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Does the Ability to Choose Matter? On the Relationship between Bring-your-own Behavior and IT Satisfaction

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Abstract:

Employees increasingly complete organizational tasks using privately owned consumer technologies such as private devices (e.g., smartphones) or private Internet accounts (e.g., email accounts). Higher satisfaction constitutes a major reason for this bring-your-own behavior (BYOB). However, little research has theoretically explored and empirically tested this assumption. This study sheds light on this phenomenon by analyzing the effect of BYOB on IT satisfaction. Drawing from social cognitive theory, we propose choice self-efficacy as a new construct that intermediates the relationship between BYOB and IT satisfaction. Building on results from survey data (n = 400), we provide new evidence that BYOB has a positive effect on IT satisfaction whereby choice self-efficacy plays a vital element as it mediates this relationship. Since IT satisfaction shapes how people use technology and how they perform with it, we derive important implications for future research on IT consumerization. Furthermore, we provide several conclusions for practitioners and discuss how to enhance IT satisfaction and choice self-efficacy.

Keywords: IT Consumerization, IT Satisfaction, Bring Your Own Behavior, Choice Self-efficacy.

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1 Introduction

Employees fulfill an increasing number of organizational tasks using privately owned consumer technologies and devices such as smartphones and tablets and private Internet accounts such as email or social media accounts. Researchers and practitioners commonly refer to this trend as "IT consumerization" or the "consumerization of IT". On a conceptual level, IT consumerization becomes tangible as a distinct type of technology use behavior: bring-your-own (technology) behavior (BYOB) (Ortbach, Köffer, Bode, & Niehaves, 2013). Note that technology in a broader sense includes both hardware (e.g., smartphones) and software (e.g., email accounts).

Due to a steady increase in mobile technologies (Sørensen & Landau, 2015), the ubiquity of technology (Vodanovich, Sundaram, & Myers, 2010), and IT consumerization, employees recognize more than ever the portfolio of devices they can use and expect to be able to pick and choose the software and devices that best suit their work (Baskerville, 2011). They no longer accept being forced to adopt a certain solution (Dell & Intel, 2011). Therefore, IT consumerization has far-reaching implications, such as new opportunities for empowerment (Junglas, Goel, Ives, & Harris, 2014), new sources for innovation (Junglas, Goel, Ives, & Harris, 2018), and the emergence of shadow IT (Gregory, Ruch, Kaganer, & Henfridsson, 2014; Haag, Eckhardt, & Bozoyan, 2015).

In reviewing the body of knowledge on IT consumerization, one can see that researchers have conducted little scientific work in this area and that it still remains a challenge (Becker, vom Brocke, Heddier, & Seidel, 2015). Of the research in this area that does exist, most focuses on describing and defining the phenomenon (Niehaves, Köffer, & Ortbach, 2012; Weiß & Leimeister, 2012). Further, many (particularly practitioner) studies assume that BYOB has a positive effect on IT satisfaction (Gens, Levitas, & Segal, 2011; Harris, Ives, & Junglas, 2012). However, these studies do not empirically investigate and validate the underlying mechanisms in the association between BYOB and IT satisfaction. We need to understand these mechanics since many consider IT satisfaction to predict performance (Judge, Thoresen, Bono, & Patton, 2001) and to relate strongly to technology use (Devaraj, Ming, & Kohli, 2002; Yajiong, Huigang, & Liansheng, 2011). By recognizing IT satisfaction predictors, companies can efficiently influence and customize employees' IT satisfaction, which, in turn, leads to employees with higher performance and more intensive technology use.

Despite its relevance to date, literature on IT consumerization neglects to explain BYOB's influence on satisfaction in more detail and on a more scientific level. Until now, the link between BYOB and employee satisfaction seems to be a black box. In order to shed light on this important issue, we propose and test a new theoretical model by diving deeper into the relationship between BYOB and IT satisfaction. Drawing from choice literature, we argue that BYOB involves the freedom to choose one's own technology according to idiosyncratic preferences. We further refer to Bandura's (1977, 1986) notion of self-efficacy, which refers to the extent to which individuals believe they can organize and execute certain actions. Building on this line of argument, we hypothesize that choice self-efficacy has vital importance when it comes to explaining the relationship between BYOB and IT satisfaction. Building on previous literature on IT satisfaction, we include technological beliefs as a precursor of IT satisfaction (Devaraj et al., 2002; Yajiong et al., 2011).

By shedding light on the relationship between BYOB and IT satisfaction, we make three important contributions. First, we extend the current body of knowledge with regard to IT consumerization. In doing so, we answer current calls for more research in this important area (Becker et al., 2015). Second, the research represents an early attempt to provide a theoretical model on the relationship between BYOB and IT satisfaction, which allows practitioners to draw from our findings in order to efficiently manage and customize their employees' IT satisfaction. Third, we conceptualize choice self-efficacy as a new construct that has particular relevance to BYOB. In doing so, further research can refer to choice self-efficacy in various contexts.

This paper proceeds as follows: in Section 2, we review existing literature on IT consumerization and IT satisfaction. In Section 3, we present our theoretical development by proposing a research model that addresses the relationship between BYOB and IT satisfaction. We review previous use of self-efficacy in the information systems (IS) literature and conceptualize choice self-efficacy as a new contextualized variable that mediates the relationship between BYOB and IT satisfaction. In Section 44, we describe our research methodology. In Section 5, we present the results of this study and conclude by discussing the study's implications and promising aspects for future research.

2 Related Work

2.1 Background on IT Consumerization

In recent years, IT devices that have their origin in the consumer sector have increasingly infiltrated the corporate environment (Cummings, Massey, & Ramesh, 2009, p. 3; Ingalsbe, Shoemaker, & Mead, 2011, p. 259). Researchers initially observed this trend when Web 2.0 technologies, such as wikis, social networks, and blogs, emerged (Cummings et al., 2009; Holtsnider & Jaffe, 2012). Companies use these Web 2.0 technologies to improve collaboration (e.g., via Doodle), to exchange information (e.g., via Twitter), or as a form of multilateral cooperation in conjunction with social networks (e.g., via Facebook or LinkedIn). In addition to Web 2.0 technologies, mobile devices from the consumer market, such as laptops, tablets, and smartphones, have and continue to force their way into the corporate sector (Holtsnider & Jaffe, 2012). For example, employees increasingly use personally owned iPhones in companies as a substitute for the classic business smartphone (usually a BlackBerry).

IT consumerization has major effects on organizations. For instance, many organizations have shifted from top-down innovation to a bottom-up approach (Leclercq-Vandelannoitte, 2015a, 2015b). In this context, Andriole (2012) states that "there's a reverse technology-adoption life cycle at work: employees bring experience with consumer technologies to the workplace and pressure their companies to adopt new technologies" (p. 51). Today, employees recognize more than ever the portfolio of devices they can use and expect to be able to select the software and devices that best suit their work. In other words, they no longer accept being forced to adopt a certain solution (Dell & Intel, 2011).

Consequently, one can view IT consumerization from different angles (Köffer, Ortbach, Junglas, Niehaves, & Harris, 2015b). First, one can view it from a market perspective with a focus on the origin of the underlying technology. This perspective emphasizes consumer IT (e.g., Web 2.0 technologies or mobile devices from the consumer market). Second, one can view it from an individual perspective that focuses on the ownership of the IT. This perspective focuses on the question: "who owns the technology?". Third, one can view it an organizational perspective that focuses on policies about using private IT. Since we focus on privately owned technology, we primarily refer to the individual perspective in this study.

Existing literature on IT consumerization provides mixed results with regard to the effects that privately used technologies have on employees. On the one hand, some studies demonstrate their positive aspects, such as an increased level of convenience and comfort using privately owned technologies. Many studies have found that employees are more familiar with devices or technologies they use at home, which leads to productivity gains (Disterer & Kleiner, 2013; Köffer, Ortbach, & Niehaves, 2014). On the other hand, studies have also raised concerns about, for example, security (Disterer & Kleiner, 2013) and blurred boundaries (Jahn, Klesel, Lemmer, Weigel, & Niehaves, 2016; Köffer, Anlauf, Ortbach, & Niehaves, 2015a). Current literature also demonstrates that employees often use privately owned technologies alongside organizational IT, which, in turn, causes new forms of inconvenience for the user including work-life conflict concerns or perceived privacy risks (Klesel, Lemmer, Bretschneider, & Niehaves, 2017; Ostermann, Wiewiorra, & Franzmann, 2017).

Despite the importance of IT consumerization, researchers have conducted little scientific work in this area. Most papers limit their scope to simply describing and defining the phenomenon (Niehaves et al., 2012; Weiß & Leimeister, 2012). Initial empirical work primarily focused on the benefits and pitfalls of IT consumerization. For instance, Harris et al. (2012) conducted a worldwide quantitative study and concluded that increases in employee satisfaction, innovation, and productivity represent IT consumerization's main benefits. Gens et al. (2011) also found an increased level of satisfaction to constitute an important benefit. Other studies stress that an increasing level of autonomy for individuals has positive effects on motivation (Dell & Intel, 2011; Murdoch, Harris, & Devore, 2010; Niehaves et al., 2012). Related work also discusses the negative implications that such autonomy can have on an individual level; for example, that workers feel more pressure to work longer due to the overlap of private and corporate IT, which makes it "difficult [for them] to switch off from work" (Dell & Intel, 2011).

Consulting firms have also executed several empirical studies on the topic. These practice-driven studies have described the phenomenon and offered normative advice for executives. These studies commonly assume that BYOB has a positive effect on satisfaction (Gens et al., 2011; Harris et al., 2012). However, these studies neglect to explain the influence of BYOB on satisfaction in more detail and on a more scientific level. They do not challenge the underlying mechanisms in the association between BYOB and

IT satisfaction. In this paper, we go beyond existing literature by more deeply explaining the relationship between BYOB and IT satisfaction.

2.2 Background on IT Satisfaction

Research on IT satisfaction has a longstanding tradition in IS research (Briggs, Reinig, & de Vreede, 2008) since it forms a key aspect in technology acceptance research (Devaraj et al., 2002; Yajiong et al., 2011) and is considered an antecedent to IS success (DeLone & McLean, 1992, 2003). IT satisfaction refers to a pleasurable emotional state that results from using technology (Bhattacherjee & Premkumar, 2004). Previous literature has argued that satisfaction is similar to attitudinal constructs (Bailey & Pearson, 1983; Yajiong et al., 2011) and, thus, that one can include it in the technology acceptance model (Devaraj et al., 2002; Yajiong et al., 2011). In an extensive literature review, Nabavi, Taghavi-Fard, Hanafizadeh, and Taghva (2016) considered IT satisfaction as a central antecedent to continuance intentions. Moreover, IT satisfaction has several antecedents in distinct research contexts. For instance, in service continuance intentions, Kang and Lee (2010) explain satisfaction with website information quality and website system quality. Chang (2013) explores determinants of e-learning systems with a focus on perceived value and service quality. Other predictors of IT satisfaction focus on response time, conversation (in this case, social interactions), and pricing behavior in an online service to explain continuance (Ruth, 2012). Other researchers examine and predict satisfaction in the context of a user's holistic experience when using IT with expectation disconfirmation (Lankton & McKnight, 2012), perceived hedonic and utilitarian performance, and cognitive absorption (Deng, Turner, Gehling, & Prince, 2010).

Although studies have investigated the role that IT satisfaction has on the individual from different perspectives (Briggs et al., 2008), they have yet to link IT consumerization to IT satisfaction. Since individuals now increasingly use consumer IT in both the private and business environment, this gap leaves important questions in terms of the relationship between IT consumerization and IT satisfaction unanswered. Against this background, in Section 3, we address this gap by introducing a research model that focuses on the relationship between BYOB and IT satisfaction.

3 Theoretical Development

3.1 Research Model

In this study, we depart from the notion that satisfaction represents an emotional state that results from technology use (Bhattacherjee & Premkumar, 2004). Accordingly, we propose a research model (see Figure 1) that explains the relationship between technology use via BYOB and IT satisfaction. By including mediating effects (i.e., choice self-efficacy, perceived ease of use, perceived usefulness), we account for a rich relationship between use and IT satisfaction in the model. This perspective concurs with the adoption process (Wei, Teo, Chan, & Tan, 2011), which uses technology access, digital capability, and digital outcome. In our context, BYOB relates to (digital) access. We use choice self-efficacy as a specific type of (digital) capability, and we include perceived usefulness (PU), perceived ease of use (PEOU), and IT satisfaction as (digital) outcome variables.

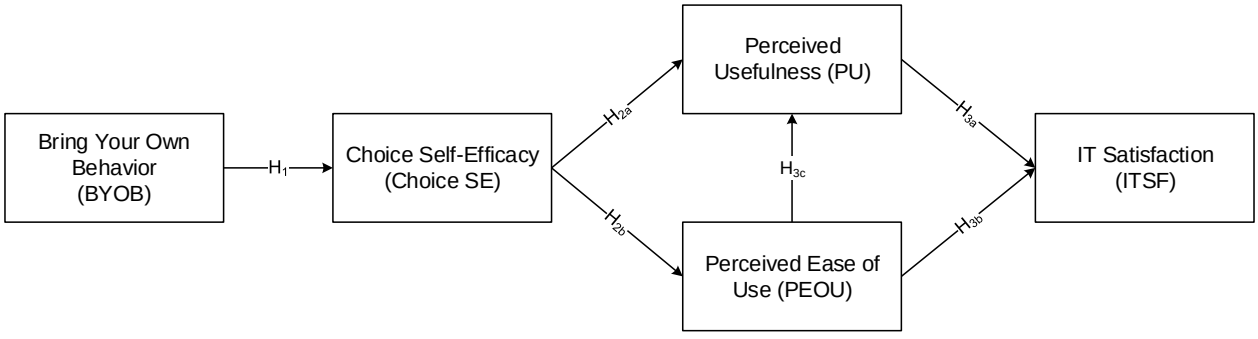

Figure 1. Proposed Research Model

We define IT satisfaction as "an individual's state following IT usage experience [which] involves two dimensions: valence (positive versus negative) and intensity (Oliver, 1993)" (Bhattacherjee & Premkumar, 2004, p. 237). For this study, we understand IT satisfaction in terms of the IT usage experience for work-

related purposes. We define perceived usefulness (PU) and perceived ease of use (PEOU) as the extent to which people "believe…[a specific technology] will help them perform their job better" (Davis, 1989, p. 320) and the degree to which they "believe that using a particular system would be free of effort" (Davis, 1989, p. 320), respectively. We define choice self-efficacy, which is new in this context, as individuals' perceptions of their own ability to choose technology that best fits their idiosyncratic needs in order to accomplish a task. Finally, we define bring-your-own behavior (BYOB) as behavior in which people use technologies other than those that their companies provide them with to perform work tasks (Ortbach et al., 2013). Hence, we consider a specific type of use behavior (or usage experience) that relates to the individual perspective of IT consumerization (Köffer et al., 2015b).

3.2 Why Choice Self-Efficacy Is Necessary

Bandura (1986, 2001) and Bandura and Adams (1977) have conceptualized self-efficacy as part of social cognitive theory. Social cognitive theory deals with the human development of personality and learning and builds on three factors: environment, cognition, and behavior. These factors pertain to the concepts of self-regulation, self-reflection, and self-efficacy. Self-reflection represents a necessary prerequisite of self-efficacy (Keith, Babb, Lowry, Furner, & Abdullat, 2015; Nisbett & Wilson, 1977). It refers to individuals' ability to understand emotions and experiences to assess their own cognitions and beliefs and to change their own behavior based on this evaluation. Bandura's self-efficacy notion relates to the idea that personal beliefs form the fundamental basis for action. In addition, self-efficacy refers to the degree to which individuals have confidence in their own performance (e.g., in fulfilling a particular task). Individuals who have a high degree of self-efficacy believe that they have the ability to perform in a certain manner in order to achieve a particular goal (Bandura, 1977). Hence, self-efficacy relates to human performance and one's ability to change one's behavior. Researchers have empirically examined this relationship between behavior and self-efficacy in diverse domains (Bandura, 1997) such as education (Chester & Beaudin, 1996), health (Resnick & Jenkins, 1996), and learning (Agarwal & Karahanna, 2000).

Furthermore, self-efficacy is a prerequisite for an individual's willingness to exhibit a certain behavior such as performing a task or coping with challenges that might arise when undertaking a particular action. In contrast, without self-efficacy, individuals do not persevere in a laborious, unknown, or new task. In general, individuals tend to avoid tasks and situations for which they have a low self-efficacy to control said tasks and situations, and they prefer activities they think they can handle (Bandura, 1977). Additionally, if an individual decides to perform such a task, the individual will spend more time and effort coping with the arising difficulties over the course of these activities. However, self-efficacy does not guarantee success because it simply concerns individuals' *belief* that they can perform a task. Success depends on the individual's competence, their incentives to complete a certain task, and the collaboration or activities of others (Bandura, 1977).

Researchers need to develop specific self-efficacy constructs that fit in their research context (Hardin et al., 2008; Marakas, Yi, & Johnson, 1998). Many have already done so for various contexts, such as security self-efficacy (Chen & Zahedi, 2016), knowledge self-efficacy (Zhao, Detlor, & Connelly, 2016), and mobile self-efficacy (Keith et al., 2015). Motivated by the IT consumerization and an increasing number of technology alternatives, we assume that self-efficacy becomes more important when it comes to choosing technology. Consequently, we adopt previous conceptualizations that propose choice self-efficacy. We believe that choice self-efficacy has the most relevance today for several reasons. First, as technology becomes ubiquitous, the number of technology alternatives increases dramatically. Therefore, choice becomes more and more important. In other words, individuals with choice self-efficacy are more likely to find technology that fits their idiosyncratic needs and preferences, which, in turn, leads to more performance and satisfaction. Second, with the ubiquity of technology, individuals are much more familiar with IT. This aspect becomes most notable when it comes to digital natives (Vodanovich et al., 2010; Wang, Myers, & Sundaram, 2013). Consequently, general self-efficacy has become less effective in explaining contemporary phenomena. In contrast, in order to explain satisfaction, self-efficacy with regard to choice becomes more promising. Choice, from a psychological perspective, refers to individuals' ability to decide on their own to use information technology or an alternative and mostly relates to a situation of wellbeing. Specifically, these decisions refer to the idea of having a choice. For instance, Markus and Schwartz (2010, p. 344) arrive at the syllogism that "The more freedom and autonomy people have, the greater their well-being. The more choice people have, the greater their freedom and autonomy. Therefore, the more choice people have, the greater their well-being". Many studies have examined freedom, choice, and autonomy (Deci & Ryan, 2000, 2002; Murray & Häubl, 2011; Riemer & Filius, 2009),

and these factors enable and allow people to control situations or get what they want (Markus & Schwartz, 2010).

Against this background, we contextualize choice self-efficacy as a specific type of computer self-efficacy with a particular emphasis on individuals' belief that they can choose suitable technology. As we propose above, we define choice self-efficacy as individuals' perceptions of their own ability to choose technology that best fits their idiosyncratic needs in order to accomplish a task. Thus, individuals with a high level of choice self-efficacy can choose technologies that suit their own preferences. Therefore, our understanding differs from previous conceptualizations because choosing a suitable technology requires a different skill set than using mobile phones (Keith et al., 2015) or computer systems in general (Marakas et al., 1998).

3.3 Hypothesis Development

Previous literature has applied self-efficacy in different ways. On the one hand, research has used it as an antecedent to behavior. For instance, Agarwal and Karahanna (2000) conceptualize self-efficacy as a predictor of behavior intention. On the other hand, research has conceptualized self-efficacy as a successor of use behavior. For example, Wei et al. (2011) conceptualize school IT resource use as an antecedent of computer self-efficacy. This study follows a similar approach in that it conceptualizes BYOD as a specific type of IT resource. Therefore, we assume we will find similar effects in our research. Specifically, we assume that IT resources (such as private IT resources) have the potential to significantly influence computer self-efficacy because they fundamentally allow individuals to perform actions and to experience mastery (Wei et al., 2011). With regard to the prevalence of consumer technologies such as smartphones, tablets, or wearables in private environments, IT resources have become virtually ubiquitous. Therefore, we can assume that consumer technology has a similar effect on self-efficacy. Furthermore, researchers have stressed that individuals need peers to have rich experiences because they can observe and learn from other people's behavior (Wei et al., 2011). Due to IT consumerization, individuals today will likely observe others' (bring-your-own) behavior. Condensed innovation cycles, ubiquity of technology (Ransbotham, Fichman, Gopal, & Gupta, 2016), and an increasing number of digital natives (Wang et al., 2013) mean that individuals can scarcely avoid observing and analyzing other people's technology use behavior. This proposition goes hand in hand with prior research insights on self-efficacy. For example, Compeau and Higgins (1995) provide evidence that other people's use behavior has an influence on an individual's self-efficacy. IT consumerization means that individuals can choose from a vast number of technological alternatives (Köffer, Ortbach, et al., 2015). To find technology that suits their idiosyncratic needs and preferences, individuals need to be able to choose their technology. Therefore, individuals who bring their own technology (e.g., to their workplace) do not only provide self-efficacy in terms of technology use but self-efficacy in terms of choosing their technology. Combining the above arguments, we hypothesize:

H1: Bring-your-own behavior is positively linked to choice self-efficacy.

Previous literature has tested numerous individual factors that influence technology acceptance with mixed results (Venkatesh, Thong, & Xin, 2016); however, self-efficacy has received consistent support. For instance, in a study on the relationship between general and specific computer self-efficacy, Agarwal, Sambamurthy, and Stair (2000) found that computer self-efficacy had a significant effect on ease of use. Researchers report similar results in the context of autonomous workers (Lewis, Agarwal, & Sambamurthy, 2003), in digital libraries (Hong, Thong, Wong, & Tam, 2001), and in experimental studies (Venkatesh & Davis, 1996). In addition to research on computer self-efficacy, previous studies have acknowledged the importance of self-efficacy with regard to mobile technologies. In the context of location-based services and mobile apps, Keith et al. (2015) provide evidence that self-efficacy plays a vital role when it comes to mobile devices. Since IS research has extensively used computer self-efficacy in general and mobile self-efficacy in particular, choice self-efficacy obviously has similar effects on technological perception. Again, choice self-efficacy refers to individuals' perceptions of their own ability to choose technology that best fits their idiosyncratic needs in order to accomplish a task. Additionally, and in accordance with the choice literature, choice relates to the idea of freedom and autonomy, which, in turn, relates to wellbeing (Markus & Schwartz, 2010). Against this background, we hypothesize:

H2a: Choice self-efficacy increases perceived usefulness.

H2b: Choice self-efficacy increases perceived ease of use.

Existing literature has provided comprehensive evidence that perceived usefulness and perceived ease of use are antecedents to use intention (Ajzen, 1985; Davis, 1989; Fishbein & Ajzen, 1975; Venkatesh, Morris, Davis, & Davis, 2003; Venkatesh et al., 2016). At the same time, researchers have widely discussed the relationship between perceived ease of use and perceived usefulness (Hess, McNab, & Basoglu, 2014). In this study, we deliberately chose to look at satisfaction instead of use intention because one can consider BYOB as post adoption. Since satisfaction is an affective factor (Bailey & Pearson, 1983), we chose it over use intention (Devaraj et al., 2002; Yajiong et al., 2011). Since the relationship between technology attitudes and satisfaction has solid ground in existing literature (Davis, 1989; Venkatesh et al., 2003, 2016), we hypothesize:

H3a: Perceived usefulness increases satisfaction with IT.

H3b: Perceived ease of use increases satisfaction with IT.

H3c: Perceived ease of use is positively related to perceived usefulness.

4 Methodology

4.1 Research Design and Procedure

To test the research model, we collected data from 400 participants via a computer-assisted telephone interview (CATI) in order to reduce the “digital divide” (Fricker, Galesic, Tourangeau, & Yan, 2005) and to ensure a high degree of complete answers. On average, one interview took 15 minutes. We recruited the participants from 400 different local administrations in Germany that ranged from fewer than 50 employees up to 10,000 (see Table 1). We randomly selected the administrations from the overall population in order to have a representative sample. Since we focused on BYOB and choice self-efficacy, which do not pertain only to specific groups of respondents, we included all observations.

Table 1. Administration Overview

Size	Amount	%
Less than 50 employees	248	62.0
51-250 employees	122	30.5
251-500 employees	14	3.5
501-1000 employees	10	2.5
1001-5000 employees	4	1.0
5001-10000 employees	1	.3
not specified	1	.3
Total	400	100

Our participant sample had the following demographic characteristics: 81 percent held a managing position (e.g., mayor, head of the office, or department manager), 19 percent held an employee position (e.g., clerk, spokesperson). Note that German administrations use a hierarchical bureaucratic system, which explains the high number of people with managing positions in our sample (for a comparison, see, e.g., Vandenabeele, Scheepers, & Hondeghem, 2006). Further, 66 percent of the respondents were male, and 34 percent were female. The participants had an average age of 47.5 (SD = 10.72) and an average tenure of 18.81 years (SD = 11.59). Table 2 illustrates these demographic characteristics

Table 1. Descriptive Statistics

Position		Gender		Age					Age		Tenure
Manager	81%	Male	Female	21-35	36-45	46-55	> 55	n.a.	M	47.50	18.81
Employee	19%	66%	34%	17.0%	18.5%	33.8%	24.8%	6.0%	SD	10.72	11.59

4.2 Measurement Instrument

Wherever possible, we used existing measurement items to ensure content validity. We measured BYOB with a three-item scale (Ortbach et al., 2013). We measured perceived usefulness and perceived ease of

use based on the original scales (Davis, 1989). We measured IT satisfaction with a four-item scale (Bhattacherjee, 2001). Table A1 in the Appendix overviews the empirical correlations.

We contextualized choice self-efficacy in two steps. First, we reviewed existing self-efficacy scales (Agarwal et al., 2000; Brown & Venkatesh, 2005; Marakas, Johnson, & Clay, 2007; Marakas et al., 1998; Schmitz, Teng, & Webb, 2016). In order to avoid respondent fatigue, we decided to use a parsimonious scale that Brown and Venkatesh (2005) propose, which comprises three items. Other scholars who have successfully applied short-item scales for context-specific self-efficacy constructs have used a similar strategy (Keith et al., 2015).

Second, we adapted the items to our study's context. For example, we changed the original question "I feel comfortable using a computer on my own" (Brown & Venkatesh, 2005) to "I feel comfortable making my own IT choices for work". We adapted all items in this manner. Since literature on IT consumerization indicates that employees eagerly choose their own tools (Harris et al., 2012), we included a fourth item to account for this aspect ("I am the best judge of what IT to use for my work."). Table 3 overviews the constructs we measured. All measurement items were measured reflectively.

Since choice self-efficacy is new, we applied established approaches to determine discriminant validity (Gefen & Straub, 2005). First, we investigated the loadings and cross-loadings to ensure that the constructs did not significant overlap (see Table A3). Next, we analyzed the square root of the AVE for each construct (see Table 5). Since all values were higher than any of the correlations with other constructs (Fornell & Larcker, 1981), we assume that choice self-efficacy had a sufficient degree of discriminant validity.

Table 3. Scale Items

Construct	ID	Item	Source
Bring-your-own behavior	BYOB1	I use private devices (e.g., laptop computer, smartphone) to perform work tasks.	Ortbach et al. (2013)
	BYOB2	I use private software applications to perform work tasks.	
	BYOB3	I use private Internet accounts (e.g., social media) to perform work tasks.	
Choice self-efficacy	ChoiceSE1	I feel comfortable making my own IT choices for work.	Brown & Venkatesh (2005), Harris et al. (2012)
	ChoiceSE2	If I wanted to, I could easily select IT for my work on my own.	
	ChoiceSE3	I can choose IT for my work even if no one is around to help me.	
	ChoiceSE4	I am the best judge of what IT to use for my work.	
Perceived usefulness	PU1	The IT I use for work enables me to accomplish tasks more quickly.	Davis (1989)
	PU2	The IT I use for work improves my job performance.	
	PU3	The IT I use for work increases my productivity.	
	PU4	The IT I use for work enhances my effectiveness on the job.	
	PU5	The IT I use for work makes it easier to do my job.	
	PU6	I find the IT I use for work useful in my job.	
Perceived ease of use	PEOU1	Learning to operate the IT I use for work is easy for me.	Davis (1989)
	PEOU2	I find it easy to get the IT I use for work to do what I want it to do.	
	PEOU3	My interaction with the IT I use for work is clear and understandable.	
	PEOU4	It is easy for me to become skillful with respect to the IT I use for work.	
	PEOU5	I find the IT I use for work easy to use.	
IT satisfaction	All in all, I am _____ with the technology that I use for work.		Bhattacherjee (2001), Bhattacherjee & Premkumar (2004)
	ITSF1	Very dissatisfied / very satisfied	
	ITSF2	Very displeased / very pleased	
	ITSF3	Very frustrated / very content	
	ITSF4	Absolutely terrible / absolutely delighted	

4.3 Data Analysis and Results

4.3.1 Method Selection

Since the model comprises common factors, we used consistent partial least square (PLSc) path modeling for the analysis. PLSc extends the traditional PLS algorithms and corrects for attenuation (Dijkstra & Henseler, 2015). Therefore, PLSc addresses the estimation bias of the traditional PLS algorithm and promises more accurate estimations. We used ADANCO (2.0.1) for the subsequent analysis (Henseler & Dijkstra, 2015).

4.3.2 Model Fit

We analyzed the goodness of model fit for the saturated and estimated model (see Table 4). The results indicate that, with regard to the SRMR and d_{ULS}, the model had an adequate fit in both models (saturated and estimated). D_G was not as ideal as estimated. It had a higher value than the .95 confidence interval. Since the SRMR and d_{ULS} were acceptable the d_G indicator was only slightly not ideal, we can assume a suitable fit of the model (Byrne, 2006; Henseler, Hubona, & Ray, 2016).

Table 4. Model Fit

Model fit indicator	Saturated			Estimated		
	Value	HI95	HI99	Value	HI95	HI99
SRMR	0.0438	0.0460	0.0550	0.0467	0.0496	0.0576
d_{ULS}	0.4441	0.5342	0.7642	0.5522	0.6236	0.8390
d_G	0.2777	0.2886	0.3845	0.3107	0.2884	0.3766

4.3.3 Internal Consistency Reliability and Convergent Validity

We analyzed the internal consistency reliability using three different estimates (see Table 6): Dijkstra-Henseler's rho (ρA), Jöreskog's rho (ρc), and Cronbach's alpha (α). According to these indicators, all constructs provided a sufficient degree of reliability (ρA > 7; ρc > .7; α >.7). As the average variance extracted (AVE) values show, each construct also met the requirements for convergent validity (Fornell-Larcker Criterion). The Heterotrait-Monotrait ratio (HTMT) of correlations also indicates a high reliability because all indicators were significantly below 1 (see Table A2). Finally, we analyzed the cross-loadings and found that the loadings exceeded the cross-loadings (see Table A3).

Table 5. Internal Consistency Reliability and Convergent Validity

Construct	α	ρ_A	ρ_c	BYOB	ChoiceSE	PU	PEOU	ITSF
BYOB	0.7379	0.7947	0.7461	0.5065				
ChoiceSE	0.8717	0.8789	0.8706	0.0498	0.6295			
PU	0.9076	0.9107	0.9074	0.0121	0.0677	0.6215		
PEOU	0.9089	0.9093	0.9088	0.0068	0.1292	0.4699	0.6660	
ITSF	0.8882	0.8899	0.8885	0.0028	0.0768	0.3018	0.3806	0.6662
α = Cronbach's alpha, ρ_A = Dijkstra-Henseler's rho, ρ_c = Jöreskog's rho.				Squared correlations; AVE in the diagonal.				

4.3.4 Structural Model

To evaluate the structural model, we considered the coefficients of determination (R^2) and the significance level of path coefficients via the bootstrapping method (4,999 bootstrap samples). Concerning R^2, the results show perceived usefulness and perceived ease of use explained 41.1 percent of the variance of satisfaction. Furthermore, the model explained 47 percent of the variance of perceived usefulness and 12.9 percent of perceived ease of use. Finally, BYOB explained 4.9 percent of choice self-efficacy (adjusted R^2, see Table A4).

The path coefficient between BYOB and choice self-efficacy was significant. Furthermore, the path between choice self-efficacy and perceived ease of use was significant. We did not find a significant

relationship between choice self-efficacy and perceived usefulness. Moreover, perceived ease of use had a significant relationship to perceived usefulness. Both perceived ease of use and perceived usefulness had a significant effect on IT satisfaction (see Figure 2).

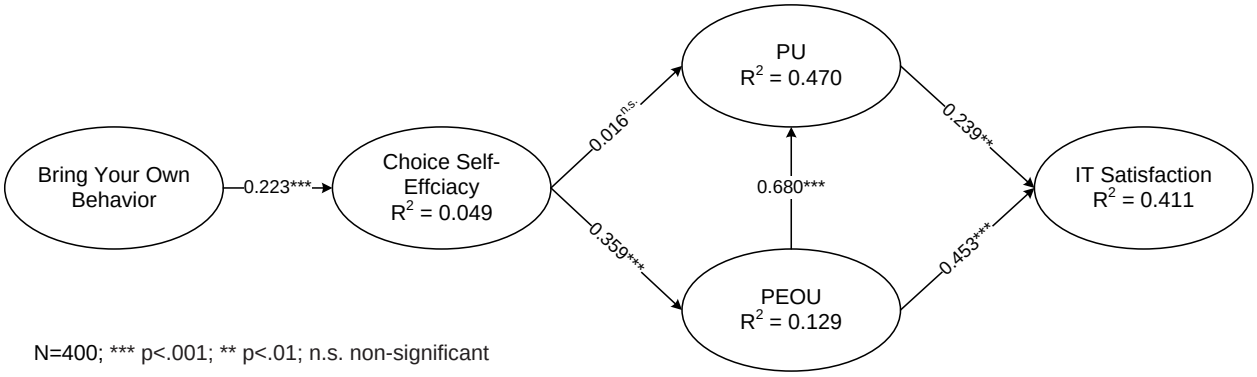

Figure 2. Structural Model

4.3.5 Effect Analysis

In order to compare the effects, we calculated the direct and indirect strength of each relation's effect (see Table 6). According to the analysis, choice self-efficacy did not have an effect on perceived usefulness. The relationship between perceived usefulness and IT satisfaction was significant at a p-value smaller than 0.01. The path coefficients from BYOB to choice self-efficacy, choice self-efficacy to perceived ease of use, perceived ease of use to perceived usefulness, and perceived ease of use to IT satisfaction were significant at a level below 0.001. Cohen's f^2 shows that perceived ease of use had a strong effect on perceived usefulness and a moderately strong effect on IT satisfaction. Choice self-efficacy did not have an effect on perceived usefulness and a weak effect on perceived ease of use. Finally, we observed indirect effects from choice self-efficacy to IT satisfaction and to perceived usefulness.

Table 6. Effect Size

Independent	Dependent	Beta (β)	Indirect effects	Total effect	Cohen's f^2	Effect size†
BYOB	ITSF		0.0503	0.0503		
ChoiceSE			0.2251	0.2251		
PU		0.2385		0.2385	0.0512	weak
PEOU		0.4535	0.1621	0.6156	0.1850	medium
ChoiceSE	PU	0.0159	0.2444	0.2603	0.0004	no
BYOB			0.0581	0.0581		
PEOU		0.6798		0.6798	0.7593	high
ChoiceSE	PEOU	0.3595		0.3595	0.1484	weak*
BYOB			0.0803	0.0803		
BYOB	ChoiceSE	0.2233		0.2233	0.0525	weak*

† We interpret the effects sizes as follows: weak effect: $0.02 \le f^2 < 0.15$; moderate effect: $0.15 \le f^2 < 0.35$; strong effect: $f^2 \ge 0.35$ (Chin, 1998; Cohen, 1988)
* We note that, in cases of a single antecedent, we cannot report a genuine effect size. Instead, we calculated this indicator assuming that the R^2 (excluded) equaled 0.

4.3.6 Post Hoc and Mediation Analysis

We analyzed perceived ease of use to see whether it mediated the relationship between choice self-efficacy and perceived usefulness. Since the results do not support H2a (β = 0.016, non-significant), we carried out a post hoc analysis and followed existing guidelines on mediation analysis (Aguinis, Edwards, & Bradley, 2016; Baron & Kenny, 1986; Zhao, Lynch, & Chen, 2010). We found that perceived ease of use did determine whether choice self-efficacy had an indirect effect on perceived usefulness (Nitzl, Roldan, & Cepeda, 2016). As Table 6 illustrates, choice self-efficacy had an indirect effect on perceived

usefulness (the path coefficient was β = 0.205 with bootstrapped p-value = 0.000). Additionally, a Sobel test (Preacher & Hayes, 2004; Sobel, 1982, 1986) confirms the result that perceived ease of use fully mediated choice self-efficacy. As Zhao et al. (2010) argue, one needs to investigate the role of omitted mediators. To do so, we conducted a detailed analysis following Aguinis et al. (2016). Specifically, we removed mediator variables (i.e., perceived ease of use) to investigate how the relationship between choice self-efficacy and IT satisfaction changed. We found that, without perceived ease of use, a significant path between choice self-efficacy and IT satisfaction remained (β = 0.236, p value = 0.000), which concurs with our results from analyzing indirect effects (see Table 6 (indirect effect = 0.2251)). Hence, we conclude that perceived ease of use fully mediated the relationship between choice self-efficacy and IT satisfaction. Additionally, we conducted a mediation analysis that excluded perceived ease of use. Again, the results suggest a mediation (partial mediation of PU) between choice self-efficacy and IT satisfaction (β = 0.143, p-value = 0.016).

4.3.7 Control Variables

We included several control variables in our model that similar studies have also used (Keith et al., 2015; Wei et al., 2011), such as demographics (gender, age) and organizational and professional characteristics (organizational size, tenure, and computer skills). Table 7 overviews the influence of the control variables on the proposed variables.

Table 7. Influence of Control Variables

Construct / Control variable	ChoiceSE (β, f^2)	PU (β, f^2)	PEOU (β, f^2)	ITSF (β, f^2)
Gender	-0.1215^{*} (0.019)	$-0.0456^{n.s.}$ (0.003)	0.1780^{**} (0.039)	$0.0576^{n.s.}$ (0.005)
Age	$-0.0061^{n.s.}$ (0.000)	$0.0743^{n.s.}$ (0.006)	$-0.0376^{n.s.}$ (0.001)	$0.0724^{n.s.}$ (0.005)
Organizational size	-0.1617^{**} (0.0315)	$0.0007^{n.s.}$ (0.000)	$0.0157^{n.s.}$ (0.000)	$0.0066^{n.s.}$ (0.000)
Computer skills	0.4550^{***} (0.245)	$-0.0531^{n.s.}$ (0.003)	0.2164^{**} (0.042)	0.1537^{**} (0.032)
Tenure	$-0.1096^{n.s.}$ (0.009)	$0.092^{n.s.}$ (0.009)	$-0.0766^{n.s.}$ (0.004)	$0.0461^{n.s.}$ (0.002)
Significance levels: *** p < 0.001; ** p < 0.01; * p < 0.05; n.s. = non-significant				

5 Discussion

5.1 Major Findings

The proposed results show the impact that perceived usefulness (β = 0.239, p < 0.01; $f^2 \geq 0.051$ weak effect) and perceived ease of use (β = 0.453, p < 0.001; $f^2 \geq 0.185$ medium effect) had on IT satisfaction. As one can see, perceived ease of use had a higher impact on IT satisfaction (i.e., the contentedness, satisfaction, pleasure, or delight of using technology for work). Further, perceived ease of use strongly predicted perceived usefulness (β = 0.680, p < 0.001; $f^2 \geq 0.759$ high effect). In addition, we found that our model explained more than 40 percent of the variance.

In this study, we examined antecedents to the original constructs in the technology acceptance model. First, we found that BYOB explained a small but significant amount of variance in choice self-efficacy (β = 0.223, p < 0.001). Therefore, other impact factors that include different technologies may also affect choice self-efficacy. For instance, other technologies and their corresponding use behavior (e.g., corporate-owned privately enabled (COPE)) may affect choice self-efficacy.

Second, choice self-efficacy refers individuals' perceptions of their own ability to choose technology that best fits their idiosyncratic needs in order to accomplish a task. The analysis shows that choice self-efficacy predicted perceived ease of use (β = 0.359, p < 0.001; $f^2 \geq 0.148$ weak effect). We can conclude that individuals who choose their own IT judge themselves to be confident in performing particular tasks, which affects their belief in their skills. As a result, they find working with (their own) IT easier. Moreover, the significant relationship between choice self-efficacy and PEOU might also indicate that individuals with a high degree of choice self-efficacy are more likely to choose technology that they find easier to use. For

example, individuals that are loyal to a specific system are more likely to choose those technologies since they find them easier to use[1].

One cause-effect relationship (i.e., the relationship between choice self-efficacy and perceived usefulness) was not significant (β = 0.016, non-significant; f^2 ≥ 0.000 no effect). Two possible reasons may explain this finding. The first reason concerns context: since perceived usefulness of information technology is linked to specific technologies, participants in this study may have related to their technology in a rather narrow sense. Second, in terms of choice, perceived usefulness could be too broad for a generalizable statement to reveal a significant cause-effect relationship. However, our post hoc analysis results show that perceived ease of use fully mediated between the relationship between choice self-efficacy and perceived usefulness (i.e., a 0.2444 indirect effect; see Table 6). Further, a Sobel test and the mediation analysis confirmed the full mediation. However, we found that choice self-efficacy did not have a direct effect (Cohen's f^2) on perceived usefulness. A further post hoc mediation analysis revealed a non-hypothesized but significant and fully mediated path between choice self-efficacy and IT satisfaction. As such, investigating the role that choice self-efficacy has on technology-related beliefs could provide important insights into the actual use behavior.

In order to investigate the effects of control variables, we included gender, age, organizational size, computer skills, and tenure. The results show that tenure and age had no significant effect in our proposed model. In contrast, gender, organizational size, and computer skills had a significant effect. Firstly, gender had an effect on choice self-efficacy (β = -0.1215, p-value < 0.05) but a weak Cohen's f^2 effect (f^2 ≥ 0.019 no effect), while perceived ease of use (β = 0.1780, p-value < 0.01; f^2 0.039 weak effect) had a significant relationship and a weak effect. These results reflect the gender bias known from existing acceptance literature (e.g., Venkatesh et al., 2003). Second, organizational size had a negative impact on choice self-efficacy and a weak effect (β = -0.1617, p-value < 0.01; f^2 ≥ 0.031 weak effect). Against the background of choice self-efficacy, this negative relationship could have resulted from differences in terms of organizational culture or training opportunities. Third, the control variable computer skills (which reflects how individuals perceive their IT knowledge) had three positive and significant relations: 1) choice self-efficacy (β = 0.455, p-value < 0.001; f^2 ≥ 0.245 moderate effect), 2) perceived ease of use (β = 0.2164, p-value < 0.01; f^2 ≥ 0.042 weak effect), and 3) IT satisfaction (β = 0.1537, p-value < 0.01; f^2 ≥ 0.032 weak effect). As for the first relationship, people with a lot of IT knowledge can typically better choose technology that fits their needs. Similarly, for the second relationship, people who have a lot of knowledge on IT perceive the IT they use as easier to use. Alternatively, these people find it easier to learn to use technology. The third relationship may result from people's beliefs that they are more satisfied with a technology when they think they have good knowledge about IT in general.

5.2 Implications for Theory and Practice

We examined the relationship between BYOB and IT satisfaction and emphasized the importance of choice self-efficacy. We found a relationship between BYOB and IT satisfaction and that choice self-efficacy and technological beliefs (perceived usefulness and perceived ease of use) mediated the relationship. Our findings have several theoretical and real-life implications.

First, our insights contribute to previous literature on IT satisfaction. Whereas previous literature has primarily focused on confirmation and disconfirmation of technologies (Bhattacherjee & Premkumar, 2004), we specifically investigated the relationship between privately owned technologies and their influence on IT satisfaction. According to our results, the use of privately owned technologies has a small but significant influence on IT satisfaction. Hence, our results encourage further research on IT satisfaction and privately owned technologies.

Second, our study contributes to the existing body of knowledge in the domain of IT consumerization. Apart from several practitioner studies, which have only postulated that BYOB might influence IT satisfaction, we empirically analyzed the relationship based on theory. Thus, we not only verify postulations in existing practitioner studies but also theoretically explain the relationship between BYOB and IT satisfaction. As such, we deliver a theoretical foundation that researchers can use to further advance theory in the IT consumerization domain. For instance, one could use the initial model to build theories by adding other constructs. Given the theoretical void in existing literature, this model can contribute to strengthening future endeavors for theorizing IT consumerization.

[1] We thank one anonymous reviewer for this suggestion.

Third, existing IS research has provided extensive evidence to support self-efficacy's importance (Agarwal et al., 2000; Compeau & Higgins, 1995; Marakas et al., 1998). We contribute to existing literature by providing further evidence that one can conceptualize self-efficacy in a way other than as a precursor to use behavior (e.g., Agarwal & Karahanna, 2000): that is, that one can conceptualize it as a successor to use behavior (e.g. Wei et al., 2011). Furthermore, we contextualize self-efficacy in a new way and provide initial insights into its performance in the IT consumerization domain. As the portfolio of technological alternatives continues to increase, we can expect that choice and choice self-efficacy will gain in importance.

Fourth, this study indicates that choice self-efficacy has a relationship with technology-related beliefs (perceived ease of use and perceived usefulness). Therefore, we can assume that a high degree of self-efficacy also has a relationship with technology use (or intention to use technology). This logic agrees with previous research that has focused on IT satisfaction instead of use intention (Devaraj et al., 2002; Yajiong et al., 2011). From a theoretical perspective, this logic implies that acceptance and adoption research should consider using choice self-efficacy.

Since we address a highly relevant phenomenon for practitioners in this study (Niehaves et al., 2012), our findings also have implications for practice. Most importantly, we found a relationship between BYOB and IT satisfaction. Therefore, in order to improve IT satisfaction, organizations can consider establishing BYOB policies. Especially with tasks and processes that data security issues do not affect, promoting the use of privately owned devices and software may prove a promising strategy. Furthermore, since we consider IT satisfaction to predict employees' performance (Judge et al., 2001) and since it strongly relates to employees' technology use (Devaraj et al., 2002; Yajiong et al., 2011), companies can now efficiently influence and customize employees' IT satisfaction. As a result, they can increase employee performance and the degree to which they use technology.

5.3 Limitations and Future Research

As with all research, our study has several limitations that provide promising avenues for future research. Future studies should look at choice self-efficacy in other contexts to stabilize its reliability and usefulness. We propose choice self-efficacy as an important construct for IS research. However, we could only show its significance in a nomological net and not comprehensively explore its antecedents in this study. Consequently, further research may address this shortcoming by including other variables to explain the construct in more detail. In addition, we did not consider what influence IT strategies that govern use behavior such as bring your own device (BYOD) or COPE have on individual use behavior. Since structures such as rules or norms influence behavior (Giddens, 1984; Jones & Karsten, 2008; Mokosch, Klesel, & Niehaves, 2015), future research could include its influence and possible effects. Because this study evidences a relationship between BYOB and IT satisfaction, future research could build on this insight by including further variables.

Additionally, our sample also had some limitations. Most importantly, a significant number of employees in our sample held some kind of managerial position. Although the hierarchical structure in German governmental organizations explains this occurrence (Vandenabeele, Scheepers, & Hondeghem, 2006), it may bias our sample. Therefore, more research needs to investigate our insights.

From our perspective, hedonic variables such as enjoyment with devices (van der Heijden, 2004), or work-place variables such as autonomy or work-life conflict (Ahuja, Chudoba, Kacmar, McKnight, & George, 2007) may also present a promising avenue to investigate. In any case, to conclude, we propose and test choice self-efficacy as a new construct. Our findings suggest that it represents a relevant variable for explaining the relationship between BYOB and IT satisfaction.

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Appendix A: PLSc Results

Table A1. Empirical Correlation Matrix

Indicator		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	BYO1	1	.42	.41	.13	.06	.14	.10	.15	.07	.13	.16	.10	.09	.04	.11	.06	.09	.04	.06	.01	.04	.01
2	BYO2	.42	1	.62	.12	.09	.11	.08	.01	.03	.08	.04	-.03	-.01	.03	.05	.03	.03	.00	.07	.00	.03	.02
3	BYO3	.41	.62	1	.22	.13	.19	.09	.05	.07	.07	.08	.02	.03	.04	.06	.06	.04	.05	.07	.00	.04	.03
4	Choice SE1	.13	.12	.22	1	.67	.68	.50	.24	.17	.17	.19	.20	.14	.28	.25	.20	.23	.16	.13	.15	.16	.20
5	Choice SE2	.06	.09	.13	.67	1	.70	.58	.17	.12	.14	.13	.08	.07	.31	.20	.17	.26	.14	.14	.15	.18	.21
6	Choice SE3	.14	.11	.19	.68	.70	1	.66	.24	.19	.17	.20	.18	.12	.32	.25	.19	.29	.19	.15	.12	.17	.19
7	Choice SE4	.10	.08	.09	.50	.58	.66	1	.21	.17	.14	.19	.14	.11	.30	.28	.19	.27	.20	.20	.20	.26	.30
8	PU1	.15	.01	.05	.24	.17	.24	.21	1	.52	.57	.59	.62	.51	.43	.47	.46	.44	.45	.32	.34	.36	.34
9	PU2	.07	.03	.07	.17	.12	.19	.17	.52	1	.73	.69	.60	.52	.31	.42	.38	.35	.39	.24	.30	.31	.30
10	PU3	.13	.08	.07	.17	.14	.17	.14	.57	.73	1	.80	.66	.61	.39	.50	.48	.44	.49	.36	.41	.42	.40
11	PU4	.16	.04	.08	.19	.13	.20	.19	.59	.69	.80	1	.68	.57	.37	.52	.44	.42	.46	.35	.38	.38	.38
12	PU5	.10	-.03	.02	.20	.08	.18	.14	.62	.60	.66	.68	1	.64	.41	.49	.52	.45	.52	.32	.41	.36	.37
13	PU6	.09	-.01	.03	.14	.07	.12	.11	.51	.52	.61	.57	.64	1	.36	.46	.48	.40	.49	.34	.36	.38	.32
14	PEOU1	.04	.03	.04	.28	.31	.32	.30	.43	.31	.39	.37	.41	.36	1	.64	.70	.69	.63	.34	.39	.43	.41
15	PEOU2	.11	.05	.06	.25	.20	.25	.28	.47	.42	.50	.52	.49	.46	.64	1	.62	.60	.61	.39	.35	.41	.40
16	PEOU3	.06	.03	.06	.20	.17	.19	.19	.46	.38	.48	.44	.52	.48	.70	.62	1	.66	.77	.43	.46	.44	.44
17	PEOU4	.09	.03	.04	.23	.26	.29	.27	.44	.35	.44	.42	.45	.40	.69	.60	.66	1	.73	.38	.43	.40	.42
18	PEOU5	.04	.00	.05	.16	.14	.19	.20	.45	.39	.49	.46	.52	.49	.63	.61	.77	.73	1	.42	.45	.43	.42
19	ITSF1	.06	.07	.07	.13	.14	.15	.20	.32	.24	.36	.35	.32	.34	.34	.39	.43	.38	.42	1	.67	.63	.62
20	ITSF2	.01	.00	.00	.15	.15	.12	.20	.34	.30	.41	.38	.41	.36	.39	.35	.46	.43	.45	.67	1	.65	.65
21	ITSF3	.04	.03	.04	.16	.18	.17	.26	.36	.31	.42	.38	.36	.38	.43	.41	.44	.40	.43	.63	.65	1	.77
22	ITSF4	.01	.02	.03	.20	.21	.19	.30	.34	.30	.40	.38	.37	.32	.41	.40	.44	.42	.42	.62	.65	.77	1

Table A2. Heterotrait-Monotrait Ratio of Correlations (HTMT)

Construct	BYO	ChoiceSE	PU	EOU	ITSF
BYO					
ChoiceSE	0.2198				
PU	0.1161	0.2577			
EOU	0.0847	0.3618	0.6827		
ITSF	0.0564	0.2797	0.5472	0.6169	

Table A3. Cross Loadings

Indicator	BYO	ChoiceSE	PU	PEOU	ITSF
BYO1	**0.6111**	0.1364	0.1492	0.0823	0.0354
BYO2	**0.5666**	0.1265	0.0262	0.0344	0.0387
BYO3	**0.9082**	0.2028	0.0674	0.0606	0.0408
ChoiceSE1	0.2280	**0.8487**	0.2346	0.2742	0.1963
ChoiceSE2	0.1372	**0.6669**	0.1495	0.2636	0.2084
ChoiceSE3	0.2072	**0.8697**	0.2308	0.3024	0.1903
ChocieSE4	0.1257	**0.7726**	0.2018	0.3026	0.2933
PU1	0.0889	0.2726	**0.8040**	0.5486	0.4152
PU2	0.0863	0.2047	**0.6647**	0.4548	0.3514
PU3	0.1211	0.1991	**0.8409**	0.5624	0.4891
PU4	0.1285	0.2235	**0.8100**	0.5422	0.4556
PU5	0.0423	0.1943	**0.8323**	0.5868	0.4469
PU6	0.0530	0.1376	**0.7649**	0.5391	0.4301
PEOU1	0.0514	0.3775	0.4803	**0.7765**	0.4816
PEOU2	0.0977	0.3105	0.6043	**0.8349**	0.4729
PEOU3	0.0671	0.2377	0.5855	**0.8379**	0.5408
PEOU4	0.0710	0.3271	0.5309	**0.8040**	0.4972
PEOU5	0.0471	0.2211	0.5908	**0.8254**	0.5243
ITSF1	0.0897	0.1944	0.4084	0.4796	**0.7624**
ITSF2	0.0040	0.1912	0.4699	0.5062	**0.8359**
ITSF3	0.0540	0.2406	0.4674	0.5164	**0.8432**
ITSF4	0.0295	0.2770	0.4455	0.5114	**0.8210**

Table A4. Endogenous Variables

Construct	Coefficient of determination (R2)	Adjusted R2
ChoiceSE	0.0498	0.0473
PU	0.4701	0.4672
PEOU	0.1292	0.1269
ITSF	0.4108	0.4076

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