Value creation: the role of customer participation and perceived innovative aspects of service innovation

Abstract

Purpose – This study aims to investigate how customers' perception of different aspects of service innovation (innovativeness, service newness and relative advantage) and their participation impact value perception, satisfaction and loyalty. This study proposes that to enhance loyalty, these innovation aspects and customer participation must create value and satisfaction among customers.

Design/Methodology/approach – The conceptual model was empirically tested using nation-wide survey data from 430 consumers of Uber in Australia. The data were analyzed using structural equation modeling.

Findings – Our results show that customer participation, innovativeness, service newness and relative advantage positively influence perceived value. Satisfaction was positively influenced by perceived value, innovativeness, service newness and relative advantage. Both perceived value and satisfaction drive loyalty. Interestingly, customer participation had no influence on satisfaction. Our findings generally support the mediating roles of perceived value and satisfaction.

Research limitations/implications – Cross-sectional data were used. Thus, the results only provide a snapshot of the relationships among constructs. Further studies can extend and test the conceptual model in different service contexts to generalize the findings.

Practical implications – To promote loyalty, it is important that different aspects of service innovation (innovativeness, service newness and relative advantage) create value and satisfaction among customers. It is also important that consumer participate in the value creation in the service innovation context.

Originality/value – Building on service-dominant logic, this study proposes a conceptual model investigating how customers perceive different aspects of service innovation and how these perceptions as well as their participation influence the perceived value, satisfaction and loyalty for the service organization.

Key words Customer participation, Innovativeness, Service newness, Relative advantage, Perceived value, Service innovation

Paper type – Research paper

Introduction

Service innovation has received research attention in recent years (e.g., Gustafsson *et al*., 2012; Ordanini and Parasuraman, 2011; Witell *et al*., 2016), but the literature continues to call for studies aimed at expanding our understanding of service innovation, especially from a service-dominant logic (SDL) perspective (Skålén *et al*., 2015). Viewed from a goods-dominant logic (GDL) perspective, service innovation is seen as a process innovation or the residual of what product innovation is not (Michel *et al*., 2008) and customers are seen as passive receivers of value (Chan *et al*., 2010). Also, prior research in service innovation to date largely focused on typologies of service innovation or the service innovation process (e.g., Bowers, 1989; de Brentani 2001; Snyder *et al*., 2016; Toivonen and Tuominen, 2009). Although these studies have contributed to discussion about and insight into service innovation, they say little about how customers perceive and evaluate service innovation and how these perceptions and evaluations impact their value perception.

Value cocreation is a central premise of SDL which proposes that both customers and firms combine their resources to cocreate value (Vargo and Lusch, 2004, 2008, 2016). Customer participation (CP) is seen as one way that customers contribute their resources in the service production and delivery process (Gallan *et al*., 2013). In many service contexts (e.g., health care and financial services), CP is salient to shaping the process and outcomes of service encounters (Dong *et al*., 2015) and thus, CP should deliver value to both customers and service organizations (Auh *et al*., 2007). However, the research findings relating to the effect of CP on service outcomes remain inconsistent. For example, CP has a positive influence on service quality and customer satisfaction, but has mixed impacts on future purchase intentions (Ennew and Binks, 1999) and satisfaction (Bendapudi and Leone, 2003). CP can enhance customers' economic value attainment in the professional financial service

context, but it adds extra stress and dissatisfaction to the financial advisors (employees of the service organization) (Chan *et al*., 2010).

In this current study, CP is defined as the degree to which a customer has high a level of participation, invests time and effort to share information and gets involved in the service process (Chan *et al*., 2010) and represents an operant resource in the value creation process (Barrutia and Gilsanz, 2012). Also, different aspects of service innovation (innovativeness, service newness and relative advantage) represent new ways that a service organization offers its value proposition. However, only customers are in the position to perceive and evaluate the value proposition regarding service innovation, and their perceptions and evaluation can then potentially impact their behavior (Lowe and Alpert, 2015). Based on SDL as a theoretical lens, this current study proposes that the extent to which customer participation and perceived innovative aspects of service innovation can promote service outcomes in terms of customer satisfaction and loyalty, hinges on the customer perception of value. Consequently, our research questions are: *how do customer participation and their perceptions of innovative aspects of service innovation influence customer value perception, satisfaction and loyalty? In particular, whether the customers' value perception and satisfaction mediate the relationships between customer participation and their perceptions of innovative aspects of service innovation and loyalty?* The objective of this current study is to propose and empirically test a conceptual model depicting how consumers' perception of different aspects of service innovation (innovativeness, service newness and relative advantage) and their participation act as the drivers of customer loyalty through perceived value and satisfaction. This current study empirically tests the proposed model in an innovative service context, Uber, that allows users to order and pay for ride and food delivery services via a smartphone application (Cramer and Krueger, 2016).

This current study offers three main contributions. First, this current study proposes and empirically tests a conceptual model based on an SDL perspective in order to better understand how service organizations can design service innovation by means of examining customer perception of innovation aspects of service innovation. Second, since service innovation (e.g., self-service technology) increasingly requires customers to actively participate in the service production and delivery process and perhaps, generates unintended emotion such as frustration among customers (Fredrickson, 2001), our study empirically investigates whether customer participation has a positive or negative impact on service experience outcomes such as satisfaction and loyalty. In particular, our study proposes that customer participation can only influence customer satisfaction and loyalty when customers perceive the value of their participatory behaviors. Finally, the key managerial implication of the paper is that the aspects of service innovation must be evaluated from the perspective of customers. Our findings generally support the mediating roles of perceived value and satisfaction. Since customer loyalty is one of the intangible assets that underpin a competitive advantage of organizations, we offer ways that organizations can plan to promote loyalty in the service innovation context.

The article is organized as follows. First, the theoretical background relating to the literature on service innovation is briefly discussed. The paper continues with the conceptual framework relating to customers' participation and their perception of different aspects of service innovation (innovativeness, service newness and relative advantage), leading to hypotheses development. Then, research methodology including sample, data collection procedure and measures are presented. The subsequent sections discuss the empirical results of this study, followed by theoretical and managerial contributions and research limitations and avenues for future research.

Theoretical background

Service innovation through a SDL lens

Within a recent growth in research in the area of service innovation, many scholars have proposed and developed their research frameworks based on SDL (e.g., Barrutia and Gilsanz, 2012; Blazevic and Lievens, 2008; Ordanini and Parasuraman, 2011). SDL argues that both services and physical goods are essentially services, so they can be nested into an integrated, overarching service view (Lusch and Vargo, 2006). SDL focuses on the importance of value cocreation that underpins any exchange, especially in service innovation. The concept of value has been recognized as a key marketing concept and received consistent academic attention (e.g., Helkkula *et al*., 2012; Woodruff and Flint, 2006). Value has traditionally been conceptualized as a trade-off between benefits and sacrifices (e.g., Day, 1990; Zeithaml, 1988). From the GDL perspective, the term value-in-exchange has been used to indicate that value is embedded in products (Vargo and Lusch, 2004). From its first introduction by Vargo and Lusch (2004), SDL has evolved and become an underlying foundation for advancement of the concept of value (Vargo and Lusch, 2008; 2016). For example, recognizing the critical role of customers in value creation, the term *value-in-use* was introduced to capture the customer's experience and ability to extract value (e.g., Grönroos and Voima, 2013). Then, with the increasing emphasis on the premise that value creation is a context-linked process that promotes the consumer's well-being or makes the consumer better off in some aspects (Vargo *et al*., 2008), the term *value-in-context* was introduced. According to SDL, customer value is viewed as being "…*idiosyncratic, experiential, contextual, and meaning-laden*" (Vargo and Lusch, 2008, p. 7). The value concept was further amplified to include *value-in-social context* (Edvardsson *et al.*, 2011) and *value in experience* (Helkkula *et al*., 2012).

In addition, SDL also offers a conceptualization of service as a cocreation process that involves an integration of operand and operant resources from all actors (customers, service

providers, and other actors) (Vargo and Lusch, 2016). When looked at a service innovation, customers are the main actor (a beneficiary) who contribute their operant resources in terms of knowledge, competence, and skills into in the value cocreation process (Barrutia and Gilsanz, 2012). Thus, both customers and service providers (and possibly with other actors) are resource integrators through interactions within networks embedded in service systems (Edvardsson, *et al*., 2011; Grönroos and Voima, 2013; Vargo and Lusch, 2016).

Another related perspective that also sees customers as a collaborative partner with service providers in a value cocration process is service science (e.g., Spohrer *et al*., 2007). Service science focuses on a service system, which can be defined as a configuration or an arrangement of resources (including people, technology, information and other resources) that interact with other service systems to create mutual value (Barrutia and Gilsanz, 2012; Maglio *et al*., 2009). Some scholars have extended this perspective to a service ecosystem that can be defined as "a relatively self-contained, self-adjusting system of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange" (Vargo and Lusch, 2016, p. 11). Another related perspective is service logic proposed by the Nordic school (Grönroos, 2006) which views the interaction as a prerequisite to value cocreation and service providers are seen as facilitators (Grönroos and Voima, 2013). The customers are always creators of value and service providers are invited by customers to cocreate value through interactions. The interactions (direct, indirect or both) are seen as the ways that customers, service providers and other actors integrate their corresponding resources and thus can potentially influence the value creation process (Grönroos and Voima, 2013).

Based on SDL, literature in service innovation and insights from service science and service logic, we develop a framework in which customer participation and their perception of aspects of service innovation can influence their value, satisfaction and loyalty. Since SDL

"has been, and continued to be, further consolidated, extended, and elaborated" (Vargo and Lusch, 2016, p. 5), we recognize the possibility of a more comprehensive and dynamic perspective of value cocreation through interactions among actors in a larger context which includes other actors in social systems, institutions and institutional arrangements (Edvardsson *et al*., 2011). However, we examine the value cocreation process in a service innovation context in a micro-level view of customers. Our proposed conceptual model is shown in Figure 1.

[Insert Figure 1 – about here]

The conceptual framework

Value-satisfaction-loyalty chain

Past research has proposed and empirically tested the interrelationships among key constructs (service quality, value, satisfaction and customer loyalty) in various service contexts. For example, Parasuraman and Grewal (2000) proposed the quality-value-loyalty chain in which the customers' evaluation of service quality enhances perceived value, which in turn promotes customer loyalty. Extending from the Parasuraman and Grewal's study, Barrutia and Gilsanz (2012) proposed and empirically tested the value-satisfaction-behavioral intention chain in which customer value perception promotes customer satisfaction, which subsequently impacts the positive referral and reuse intentions regarding e-commerce websites from customers.

Based on the views of prior research above and empirical evidence of previous studies (e.g., Coelho and Henseler, 2012; Cossío-Silva *et al*., 2016; Sirdeshmukh, *et al*., 2002; Yim *et al*., 2012), this current study proposes that customer perceived value derived from service innovation positively influences customer satisfaction and loyalty. In capturing value perception, we focus on the consumers' evaluation of the overall value of the services, feeling of being in control and value-for-money and effort (Barrutia and Gilsanz, 2012; Harris and

Goode, 2004). In our study, satisfaction captures overall satisfaction, outcome satisfaction and process satisfaction derived from the service (Dong *et al*., 2015) while customer loyalty reflects the overall favorable attitude toward the service brand that results in repeat buying behaviors (Srinivasan *et al*., 2002). Consequently, we propose the following hypotheses:

H1. Perceived value positively influences a) satisfaction and b) brand loyalty.
H2. Satisfaction positively influences brand loyalty.

Customer participation (CP)

Scholars have indicated the changing role of customers (e.g., Prahalad and Ramaswamy, 2000) and underlined the role of CP in value cocreation, especially in service contexts (e.g., Dong *et al*., 2015; Gallan *et al*., 2013). CP refers to the degree to which a customer has a high level of participation, invests time and effort to share information and gets involved in the service process and reflects customer effort in co-producing services (Chan *et al*., 2010). From theoretical perspectives, such as SDL or relationship marketing (RM), CP is seen as a crucial element in promoting positive outcomes to both a customer and an organization. First, when customers actively participate in information sharing and become involved in co-producing services, such CP should benefit customers through improved service quality and increased service customization, resulting in increased customer satisfaction (e.g., Auh *et al*., 2007; Dong *et al*., 2015). CP also benefits organizations since customer active participation in services enables the organizations to establish close relationships that promote loyalty or reduce churn through value co-creation (Cossío-Silva *et al*., 2016; Revilla-Camacho *et al*., 2015). However, empirical research on the effect of CP produced inconsistent findings (Meuter *et al*., 2005) and in some cases, CP can be seen as "a double-edged sword" (Chan *et al*., 2010, p. 48). Although CP is considered a positive element in the value co-creation

process as discussed above, there are variations in the levels of CP and often the optimal level is not reached, especially in service contexts such as health care services in which customers are reluctant to participate due to high uncertainty and risks (Gallan *et al*., 2013). Furthermore, when organizations such as financial service firms encourage active participation from their customers, but their employees are not trained or equipped to cope with higher demand placed on them to perform or deal with close interactions with the customers, CP may generate unintended negative consequences (e.g., stress and dissatisfaction) among the employees, which potentially inhibits them from providing positive service outcomes to the customers (e.g., Chan *et al*., 2010; Yim *et al*., 2012).

When investigating the effect of CP in a service innovation context, prior studies in self-service technologies (SSTs) shed some light onto its impacts on perceived value and satisfaction. In the case of an airline online check-in system, CP is suitable in this context characterized by a high user activity level but low provider activity level (Wünderlich *et al*., 2013), which can potentially reduce costs and increase productivity (Lyytinen and Yoo, 2002). Further, Chen and Wang (2016) found support for a positive impact of CP in promoting enjoyment value, economic value and relational value, which in turn drive customer satisfaction with the online check-in system. Finally, we acknowledge the possibilities of strains and negative emotions caused by asking customers to participate at a much higher level in many service innovations (e.g., Yim *et al*., 2012). However, based on the SDL and RM perspectives, this current study proposes that CP provides an opportunity for building the relational exchanges between customers and service organizations who introduce innovation. CP allows an opportunity for both sides to integrate resources to cocreate value and promote satisfaction among customers (Auh *et al*., 2007; Skålén *et al*., 2015). The following hypothesis is proposed:

H3. Customer participation positively influences (a) perceived value and (b) satisfaction.

Perceived innovative aspects of service innovation

This current study focuses on the three aspects of service innovation, namely innovativeness, service newness and relative advantage, and argues that they potentially represent a value proposition of service innovation. In the context of service innovation, service organizations need to create new value propositions or develop existing ones and design methods and practices of integrating resources of both organizations and customers (Skålén *et al*., 2015). However, value propositions must be assessed and evaluated from the perspective of the customers' value creation (Vargo and Lusch, 2004; 2008; 2016). Although the three aspects of service innovation (innovativeness, service newness and relative advantage) are adapted from the literature on product innovation (e.g., Roger, 2003; Lowe and Alpert, 2015), Gummerson (1995) argues that customers do not necessarily buy goods or services, but they select the offerings that create value according to their visions and perception.

The concept of innovativeness has been traditionally from an organizational perspective and many extant studies have often employed expert-based views of innovation (Kunz *et al*., 2011). Researchers have offered various definitions of firm innovativeness. For example, Roehrich (2004) defines firm innovativeness as the capability of an organization to develop new product solutions at a faster rate within a certain time period, while Kunz *et al*. (2011, p. 817) conceptualized firm innovativeness as "the consumer's perception of an enduring firm capability that results in novel, creative, and impactful ideas and solutions for the market." In this current study, perceived innovativeness refers to the degree to which intangible offerings, actions and reactions are perceived as novel by customers (Alam and Perry, 2002). It also represents as an image or part of the brand personality or brand positioning (Brexendorf *et al*., 2015). It also reflects a subjective customer perception and

attribution based on the customers' knowledge and experience relating to the firm's behavior and characteristics over time (Kunz *et al*., 2011).

Prior studies have substantiated the link between firm innovativeness and business performance (e.g., Hurley and Hult, 1998, Tsai and Yang, 2013). There is limited research on investigating the impact of perceived innovativeness on perceived value and customer satisfaction. However, the findings of previous studies shed light into these relationships. In the context of health-care markets, Falkenreck and Wagner (2011) found that perceived innovativeness of health-care suppliers has positive influence on the value perception (value for money) of the customer organizations. In the context of innovative brands (both goods and services), Kunz et al. (2011) found that perceived firm innovativeness positively promotes cognitive satisfaction in that customers are confident in the firm's ability and expertise to perform the task effectively. Based on the findings of the above studies, we propose that:

H4. Perceived innovativeness positively influences (a) perceived value and (b) satisfaction.

While perceived innovativeness reflects a customer's global perception of service organization innovativeness, perceived service newness reflects a customer's perception of new services offered by service organizations. However, understanding newness in the context of service innovation is ambiguous since *new* services can be seen from the firm or the market or the customer (Snyder *et al*., 2016). This current study focuses on the newness from the customer's point of view since SDL underlies the role of customers in assessing and cocreating value (Vargo and Lusch, 2004, 2008; 2016). In addition, when viewed from the firm perspective, organizations often focus on the technological newness in service innovation. However, Preissl (2000) argues that service innovation often involves new procedures and/or new concepts rather than new core technology. In this study, service

newness reflects the customers' perception of the overall novelty of the idea manifested in the offered services (Lowe and Alpert, 2015).

In some service innovation contexts, new services can potentially provide new ways (e.g., technology-mediated connection) that customers interact with service organizations. With advancement in information communication technology and self-service technology, customers are able to interact with service providers in a more efficient and effective manner. These interactions through value cocreation can save customers time and costs and allow customers to have more control of the service outcomes (Chen and Wang, 2016). In addition, service newness or novelty (i.e., difference or originality) as a component of creativity can stimulate interest among customers (Haberland and Dacin, 1992). Although novelty is not a sufficient condition that promotes satisfaction, it is conceivable that some new services with high quality technology interface are able to generate enjoyment and excitement among customers, which can potentially influence their level of satisfaction. Thus, the following hypothesis is proposed.

H5. Perceived service newness positively influences (a) perceived value and (b) satisfaction.

Relative advantage is considered a critical innovation attribute in predicting the success of innovation adoption (Rogers, 2003). It represents benefits perceived by the customers and is similar to the concept of perceived usefulness (Wang *et al*., 2012). We define relative advantage as the degree to which a service innovation is perceived as being better than existing alternatives (Moore and Benbasat, 1991). Service innovation typically incorporates new or slightly modified practices and a new or slightly modified resource integration (Skålén *et al*., 2015). If these practices or resource integration processes are seen by customers as superior than existing ones, it is conceivable that relative advantage can

influence the customers' perception of value and satisfaction. Thus, the following hypothesis is proposed.

H6. Perceived relative advantage positively influences (a) perceived value and (b) satisfaction.

Mediating roles of perceived value and satisfaction

According to SDL, value is cocreated by customers, organizations and other actors in the network (e.g., Vargo and Lusch, 2016). However, only customers (beneficiaries) can assess the level of value created while organizations can only offer value propositions or promised value (Grönroos and Voima, 2013). In a context of service innovation, Skålén et al. (2015, p. 150) argue that "service innovation takes place through developing existing or creating new practices and/or resources and that these actions result in new or developed value proposition." Also, based on the SDL perspective, Yim *et al.* (2012, p. 49) argue that "CP alone is not the key to customer satisfaction but that value cocreation is what matters." Based on SDL and the logic of the above studies, this current study proposes that to promote customer loyalty, customer participation and different aspects (innovativeness, service newness and relative advantage) of service innovation should create value perceived by customers. Thus, the following hypothesis is proposed:

H7. Perceived value mediates the relationships between the four antecedents, namely a) participation, b) perceived innovativeness, c) perceived service newness and d) perceived relative advantage, and brand loyalty.

In proposing the value-satisfaction-behavioral intentions chain, Barrutia and Gilsanz (2012) underline the role of satisfaction as a central mediating variable. Yim *et al.* (2012) also

found that customer satisfaction, as well as customer enjoyment, mediates the relationship between customer participation and repurchase intensions. Based on the logic of the above studies, this current study proposes that to promote customer loyalty, customers should be satisfied with their levels of customer participation and different aspects (innovativeness, service newness and relative advantage) of service innovation. Thus, the following hypothesis is proposed:

H8. Satisfaction mediates the relationships between the four antecedents, namely a) participation, b) perceived innovativeness, c) perceived service newness and d) perceived relative advantage, and brand loyalty.

Methodology

Data were collected from a sample of Uber consumers via a web-based, self-administered survey. This study employed the services of a reputable panel database company who maintains a nationwide sampling frame of Australian consumers. The sampling frame was randomly drawn from the company's database to match the national distribution of age, gender and geographic location. The first question asked the respondents whether they use the mobile phone application to purchase the following services; Uber Ride, Uber Eat, hotel, flight and none of the above. This question was a multiple response question in which those services were randomly ordered. Only respondents who selected Uber Ride or Uber Eat were invited to fill out the remaining questions in the online survey while those who never used Uber services received a thank you message and the survey was terminated. If the respondents selected both Uber Ride and Uber Eat, they were then randomly assigned to one of the services for the purpose of this study.

Respondents were offered a non-monetary incentive (reward points) by the panel database company. A total of 430 respondents completed the survey with 189 males (44.0%), 238 females (55.3%) and 3 other (0.7%). In terms of age, there were 19-24 years old (14.0%), 25-34 years old (21.95%), 35-44 years old (21.6%), 45-54 years old (19.1%) and 55-64 years old (13.3%) and 65 years and older (10.2%). Most had a Bachelor's degree (35.3%), some diploma (26.3%), high school (18.4%), postgraduate degree (19.3%) and other (0.7%). There were 334 respondents (77.7%) who used Uber Ride and 96 respondents (22.3%) who used Uber Eat.

Measures

Multi-item measures, using a seven-point scale anchored on '1' = extremely disagree to '7' = extremely agree were adapted from prior studies and modified to suit the study's context. Content validity in the form of face validity was established through three academic experts who assessed how well the instruments represented the constructs under study. Also, a pretest was undertaken with 50 respondents before the final launch of the survey. We conducted some preliminary checks such as sample demographics and simple descriptive statistics and no significant issues were identified.

In measuring *customer participation*, we adapted the three-item scale from Yim *et al*. (2012). The scale captures the extent to which a customer has high level of participation, invests time and effort to share information and gets involved in the service process. Next, we measured *perceived innovativeness* with items adapted from Falkenreck and Wagner (2011) to assess the extent to which a customer perceives the innovativeness of the service organization. *Perceived service newness* was measured by the scale adapted from Lowe and Alpert (2015). The four-item scale captures the overall novelty of the idea manifested in the offered services. *Perceived relative advantage* was assessed using four items adapted from

Lowe and Alpert (2015) that measured the extent to which an innovation is perceived as superior to the idea it supersedes (Rijsdijk and Hultink, 2009).

We measured *perceived value* by using three items adapted from Barrutia and Gilsanz (2012) and Harris and Goode (2004) that reflect the overall value of the services, feeling of being in control and value-for-money and effort. *Satisfaction* was measured with items from Dong *et al*. (2015) to capture overall satisfaction, outcome satisfaction and process satisfaction. Finally, we measured *customer loyalty* with four items from Srinivasan *et al*. (2002) to capture the overall attitudinal loyalty to a specific brand that results in repeat purchase behavior. The measurement items and psychometric properties for all constructs are provided in Table 1.

[Insert Table 1 – about here]

Preliminary analysis

In order to facilitate hypothesis testing using structural equation modeling (SEM), we first conducted preliminary checks to examine whether the distribution of the data met the assumptions of the multivariate analysis (Hair *et al*., 2010). As such, in testing for normality, we examined the univariate skewness and kurtosis of the variables and found them to be within acceptable levels as there were no values of skewness > 3 or kurtosis values > 10 (Kline, 2005). We also checked for outliers and extreme values using histograms and boxplots and no significant issues were identified, thus indicating data validity (Hair *et al*., 2010). Next, unidimensionality was assessed through exploratory factor analysis (EFA) to identify factor loadings and only those measurement items with loadings above .40 were retained (Hair *et al*., 2010). Although all the measures used in this study were adapted from existing literature, we simply conducted EFA to identify the underlying factor structure and all the items loaded well onto their respective constructs. EFA results demonstrated that

unidimensionality exists, that is, the measured variables were explained by only one underlying construct and this is important when more than two constructs are involved in a study (Hair *et al*., 2010).

Table 1 shows the standardized factor loadings (SFLs) for each item, the Cronbach's alpha scores and construct reliability. The SFLs of all the measurement items are above the .50 cut-off point confirming adequate item reliability. The Cronbach's alpha scores ranged between .797 and .953, which suggests adequate convergence (Hair *et al*., 2010). In examining internal consistency of the constructs, we calculated construct reliability (CR) using the procedures outlined by Fornell and Larcker (1981) which include the examination of the parameter estimates, their associated t-values, and assessing the average variance extracted (AVE) for each construct. CR estimates greater than .70 and AVE values greater than .50 are considered to support internal consistency (Bagozzi and Yi, 1988; Hair *et al*., 2010). As shown in Table 1, all calculated estimates met these stipulated criteria, thereby providing evidence for internal consistency.

[Insert Table 2 – about here]

Measurement model and discriminant validity

Measurement models are used to assess the overall model fit, Goodness-of-fit and indices can be used to verify if the theoretical model fits the data (Schumacker and Lomax, 1996). In this study, we tested a measurement model using confirmatory factor analysis (CFA) and the model showed acceptable fit ($\chi^2_{231} = 368.340$, $\chi^2/df = 1.595$, $p < .01$, Goodness-of-Fit (GFI) = .934, Root Mean Square Residual (RMR) = .056, Normed Fit Index (NFI) = .955, Tucker-Lewis Index (TLI) = .979, Confirmatory Fit Index (CFI) = .983, Root Mean Square Error of Approximation (RMSEA) = .037). Although the Chi-square value is statistically significant,

which is usually the case with sample sizes above 200 (Bagozzi and Yi, 2012; Hair *et al*., 2010), all the other statistics remained within acceptable ranges.

We assessed discriminant validity using two different approaches. First, as can be seen in Table 2, all the interconstruct correlations are significantly less than one at $p = .001$ level, providing evidence for discriminant validity (Bagozzi and Yi, 1988). Second, discriminant validity was also examined by comparing the AVE and each calculated pairwise shared variance (SV) between the constructs (Fornell and Larcker, 1981). According to Voorhees *et al*. (2016), the AVE-SV comparison provides the best assessment of discriminant validity in marketing studies. As shown in Table 2, the square roots of the AVE values for each construct along the diagonal exceeded the correlation coefficients for all the other constructs, in support for adequate discriminant validity.

Common method bias

Given the nature of the cross-sectional data and the self-administered collection method used in this study, common method variance (CMV) may influence the structural estimates of the model (Podsakoff *et al.*, 2003). To mitigate the impact of CMV, the respondents were required to complete the questionnaire anonymously, the questionnaire was kept short (10-15 minutes) and the measurement items were formulated carefully to reduce ambiguity and vagueness (Malhotra *et al*, 2006). We then assessed the threat of common method bias using two statistical techniques recommended by Podsakoff *et al.* (2003). First, we employed a Harman one-factor analysis by linking all of the items of the seven factors to one single factor (Podsakoff *et al.*, 2003). This one-factor model revealed poor model fit as reflected in the indices: (χ^2_{252}= 3402.201, χ^2/df = 13.501, $p < .001$, RMR = .192, GFI = .545, NFI = .588, TLI = .568, CFI = .605, RMSEA = .171) suggesting that CMV is unlikely to bias the study results. Second, we assessed CMV using the 'marker variable' approach recommended by Lindell and

Whitney (2001). Thus, we added a theoretically unrelated construct (*"I am apprehensive about working with operating systems"*) in the analysis as a proxy for common method bias. Williams *et al.* (2010) recommends selecting a marker variable that is not anticipated to be theoretically related to the model variables but can simultaneously capture sources of bias when measuring certain phenomena. As can be seen in Table 2, all the correlations with the marker variable are below the suggested .20 cut-off for problematic method bias (Malhotra *et al*., 2006). Using the more conservative bias estimate, we compared the CMV-adjusted correlations to the unadjusted matrix and the correlations remained unchanged after adjusting for CMV (Lindell and Whitney, 2001). This analysis suggests that CMV is unlikely to be a serious concern in our study.

Data analysis and results

To test the hypothesized relationships, a structural model SEM analysis was tested. The SEM approach was chosen as it reduces standard errors due to the simultaneous estimation of all parameters in a single model (Iacobucci *et al.*, 2007). The structural model results shown in Table 3 revealed acceptable fit (χ^2_{236}= 603.775, χ^2/df = 2.602, $p < .000$, RMR = .208, GFI = .907, NFI = .927, TLI = .944, CFI = .949, RMSEA = .061). In support of H1a, the results show that perceived value positively influences satisfaction (β = .325, t = 4.968, $p < .001$) and as predicted in H1b, perceived value positively influences loyalty (β = .253, t = 3.859, $p <$ .001). In support of H2, a positive relationship emerged between satisfaction and loyalty (β = .344, t = 6.007, $p < .001$). The results showed that customer participation is positively related to perceived value (β = .203, t = 5.142, $p < .001$), but not to satisfaction (β = -.035, t = -1.022, $p > .10$). Thus, H3 was partially supported. Also, the results supported the impact of perceived innovativeness on perceived value (β = .579, t = 10.480, $p < .001$) and satisfaction (β = .334, t = 5.263, $p < .001$) in support of H4. Further, the results supported H5 which hypothesized

that perceived service newness has a positive impact on both perceived value (β = .186, t = 3.593, p < .001) and satisfaction (β = .159, t = 3.175, p < .005). Finally, H6 was supported as positive relationships emerged between perceived relative advantage and perceived value (β = .189, t = 2.400, p < .05) as well as satisfaction (β = .189, t = 3.745, p < .001).

[Insert Table 3 – about here]

Testing mediation effects

To test for the mediation effects of both perceived value and perceived satisfaction in the model, we added the four additional paths from the four antecedents to loyalty. By estimating these additional direct paths, we are able to draw some conclusions whether the two mediators fully mediate or partially mediate the relationships between the four antecedents and the loyalty outcome. If any of the direct paths is significant, then only partial mediation occurs. If any of the direct paths is non-significant, a full mediation is likely. This method is based on the technique proposed by Baron and Kenny (1986). However, we did not follow their three steps of mediation testing because some researchers questioned the requirement of some of the three steps. For example, Baron and Kenny (1986) state that the starting point to establish mediation should be a significant effect of the independent variable (X) on the dependent variable (Y). Later, this requirement has been deemed unnecessary (Shrout and Bolger, 2002).

As seen in Table 3, only one direct path from perceived relative advantage to loyalty is significant (β = .194, t = 3.806, p < .001). Thus, it can be inferred that perceived value partially mediates the relationship between perceived relative advantage and loyalty while it fully mediates the relationships between the three remaining antecedents (customer participation, perceived innovativeness and perceived service newness) and loyalty. Thus, H7 is partially supported. Also, since there is no relationship between customer participation and satisfaction (the mediator), satisfaction does not mediate the relationship between customer participation and loyalty. However, satisfaction is found to partially mediate the relationship

between perceived relative advantage and loyalty while it fully mediates the relationships between the two remaining antecedents (perceived innovativeness and perceived service newness) and loyalty. Thus, H8 is partially supported.

Discussion

Theoretical contributions

Our framework represents an attempt at developing a theoretical framework to understand the sources and outcomes of service innovation viewed from the customers' perspective. Our study provides two main contributions. First, the framework used in this study is grounded in SDL and drawn from research in the areas of services marketing and service innovation. In particular, customer participation represents an operant resource put into the value cocreation process while different aspects of service innovation represent a value proposition that must be perceived and evaluated by the customers (the beneficiaries). Their perception of value and evaluation of these innovative aspects of the service organization offering then influence their satisfaction with and loyalty to the service organization. Our findings suggest that customers do not mind participating in the service delivery process required by the service innovation because there is no direct relationship between customer participation and satisfaction. However, in order to promote satisfaction and resultant loyalty, customers must see value derived from their participatory behavior.

In addition, this study examined how the three aspects of service innovation, namely innovativeness, service newness and relative advantage influence customer value perception and service outcomes in terms of satisfaction and loyalty. Only perceived relative advantage directly affects loyalty and indirectly influences loyalty via perceived value and satisfaction. For perceived innovativeness and service newness to promote loyalty, the customers must either perceive the value of or become satisfied with those aspects of service innovation.

Thus, our findings support the mediating role of perceived value. According to SDL, that value is a critical element underpinning service exchanges. Our findings support this view and further suggest that perceived value is also a crucial component in the service innovation context.

Taking the above contributions together, this current study offers empirical support to the SDL view of service innovation in that customers and a service provider contribute and integrate their resources to cocreate value. The findings of our study contribute to an ongoing debate on the outcome of customer participation and a growing literature on service innovation.

Managerial implications

The findings of our study are particularly useful for service innovations that require customer participation. Successful service innovation is not only contingent on having the right value proposition in terms of innovativeness, service newness and relative advantage, attractive practices of motivating customer participation and established resource integration process are also needed to promote value perception and loyalty among customers. There is the trend in services innovation, which increasingly use technologies (e.g., self-services and mobile phone applications) and thus these service innovations require customer participation. Our findings suggest that customers do not mind participating. However, they need to perceive some value of doing so. Thus, service organizations need to create strategies that can motivate customer participation. For example, service organizations can design the service process that makes it easy for the customers to participate by offering them opportunities to have more control over service delivery or save time. For example, customers can use a mobile phone application or the internet to order services. Also, service organizations must ensure the quality of the technology interface, for example, by having a mobile phone application that is easy to use and interactive.

Moreover, our study focuses on customer loyalty as a critical outcome because it is an intangible asset that underpins a competitive advantage and the survival rate of innovation is relatively low. Thus, our findings suggest that different aspects of service innovation influence loyalty differently. For example, our findings support the importance of perceived relative advantage of service innovation over the existing alternatives in driving value, satisfaction and loyalty. Thus, service organizations not only have to ensure that customer needs and expectations are met, they have to be more proactive in the anticipation of latent needs when designing a service innovation. In addition, new services must create value as perceived by the customers and their satisfaction in order to promote loyalty. In promoting the personality or differentiating image of a brand or firm, a service organization must ensure that its offerings are coherent and valued the customers.

Limitation and further studies

Despite the theoretical contribution and managerial implications presented above, our study has limitations. First, the findings of our study may be limited by the conclusion drawn from a single service organization (Uber), so further research in a variety of service contexts is needed to confirm the results discussed here to increase the generalizability. Moreover, our study proposed and tested a limited set of drivers and outcomes. Other innovation diffusion variables (Rogers, 2003) such as complexity, and customer related constructs such as coproduction, perceived ability and role identification can be further examined. Also, future study can include more organizational outcomes such as adoption acceptance and repurchase intention. Finally, our study employed cross-sectional data. Thus, our study has limitations associated with non-experimental research designs, which include an inability to confirm causality among constructs. Thus, there exists an opportunity to further explore the

relationships among constructs through alternative research designs such as a longitudinal study or experiments.

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Figure 1 **Conceptual model**

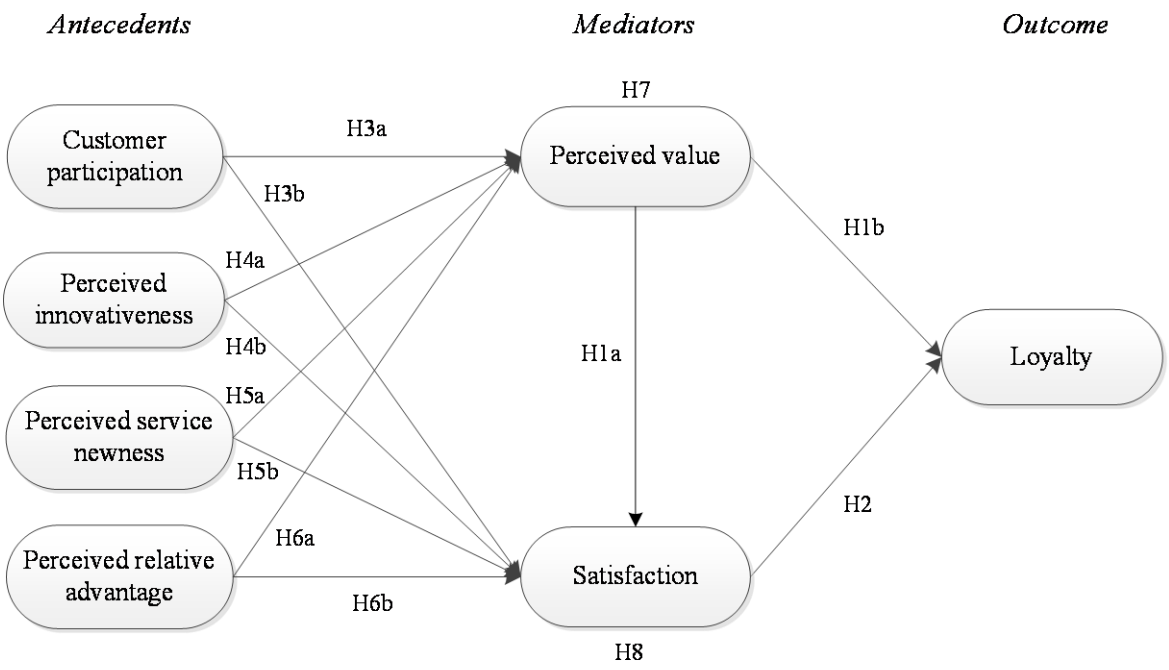

Table 1 **Measurement items and standardized factor loadings**

Constructs	**SFLs**
Customer participation (CR = .862, α = .851 and AVE = .675)	
I spent a lot of time sharing information (e.g., addresses) with Uber in the Uber mobile phone application.	.642
I have a high level of participation using the Uber mobile phone application.	.847
I am very much involved with the Uber mobile phone application.	.946
Perceived innovativeness (CR = .752, α = .797 and AVE = .567)	
Uber is innovative.	.774
Uber is an innovative brand.	.729
Uber offers leading services.	.756
Perceived service newness (CR = .891, α = .904 and AVE = .706)	
Uber services are new.	.765
Uber services are different.	.900
Uber services are unique.	.843
Uber services are original.	.848
Perceived relative advantage (CR = .851, α = .884 and AVE = .660)	
Uber services offer unique benefits.	.779
Uber services have higher quality than the competition.	.869
Uber services solve problems I had with competitor services.	.811
Uber services replace a vastly inferior alternative.	.787
Perceived value (CR = .919, α = .895 and AVE = .743)	
Services I get from the Uber mobile phone application are excellent value.	.889
The Uber mobile phone application has adequate security features.	.818
I am satisfied with the process of the Uber services.	.878
Satisfaction (CR = .981, α = .953 and AVE = .871)	
I am satisfied with the Uber services.	.948
I am satisfied with the outcome of the Uber services.	.909
I would stick with this brand even if it would let me down once or twice	.943
Loyalty (CR = .929, α = .925 and AVE = .758)	
Other people come to me for advice on new technologies.	.903
I know more about the newest technologies than those around me.	.889
I am among those people who want to know when a new technology appears.	.849
I keep up with the latest technological developments on products I am interested in.	.841

Note: CR– construct reliability α–Cronbach's alpha coefficient, AVE– average variance extracted, and SFLs–standardized factor loadings from CFA

Table 2 **Interconstruct correlations, descriptive statistics and AVEs**

Constructs	**Mean**	**SD**	**AVE**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Customer participation	4.339	1.408	.675	**.821**						
2. Perceived innovativeness	5.795	.826	.567	.205	**.753**					
3. Perceived service newness	5.611	1.013	.706	.235	.622	**.840**				
4. Perceived relative advantage	5.364	1.056	.660	.272	.469	.471	**.812**			
5. Perceived value	5.568	.9623	.743	.356	.640	.538	.441	**.862**		
6. Satisfaction	5.947	.9348	.871	.199	.632	.548	.485	.640	**.933**	
7. Loyalty	5.577	1.091	.758	.305	.558	.496	.538	.612	.661	**.871**
8. Marker variable	2.500	1.685	-	.107	-.144	-.127	-.088	-.168	-.198	-.098

Note: SD–standard deviations; AVE–average variance extracted and the square root of AVE is the diagonal number in **bold**.

Table 3 **Structural model**

Hypothesized relationships		**β**	**S.E.**	***t***	***p*-value**	**Result**
H1a: Perceived value	→ Satisfaction	.325	.064	4.968	***	Supported
H1b: Perceived value	→ Loyalty	.253	.076	3.859	***	Supported
H2: Satisfaction	→ Loyalty	.344	.068	6.007	***	Supported
H3a: Customer participation	→ Perceived value	.203	.038	5.142	***	Supported
H3b: Customer participation	→ Satisfaction	-.035	.032	-1.022	.307	Not supported
H4a: Perceived innovativeness	→ Perceived value	.579	.065	10.480	***	Supported
H4b: Perceived innovativeness	→ Perceived satisfaction	.334	.072	5.265	***	Supported
H5a: Perceived service newness	→ Perceived value	.186	.045	3.593	***	Supported
H5b: Perceived service newness	→ Satisfaction	.159	.042	3.175	.005	Supported
H6a: Perceived relative advantage	→ Perceived value	.128	.044	2.400	.050	Supported
H6b: Perceived relative advantage	→ Satisfaction	.189	.040	3.745	***	Supported
Customer participation	→ Loyalty	.062	.038	1.842	.065	Non-significant
Perceived innovativeness	→ Loyalty	.068	.086	1.071	.284	Non-significant
Perceived service newness	→ Loyalty	-.001	.050	-.025	.980	Non-significant
Perceived relative advantage	→ Loyalty	.265	.049	5.160	***	Significant

Significant at $^{***}p < .001$ (2-tailed test); β–standardized path coefficients; S.E. –standard error