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# IT-user-aligned Business Model Innovation (ITUA) in the Sharing Economy: A Dynamic Capabilities Perspective

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# IT-USER-ALIGNED BUSINESS MODEL INNOVATION (ITUA) IN THE SHARING ECONOMY: A DYNAMIC CAPABILITIES PERSPECTIVE

*Complete Research*

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## Abstract

*We introduce the sharing economy as an IT-enabled phenomenon that is distinct from existing socio-economic modes of interaction. While research on the consumer perspective is growing, studies examining the complementary organizational perspective seem to be lagging behind. Our study therefore aims to investigate the firm stance by analyzing how successful sharing economy organizations manage their business models. We choose the business model as a unit of analysis, as it allows incorporating IT as an integral component of organizational activities into our research. Our case study uses multiple data sources and elicitation methods and provides detailed rigorously collected information that is not typical for case studies. Our findings suggest that consumer needs in the sharing economy lead to conflicting requirements for business model configuration: innovativeness and acceptability. To carefully balance the two, firms need to constantly integrate novel technologies into their business model while not deviating too heavily from already existing models. We term our emergent theory IT-user-aligned business model innovation (ITUA). It offers the unique contribution of conceptualizing the process of business model innovation as a dynamic capability. Our study further highlights the fundamental role of IT in enabling a potential reconciliation of economic and societal value creation.*

*Keywords: digital business models, dynamic capabilities, innovation, sharing economy*

## 1 Introduction

While sharing is as old as humankind, the recent phenomenon of the sharing economy was born out of the digital age (Belk, 2014). It is characterized by related business and consumption practices that go by names as “collaborative consumption” (Botsman and Rogers, 2011), “the mesh” (Gansky, 2010), “commercial sharing systems” (Lamberton and Rose, 2012), “product-service systems” (Mont, 2002), or “access-based consumption” (Bardhi and Eckhardt, 2012). Initiatives that fall into at least one of these categories are AirBnB, Zipcar, Craig’s List, Freecycle, Zilok, or TaskRabbit. Russell Belk, one of the first business scholars to explicitly deal with the concept of sharing (Belk, 2007), identifies two commonalities within all these activities: (1) their emphasis on “temporary access non-ownership models of utilizing consumer goods and services and (2) their reliance on the Internet, and especially Web 2.0, to bring this about” (Belk, 2014, p.1595). These sharing activities are phenomenologically new because consumers increasingly share their belongings with strangers or only weakly related individuals (Benkler, 2004). As opposed to this, traditional sharing used to take place solely within ritualistic communities like the family, among friends, or between neighbors (Turner and Rojek, 2001).

That broadened scope of sharing is strongly driven by the emergence of enabling information technologies (IT) that have become available at more reasonable cost (Dervojeda et al., 2013). In a related manner, many trace back its origins to the digitization of music and social media’s ability to make online content sharing from peer to peer possible (e.g., Giesler, 2006; Hennig-Thurau et al., 2007; Galbreth et al., 2012). Other authors regard information and communication technologies (ICT) in general as enablers, including market intelligence, mobile devices, sensors (enabling the “internet of things”), and payment systems (Hamari et al., 2013; John, 2013). They all facilitate web-based sharing platforms that provide real-time identification of excess resources and assist in matchmaking between

those in need and those willing to share (Heinrichs, 2013; Owyang et al., 2014). Going even one step further, some scholars consider digital technologies to be not just enablers of the sharing economy but to be *the* characteristic distinguishing it from traditional market-mediated “sharing” such as rentals (Bardhi and Eckhardt, 2012). Finally, research not only acknowledges the relevance of IT, per se, but has also started to investigate its impact on the nature of sharing. A recent case study by Germann Molz (2013) on Couchsurfing, a global network of travelers who host each other for free in their homes, reveals how social networking technologies facilitate morally desirable activities such as putting trust in strangers, sharing material resources for free, and engaging in caring relationships.

Related to latter notion, the sharing economy is increasingly viewed as an alternative to traditional ways of economic interaction that is considered to be not only economically reasonable but also socially and environmentally beneficial for society (e.g., Ghose et al., 2006; Belk, 2007; Heinrichs, 2013). That shift in thinking is highlighted by Rachel Botsman, whose publication on the sharing economy has been frequently cited (Botsman and Rogers, 2011). She states that the sharing economy “could be as big as the Industrial Revolution in the way we think about ownership” (quoted in Sacks, 2011). Besides, her statement implicitly suggests that human interaction in the sharing economy might be based on mechanisms different from existing socioeconomic systems. Understanding these underlying logics, in turn, is crucial for organizations and policy makers to be able to successfully manage new, supposedly socially more desirable, forms of economic exchanges.

However, the sharing economy is not well theorized, yet, and scientific literature seems to be lagging behind discourse in public and practice (Heinrichs, 2013). While publications examining the consumer perspective have been growing recently (e.g., Belk, 2010; Bardhi and Eckhardt, 2012; Lamberton and Rose, 2012), a lack of research investigating the complementary organizational view seems to persist, so far. As a result, we still do not have answers to questions like ‘What are challenges for sharing economy organizations?’ or ‘How do digital technologies cause or mitigate these challenges?’. To shed light on these and related issues, the aim of this study is to contribute to answering the following research question: *How do successful sharing economy organizations manage their business models?* A broadly scoped research question is particularly appropriate for phenomenon-driven research and when viable theory and empirical evidence are still lacking (Eisenhardt and Graebner, 2007). To answer the question, we relied on a qualitative research approach and conducted a case study of a peer-to-peer (P2P) ride sharing firm. “Qualitative research is now seen as a legitimate enterprise in much of the IS research community” (Sarker et al., 2013, p. iii). It is best suited to approach ‘how’, as opposed to ‘how much’, questions and allows researchers to build theory about an important phenomenon (Eisenhardt and Graebner, 2007; Pratt, 2009).

The remaining paragraphs are structured as follows: First, we lay the theoretical foundations relevant for the subsequent presentation of our case study and its main findings. That is in line with Sarker et al.'s (2013) ‘Principle of Theoretical Engagement’, in which they posit that, even in grounded studies, researchers should incorporate existing theories in order to enrich the understanding obtained from empirical data. Therefore, we present why we chose the business model as a unit of analysis and briefly introduce the dynamic capabilities perspective that turned out to provide valuable guidance in theory development. Second, we explain how we approached our in-depth case study, i.e., research strategy and research setting, data sources and elicitation methods, and data collection and analysis. Third, we elaborate our emergent theory. It highlights the crucial role of the dynamic capability of, what we term, IT-user-aligned business model innovation (ITUA) for the success of sharing economy firms.

## 2 Theoretical Foundations

### 2.1 Business models as a unit of analysis

We suggest that the business model is a particularly valuable unit of analysis in exploring the performance of sharing economy organization. It is “a theoretically anchored robust construct for strategic analysis” (Zott and Amit, 2013, p. 403). We draw on the definition by Zott and Amit (2010), who refer

to a business model as a boundary-spanning, yet, firm-centric activity system, which is geared towards value creation for all stakeholders party to its business model and value capture for the focal firm. Based on empirical evidence from e-business, the authors suggest that it specifies business model content, governance, and structure. As such, a business model determines on which activities firms base their value creation on, who performs these activities, and how the interdependent activities are linked, respectively (Amit and Zott, 2001; Zott and Amit, 2010). Therefore, when referring to the term business model, we mean the organization of activities both within the firm and across organizational boundaries. Yet, we include only those activities which are meant to create value for a firm's exchange partners, i.e., primary stakeholders (Sach, 2013, Zott and Amit 2010). Using the concept of the business model as previously defined is inherently attractive to study the performance of sharing economy organizations for five reasons: First, it facilitates to *systematically and comprehensively* consider all relevant aspects of organizational activities: Business model content captures the organizational matchmaking and subsequent sharing activities. Governance describes who performs these activities, i.e., the organization or one or several peers. Structure is strongly based on IT that interlinks both activities and parties. In taking such a systemic perspective, the business model enables us to study *how* firms do business, which reflects our research questions very well (Zott et al., 2011). Second, the business model allows *building IT into our analysis as an integral component* of organizational value creation activities. That is implied by making IT core to business model structure. Third, when the locus of value creation activities spans organizational boundaries the appropriate unit of analysis for researchers interested in value creation spans firm and industry boundaries (Amit and Zott, 2001; Zott et al., 2011). For a sharing economy organization, value creation takes place outside its boundaries in two ways: when peers share with one another and when society benefits in social and environmental terms. Thus, the business model makes possible to *extend our performance assessments beyond the focal firm*, to also incorporate the impact of organizational activities on a broader audience. Fourth, proper business model configuration is broadly regarded as a *valid proxy for general firm performance* (Zott and Amit, 2007; George and Bock, 2011). Given our research question, the latter constitutes an important outcome of interest in our study. Fifth and finally, the possibility for business model *innovation* is seen to be an essential characteristic of the concept (Baden-Fuller and Morgan, 2010). Relying on a construct that allows investigating its dynamic changes over time, is especially valuable for firms with digital business models. They operate in fast-changing, technology-driven environments, where changes in IT trigger substantive changes in how business activities are carried out and how value is created and captured (Barua et al., 2004; Veit et al., 2014). In the next paragraph, we will link latter notion to the dynamic capabilities perspective, which emerged as a theoretical guide during the course of our study.

## 2.2 Dynamic capabilities as a guide for data collection and analysis

The dynamic capability perspective posits that firms must continually create, adapt, and reconfigure internal and external resources to be aligned with the ever-changing business environment and to achieve competitive advantage. That is particularly true when time-to-market and product timing are critical, the rate of technological change is rapid, and the nature of future competition and markets are difficult to determine (Teece et al., 1997). Similarly, dynamic capabilities are argued to be especially valuable for net-enabled organizations (Wheeler, 2002). As a consequence, business models in high-velocity markets are characterized as being fluid, i.e., as constantly changing. That requires frequent selection of which firm behavior and resources to retain and which to discard, a process that is based on learning (Eisenhardt and Martin, 2000). In a related manner, Rai and Tang (2013) argue that the purposeful combination of IT with human and process resources leads to a success-producing coevolution of IT and business model. Dynamic capabilities can be viewed as a combination of several simpler capabilities that are linked in a sequenced order (Brown and Eisenhardt, 1997; Eisenhardt and Martin, 2000). Similarly, Teece (2007) notes that dynamic capabilities comprise capabilities for sensing opportunities in the environment, on the one hand, and for subsequently seizing them, on the other hand. During the course of our field work, that perspective emerged as having a particularly strong explanatory power regarding our research question. At some point, it therefore started serving as a

guide for our data collection and analysis, as explained in the following sections, in which we present our in-depth case study.

### **3 Case Study**

#### **3.1 Research strategy and research setting**

As motivated in the introductory notes, we relied on a qualitative research approach and conducted a case study using multiple data sources and elicitation methods. We chose a single case, i.e., firm, that was theoretically sampled. Theoretical sampling means that a case is selected because it is particularly suitable for illuminating relationships among constructs of interest (Eisenhardt and Graebner, 2007). We therefore sampled our case based on the outcomes of interest, firm performance and societal impact. A single case study can be of value as much as a multi cases study (Sarker et al., 2013). We further draw on analytic induction, which is a methodology that explicitly integrates existing theories and combines them with insights from data and inductive reasoning (Manning, 1982). In analytic induction, researchers collect data intended to challenge their emerging interpretation, which is why we went back and forth between data gathering and theory generation. Analytic induction is drawn on by high-quality qualitative research in both IS and management (e.g., Bansal and Roth, 2000; Lapointe and Rivard, 2005).

The case selected is carpooling, a ride sharing company based in Germany, yet, operating in 40 European countries and currently expanding into the US. It was founded in 2001 and has constantly grown in user base, achieving market leadership in Germany in 2003 and being second in the European ride sharing market, at the moment. The firm employs about 70 employees. Within the past five years, it attracted several investors, one of which is Daimler AG. Investors provide both financing and expertise. Carpooling's business model centers on matchmaking activities and further value adding activities. Ride sharers can use the service via free mobile apps or the internet. When drivers enter their inter-city ride and its price, the company suggests stopovers and meeting points based on live demand. Afterwards, potential passengers are able to find the offered ride and book a seat. Payment between the sharing parties may be processed online or offline. Carpooling further offers a location-based service to facilitate finding each other at the specified meeting point and a 24 hour emergency hotline, in case a ride is cancelled on short notice or there is an accident or car trouble. Once the ride took place, drivers and passengers are able to evaluate each other via an online rating system, the result of which is subsequently visible to the user community. Until recently, the service was completely free. Now, a fee is charged from drivers based on the income they generate from the ride sharing. We consider carpooling a successful case, since it has been able to constantly increase resource acquisition in terms of human and financial capital as well as customer base. These are seen as suitable proxies to assess business model and, by extension, firm performance. Resource acquisition is closer to the immediate control of managers than eventual outcomes like financial success, which are typically co-determined by exogenous factors (Zott and Huy, 2007). Aside from firm performance, carpooling seems to also exhibit societal impact that we intended to include in our investigation. According to its website and subsequently confirmed in the interviews, the firm contributed to 1.4 million tons of carbon emissions and 700,000,000 liters of gas to be saved. It led to more than 16 marriages, 15 babies, thousands of friendships, and even to start-ups founded by people who met due to carpooling's ride sharing service.

#### **3.2 Data sources and elicitation methods**

Using multiple data sources allows case study researchers to triangulate findings and build stronger assertions about interpretations (Yin, 2014). Moreover, combining different data types, i.e., qualitative and quantitative evidence, can also prove synergistic (Eisenhardt, 1989). While quantitative data is useful in pointing towards relationships that may not be salient to researchers, qualitative evidence can assist in understanding the rationale or theory behind relations elicited from quantitative data (Jick,

1979). Our case study therefore relies on both multiple data sources and multiple elicitation methods leading to different types of data.

Four carpooling executives served as our primary data source, two from the top and two from the extended management team. Carpooling's top management team consists of three executives. The extended includes three more. Each participant covered a different functional specialization, including technology, finance and law, product management, and marketing. In a first step, we performed a cognitive causal mapping with each participant. A cause map of an individual represents that person's mental understanding about a particular information domain and consists of concepts and the relationship between them (Stubbart and Ramaprasad, 1990). The elements featuring most linkages are suggested to be more salient and better integrated into the individual's knowledge structures (Tyler and Gnyawali, 2009). Walsh (1995) extends that line of reasoning and argues that the same holds true for shared knowledge structures of a group of managers or an organization. Research in IS and management supports the notion that causal mapping techniques provide crucial insights into organizational knowledge and associated activities (e.g., Reger and Huff, 1993; Narayanan and Armstrong, 2005).

The information domain we consider to provide valuable insights into how carpooling manages its business model concerns how "top managers conceptualize their firm and its relationship with actors in the firm's economic and sociopolitical environment" (Crilly and Sloan, 2012, p. 1176). That is what is captured by the concept of the enterprise logic (Crilly and Sloan, 2012). It represents an extension of the dominant logic (Prahalad and Bettis, 1986) and is argued to affect managerial attention to different stakeholders, business model configuration, and, by extension, firm performance, especially social performance. The enterprise logic consists of 20 constructs each of which belongs to one out of three sub-dimensions: (1) strategic intent of the firm (competitive advantage, economic growth, environmental stewardship, innovation, investment, market knowledge, market power, reputation, social development, sustainability), (2) favored mode of interaction (codes and standards, collaboration, communication, contracts, trust), and (3) perceived external constraints (efficiency, fiduciary duty, regulatory compliance, safety, social acceptance). The enterprise logic is particularly valuable for studying how a sharing economy firm manages its business model for several reasons: First, strategic intent, which is one dimension of the enterprise logic, is argued to influence business model configuration, especially in an environment characterized by frequent IT innovations (Christensen, 2001; Rai and Tang, 2013). Second, mode of interaction, another dimension of the enterprise logic, is inherent to business models conceptualized as systems of interdependent activities connecting various exchange partners. Third, the enterprise logic extends the scope of managerial cognition beyond its economic to its sociopolitical environment. Given the fact that the sharing economy is expected to also have social and environmental impact (e.g., Ghose et al., 2006; Belk, 2007; Heinrichs, 2013), the concept allows investigating what role these expectations play in firm behavior. We therefore consider the enterprise logic to be a cognitive representation of a firm's behaviorally-anchored business model.

We used a method of cognitive causal mapping that is commonly used and that is further argued to suitably elicit a firm's enterprise logic (Tyler and Gnyawali, 2009; Crilly and Sloan, 2012). Managers were asked to conduct a self-administered task consisting of a card sort exercise and a completion of an adjacency matrix. The 20 constructs, including a broad definition of each, were placed on 20 cards. Each participant was mailed the cards, the adjacency matrix, and instructions for how to perform each task. All materials were pretested on four doctoral students. Each manager was asked to discard any cards from the stack that were not important for carpooling's long-term success. They were then asked to rank-order the remaining concept cards according to their relative importance (from most to least important; 1 = most important). The adjacency matrix consisted of a  $n \times n$  matrix in which concepts were listed on both the vertical and horizontal axes to enable the executives to specify the cause-and-effect relationships between all concepts by considering each pair of concepts one at a time. In addition to the 20 constructs, we provided space for one additional construct in each matrix. Participants were then asked to cross out the concepts identified as unimportant and to enter the rank ordering of the important concepts in the adjacency matrix. Finally, they were asked to indicate the cause-and-effect relationships between each concept in the adjacency matrix by plus and minus signs. Techniques of cause mapping avoid recall biases of interviews (Axelrod, 1976) and "provide detailed rig-

ously collected information about managerial thinking that is not typical found in case studies” (Barr et al., 1992, p. 20).

In a second step, we gathered information from the four executives through personal interviews. The interviews were semi-structured and relied heavily on open-ended questions. All interviews took place on site, lasted between forty and sixty minutes, and were both recorded and transcribed to enable data analysis through coding. Depending on an interviewee’s mother tongue, interviews were either conducted in German or English. Relying on several knowledgeable informants who view the phenomenon of interest from different perspectives helped us to avoid bias from impression management and retrospective sense-making (Eisenhardt and Graebner, 2007). To further alleviate the risk of recall biases, we gathered data from other sources as well. For example, we regularly monitored carpooling’s website, its Facebook page, and collected information from its newsletters as well as from the business press, or booked and cancelled a ride to experience the service and its components firsthand.

### 3.3 Data collection and data analysis

We will jointly present data collection and data analysis since our study is characterized by a significant overlap between the two. This is advisable for case study research (Eisenhardt, 1989) and typical for analytical induction (Bansal and Roth, 2000). Data collection started May 2014 and was completed November 2014. We began by having all participants perform the self-administered causal cognitive mapping task, based on which two data sets were created: one based on the rank-ordered data and the other on the cause-and-effect relationships in the adjacency matrices. To create an aggregate ranking for all 20 constructs of the enterprise logic, the rank-ordered data were averaged across participants. The ranking results most relevant to our subsequent findings are the following: innovation (1), social acceptance (2), competitive advantage (3), communication (6), collaboration (8), sustainability (18), social development (19), and environmental stewardship (20). In similar vein, the adjacency matrices were aggregated to create an overall cause map of all managers. Figure 1 depicts those factors and relationships in that map which all managers agreed on to be (un-)important.<sup>1</sup> The arrows indicate cause (origin) and effect (destination) relationships among the concepts as assumed by participants. The collective map shows that managers consider innovation and social acceptance to be the most important determinants of competitive advantage. The latter in turn leads to economic growth, which is considered a final outcome. Closely related to social acceptance is a good reputation. Besides, all executives agree that innovation, social acceptance, and a good reputation are intermediate outcomes that are determined by two certain modes of interaction: communication and collaboration. As will be described in more detail in chapter four, communication refers to both internally and externally oriented communication, while collaboration is clearly internally focused. Finally, environmental stewardship is the only construct all managers agreed on to be not important.

Afterwards, the first interview took place. Despite having preliminary findings from the causal mapping, we kept the interview broad in order to expose a potentially even wider range of guiding themes. For example, we asked the interviewee to describe decision processes by means of examples or key challenges in his daily work. Nevertheless, the analysis of the initial interview via coding further strengthened the patterns emerging from the causal maps (Figure 1).

In a next step, we consulted the literature on the sharing economy, again. With that step, we intended to enrich collected data with valuable insights about the context shaping arising constructs. That consultation led us to identify the fast-changing, technology-driven environment as a possible explanation for managers’ perceived imperative to constantly innovate. Based on that, we referred to further literature and found that this link is confirmed by the literature on dynamic capabilities (Teece et al., 1997).

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<sup>1</sup> During the subsequent interviews, the factors and relations most important to our final findings all turned out to be part of that reduced map. For reasons of clearness, we therefore do not depict the complete map here. It consists of 95 cause-and-effect-relationships (out of 400 potentially possible). The complete matrix further illustrates varying levels of agreement among managers on cause-and-effect relationships by the thickness of the arrows. It may be obtained on request.

As a result, questions became more focused in the second and third interview, as we tried to ascribe more detail to our theorized relationships (Bansal and Roth, 2000). Nevertheless, we always included general question, for example, about a typical day or the executive's role at carpooling, in order to gain insights that might be new or challenge emerging relationships. For the subsequent coding, we now relied on constructs from the dynamic capabilities perspective. Emergent themes included, among others, the sensing of technological options and consumer needs from the external environment, and the quick seizing of identified opportunities. The subsequent final interview provided still more fine-grained information for our emergent theory.

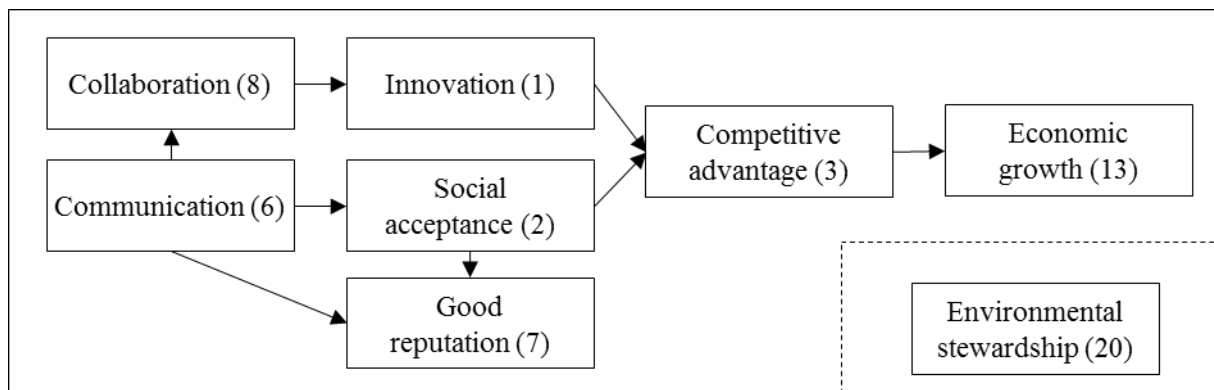


Figure 1: Factors (including rank number) and their relationships with full agreement on among managers their (un-)importance

Although we sensed no systematic bias in the descriptions of our key informants, we continually gathered secondary data, as already mentioned, to assess reliability of interviewees. Also, secondary data were used to obtain impulses for interview questions. For example, once we came across a new feature that was introduced during the course of our study, we included questions like why it was introduced and what associated challenges were. When data collection was finished, we continued iterating between our different data sources, data types, and the literature to refine our emergent theory until we reached theoretical saturation (Eisenhardt, 1989). Next, we systematically present the results of that.

## 4 Emergent Theory: IT-User-aligned Business Model Innovation (ITUA) for Firm Performance and Societal Impact

### 4.1 The need for ITUA

As the causal mapping showed, innovation is collectively regarded as the most important factor for carpooling's success, more specifically, competitive advantage (Figure 1). That finding was supported during the interviews. For example, one executive pointed out:

*“There’s a very classic version of ride sharing and we’re defining now the premium version of ride sharing...The classic version is offline...We have positioned ourselves against that [offline] experience. And this is where the innovation comes in, like using location services, so that when you’re at the meeting point it’s super easy to find each other. That’s something that you wouldn’t, you couldn’t do until it was available as a service on mobile devices...So that was one thing we did, strategically, to try to differentiate ourselves from the other services of the competition that’s out there.”*

The quote further illustrates how innovation at carpooling is inherently linked to IT. Thus, the firm focuses strongly on leveraging emerging technologies, as highlighted by one interviewee:

*“If you don’t come up with new, next generation, push...always pushing the boundaries, especially in software, apps, and internet...you just can’t survive.”*



Carpooling’s aim behind basing its business model on novel digital technologies is to create value by satisfying pragmatic needs of current and potential users. In that context, one manager states:

*“I think people...want convenience, and they want reliability...So, what we’re trying to do is take all of that experience [of traditional offline ride sharing] and make it convenient and extremely reliable... You have more certainty that the ride will actually take place. And you don’t have to use old methods, like...talking to each other on the phone in the last minute to try to figure out where you are.”*

But although the IT-enabled business model may actually be useful, i.e., create customer value, consumers might still refrain from participating. That is due to deeply rooted assumptions in people’s minds of what ride sharing is and how it works, described above as the classical or offline version. Carpooling’s innovative business model, however, is challenging these taken-for-granted knowledge structures. That notion serves well to make sense of the firm’s perceived need for social acceptance, which is the second most important success factor (Figure 1). An executive explains:

*“There’s a continued and hardened idea of what [ride sharing] is and how it works, which is why it’s not easy to introduce...innovations to the market and to break...the mindset of users”* (translated).

Another executive complements that view. He highlights the relation between (potential) users’ mindset and associated challenges of creating acceptance for sharing economy business models:

*“You can’t introduce anything innovative...in a society that is unable to...comprehend what the value added is...Concerning the acceptance, I see that it’s difficult...[for any ride sharing services] to place such a model, since users need to understand what the benefit is, first of all, and ,then, need to get into a car [of a stranger] and say, ‘that is no danger for me but just a value added’”* (translated).

These two quotes taken together suggest that consumers at large might not understand why it is beneficial and not necessarily risky to share and how digital sharing economy business models work. They are unable to cognitively make sense of the unfamiliar form of economic interaction, which, in turn, leads to acceptability problems. That implies that a business model must not be too deviant from consumers existing assumptions in order to be accepted. However, leveraging innovative technologies is seen to be necessary to satisfy pragmatic user needs. As a result, there are conflicting requirements for business model configuration, which are illustrated in Figure 2. It shows how consumer demands lead to a need of both business model acceptability and business model innovativeness. Both are characteristics of a successful business model. However, the two are linked by a trade-off. When carpooling lives up to the consumer need for usefulness, it increases its business model innovativeness. At the time, increased innovativeness lowers acceptability in the eyes of consumers, as already explained. The same tension holds true vice versa.

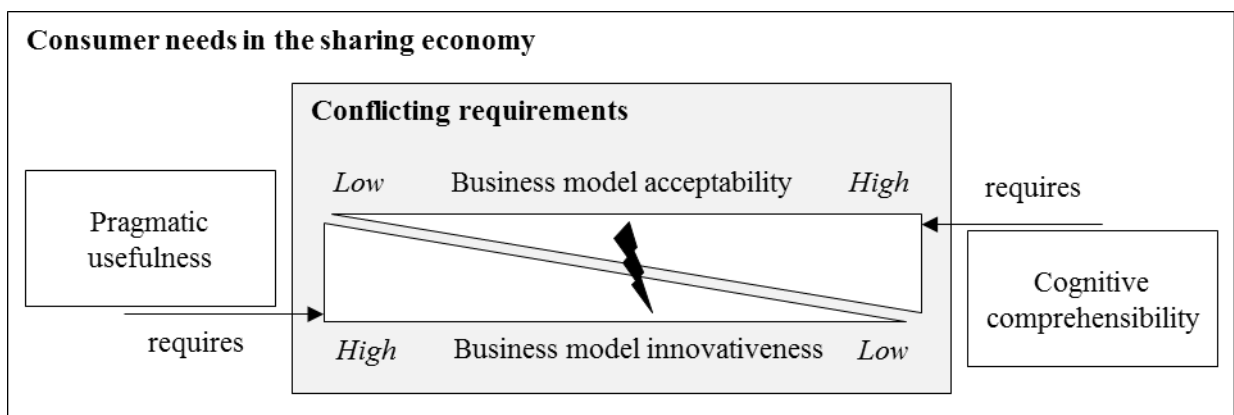


Figure 2: Conflicting requirements for business model configuration due to consumer needs in the sharing economy

The following interview excerpt provides a potential solution to that challenge by highlighting that successful business model design is about finding the right balance between innovativeness and acceptability:

Interviewee (IE): “...you make something [innovative] that’s slightly above. You won’t build something that’s, let’s say, too far out there, because nobody’s going to use it. But it’s got to be ahead enough, so that you can lead customers towards it.”

Interviewer (IR): “Yes, I see. So, for you to consider something an innovation...it has to be really new to the market?”

IE: “It has to be accepted [stressed by IE] by the market...I think that the range between exactly what customers want is like here [showing a continuum with his hands, pointing at the right end]. And then out here is what they haven’t specifically asked for but what they’re going to need [pointing at the middle]. And then out here is some vision, you know, ten years from now, like space travel...for the average person. That’s way out there [pointing at the left end].”

Since innovation refers to integrating new emerging and enabling technologies into the business model, as noted above, balancing the two conflicting demands requires carpooling to carefully align technological options with consumer needs. Hence, we find IT-user-aligned business model innovation (ITUA) to be pivotal to performance.

Yet, alignment is not only vital for success in an economic sense but also in a broader societal sense. The better matched IT and user needs are, the more useful the service will be and the better will consumers understand it and its benefits. That, in turn, is likely to lead to more ride sharing and, by extension, better firm performance and societal impact. However, carpooling’s strategic intent tends not to be characterized by achieving goals beyond economic performance. According to rank number, sustainability, social, development, and environmental stewardship are regarded as the three factors least relevant for success. As a matter of fact, environmental stewardship is the only factor all managers agree on to be not important. When confronted with that result, a manager replied:

“Oh no...It’s because we’ve asked [users] over and over again...and they just never put it to the top list...It’s always money...Well, it’s money and it’s social...The green part of it, it’s there. I mean that’s what the government likes to see, that’s why it’s legal...That’s why it’s loved at a much higher level...I think it makes you feel good inside...But we would never say that it is critical to success.”

The statement highlights that environmental aspects are not seen as vital for firm success by managers, because it is not perceived as an important motivator for consumers. The same is applicable to sustainability and social development, as indicated above. And yet, carpooling’s societal impact is there, as outlined when introducing the firm. That is, although neither prioritized by consumers nor managers, ITUA unintendedly results in desirable societal effects (Figure 3).

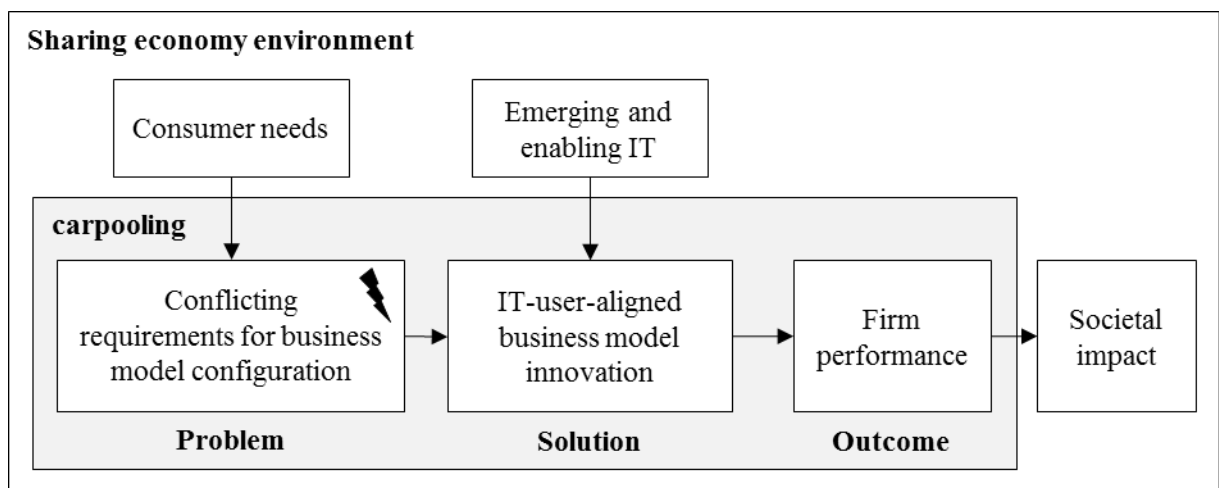


Figure 3: Resolving conflicting requirements for business model configuration through IT-user-aligned business model innovation (ITUA) for firm performance and societal impact

## 4.2 ITUA – a dynamic capability

We find that success of carpooling is less about a specific business model configuration per se, but instead is based on a dynamic capability to constantly innovate the business model by aligning IT and consumer needs, so as to balance innovativeness and acceptability. Our data analysis in combination with the reviewed literature suggests that this dynamic capability consists of four constructs or simpler dynamic capabilities (Eisenhardt and Martin, 2000). The first we term ITUA scanning which is about identifying needs of actual and potential users and technological options. The second is ITUA choosing which refers to selecting an opportunity that matches IT and user requirements. The third is ITUA implementing which is about leveraging complementary competences within the firm, rapidly executing the innovation, and communicating it purposefully to the outside. The fourth is ITUA assessing which initiates market-based learning that feeds back into the other capabilities. Additionally, there is internal learning. These four simple capabilities represent sequenced steps, whereby each increases the value creation and capture potential further (Brown and Eisenhardt, 1997; Wheeler, 2002). Together they form the dynamic capability of ITUA business model innovation (Figure 4).

The first capability, *ITUA scanning*, refers to the pro-active and constant search for changes in the external environment, with the aim to discover new opportunities for valuable business model innovation. As such, ITUA scanning consists of routines for gaining a comprehensive overview over emerging technologies and consumer needs. One respondent well illustrates the nature of that capability:

*“Innovation...a lot of it is around trends...You have to stay up on the technologies...So you have to use these new capabilities that are coming on technology to come up with ways to create great user experiences...And a source of coming up with things that customers don't necessarily tell you directly is you have to also be able to think a little more above [what they are telling you]...[And] that's from getting information all over it, from customers, from the market, from competition, trends, macro-economic changes, the news. I think it's all the information that happens in the world.”*

The quote highlights how substantive the environmental scanning is and how it contributes to being able to align enabling technologies with consumer requirements. The manager adds that, to get the necessary skills to anticipate user needs, he and the other executives and employees all use carpooling's ride sharing service a lot. Thus, managers switching perspectives might be an important characteristic of the ITUA scanning capability. Interestingly, that behavior was also present in many responses we received during the interviews in which participants responded as if they were users.

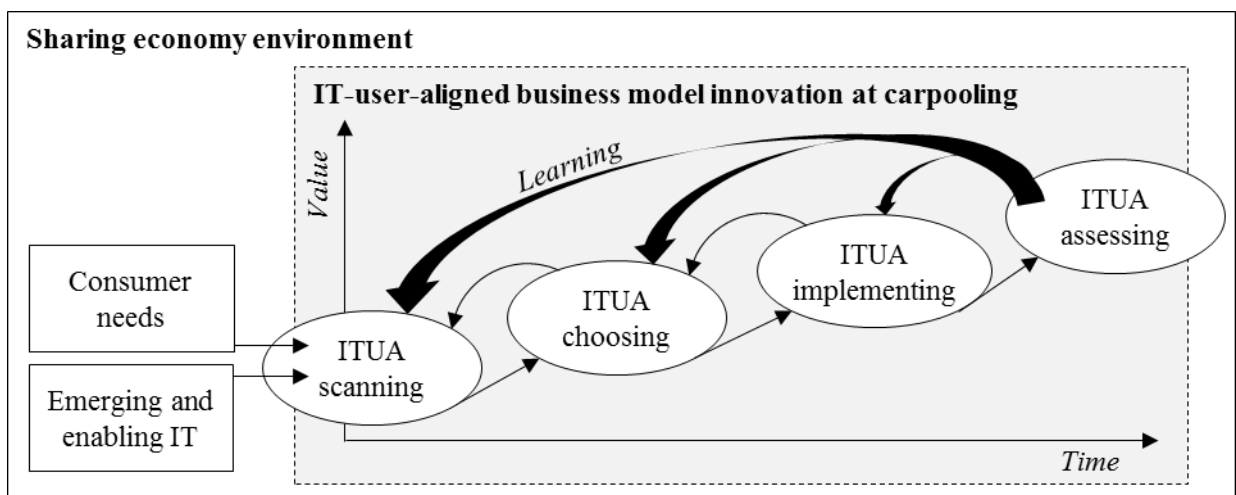


Figure 4: The dynamic capability of IT-user-aligned business model innovation (ITUA)

Then, carpooling engages into *ITUA choosing* by means of a quarterly ‘business requirement process’, as one respondent referred to. In that process, the management team collectively evaluates each possible new feature previously identified regarding its innovativeness, consequences for users, imita-

bility through competitors, monetary effects, and legal implications. In business model terms, each feature is assessed in its potential to create value for business model partners and to capture value for the firm (Amit and Zott, 2012). Then, innovations are prioritized according to their anticipated impact. To do so, carpooling relies on various data and evidence. In that context, one executive highlights:

*“For me everything has to be data-driven. I just, I can’t listen to somebody’s opinion...It should fundamentally be a good idea that stands on its own...with some very strong compelling evidence for why we should do a certain thing.”*

As such, ITUA choosing consists of structured, regular, and substantiated decision processes. In addition, executives also highlighted that decisions are always based on a lot of communication. That is to ensure information flow and to foster discussions between relevant parties, in order to arrive at a shared understanding and at decisions that are widely supported throughout the company. The impact of social aspects on ITUA choosing is summarized by one manager as follows:

*“I’ve got this idea. I really think we should do this. I can’t do that by myself and the whole company has to get behind it...So usually, it’s like 5 percent coming up with a new idea and then it’s like 95 percent socializing it across all the different people, to make sure that we’re all aligned.”*

Afterwards, carpooling engages in **ITUA implementing**, which turns out to be the most complex capability. It is about leveraging complementary competences. Executives explained that innovation always requires an interdisciplinary approach combining primarily knowledge of technical engineers, product designers, and marketing experts. Furthermore, respondents emphasized the relevance of rapid execution, which was well illustrated by one manager complaining about how partnerships with larger corporations tend to impair carpooling’s responsiveness:

*“It crippled us considerably...all changes that would have worked for us quickly should have been known to the [partner] preferably a year ago...That is just not the speed of a start-up, which you simply have to display”* (translated).

Another important feature of the ITUA capability present at carpooling is intense communication with the aim to get everyone aligned, similar to ITUA choosing. One executive elaborated:

*“I spend a lot of time with individual team members...I try to be as transparent as possible...because if you know what’s going on, then you feel like you’re part of things...If you can get everybody...working in the same direction, then you can get tons of stuff done.”*

Another interviewee complements that notion by explaining that there has to be not only alignment among all parties involved in the business model implementation but also a collective attitude or culture characterized by willingness to change:

*“I think innovation is not necessarily about launching a certain feature but rather about the firm being able to constantly renew itself...like a readiness to change that...makes you more responsive to the necessity to innovate that is forced upon you by the market”* (translated).

Finally, ITUA implementing features an externally oriented dimension. Carpooling communicates the innovation to external stakeholders, especially consumers, in order to actively shape their perceptions. As initially highlighted by the causal map, communication, here external communication, is crucial for social acceptance (Figure 1), an understanding that was enriched in the interviews:

*“Communication...that is related to social, societal acceptance...It deals with the whole topic of PR and marketing...It just belongs together, what we are communicating and how well it is received by the general public...[which] is crucial to success”* (translated).

Our secondary data collection further strengthens the importance of communicating the innovative business model to the outside. Every time there is a new feature, carpooling sends a newsletter to targeted user groups explaining its functionality in relation to supposed user needs and asking for feedback. Also, carpooling’s CEO strongly engages in PR, such as writing newspaper articles, elaborating on the sharing economy in general and carpooling in particular (Barnikel, 2014a, Barnikel, 2014b).

Afterwards, the fourth capability, **ITUA assessing**, enables carpooling to regularly and frequently evaluate realized value creation and capture against the background of intended results. That provides the foundation for potential course corrections. In that context, one executive explains:

*“I would say there’s not a day that goes by that I’m not running something on our database, like a query, to try to gain some insight to work on...because...we have so much data and it can really guide us in the right direction.”*

According to interviewees, the assessing is based on several key performance indicators (KPIs), such as bookings, search requests, new users, revenues, or impact of marketing campaigns.

Finally, we find the four ITUA capabilities to be not only forward but also backward linked through **multi-loop learning**. One type is market-based learning which results from ITUA assessing and can feed back into all other capabilities. The following quote refers to the introduction of a stop-over feature that suggests drivers where to stop. The statement demonstrates how assessing can pose questions that are then approached by ITUA scanning, followed by choosing and implementing:

*“Any time we have a question, for example, if we think that we’re getting lots of visitors but they’re not booking,...we have this one survey for where people land on a page, booking page, and they just abandon it. We ask them right away they leave, ‘hey why did you leave this page?’...Usually the reason is something related to time. We learn those kinds of things...So, if we hear over and over again the departure time is not good on this particular route..., we can start to do things to try to change the drivers’ behavior...so that they’re giving [the passengers] what they want.”*

In addition, there is a very close, learning-based relation between ITUA assessing and ITUA implementing, as one manager points out:

*“There is more of this experimental learning. So, you quickly come up with a hypotheses, you try to validate that it’s...worthy of testing, and then you test it. And you use the internet...because you get so much traffic...If it’s working, you invest further in it, and if not, then you just kill it quickly and you move on to the next thing...The thing you want to avoid is three months in a laboratory...and then you put it out in the market and say, ‘wow, one person used it’. So,...[it’s about] getting ideas, and concepts, and prototypes in front of customers early and as often as possible.”*

The statement shows how carpooling aims at immediate feedback for an innovation. It engages into a constant iteration between implementation and assessment. The notion of experimental learning further highlights that ITUA seems to be associated with a lot of uncertainty. It resolves around what is the right degree of innovativeness or acceptability in business model innovation and how to align technological opportunities with consumer requirements. Besides, there is internal learning. It connects ITUA implementing with choosing and choosing with scanning. For these internal loops, communication seems to be crucial, as illustrated by a manager for a loop from choosing to scanning:

*“It’s almost like a constant generation of new ideas through the data but then constant talking and alignment, so that the new ideas are constantly being tested against everybody. And then once something starts to bubble up, then that idea...has legs and starts to take shape...”*

## 5 Discussion and Conclusion

We began by introducing the sharing economy as an IT-enabled phenomenon that is novel in nature and worth studying. The aim of our research was to answer the question: How do successful sharing economy organizations manage their business models? To provide answers, we conducted an in-depth case study of the P2P ride sharing firm carpooling. Our results suggest that the sharing economy is a highly challenging environment for firms to operate in. It is fast-changing, so that organizations need to be constantly responsive to emerging technologies and consumer needs by innovating their business model. Yet, there are conflicting requirements for business model configuration, acceptability and innovativeness. The dynamic capability of IT-user-aligned business model innovation (ITUA) is suggested to resolve these difficulties. In terms of Gregor (2006), our emergent theory *analyzes* ‘what’ is, i.e., richly describes the challenges sharing economy organizations face and the way they might effectively respond to them. Also, it *explains* ‘how’ they respond through a four-stepped process, explains

‘when’ which capability comes into play, and also explains ‘where’ that happens, which is the sharing economy. While we might not be able to adequately test our theorized relationships, restrictions in methods do not invalidate the causal nature of a theory. That is because data is substituted by logic as the basis of evaluation in the process of building theories from case studies (Whetten, 1989).

As such, our emergent theory contributes to the literature in four ways. First, to our knowledge, our study is the first to conceptualize business model innovation as a dynamic capability. While there are studies that acknowledge the importance of learning for business models (Sosna et al., 2010), of dynamic capabilities for net-enabled organizations (Wheeler, 2002), or of a coevolution of IT and business models in inter-organizational alliances (Rai and Tang, 2013), none merges the two theoretical perspectives. Unifying the two provides unique insights in how to successfully innovate in a technology-driven but also consumer-centric environment like the sharing economy.

Second, the temporal dimension of ITUA provides rich insights into the role of IT in the sharing economy. The sequential nature inherent to ITUA highlights that IT is not merely an enabler of a priorly chosen business model configuration, but it is rather a trigger of business model innovation. If used sophisticatedly and in conjunction with consumer needs, it stands at the beginning of a causal process which is likely to not only contribute to business model performance but also to societal impact in both social and environmental terms. Although the positive effects of carpooling’s activities on society are neither prioritized by consumers nor managers, they still seem to produce broadly desirable, even though unintended, results. Viewed in this light, the digitization seems to be driving the reconciliation of economic and societal value creation which has recently been called for (Porter and Kramer, 2011).

Third, related to the previous reasoning, our results substantiate and extend findings that identify an attitude-behavior gap present in the sharing economy. Our case shows that although environmental stewardship is seen as desirable it is not behaviorally relevant. While research on consumers has already shown that they exhibit that gap (Hamari et al., 2013), our results suggest that it carries over to managers. Therefore, we uniquely contribute to the emerging literature on the sharing economy, which has tended to focus on the consumer perspective, by complementing it with an organizational angle.

Fourth, the salience of business model comprehensibility and related acceptability to managers indicates that carpooling might struggle against a lack of cognitive legitimacy. That is particularly present in emerging industries and results from implausible or unpredictable activities (Aldrich and Fiol, 1994; Suchman, 1995). Yet, managing business models for legitimacy is seen to be fundamental to their long-term viability (Sach, 2013). In that regard, carpooling might be as successful as it is because it intensely communicates to the outside in order to shape perceptions of the sharing economy and itself in its favor. Similarly, Kaganer et al. (2010) demonstrate how firms can engage in so-called institutional entrepreneurship in order to legitimate IT-enabled innovations. Institutional entrepreneurs frame issues and mobilize constituencies so as to change existing arrangements in their interest (Rao et al., 2000; Maguire et al., 2004). Future research along these lines could make valuable contributions to understanding the success of sharing economy business models.

In addition, our study contributes to the knowledge base of practitioners. It provides a ‘real world’ perspective on how organizations in a dynamic environment need to constantly leverage IT in sophisticated ways to achieve firm performance. We think this realistic view on the sharing economy will appeal to practitioners, offering them deeper insights as to how they can innovate their own business models.

Finally, ITUA itself comes along with opportunities for future research. The theorized constructs and relationships may benefit from further empirical corroboration. For example, the four simple capabilities might be enriched with even more fine-grained sub-capabilities. Also, future research could determine contingencies that shape ITUA’s performance implications, such as consumers’ existing knowledge about a certain sharing practice.

To conclude, we hope that our emergent theory can lay the groundwork for a theory of how to succeed in the novel, IT-enabled socioeconomic system ‘sharing economy’. By basing our study on a case that aligns economic and societal success and by emphasizing the crucial role of digital technologies, we also hope to encourage IS scholars as well as practitioners to leverage their unique expertise to contribute to that alignment.

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