education and training

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