TO SHARE OR NOT TO SHARE: TOWARDS UNDERSTANDING THE ANTECEDENTS OF PARTICIPATION IN IT-ENABLED SHARING SERVICES

Research in Progress

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Abstract

The search for strategies to mitigate undesirable economic, ecological, and social effects of harmful resource consumption has become an important, socially relevant topic. An obvious starting point for businesses that wish to make value creation more sustainable is to increase the utilization rates of existing resources. Modern social Internet technology is an effective means by which to achieve IT-enabled sharing services, which make idle resource capacity owned by one entity accessible to others who need them but do not want to own them. Successful sharing services require synchronized participation of providers and users of resources. The antecedents of the participation behavior of providers and users has not been systematically addressed by the extant literature. This article therefore proposes a model that explains and predicts the participation behavior in sharing services. Our search for a theoretical foundation revealed the Theory of Planned Behavior as most appropriate lens, because this theory enables us to integrate provider behavior and user behavior as constituents of participation behavior. The model is novel for that it is the first attempt to study the interdependencies between the behavior types in sharing service participation and for that it includes both general and specific determinants of the participation behavior.

Keywords: Theory of Planned Behavior, Sharing Economy, Collaborative Consumption, Participation

1 Introduction

In a world of limited resources, sharing is a fundamental principle of sustainable development. There are two major reasons for contemporary societies to embrace the idea of resource sharing. First, *problems of unsustainable resource consumption* are far from being solved, and they urgently require solutions (Meadows et al., 1972; Princen et al., 2002; von Weizsäcker et al., 2009). The growing scientific consensus on humans' contribution to the degradation of the natural environment (Anderegg et al., 2010; Oreskes, 2004) increases this issue's importance. Sharing, as a specific resource-allocation mechanism (Crowston, 2003), has become increasingly popular, and it constitutes a promising instrument with which to confront harmful resource usage (Botsman and Rogers, 2010; Buczynski, 2013; Heinrichs, 2013).

The second argument impelling the idea of resource sharing is related to *new business opportunities* that are arising from organizing and participating in sharing services (Bainbridge, 2013; Owyang et al., 2013). Today's Internet technology establishes a basis for effective matchmaking between providers who own resources and users who need them but do not want to own them. Cases in point include platforms for

car-sharing (Lyft), 3D printers (3D Hubs), parking slots (JustPark), accommodations (HomeAway), and household tools (Zilok). These examples are instances of what goes by names like "the sharing economy" (Andersson et al., 2013; Malhotra and van Alstyne, 2014), "collaborative consumption" (Botsman and Rogers, 2010), "access-based consumption" (Bardhi and Eckhardt, 2012), "the mesh" (Gansky, 2010), "product-service systems" (Mont, 2002), and "commercial sharing systems" (Lamberton and Rose, 2012).

The success of sharing services is grounded in and decided by the participation behavior of potential users and providers of resources (Botsman and Rogers, 2010; Geron, 2013; John, 2013). For instance, the success of an accommodations service requires private persons to open their homes for guests as well as travelers to accept the offer. If we were asking for the antecedents of participation behavior (in the tradition of the IS discipline's user behavior research), our query could be formulated as an acceptance question, that is, a question that asks why and under what circumstances individuals would accept the idea of sharing services and start taking part. Since the extant literature has not yet systematically addressed this question, we seek to contribute to closing this research gap by focusing on the following research question: *"What are the antecedents of the participation behavior of individuals in sharing services?"*

We propose a model to explain and predict participation behavior in sharing services with the aim of uncovering the hidden belief structure of the users of sharing services. We base our model on the theory of planed behavior (TPB), which provides a foundation for explaining behavior based on an individual's intention to perform that behavior, influenced by the individual's attitude toward the behavior, the subjective norm regarding the behavior, and the individual's perception of his or her control over the behavior (Ajzen, 1985, 1989). Instead of only applying the theory to a single behavior, we distinguish between the determinants of participation behavior and those of user behavior and provider behavior. Exploiting Ajzen's (2005) behavior aggregation principle, we suggest that user behavior and provider behavior are constituents of the aggregated participation behavior.

The remainder of this paper proceeds as follows: Section 2 provides research background on collaborative consumption and on acceptance research. Section 3 introduces our model as an intermediate result of this research in progress. Section 4 elaborates on the planned future steps of model application, testing, and improvement. Section 5 discusses implications and provides a brief conclusion.

2 Research Background and Research Model Foundation

2.1 Collaborative Consumption and Sharing Economy

"Collaborative consumption" (Belk, 2014; Leismann et al., 2013) and "sharing economy" (Hamari et al., 2013; Heinrichs, 2013) are umbrella terms that, at the time of the recent global financial and economic crises, were given to an alternative economic and social model that has gained considerable attention (Heinrichs, 2013). The purpose of this model is to make idle resources (including goods, services, data, and talent) that are in the hands of private persons available to other individuals who need them (Botsman and Rogers, 2010). The approach exploits recent peer-to-peer (Internet) technology to establish novel access points to resources. Such service systems are dynamic value co-creation configurations of the shared resources, including their owners and technology, all of which are connected internally and externally by value propositions (Maglio et al., 2009). Together, the entities create mutual value. Each entity contributes by integrating available resources through which they get benefit (Gummesson and Mele, 2010). Instances of such systems vary in scale, form, maturity, and purpose, but they have in common that they all reflect a shift in consumer values from ownership of resources (Figure 1a) to sharing of resources (Figure 1b) (Bardhi and Eckhardt, 2012). From an economic point of view, collaborative consumption is a way to increase the value generated per resource while decreasing global demand for resources.

Because of the skyrocketing advent of collaborative consumption business models, the academic discourse is lagging behind public discourse and practical applications, and theory-grounded conceptualizations are missing (Heinrichs, 2013; Leismann et al., 2013). Early insight into the question concerning why people accept and participate in sharing services provides only generic answers, so drivers and
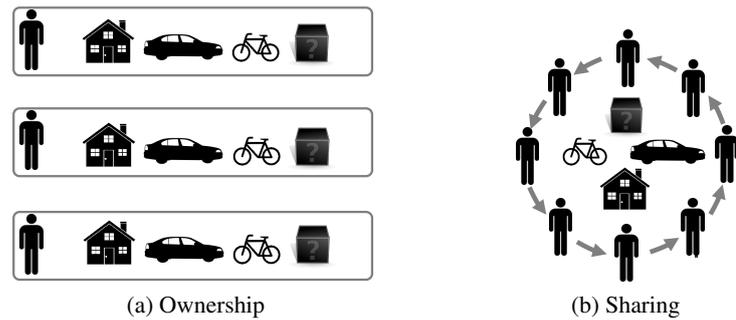
(a) Ownership   (b) Sharing

Figure 1: Shift in consumer values from "ownership" to "sharing".

motives have been described as a multilayered set of social, environmental, and financial motives that are not yet fully understood (Lamberton and Rose, 2012). Instances of drivers and motives include economic benefits and cost consciousness (Bardhi and Eckhardt, 2012; Hamari et al., 2013); a cultural change regarding the relationship among physical products, individual ownership, and self-identity (Botsman and Rogers, 2010); an increasingly critical view of over-consumption (Belk, 2014; Coyle, 2011; Leismann et al., 2013); growing environmental awareness (Gansky, 2010); time, space and effort saving, and convenience (Scholl et al., 2013); and the desire to belong to a community (Belk, 2010; Giesler and Pohlmann, 2003). Critical mass, idling capacity, belief in the common good, and trust between strangers have been identified aside as pre-conditions to make any sharing service work (Botsman and Rogers, 2010).

To the best of our knowledge, there are no studies of participation that consider simultaneously the role of the provider and the role of the user in a sharing service system. While some of the motives and drivers are likely to affect both groups (e.g., trust), other factors can be expected to affect a single group only (e.g., "making money" motivates peer providers while "saving money" motivates peer-users.) Given that collaborative consumption depends on a critical mass of participants on both sides (providers and users) (Shaheen et al., 2012), additional research and improved conceptualization are needed in order to identify the significant affective and social factors that explain participation in sharing services.

2.2 Acceptance of IT-Enabled (Sharing) Services

Theories from within and outside Information Systems can help to clarify users' participation in sharing services. Given the enabling role of IT in these services (Bardhi and Eckhardt, 2012; Belk, 2014; Botsman and Rogers, 2010), one can look at the question of participation behavior in the context of the well-established body of technology acceptance research. In this core IS-domain, technology acceptance is considered as a determinant of the technology use (Davis, 1986). In a similar vein, the acceptance of IT-enabled services can be regarded as an antecedent of service participation. The theoretical foundations for the acceptance models in IS range from the original technology acceptance model (TAM) (Davis, 1986; Davis et al., 1989), its extensions (Venkatesh and Bala, 2008; Venkatesh and Davis, 2000), and integrative models that employ TAM constructs (Taylor and Todd, 1995; Venkatesh et al., 2003) to the theories that are taken from other disciplines and tailored to the IS domain, including the adaptations of the Social Diffusion Theory (Compeau and Higgins, 1995), the Innovation Diffusion Theory (Moore and Benbasat, 1991), and the Model of PC Utilization (Thompson et al., 1991).

Applying these models to IT-enabled sharing services generates problems, as core IS acceptance models are highly generic and have been criticized for failing to provide sufficient explanations for technology usage behavior or ways to predict it (Chuttur, 2009). Attempts to increase the explanatory and predictive power of the core IS acceptance models through extensions shifted the theories back to their origins in the fields of psychology and social psychology, where behavior is explained in terms of attitudes and intentions (Benbasat and Barki, 2007). However, the soundest reason to keep a distance from the traditional acceptance models in the context of IT-enabled services is that technology acceptance

research focuses on technologies—more specifically, on single technologies (Lee et al., 2003)—raising the question concerning whether the application of the core acceptance models from IS is valid for the assessment of acceptance and participation behavior in the context of complex IT-enabled services.

Extant applications of the acceptance models to services in the IS domain highlight this argument. The term "service" is used in the IS domain to look into the acceptance of IT services, rather than IT-enabled services, and the term is interpreted as referring to a "technology." Examples include studies on the acceptance of wireless application protocol services (Hung and Chang, 2005), mobile banking services (Luo et al., 2010), and e-Government services, such as online forms and online petitions (Carter and Bélanger, 2005; Hung et al., 2006; van Dijk et al., 2008). The non-technological aspects of service acceptance are covered more appropriately by research outside IS. However, scholars, especially those from the field of marketing, delimit service acceptance to a sub-aspect of consumer behavior research, where consumer choices are typically explained through models that borrow theories from psychology and social psychology (Mazis et al., 1975; Pierro et al., 1999; Son et al., 2013). Consequently, these models tend to downplay the role of IT as a fundamental element of the service systems (Becker et al., 2013; Chesbrough and Spohrer, 2006). Examples of integrating aspects of IT into the analysis of consumer behavior choices (Koufaris, 2002; Schilke and Wirtz, 2012) are few.

A useful approach to addressing the described difficulties can be seen in the call of Benbasat and Barki (2007) (and the example of Ortbach et al., 2013) to remain at a distance from the IS literature on technology acceptance and to return to the theories from which the IS acceptance models derived. We follow this call in taking a close look at the TPB (Ajzen, 1985, 1989) as the foundation for a model that explains participation in IT-enabled sharing services. The degree of abstraction in TPB allows any behavior, including the participation behavior in an IT-enabled sharing service, to be modelled. In addition, the theory's aggregation principle allows for the analysis of multiple related behaviors on the level of their aggregate (Ajzen, 2005); it allows an integrative model for both user and provider behaviors to be constructed using their corresponding behavioral aggregate, the participation behavior in IT-enabled sharing services. Finally, the reflexive nature of the theory's behavioral constructs allows the forces behind the user's behavioral intention to be systematically and comprehensively pretested (Ajzen, 2006). According to Ortbach et al. (2013), uncovering the belief structure using the TPB can help to identify more specialized constructs as antecedents of the behavior at hand for future iterations of the model.

3   Construction of Research Model and Hypotheses

The TPB, first introduced by Ajzen (1985, 1989), postulates that an individual's intention to perform a behavior (i.e., behavioral intention) is a proximal determinant of the individual's actual behavior. Three other factors—*attitude toward the behavior*, *subjective norm*, and *perceived behavioral control*—influence behavioral intention. In the context of sharing services and in conformity with the TPB (Ajzen, 1985, 1989), the *attitude toward participation in sharing services* refers to the degree to which an individual believes that his or her participation will help to achieve desired goals. *Subjective norm regarding participation in sharing services* refers to the individual's perception of the social pressure to participate or not in sharing services. Finally, *perceived behavioral control of participation in sharing services* refers to the individual's perception of the ease or difficulty of participating in sharing services. According to Ajzen (1991), perceived behavioral control of participation also affects the participation behavior directly because this factor was also constructed to reflect the actual control of the behavior under study.

Consistent with the theory, we consider the participation in sharing services as a behavioral aggregate (Ajzen, 2005, p. 74), that is, as being comprised of two distinct behaviors—"using" sharing services and "providing" sharing services. In doing so, we acknowledge the constitutive character of the synchronized participation of users and providers. Regardless of whether participants undertake "using" behavior only, switch between "using" behaviors and "providing" behaviors, or perform both simultaneously, a general predisposition toward participating in sharing services will ally them, so this predisposition should be captured. To capture the specific determinants of both "using" participation behaviors and "providing"

participation behaviors, we extend the basic TPB-model (Figure 2). Consequently, in addition to the common determinants that result from attitude, subjective norm, and perceived behavioral control, the intention to use and/or the intention to provide sharing services each has its own determinants. It is important to note that in contrast to the antecedents of the general intention to participate in sharing services, the specific determinants aim at explaining variance in the concrete intention to use or provide sharing services. Therefore both specific and general determinants are applied to different objects and cannot be considered as determinants of the same behavior. Although the influence of specific factors can be seen as indirect influence on intentions through attitudes, the extant literature does not support this view.

H1: Attitude towards participation in sharing services influences the intention to participate in sharing services.
H2: Subjective norm regarding participation in sharing services influences the intention to participate in sharing services.
H3: Perceived behavioral control of participation in sharing services influences the intention to participate in sharing services.
H10: Intention to participate in sharing services influences the actual participation.
H11: Intention to use sharing services influences the actual use.
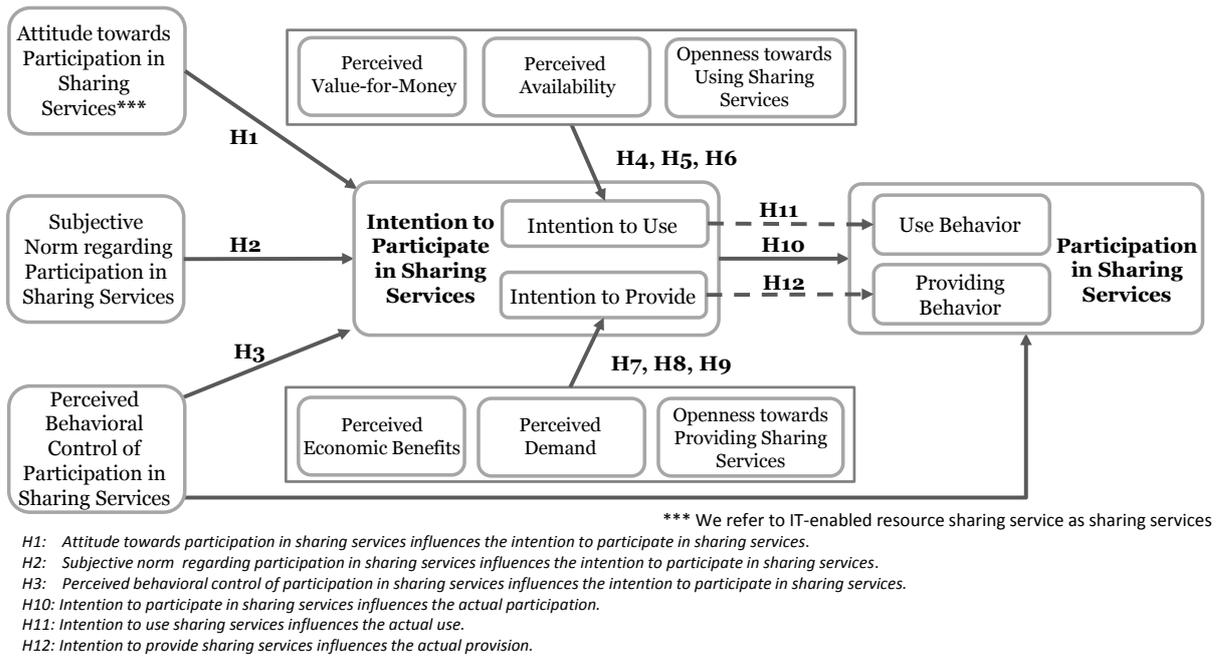H12: Intention to provide sharing services influences the actual provision.

Figure 2: Proposed model for participation behavior in IT-enabled sharing services.

The following sections first present constructs that are related to the general predisposition to participate in sharing services and then present additional model constructs that are specific to one of the two participation dimensions in sharing services: *use* or *provide*.

3.1 General Predisposition toward Sharing Services

The extant literature has identified and described sources that can form *behavioral*, *normative*, and *control* beliefs, which constitute the attitude, the subjective norm, and the perceived behavioral control, respectively regarding the participation behavior in sharing services. For brevity, we summarize the results in Table 1. The "dimensions" column lists sources for the derivation of the beliefs. For example, if environmental concern is identified as a determinant of the behavior (Jansson et al., 2010), in TPB the corresponding belief with which a participant can agree or disagree can be formulated as "My participation in sharing services will have a positive impact on the environment." A larger set of beliefs will be formulated based on the mentioned sources.

Since sharing is a social behavior, the beliefs will also have to reflecs the influence of "others" on the individual intention to participate in sharing services. The resulting set of beliefs will then require for evaluation using the pretesting procedures for the belief selection Ajzen (2006) describes. Consequently, a set of items that can uncover the belief structure of the TPB concepts and that can be incorporated into a questionnaire will be needed.

Beliefs	Dimensions	Definition of variables	Literature
Behavioral Beliefs (w.r.t. attitude)	Trust	Defined as the individual perception that participating in sharing services is trustworthy.	Hung et al., 2006; Luo et al., 2010; Pavlou, 2003
	Perceived usefulness	Defined as the degree to which a person believes that participating in sharing services will enhance his or her general performance.	Davis, 1986; Schwarz and Chin, 2007; Taylor and Todd, 1995; Venkatesh and Bala, 2008
	Environmental concern	Defined as the degree to which an individual performs an environmentally conscious and responsible (sustainable) behavior.	Jansson et al., 2010; Kahn, 2007; Lakhani and Wolf, 2005; Ozaki and Dogdson, 2010
	Compatibility	Defined as the degree to which participating in sharing services fits with the potential adopter's existing values, previous experiences, and current needs.	Hung et al., 2006; Lau, 2011; Taylor and Todd, 1995
	Image	Defined as the degree to which participating in sharing services is seen as enhancing to an individual's image or social status.	Han and Kim, 2010; Moore and Benbasat, 1991; Venkatesh and Davis, 2000; Venkatesh et al., 2003
Normative Beliefs (w.r.t. subj. norm)	"People who are important" (ante types, co-equals, family)	Defined as significant referents in the context of sharing services.	Ajzen, 2006; Chen and Li, 2010; Fishbein and Ajzen, 1975; Hung and Chang, 2005; Hung et al., 2006; Lamberton and Rose, 2012; Lau, 2011; Widlok, 2004
Control Beliefs (w.r.t. perc. behav. control)	Self-efficacy	Defined as the strength of the individual's belief in his or her own ability to participate in sharing services successfully.	Davis et al., 1989; Hung et al., 2006; Taylor and Todd, 1995
	Perceived ease of use	Defined as the degree to which a person believes that participating in sharing services will be free of effort.	Carter and Bélanger, 2005; Davis et al., 1989; Venkatesh and Davis, 2000; Venkatesh et al., 2003
	Perceived privacy protection	Defined as the individual perception of privacy and security during the participation in sharing services.	Dwyer et al., 2007; LaRose and Rifon, 2007; Paine et al., 2007; Smith et al., 1996
	Technology facilitating conditions	Defined as the availability of technology needed to participate in sharing services.	Park et al., 2011; Teo, 2009, 2010; Venkatesh and Bala, 2008

Table 1: Beliefs and dimensions for participation behavior in IT-enabled sharing services.

3.2   Specific Determinants of "Using" and "Providing" Sharing Service

We used the extant literature to identify three major determinants that affect the individual intention to participate in sharing services. The literature has typically explained the intention to use sharing services through the concepts of *value-for-money*, *perceived availability*, and *openness to using sharing services*, which match with the concepts of *perceived economic benefits*, *perceived demand*, and *openness to providing sharing services*, respectively, for the intention to provide sharing services. We elaborate on the origin of these determinants in the literature and formulate hypotheses that express how the corresponding concepts relate to other elements of the model (Figure 2).

According to the literature on drivers of the sharing economy, cost consciousness is one of the core motivations for tapping into sharing services (Botsman and Rogers, 2010; Efthymiou et al., 2013). This observation finds expression in the construct *value-for-money*, the significance of which for adoption behavior has been described in previous studies (Turel et al., 2010). We suggest that users who feel that sharing services are inexpensive compared to a perceived value are likely to adopt a sharing service.

H4: Perceived Value-for-money positively influences the intention to use sharing services.

Perceived availability is expected to influence the intention to use a sharing service. The success of any sharing service depends on reaching a critical mass, at which point users are likely to find the desired resource at reasonable conditions. Perceived availability makes the systems convenient and leads to a "social proof," which motivates people who are not early adopters to overcome the psychological barrier

to new behavior (Geron, 2013; John, 2013).

H5: Perceived availability positively influences the intention to use sharing services.

We adjusted the concept of the general intention to participate in sharing services to indicate *openness to using sharing services* (Devaraj et al., 2008). Kirs et al. (2012) and Schrader (1999) used concepts that represent the disposition toward using resources jointly with one or more other individuals. Fazel (2014) confirmed these findings in a study that found that "openness towards collaborative usage" has a significant effect on the intention to use a car-sharing service.

H6: Openness to using sharing services positively influences the intention to use sharing services.

Previous work on collaborative consumption describes *perceived economic benefits* as one of the main drivers of the intention to provide sharing services (Bardhi and Eckhardt, 2012; Belk, 2010; Lamberton and Rose, 2012). We suggest that individuals who feel that providing sharing services brings them economic benefits are likely to participate.

H7: Perceived economic benefits positively influence the intention to provide sharing services.

The intention to provide is affected by the *perceived demand* for the idle resource a potential provider owns. This assertion can be supported through the idea of a critical mass that must be reached before sharing systems can work and that ensures an adequate demand to the provider (Efthymiou et al., 2013; Shaheen et al., 2012).

H8: Perceived demand positively influences the intention to provide sharing services.

Openness to providing sharing services embraces the disposition to share resources with other individuals, despite the constraints and fears the individual must overcome. (Kirs et al., 2012; Schrader, 1999).

H9: Openness to providing sharing services positively influences the intention to provide sharing services.

We are aware that the introduction of the these constructs raises the question concerning the discriminant validity of the constructs in relation to the basic TPB constructs. Therefore, we plan to test for the model constructs' discriminant validity in the next steps.

4   Next steps of the Research

This research-in-progress paper has reported on the development of a model for explaining and predicting the participation behavior of individuals in sharing services. The research process remains incomplete because our model requires empirical evaluation. Figure 3 illustrates the planned next steps.
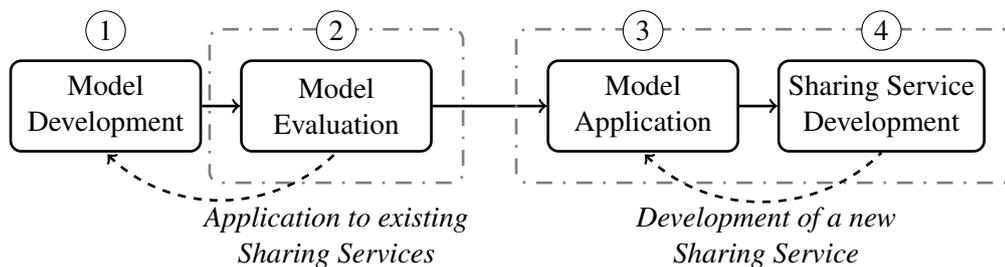

Figure 3: Research process.

Step 2: Since we adapted the TPB model to meet the specifics of sharing services, the added constructs and the related hypotheses must be tested. To that end, the model's constructs (attitude, subjective norm, perceived behavioral control, and intention to participate) will be configured to fit to two prototypical sharing services: the international accommodation-sharing platform "Airbnb" and the popular German car-sharing service "Mitfahrgelegenheit". These applications possibly will require for case specific model adaptations, and probably other methods will need to be considered as the research progresses. However,

the initial model configuration and the design of a questionnaire will follow Ajzen's (2006) guidelines for constructing TPB questionnaires, and the questionnaires will be comprised of questions that are related to both user and provider behaviors. Administering questions that relate to both using and providing behavior to the same participant sample will allow us to test the hypotheses of the model. We will conduct quantitative analyses using partial least squares structural equation modeling techniques (Ringle et al., 2012). In the course of the quantitative analysis, we will test the hypotheses about specific determinants of the intention to use and the intention to provide sharing services. To assess hypotheses H10-12 (the relationship between behavioral intentions and actual use), we will apply the model to an already operating sharing service (cf. steps 3 and 4).

Steps 3 and 4: We will apply the evaluated model in the context of a publicly funded research project that is concerned with the development of a sharing service business model that enables private owners of charging stations for electric vehicles to make their loading units available to public users. We plan to conduct multiple assessments by addressing potential service participants. We will use the data to analyze changes in the participants' predisposition to using the service and to analyze the relationship between the growth of the service and acceptance and participation behavior. Insights into the origins of participation behavior will be used to inform the initial design and the continuous improvement of the service.

5   Discussion and Conclusion

This research-in-progress paper elaborated on determinants of individuals' participation in IT-enabled sharing services. We focused on a specific value-creation setting in which private persons may take the role of both users and providers. Using the TPB as a theoretical lens, we developed a model that incorporates attitudes toward participating in sharing services, the corresponding subjective norms, and the perceived behavioral control of participation in sharing behavior to explain the individuals' intent to take part. We separated participation behavior into a "using" perspective and a "providing" perspective in order to integrate specific determinants of using and providing into the model for explaining and predicting participation behavior in IT-enabled sharing services. We proposed openness to providing sharing services, perceived demand, and perceived economic benefits as specific determinants of the intention to provide. Openness to using sharing services, perceived availability, and perceived cost advantage are specific determinants of the intention to use sharing services. With regard to determinants of the general intentions to participate (both using and providing), we derived a set of dimensions that can be used to formulate behavioral, normative, and control beliefs for attitudes, subjective norm, and perceived control related to participation in IT-enabled sharing services. Therefore, the resulting model allows both common and specific determinants to be identified. Although specific determinants can be understood as indirect influences on the corresponding intentions through attitudes, the formulated model enables us to test whether these specific factors indeed explain considerable variance of the intentions beyond the variance explained by the corresponding attitudes. We believe that sharing services are well-suited to addressing the challenges associated with harmful resource consumption because of their potential to decrease the total amount of resources required to meet human needs. By proposing a model that explains and predicts individuals' participation in sharing services, we hope to have made a contribution toward further expansion of this idea.

Our study has implications for both theory and practice. By synthesizing multiple determinants of participation in IT-enabled resource-sharing services into a model, we extend the literature and provide a foundation for further research toward clarifying the antecedents of participation in the context of collaborative consumption. In contrast to the common acceptance models, our model provides a way to approach participation behavior in systems in which users and providers are represented by the same target group in its entirety, rather than dealing with singular behaviors on their own and ignoring the fact that they are closely interrelated. From a practical perspective, our study takes a first step toward providing managerial guidance for the design of new sharing services and for the improvement of existing sharing service so that innovative service systems can incorporate the determinants of use in their development.

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Appendix

A   Acknowledgement