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**PERCEIVED VALUES AND MOTIVATIONS INFLUENCING M-COMMERCE USE:  
A NINE-COUNTRY COMPARATIVE STUDY**

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# **PERCEIVED VALUES AND MOTIVATIONS INFLUENCING M-COMMERCE USE: A NINE-COUNTRY COMPARATIVE STUDY**

## **ABSTRACT**

Mobile commerce (m-commerce) has become increasingly important for organizations attempting to grow revenue by expanding into international markets. However, for multinational mobile retailers (m-retailers), one of the greatest challenges lies in carefully managing their websites across multiple national markets. This work advances cross-national research on m-retailing by (1) examining how value dimensions shape m-shoppers' motivations, (2) analyzing differential effects of hedonic and utilitarian motivations on intention and habit, and (3) examining the competing roles of conscious (intentional) and unconscious (habitual) m-commerce use drivers across developed and developing countries. This research also examines the moderating role of m-commerce readiness at the country level on the effect of motivation on intention and habit, along with their impact on m-commerce use. Based on data from 1,975 m-shoppers in nine countries (Australia, Bangladesh, Brazil, India, Pakistan, Singapore, the United Kingdom, the United States, and Vietnam) across four continents, the results demonstrate differential relationships: consumers at an advanced (early) readiness stage are more likely to be hedonism-motivated (utility-motivated) when using m-commerce and tend to use it intentionally/consciously (habitually/unconsciously). In addition to advancing knowledge about m-commerce from a scientific perspective, the findings can help multinational firms decide whether to standardize or adapt m-shopping experiences when internationalizing.

*Keywords:* perceived value; hedonic versus utilitarian motivation; habit; mobile commerce; stimulus-organism-response paradigm

## 1. Introduction

With the high penetration rate of Internet-capable mobile phones, mobile commerce (m-commerce) is expected to generate 72.9% of global retail e-commerce by 2021, up from 58.9% in 2017 (Statista 2019c). Not surprisingly, organizations have embraced and prioritized mobile platforms as a sales platform over desktops, such that “mobile-ready” environments—adapted from websites—are being taken over by “mobile-first” environments (Sarkar, Chauhan, & Khare, 2020). More importantly, mobile services have grown remarkably in developing Asian and African countries (Hajiheydari & Ashkani, 2018; Patil, Rana, & Raghavan, 2020; Sharma, Sharma, & Dwivedi, 2019). By 2021, more than 90% of new smartphone connections are expected to come from developing country markets such as India and Brazil (GSMA Intelligence, 2020). The development of effective strategies in international markets holds considerable value for managers because such strategies can lead to higher levels of growth, stronger competitive advantage, and long-term profitability (Katsikeas, Saeed, & Marios, 2006). Due to these attractive global growth opportunities, examining cross-country differences in consumers’ mobile shopping (m-shopping) behaviors is important.

Industry reports point to the increasing tendency among retailing giants like Amazon, Nike, and Apple to “make mobile commerce more local” (Appinventiv, 2020; Indigo9digital, 2020). However, catering to the unique preferences of consumers in different markets is generally challenging for firms (Dwivedi, Shareef, Simintiras, Lal, & Weerakkody, 2016; Morgeson, Sharma, & Hult, 2015), amplifying the need for research on consumers’ m-commerce behavior across multiple national markets (Anwar, Thongpapanl, & Ashraf, 2020). Although researchers have recently become more interested in determining the sources and consequences of cross-country differences in consumers’ m-shopping behaviors (Anwar et al., 2020; Kim,

Kim, Choi, & Trivedi, 2017; Malaquias & Hwang, 2019; Zhang, Weng, & Zhu, 2018), there is still a need to better understand m-shopping and its drivers across national markets that often vary in their stage of m-commerce readiness (i.e., individuals' readiness to use m-commerce).

We are motivated by three key issues and associated gaps in prior research. First, despite the great interest in m-commerce and mobile technology design and usability (Hoehle, Aljafari, & Venkatesh, 2016; Hoehle & Venkatesh, 2015; Hoehle, Zhang, & Venkatesh, 2015; Venkatesh & Ramesh, 2006), past research has mainly studied the overall role of the unidimensional perceived value of m-commerce (Chopdar & Balakrishnan, 2020; Kim, Chan, & Gupta, 2007; Kleijnen, Ruyter, & Wetzels, 2007; Thongpapanl, Ashraf, Lapa, & Venkatesh, 2018) and, to some extent, the role of different value dimensions predominantly within a single-country context (Karjaluoto, Shaikh, Saarijärvi, & Saraniemi, 2019; Lee, Yen, & Hsiao, 2014), with very few exceptions (e.g., Hoehle et al., 2015; Hoehle et al., 2016). Because individuals in different countries may perceive value differently, in accordance with past information systems (IS) research (Malaquias & Hwang, 2019; Zhang et al., 2018), a more multidimensional perspective and granular understanding of what constitutes a valuable m-commerce experience at the country level is needed (Rubera, Ordanini, & Griffith, 2011). A contextualized investigation can result in insights that contribute to the creation of new knowledge, especially when existing theories break down in new and less understood contexts (see Alvesson & Kärreman, 2007; Johns, 2006).

Second, the basic premise of the IS literature is that m-commerce adoption and acceptance are fundamentally intentional (conscious) behaviors (de Guinea & Markus, 2009; Giboney, Brown, Lowry, & Nunamaker, 2015; Hong, Thong, Moon, & Tam, 2008; Thong et al., 2011). More recently, however, both the IS and the marketing literatures on information technology (IT) use have made significant and appropriate conceptual advancements, postulating

that IT use may also be habitual (Limayem, Hirt, & Cheung, 2007; Venkatesh, Thong, & Xu, 2012). Because human behavior is known to be a consequence of both conscious (i.e., behavioral intention) and unconscious (i.e., habitual) decision-making (Chiu, Hsu, Lai, & Chang, 2012; Shah, Kumar, & Kim, 2014; Venkatesh, 2000; Venkatesh & Bala, 2008; Venkatesh & Davis, 1996), research that does not account for both conscious and unconscious routes offers a limited, or incomplete, understanding of the phenomenon (Venkatesh, Morris, Davis, & Davis, 2003; Venkatesh, Davis, & Morris, 2007; Venkatesh, Thong, & Xu, 2016). Thus, we investigate the competing roles of intention and habit in predicting m-commerce use for consumers across countries with varying degrees of m-commerce readiness that we conceptualize at the country level.

Third, a mobile phone's smaller display size limits the amount of information and the number of website attributes that can be offered (Fang, Zhao, Wen, & Wang, 2017; Venkatesh & Ramesh, 2006). As a result, m-retailers must not only offer mobile-optimized platforms, but also develop appropriate strategies that are aligned with m-shoppers' motivations (Ashraf, Thongpapanl, Menguc, & Northey, 2017). Despite the understanding that it is important to account for consumer motivations, 61% of consumers leave mobile websites and 40% visit a competitor's site instead because the offered experience was not in line with their motivations (Sweor, 2020). More importantly, motivation theorists have argued that the enjoyment and self-gratification aspects of consumers' motivation for using m-commerce have been largely overlooked (Hofacker, Ruyter, Lurie, Manchanda, & Donaldson, 2016; Shankar et al., 2016). To date, with a few notable exceptions (Hong, Thong, & Tam, 2006; Kim, Kim, & Wachter, 2013; Shaw & Sergueeva, 2019; Thong, Hong, & Tam, 2006; Thongpapanl et al., 2018), researchers and retailers have perhaps assumed that m-shoppers are motivated mainly by utilitarian features

(i.e., functional, practical, and task-oriented). Drawing on motivation theory, our work seeks to bridge this research gap by providing a theory-based articulation and empirical investigation of the simultaneous but differential effects of hedonic and utilitarian motivations on the intentional and habitual uses of m-commerce in developed and developing countries.

Our work makes four major contributions. First, we delineate the role that individual value dimensions—namely, informational, monetary, convenience, social, and performance—play in shaping consumers’ motivations to use m-commerce across a diverse sample of nine countries. In doing so, this work contrasts the different value dimensions against the new characteristics of mobile technology, thus providing a more nuanced understanding of consumers’ motivational differences when studying new technology such as m-commerce. Second, guided by the stimulus-organism-response (S-O-R) model and motivation theory, we argue that m-commerce is not only about utility (cognitive), but also about the experiential and noninstrumental value associated with fun and pleasure (affective) derived from use (Kim et al., 2013). Together, the utilitarian/hedonic motivation dimensions provide a strong conceptual lens through which to view m-shoppers’ behavior. Third, the proposed research model—developed in accordance with S-O-R framework—allows us to examine the competing roles of intention and habit on m-commerce users’ behaviors across nine countries with varying degree of readiness. Finally, our work has key implications for businesses operating globally. Given that large multinational corporations (e.g., Starbucks, Amazon, Alibaba) are becoming more dependent on foreign markets for revenue and profitability, our findings provide a rich understanding that can help retailers leverage the performance of their m-commerce initiatives (e.g., adaptation of technology and marketing program components) across diverse international markets.

We structure the rest of the paper as follows. Section 2 provides a review of the relevant literature followed by a discussion of our research model in Section 3. Next, Section 4 elaborates on the research methodology, following which the results are presented in Section 5. We then provide a discussion of the implications and contributions in Section 6, followed by limitations and suggestions for future research in Section 7. Finally, we present our conclusion in Section 8.

## **2. Literature review**

Our in-depth review of the IS literature (see Table A1 in Appendix A) revealed that prior m-commerce research suggested that cultural, behavioral, and economic factors are the causes of differences in m-shopping behaviors across developed and developing countries. For example, research has shown that the relationship between the adoption of m-commerce and its antecedents are moderated by national culture (Takieddine & Jun, 2015; Zhang et al., 2018). A few studies have also examined how perceived value of m-commerce and users' motivations (utilitarian, hedonic, and social) affect the adoption and use of m-commerce (Karjaluoto et al., 2019; Kim et al., 2013; Shaw & Sergueeva, 2019; Zheng, Men, Yang, & Gong, 2019). Chopdar and Balakrishnan (2020) found perceived value to have a positive effect on m-shopping satisfaction and repurchase intentions. Similarly, some studies have argued that IT use can be a consequence of unconscious (habitual) decision-making (Venkatesh et al., 2012) and have therefore examined how users' habits influence the use of m-commerce (Shaw & Sergueeva, 2019).

### *2.1. Perceived value*

Perceived value refers to consumers' overall perceptions of the costs and benefits associated with a consumption experience (Kim et al., 2007). Past studies, particularly those examining mobile technologies, have mainly considered the effect of overall value on different

outcomes such as intention, engagement, technology adoption, and use (e.g., Kim et al., 2013; Kim & Park, 2013; Kleijnen et al., 2007; Patil et al., 2020). However, conceptualizing perceived value as a unidimensional construct may be too simplistic, and may not capture the intricate relationships between different value dimensions and behavior. Sweeney and Soutar (2001) showed that multiple value dimensions (emotional, social, performance, and value-for-money) better explain consumer behavior, both empirically and qualitatively, than a unidimensional value construct.

Characteristics unique to mobile devices, such as portability and immediacy, require a new set of benefits that go beyond those captured by the traditional conceptualizations of value (Lariviere et al., 2013), including those of PC-based e-commerce (Okazaki & Mendez, 2013). In line with the retailing literature (Lariviere et al., 2013; Lee et al., 2014), we use five value dimensions that are directly relevant to m-commerce: informational, monetary, social, convenience, and performance (see Table 1).

\*\*\* Insert Table 1 here \*\*\*

## *2.2. Hedonic and utilitarian motivations*

Motivation theory proposes that both hedonic and utilitarian motivations influence people's behaviors such as shopping (Davis, Bagozzi, & Warshaw, 1992). Thus, among the different kinds of mechanisms that motivate consumers to shop online, the literature has applied this theory and mainly investigated the roles of two types of motivations—hedonic and utilitarian (Hong et al., 2006; Tamilmani, Rana, Prakasam, & Dwivedi, 2019; Thong et al., 2006; Van der Heijden, 2004). Although hedonic motivations are associated with shopping experiences that are entertaining and joyful, utilitarian motivations are associated with shopping experiences that are instrumental, practical, and convenient (Evanschitzky et al., 2014; Tamilmani et al., 2019).



Research has categorized hedonism-motivated consumers as “enjoyment seekers” (consumption for fun, amusement, fantasy, arousal, and sensory stimulation) and utility-motivated consumers as “problem solvers” (goal-oriented activities, including searching for information, weighing evidence, and arriving at carefully considered judgments and evaluations) (Van der Heijden, 2004). Shoppers who are driven by hedonic motivations are likely to perceive the shopping process from a different perspective than utility-motivated shoppers (Ashraf, Razzaque, & Thongpapanl, 2016). For example, utility-motivated shoppers are less likely to visit and purchase from a colorful and aesthetically appealing website, whereas the opposite is likely to be the case for hedonism-motivated shoppers (Ashraf et al., 2016). Hedonism-motivated consumers are more likely to engage in impulsive shopping and tend to spend more time on a website (Yim, Yoo, Sauer, & Seo, 2014), whereas utility-motivated shoppers tend to feel stressed when they perceive the shopping experience as inefficient and time-consuming (Van der Heijden, 2004). Therefore, we also use motivation theory to study m-shoppers’ behavior by examining the antecedents and consequences of consumers’ motivations to use m-commerce.

### *2.3. Habit*

Habit has been defined as the tendency to perform behaviors that are automatic and that do not involve active cognitive deliberation (Venkatesh et al., 2012). Past research has conceptualized habit as a consequence of learning that is generated by repeated and consistent past behavior (Shaw & Sergueeva, 2019). Overall, an m-shopping habit can be viewed as “an automatic behavioral response that is triggered by a situational stimulus without a cognitive analysis process due to the learned association between the shopping behavior and satisfactory results” (Chiu et al., 2012, p. 837). Conceptualizing habit this way has relatively little conceptual overlap with intention and thus provides additional explanatory power for m-commerce use

(Limayem et al., 2007; Venkatesh et al., 2012). Because the use of mobile devices is highly routinized (Wang, Malthouse, & Krishnamurthi, 2015), individuals are likely to become accustomed to mobile services (e.g., engaging in m-commerce) and to incorporate these devices into their habitual behaviors. When a behavior becomes a habit, it is automatic and is executed without thinking (Limayem et al., 2007).

#### *2.4. The S-O-R framework*

Developed in environmental psychology, the S-O-R framework suggests that environmental stimuli (S) influence consumers' internal states (O) that in turn influence consumers' overall responses (R) (Mehrabian & Russell, 1974). Prior research (see Kamboj, Sarmah, Gupta, & Dwivedi, 2018; Peng & Kim, 2014; Zheng et al., 2019) has extended the S-O-R framework to online shopping, impulse buying, and social media consumption. We use the S-O-R framework similarly but apply it to the domain of m-commerce (Fang et al., 2017). Because our work focuses on the impact of m-commerce value dimensions on consumer motivations that in turn drive the intentional and habitual use of m-commerce, we rely on the S-O-R model as an overarching framework. More specifically, the "stimulus," in the context of this study, is represented by m-commerce value dimensions (e.g., social value, convenience value, performance value). Consumers motivations represent the "organism," and habit, intention, and m-commerce use represent the "response."

For m-shoppers, the stimulus is the value that m-commerce can offer that in turn can affect their internal state. A significant number of S-O-R-based empirical studies in the IS field support the notion that the values offered by a technology are salient stimuli that influence consumers' internal experience and motivations (e.g., Kim & Park, 2013; Peng & Kim, 2014; Rodríguez-Torraco, San-Martín, & San José-Cabezudo, 2019). These stimuli are processed into

meaningful information that further assists consumers in decision making (Zheng et al., 2019). This work frames the values offered by m-commerce as stimuli that affect consumers' motivations (hedonic and utilitarian) to engage in m-commerce.

In the S-O-R model, organism represents the affective and cognitive internal states of an individual and acts as an intervening mechanism between stimuli and responses (Kamboj et al., 2018). Although the cognitive state deals with the processing of information, the emotional state reflects people's emotions and feelings (Kim & Park, 2013). In line with prior work (e.g., Zheng et al., 2019), this work treats hedonic and utilitarian motivations as organism factors and proposes that consumers' motivations to use m-commerce are influenced by environmental cues (i.e., values derived from m-commerce).

Finally, response refers to the manifestation of internal, organism processes. A response can include both attitudinal and behavioral reactions (Kamboj et al., 2018). Research has argued that consumers' motivations play a key role in influencing the intentional and habitual use of a technology (Hsiao, Chang & Tang, 2016; Kaushal & Rhodes, 2015; To, Liao, & Lin, 2007). Similarly, intention and habit have been shown to have a significant effect on technology use (Venkatesh et al., 2012; Wang et al., 2013). Thus, we investigate m-commerce use and its driving factors—intention and habit—as outcomes of consumers' motivations to use m-commerce.

### **3. Research model**

To investigate the relationships among consumers' m-commerce value perceptions, their motivations to use m-commerce; and their intention, habit, and m-commerce use through the S-O-R framework, we present the research model, shown in Figure 1.

\*\*\* Insert Figure 1 here \*\*\*

### *3.1. Stimuli and organism*

Stimuli influence consumers' motivation (i.e., organism) and eventual response behavior in the technology adoption and use context. The following sections outline the value dimensions and provide theoretical support for their proposed effect on consumers' motivations to use m-commerce.

#### *3.1.1. Informational value*

M-commerce has unique features compared to traditional channels. The ubiquitous nature of mobile devices has helped users overcome spatial and temporal constraints (Kleijnen et al., 2007; Sarkar et al., 2020; Venkatesh, Ramesh, & Massey, 2003). Freedom from time and place allows users to obtain real-time information that results in unique m-commerce value in terms of portability, flexibility, and universal access to information (Okazaki & Mendez, 2013; Xu, Liao, & Li, 2008). More importantly, research has shown that consumers pay more attention to information delivered through mobile devices than they do to information delivered through traditional channels such as print media, billboards, and television (Ghose & Han, 2014). Research has also shown that by providing relevant and timely information, m-commerce not only fulfills consumers' utilitarian goals (Luo, Andrews, Fang, & Phang, 2014), but also evokes emotions of pleasure (affective feeling) and arousal (the level of excitement) (Shaw & Sergueeva, 2019). For instance, To et al. (2007) found a significant, positive effect of information availability on the utilitarian motivation to shop online. Fang, Gu, Luo, and Xu (2015) explored the effects of location-based mobile promotions and found that personalized promotional information leads to impulsive buying and is a source of enjoyment and fun. Thus, we hypothesize:

H1a-b: The informational value offered by m-commerce will have a positive effect on consumers' (a) hedonic motivation and (b) utilitarian motivation to use m-commerce.

### 3.1.2. *Monetary value*

In the context of m-commerce, monetary value is related to consumers' perceptions of whether associated fees and costs (e.g., 3G/4G Internet charges or buying a smartphone to use m-commerce) are offset by the benefits experienced through m-commerce (Shankar et al., 2016). Consumers' perceived monetary value is positive when the benefits (monetary and/or nonmonetary) are greater than the perceived sacrifice (Sharma, 2011). M-commerce offers consumers various opportunities to attain monetary (e.g., discounts, coupons, credits, gifts, free apps) and nonmonetary (convenience and up-to-date information) gains (Gutierrez, O'Leary, Rana, Dwivedi, & Calle, 2019; Shankar & Balasubramanian, 2009), thereby creating value by offsetting the monetary costs of using the technology (Venkatesh et al., 2012). Compared to online channels, mobile platforms incorporate technical features that make them ubiquitous and more dynamic in nature (Hoehle & Venkatesh, 2015; Hoehle et al., 2016; Venkatesh et al., 2003). Consumers can gather and compare price discounts and sales promotions, and firms can target consumers with customized promotions (e.g., personalized coupon values) while they are on the go. The widespread availability of location-based mobile services facilitates bargain-hunting and discount-seeking behaviors (Gutierrez et al., 2019; Lariviere et al., 2013). Mobile services provide consumers with access to updated promotions and coupons that help them benefit monetarily by choosing superior pricing options while simultaneously enjoying the bargain-hunting process by treating it as a game (Andrews, Goehring, Hui, Pancras, & Thornswood, 2016). By seamlessly merging consumers' physical and digital worlds, mobile platforms furnish contextual monetary benefits (e.g., personalized and location-specific sale

promotions) that not only motivate consumers to avail themselves of the benefits, but also add the element of serendipity and unexpectedness (Andrews et al., 2016; Shankar et al., 2016).

Thus, we hypothesize:

**H2a-b:** The monetary value offered by m-commerce will have a positive effect on consumers'

(a) hedonic motivation and (b) utilitarian motivation to use m-commerce.

### *3.1.3. Social value*

Social value connects users of a technology with a social group and includes aspects such as identification, expression of personality, social image, and pursuit of social class membership (Malaquias & Hwang, 2019; Sweeney & Soutar, 2001). M-commerce facilitates social interactions and its users' propensity to engage in word-of-mouth that exposes m-commerce activities to social influence, judgment, and image enhancement (Singh, Sinha, & Liébana-Cabanillas, 2019; Okazaki & Mendez, 2013). Research has shown that people receive both hedonic and utilitarian benefits from social interactions (Zhang, Guo, Hu, & Liu, 2017). Xu, Ryan, Prybutok, and Wen (2012) found that social activities facilitated by m-commerce provide users with both hedonic (e.g., fun and pleasure) and utilitarian (e.g., rational and goal-oriented) gratification. Treating social value as a hedonic factor, Li, Dong, and Chen (2012) argued that highly interactive services, such as m-commerce, allow consumers to have fun by interacting with family and friends and entertainment-related content. Kang, Mun, and Johnson (2015) found social interactions to have a significant effect on consumers' affective and cognitive involvement with m-retail apps. Thus, we hypothesize:

**H3a-b:** The social value offered by m-commerce will have a positive effect on consumers' (a)

hedonic motivation and (b) utilitarian motivation to use m-commerce.

### *3.1.4. Convenience value*

The convenience of portability and immediate accessibility offered by m-commerce has been identified as an obvious benefit (Shankar et al., 2016). M-commerce has enabled consumers to overcome time constraints, and therefore consumers derive convenience by having their hedonic and utilitarian needs fulfilled more quickly at any time (Alalwan, Dwivedi, & Rana, 2017; Shaw & Sergueeva, 2019). The convenience offered by m-commerce allows consumers access to services and products (e.g., last-minute reservations, stock quote requests, limited-time travel offers) anytime and anywhere. Because consumers have access to location- and time-specific information (Luo et al., 2014), m-commerce offers convenience by reducing perceived complexity caused by excessive information, thereby reducing consumers' search efforts and transaction times (Fang et al., 2015; Gutierrez et al., 2019). Andrews, Luo, Fang, and Ghose (2015) found that the convenience provided by m-commerce serves as a means of escape that leads to enjoyable shopping experiences when traveling. More specifically, the convenience benefits of m-commerce, such as portability, simultaneity, speed, and searchability, have a positive effect on consumers' hedonic and utilitarian goals (Kang et al., 2015; Okazaki & Mendez, 2013). Thus, we hypothesize:

H4a-b: The convenience value offered by m-commerce will have a positive effect on consumers' (a) hedonic motivation and (b) utilitarian motivation to use m-commerce.

#### *3.1.5. Performance value*

Performance value is derived from the benefits that consumers acquire from a technology (i.e., m-commerce) in performing certain activities (e.g., purchasing products, searching for information) (Venkatesh et al., 2012). It pertains to performance expectancy, an important construct in UTAUT2 (Venkatesh et al., 2012). Due to its ubiquitous nature, m-commerce allows consumers to perform their tasks quickly and effectively (Sarkar et al., 2020). The enhanced

functionality (performance value) of mobile platforms has extended the scope of use from utilitarian purposes to enjoyment (hedonic purposes) (Shankar et al., 2016). On the one hand, it allows shoppers to easily and instantaneously search other shoppers' product reviews and experiences; on the other hand, it allows them to generate content for communication and use rich media capabilities to share their shopping experiences while on-the-go. Performance value has been shown to have a positive effect on adoption (Venkatesh et al., 2012), intention to use (Alalwan et al., 2017; Herrero & Martín, 2017), attitude toward playing online games (Hsu & Lu, 2004), and overall perceived value (Turel, Serenko, & Bontis, 2007). For example, Herrero and Martin (2017) found that performance value was a significant driver of users' intention to use social networks to share content about their experiences (hedonic motivation), and Turel et al. (2007) showed performance value had a positive influence on consumers' functional goals (utilitarian motivation). Pagani (2004) also demonstrated the significant relationship between performance value and enjoyment seeking (hedonic motivation) in the context of mobile multimedia services. Thus, we hypothesize:

H5a-b: The performance value offered by m-commerce will have a positive effect on consumers' (a) hedonic motivation and (b) utilitarian motivation to use m-commerce.

### *3.2. Organism and response*

The organism component entails internal states that are regarded as an intermediary between the stimulus and the response in the S-O-R framework (Peng & Kim, 2014). In this research, hedonic and utilitarian motivations are the organism, while intention, habit, and m-commerce use are the outcomes, or responses, of consumers' motivations to use m-commerce.

#### *3.2.1. Motivations as predictors of behavioral intention and habit*



Although habit formation is usually associated with frequency of use, research offers support for the link between motivations and habit (Barnes, 2011; Chiu et al., 2012). When individuals judge that certain behaviors produce desirable outcomes, they feel more inclined and motivated to adopt and eventually perform such behaviors automatically (de Guinea & Markus, 2009). In other words, individuals who feel more motivated to perform a certain act are more likely to develop the habit of performing that act. For example, in the context of physical exercise, Kaushal and Rhodes (2015) found hedonic expectations to have a significant effect on habit formation. Barnes (2011) found that individuals who are motivated to use an alternative reality website (i.e., Second Life) because of its perceived enjoyment (i.e., hedonic attribute), usefulness, and ease of use (i.e., utilitarian attributes) are more likely to develop the habit of using it. Similarly, Hsiao et al. (2016) found that both hedonic and utilitarian motivations had positive effects on the habit of using social apps. Prior work also provides ample support for the effect of motivations on deliberate decision making (i.e., intention). In the e-commerce context, both hedonic and utilitarian motivations have been shown to have a positive effect on individuals' intention to use a technology and to purchase from online stores (Hong et al., 2006; Kim et al., 2013; Van der Heijden, 2004; Yim et al., 2014). For example, To et al. (2007) showed that both hedonic and utilitarian motivations influence consumers' intention to purchase from an e-retailer website. Thus, we hypothesize:

**H6a-b:** Hedonic motivation will have a positive effect on consumers' (a) intention and (b) habit to use m-commerce.

**H7a-b:** Utilitarian motivation will have a positive effect on consumers' (a) intention and (b) habit to use m-commerce.

### *3.2.2. Differential effects of motivation on intention and habit*

Although hedonic and utilitarian motivations play important roles in driving consumers' behaviors, individuals at distinct m-commerce readiness stages may differ significantly in the extent to which they rely on hedonic and/or utilitarian motivations to use m-commerce.

According to Parasuraman (2000), technology readiness is an individual's readiness to use a new technology (e.g., m-commerce), and it consists of optimism, innovativeness, discomfort, and insecurity. An individual at an advanced m-commerce readiness stage (with high optimism and innovativeness and low discomfort and insecurity) is more likely to use the technology than an individual at an early m-commerce readiness stage.

Research has shown that consumers across different countries and at different technology adoption stages may assign different values to key determinants behind technology use (Cyr, Bonanni, Bowes, & Ilsever, 2005). For example, mobile device brand loyalty is more likely a consequence of perceived *value* among consumers at an early adoption stage, whereas loyalty is more likely to be a consequence of perceived *satisfaction* among consumers at a more advanced adoption stage (Lam & Shankar, 2014; Xu, Thong, & Venkatesh, 2014). Similarly, Mao, Srite, Thatcher, and Yaprak (2005) found that perceived usefulness has a stronger influence on online payment use for people at an advanced e-commerce adoption stage (developed countries), whereas those at early stages (developing countries) focus more on ease of use in e-commerce. Likewise, Evanschitzky et al. (2014) showed that a self-oriented shopping motivation (gratification orientation) was more pronounced in developed countries (i.e., the United States and Germany), whereas role shopping motivation (maintaining relationships and mutual obligations) was more prevalent in developing countries (i.e., India and Oman). These studies provide the basis for our hypothesis that the importance of hedonic and utilitarian motivations in

driving intention and habit across developed and developing countries may vary due to individuals' varying m-commerce readiness stages.

Recent literature also offers some additional support for the argument that consumers' levels of m-commerce readiness may influence their motivations for using it (Parasuraman & Colby, 2015). Ashraf et al. (2016) found that more experienced consumers from developed countries (i.e., Canada and Australia) favored a website with predominantly hedonic attributes (i.e., large pictures and enjoyment-related product attributes). However, relatively inexperienced consumers from a developing country (i.e., Pakistan) had more positive attitudes and a higher intention to purchase from a website with a predominantly utilitarian design (i.e., small pictures, systematic layout, and functional product descriptions). Chiu et al. (2012) investigated purchase intentions among experienced online consumers and found that positive perceptions of hedonic attributes on a website were stronger predictors of habit than positive perceptions of utilitarian attributes were.

Research shows that consumers at advanced stages of technology readiness take utility for granted and expect firms to delight them by fulfilling their hedonic needs, whereas consumers at earlier stages of technology readiness focus more on fulfilling their utilitarian needs (Chitturi, Raghunathan, & Mahajan, 2008). In the case of developing countries, despite the rapid rate of smartphone penetration (GSMA Intelligence, 2020), m-commerce is still in its infancy, and consumers are still in the trial-and-error stage (Kim et al., 2017; Sharma et al., 2019). Based on consumers' m-commerce readiness stages in developed and developing countries, and in line with aforementioned findings, it would be conceivable to expect that hedonic (utilitarian) motivations play a more important role in driving intention and habit in

countries where individuals are at an advanced (early) m-commerce readiness stage. Thus, we hypothesize:

**H8a-b:** Hedonic motivation will have a stronger positive effect on (a) intention and (b) habit to use m-commerce for consumers who are at an advanced m-commerce readiness stage than for consumers who are at an early readiness stage.

**H9a-b:** Utilitarian motivation will have a stronger positive effect on (a) intention and (b) habit to use m-commerce for consumers who are at an early m-commerce readiness stage than for consumers who are at an advanced m-commerce readiness stage.

### *3.2.3. Differential roles of intention and habit*

From the perspective of habit, human behavior is either a consequence of conscious/deliberate or unconscious/habitual processing (Wang, Harris, & Patterson, 2013). The levels of consciousness or automaticity depend on an individual's learning and experience (Venkatesh et al., 2012). As learning and experience increase, individuals tend to rely less on conscious deliberation (i.e., intention) and more on automaticity (i.e., habit) when performing an action (Labrecque, Wood, Neal, & Harrington, 2017; Limayem et al., 2007; Venkatesh et al., 2012). For example, Wang, Harris, and Patterson (2013) argued that, as experience accumulates and learning occurs, habit is formulated, reducing the need for conscious attention and intentional reasoning when performing a behavior. That is, as consumers move along the readiness continuum from an early to an advanced technology readiness stage, habit will become more relevant as a predictor of the use of the adopted service (Chiu et al., 2012). Following this rationale, we argue that intention alone may not be sufficient to explain m-commerce behavior because habit will also play a key role in driving use for consumers who are at an advanced m-commerce readiness stage.

We draw support for our hypothesis from studies that have examined the diminished predictive power of intention due to stronger habit. For instance, in studies predicting behavior, individuals with stronger habits typically repeated their past behavior with little to no influence of intention (Labrecque, Wood, Neal, & Harrington, 2017; Venkatesh et al., 2012). Kuo and Young (2008) found a weak effect of intention on use of an online platform for those using the platform out of habit. Limayem and Hirt (2003) examined the drivers of use of an Internet-based communication tool among university students. Their results revealed that the importance of intention for predicting use decreases with time. They attributed this reduction to habit formation.

Because consumers in developing countries are still at an early m-commerce readiness stage, they are likely to be more concerned with their ability to learn and use m-commerce than they are to use it out of habit. That is, habit strength needs to be at a certain level to influence future behavior (Shah et al., 2014). Thus, we hypothesize:

H10: Intention, compared to habit, will have a stronger positive effect on m-commerce use for consumers who are at an early m-commerce readiness stage than for consumers who are at an advanced m-commerce readiness stage.

H11: Habit, compared to intention, will have a stronger positive effect on m-commerce use for consumers who are at an advanced m-commerce readiness stage than for consumers who are at an early m-commerce readiness stage.

### *3.3. Control variables*

In line with past research, we included five control variables: collectivism–individualism, uncertainty avoidance (Sharma, 2010), age, gender (Ashraf, Thongpapanl, & Auh, 2014), and Internet plan (mobile Internet tariff) (Gerpott & Thomas, 2014). Research has shown that culture

has a significant influence on consumer behaviors (Takieddine et al., 2015; Zhang et al., 2018), thus justifying the use of collectivism-individualism and uncertainty avoidance. Due to the unique nature of m-commerce (i.e., consumers cannot touch, taste, or feel the product), it is perceived as risky (Sarkar et al., 2020). Thus, uncertainty avoidance is further justified for inclusion as a control variable in the model. In addition, because individualistic cultures are more prone to hedonic experiences (Basabe et al., 2002), the inclusion of collectivism–individualism as a control variable is further justified. Although several dimensions of national culture exist, research has suggested (e.g., Auh, Menguc, Spyropoulou, & Wang, 2015; Griffith, Hu, & Ryans, 2000) that only dimensions that are strongly tied to the construct of interest should be incorporated in the nomological network under investigation (thereby satisfying the philosophical goal of parsimony). We included Internet plan as a control variable because research shows that a mobile Internet plan (e.g., fixed and/or variable Internet plan) has a strong impact on mobile Internet use (Gerpott & Thomas, 2014). Finally, we included age and gender as control variables because these have been shown to have significant effects on technology adoption and use (Venkatesh et al., 2012).

## **4. Methodology**

### *4.1. Data collection*

We collected data across nine countries with the assistance of Qualtrics (a professionally managed online panel). The questionnaires were distributed as online web links using Qualtrics online survey software to Qualtrics panel respondents, who were mobile telecommunications consumers in nine different countries. We selected the nine countries for inclusion in our study for several reasons. First, to achieve our objectives, we needed to obtain data from countries at different stages of m-commerce readiness. Second, these nine countries provide a diverse range

of developed and developing countries, with varying levels of cultural dimensions (e.g., individualism–collectivism and uncertainty avoidance). Third, these countries provide significant growth and expansion potential for m-retailers. For example, Pakistan and India are among the fastest-growing economies, with populations of 221 million and 1.38 billion, respectively, roughly half of whom are between 15 and 29 years of age, and are quickly catching up to their western counterparts in terms of mobile Internet use. Similarly, 45% of the Brazilian population were mobile Internet users in 2019 and m-commerce sales revenue in Brazil has been forecasted to reach \$18 billion by 2022, up from \$9 billion in 2018 (Statista 2019a). In contrast, the m-commerce markets in developed countries, such as Australia and the United States, are relatively mature. M-commerce sales penetration (as a percentage of retail e-commerce sales) in Australia was 39% in 2019 (Nguyen, 2019), whereas U.S. m-commerce sales has been predicted to grow from \$207.2 billion to \$338 billion in 2020 (Statista, 2019b). Thus, the nine countries with (1) different m-commerce readiness stages, (2) diverse cultural backgrounds, and (3) significant potential for m-retailers allow us to examine the potentially different and competing effects of key determinants of m-commerce use.

To overcome linguistic differences, the questionnaires used in Brazil and Vietnam, where the predominant language of education is not English, was translated into Portuguese and Vietnamese, respectively. The English-language survey questions and items were first translated into Portuguese and Vietnamese and then back-translated into English to detect any potential translation biases. Participants in Bangladesh, India, Pakistan, and Singapore received the English version of the survey because English is the primary language of education in these countries.

Before administering the survey for our main studies, we followed the pretesting and pilot testing procedure recommended by Hult, Hurley, and Knight (2004). Initially, five academics in the fields of IS and marketing served as expert judges to assess the items' accuracy in representing the constructs being studied (face validity and construct validity). We provided them with the detailed descriptions of the focal constructs along with the representative items. The pretest was followed by a pilot test that included 103 Amazon Mechanical Turk participants in which we evaluated the quality of the content and reliability of the measures. The findings from the pretest indicated that the scales exhibited acceptable psychometric properties in terms of both reliability and validity.

We obtained responses from 2,292 mobile smartphone users in nine countries: Australia (271), Bangladesh (161), Brazil (235), India (216), Pakistan (272), Singapore (307), the United Kingdom (319), the United States (254), and Vietnam (257). We collected the data in two stages. In Stage 1, we administered a questionnaire that included all variables except m-commerce use. One month later, in Stage 2, we administered a second questionnaire—using the same consumer panel provider—to the same participants and received 1,975 total responses: Australia (204), India (186), Bangladesh (147), Brazil (213), Pakistan (212), Singapore (294), the United Kingdom (285), the United States (210), and Vietnam (224). In the second questionnaire, in addition to measuring m-commerce use, we used a shortened format of the original questionnaire to assess common method bias (CMB) (Yli-Renko, Autio, & Sapienza, 2001). For each construct, we chose one proxy item that we believed best represented the original overall construct (De Clercq, Thongpapanl, & Dimov, 2015). Respondent demographics are shown in Appendix B (see Table B1).

#### *4.2. Measures*



We operationalized all the variables following previously validated measurement scales (for the adaptation sources, see Table 2). Except for use, we used seven-point Likert-type scales (1 = “strongly disagree,” and 7 = “strongly agree”) to record participants’ responses. For use, we used a seven-point Likert scale (1 = “not at all,” and 7 = “several times a day”).

\*\*\* Insert Table 2 Here \*\*\*

To classify countries into advanced and early m-commerce readiness stages, we measured individuals’ m-commerce readiness levels across nine countries using Parasuraman and Colby’s (2015) technology readiness index (TRI). We also reviewed how past IS and international marketing literatures have grouped similar countries. We adapted 13 items (e.g., “m-commerce gives people more control over their daily lives”; “sometimes, you think that m-commerce is not for use by ordinary people”; “you do not consider it safe to give out a credit card number while using m-commerce”) from Parasuraman (2000) and Parasuraman and Colby (2015) into seven-point Likert scales measuring users’ optimism, discomfort, and insecurity toward m-commerce. We adapted technology readiness scale items to correspond to the objective of the present research. Consistent with Zhu, Nakata, Sivakumar, and Grewal (2007), we excluded the innovativeness dimension of technology readiness because it relates more to individuals’ tendency to be an early adopter than to how they perceive the technology. Each TRI dimension accounts for four to five items.

## **5. Data analysis and results**

We used hierarchical cluster analysis and partial least squares (PLS) to analyze the data.

### *5.1. Technology readiness*

In line with past research, we created a composite readiness index based on averages of each dimension (Westjohn, Arnold, Magnusson, Zdravkovic, & Zhou, 2009). That is, the final

TRI construct is a latent construct with three dimensions (see Table 3). To achieve our research objectives, we separated the countries into high m-commerce readiness (developed countries: Australia, Singapore, the United Kingdom, and the United States) and low m-commerce readiness (developing countries: Bangladesh, Brazil, India, Pakistan, and Vietnam) stages based on their relative levels of m-commerce readiness.

\*\*\* Insert Table 3 \*\*\*

Hierarchical cluster analysis further supported the grouping of countries into advanced and early m-commerce readiness (Milligan & Cooper, 1985). We obtained two groups of countries based on their proximity in the figure, a scree plot of the percentage of variance explained by clusters, and their silhouette value (Rousseeuw 1987; Zarantonello, Jedidi, & Schmitt, 2013). The first cluster is composed of the advanced m-commerce readiness stage, which were the developed countries (average: optimism = 5.23, insecurity = 4.49, and discomfort = 4.63; silhouette value = 0.86). The second cluster is composed of the early m-commerce readiness stage, where were the developing countries (average: optimism = 5.10, insecurity = 3.83, and discomfort = 3.18; silhouette value = 0.78). A silhouette value close to 1 indicates that the data in the sample are well clustered. A value close to 0 indicates that the data points are between two clusters. A negative value indicates that the data in the sample are placed in the wrong cluster. This classification pattern of the nine countries into two groups is also supported by prior research (e.g., Evanschitzky et al., 2014; Zarantonello et al., 2013).

## *5.2. Measurement model*

To assess the quality of the measurement model, we conducted several tests of convergent and discriminant validity using PLS, as recommended by Hair, Sarstedt, Hopkins, and Kuppelwieser (2014). We assessed convergent validity using (1) individual item reliability

and (2) construct reliability. As Table 2 shows, all average variance extracted (AVE) scores exceeded the recommended value of .50 (Fornell & Larcker, 1981). We also estimated nine country-specific structural models, and all models individually met the requirements for measurement reliability and validity. Similarly, the composite reliability values for each of the scales used was well above the the cutoff value of .70 (Straub, Boudreau, and Gefen 2004), indicating that our scales were reliable. We conducted two tests to assess discriminant validity. First, we examined loadings and cross-loadings. We examined each item's loading on its own construct and its cross-loading on all other constructs (Chin, 1998). Each item had a higher loading on its intended construct than on its cross-loading with other constructs. Second, in computing the Fornell–Larcker (1981) criterion, we found that the square root of the AVE for each construct was higher than the correlations between it and all other constructs and was greater than .50 for the overall model. This means that each latent variable shared more variance with its own block of indicators than it did with other latent variables, thus supporting discriminant validity (see Table 4 for the discriminant validity results for the overall model).

\*\*\* Insert Table 4 \*\*\*

### 5.3. *Common method bias (CMB) and measurement invariance*

Because much of the data were collected at one point in time and from a single source, CMB may cause spurious relationships among the variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Following Podsakoff et al.'s (2003) recommendations, we took several steps in the design and analysis stage to control and test for CMB. At the design stage, we took extra care during the construction of our survey. We used pre-established, validated scales that were not only simple and concise, but also unambiguous (Podsakoff et al., 2003). Moreover, when collecting data, we assured respondents that there were no right or wrong answers and that they

should answer questions as honestly as possible. At the analysis stage, we first conducted Harman's single-factor test using exploratory factor analysis (Podsakoff et al., 2003). The results combined across nine countries and in each of the countries separately revealed that first factor did not account for the majority of the data variance and was well below the cutoff point of 50%. Second, following prior research (Yli-Renko et al., 2001), we assessed CMB by administering a follow-up survey four weeks after the initial survey. In the follow-up survey, we used a shortened format of the original questionnaire: for each construct, we chose one proxy item that we believed best represented the original overall construct (De Clercq et al., 2015). The results showed positive, significant correlations between the original and the follow-up items. The results provided evidence that CMB was not a concern (De Clercq et al., 2015; Yli-Renko et al., 2001). Finally, we assessed CMB using an approach described by Liang, Saraf, Hu, and Xue (2007). According to Liang et al. (2007, p. 87), "if the method factor loadings are insignificant and the indicators' substantive variances are substantially greater than their method variances, we can conclude that common method bias is unlikely to be a serious concern." We assessed CMB for our overall model ( $n = 1,975$ ). The results revealed that only 7 out of 47 of the method factor loadings were statistically significant. Moreover, the indicators' substantive variances (average of 0.851) were substantially greater than their method variances (average of 0.004). The ratios of the substantive variances to method variances were 243:1. Given the small magnitude and nonsignificance of the method variance, we conclude that CMB was not a serious concern in this study.

Similarly, due to the cross-national nature of our research, measurement invariance (i.e., the construct measures are invariant across groups) can be a problem. We tested measurement invariance using a procedure recommended by Steenkamp and Baumgartner (1998). We assessed

measurement invariance for the two groups<sup>1</sup> (developed/advanced readiness stage and developing countries/early readiness stage) by examining the data for similar patterns of factor loadings (configural invariance) and for equality of factor loadings (factorial invariance). We ran a multigroup confirmatory factor analysis (MGCFA) to establish configural and factorial invariance. The fit of the unconstrained measurement model was acceptable ( $\chi^2/\text{d.f.} = 3.47$ , comparative fit index [CFI] = .94, Tucker–Lewis index [TLI] = .93, root mean square error of approximation [RMSEA] < .04), indicating configural invariance (Steenkamp et al., 1998). Next, for factorial invariance, a comparison of the unconstrained baseline model and the constrained model revealed that the  $\Delta\chi^2$  with  $\Delta\text{d.f.}$  for the two groups was not significant ( $p > 0.05$ ) and that the fit statistics ( $\chi^2/\text{d.f.} = 3.48$ , CFI = .94, TLI = .93, RMSEA < .04) for the two models were also not very different. Because the  $\Delta\chi^2$  value is sensitive to sample size,  $\Delta\text{CFI}$  and  $\Delta\text{RMSEA}$  can be considered robust statistics for testing multigroup invariance (Cheung & Rensvold, 2002; Zhang, van Doorn, & Leeflang, 2014). We further established metric invariance because CFI and RMSEA values for the unconstrained and constrained measurement models were not different (Zhang et al., 2014).

#### *5.4. Structural model to test the baseline model*

First, we estimated an overall model that included data from all nine countries ( $n = 1,975$ ) using PLS. Then, we estimated nine country-specific structural models. We computed  $t$ -values, using a nonparametric bootstrap procedure (see Table 5) to assess whether the path coefficients

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<sup>1</sup> Separate measurement invariance assessment revealed that the instrument used is invariant for individual countries within each group (i.e., high m-commerce ready and low m-commerce ready). Further, because the measurement instrument is being used in cultures that are different from those used in the development of the scale, there may be cultural bias in the instrument. To test for cultural bias in the measurement instrument, we performed a reliability analysis on both the pooled (all countries combined) and the separate (individual countries) samples using Cronbach's alpha values. The reliability statistics for nine countries were more or less similar across nine countries and to the results from the pooled sample. Detailed results are available from the authors upon request.

differed significantly from zero, both for the overall and for the country-specific models (Hair et al., 2014). For the direct effects of value dimensions on motivations, as Table 5 shows, there was strong support for the expected linkages between value dimensions and motivations because the majority of the corresponding path coefficients (74%) were significant and were in the expected directions (see Table 6 for the summary of hypotheses testing).

Information value had a significant, positive effect on hedonic motivation (in support of H1a for the overall model and for the United States, the United Kingdom, Singapore, Brazil, India, Pakistan) and utilitarian motivation (in support of H1b for the overall model and for each country-specific model), thus providing partial support for H1a and full support for H1b, respectively. Contrary to our expectations, the effect of monetary value on hedonic and utilitarian motivations was not significant in any country except India and Brazil, respectively. Hence, H2a and H2b were largely not supported. Social value had a significant, positive effect on hedonic motivation and utilitarian motivation for the overall model and for each country-specific model, thus providing support for H3a and H3b, respectively. Our results further revealed that convenience value had a significant, positive effect on hedonic motivation (in support of H4a for the overall model and for Australia, the United States, the United Kingdom, Singapore, Brazil, India, Pakistan) and utilitarian motivation (in support of H4b for the overall model and for each country-specific model), thus providing partial support for H4a and full support for H4b, respectively. Finally, performance value had a significant, positive effect on hedonic motivation (in support of H5a for the overall model and for Australia, the United States, the United Kingdom, Singapore, Brazil, India, Pakistan) and utilitarian motivation (in support of H5b for the overall model and for the United States, the United Kingdom, Singapore, Brazil, India, Pakistan, Bangladesh, Vietnam), thus providing partial support for H5a and H5b,

respectively. These results suggest that social value had a strong effect on consumers' hedonic motivations to use m-commerce, whereas informational value, convenience value, and social value were key drivers of consumers' utilitarian motivation to use m-commerce (see Tables 5 and 6).

\*\*\* Insert Tables 5 and 6 \*\*\*

For the direct effects of motivation on intention and habit, our results (see Table 5) indicated that hedonic motivation had a significant, positive effect on intention (in support of H6a for the overall model and for Australia, Singapore, the United Kingdom, the United States, Brazil, India, and Pakistan) and habit (in support of H6b for the overall model and for Australia, Singapore, the United Kingdom, the United States, and Brazil), thus providing partial support for H6a and H6b, respectively. Likewise, utilitarian motivation had a significant, positive effect on intention (in support of H7a for the overall model and for all countries except Singapore, the United Kingdom, the United States) and habit (in support of H7b in all countries), thus providing partial support for H7a and full support for H7b, respectively. Figures 2a–2c show the path coefficients for each country. One possible reason for the nonsignificant findings in some countries is that individuals in those countries may be at different m-commerce readiness stages and therefore may have varying motivations to use m-commerce. We test for the differential effects of motivation on intention and habit using multigroup analysis in the following section.

\*\*\* Insert Figures 2a, 2b, and 2c \*\*\*

The variance explained ( $R^2$ ) in the endogenous constructs in the model varied across countries (see Table 5). For hedonic motivation, the  $R^2$  ranged from 15% (Bangladesh) to 79% (Singapore). For utilitarian motivation, the  $R^2$  ranged from 30% (Australia) to 78% (India). For habit,  $R^2$  values ranged from 7% (Pakistan and Vietnam) to 60% (the United Kingdom). This

indicates that, at least for m-commerce consumers in Pakistan, habit was determined largely by factors beyond motivation. The  $R^2$  values for intention and use ranged from 18% (Vietnam) to 61% (India) and from 20% (Singapore) to 48% (the United Kingdom), respectively.

Finally, we used a blindfold procedure to calculate Stone-Geisser  $Q^2$  values that offer a gauge for the relevance of the path models for a specific reflective latent variable (Chin, 1998). Predictive relevance is assumed for  $Q^2$  values greater than zero. All  $Q^2$  values were greater than zero, indicating that all endogenous constructs had satisfactory predictive relevance.

#### *5.4.1. Multigroup analysis of country-specific differences*

We used the PLS multigroup analysis (PLS-MGA) to analyze differences in country-specific path estimates. By doing so, we tested our hypotheses related to the importance of factors (strength of path estimates) across different countries. A PLS-MGA is a nonparametric significance test that builds on PLS bootstrapping results. We predicted that the effects of hedonic motivation on behavioral intention and habit would be stronger for individuals in an advanced m-commerce readiness stage (developed countries), whereas the effects of utilitarian motivation on behavioral intention and habit would be stronger for individuals in an early m-commerce readiness stage (developing countries).

We performed multigroup analysis between developed/advanced m-commerce readiness (combined data from Australia, Singapore, the United Kingdom, and the United States) and developing/early m-commerce readiness (combined data from Brazil, Bangladesh, India, Pakistan, and Vietnam) countries. According to our results (see Table 7 for multigroup analysis results and Table 8 for effect sizes), all the hypothesized differential effects between advanced and early m-commerce readiness countries (i.e., H8 through H11) were supported. According to Table 7, the effects of hedonic (utilitarian) motivation on behavioral intention and habit were not



only numerically larger, but also significantly different for individuals at advanced (vs. early) m-commerce readiness countries, thus supporting H8 and H9. Similarly, as we hypothesized, the effect of intention (habit) on m-commerce use was greater and significantly different for individuals in developed (vs. developing) countries, thus supporting H10 and H11. These results suggest that individuals in developed (developing) countries were more likely to be hedonism-motivated (utility-motivated) when using m-commerce and tend to engage in m-commerce unconsciously/automatically (consciously/deliberately). Figures 3a–3c show these differential effects. Table B2 in Appendix B shows the country pairwise comparisons.

\*\*\* Insert Tables 7 and 8, and Figures 3a, 3b and 3c \*\*\*

## **6. Discussion**

Drawing on the growing interest in mobile devices and m-commerce, we theorized about and compared m-shopping behaviors of consumers at different m-commerce readiness stages across nine countries. We found that, across countries, not all value dimensions played an equally important role in driving consumers' motivations (i.e., hedonic and utilitarian) to use m-commerce. For example, the effects of informational, performance, and convenience values on hedonic motivation, although significant in the overall model, were not so in Bangladesh and Vietnam. The nonsignificant results of monetary value on consumers' motivations across all countries except India and Brazil, although surprising, were, to an extent, in line with recent findings. Baishya and Samalia (2020) showed that monetary value influences consumers' intention and use, and Hubert, Blut, Brock, Backhaus, and Eberhardt (2017) found nonsignificant results for the effects of monetary value on use, ease of use, and usefulness. A possible explanation is the ongoing drop in the prices of mobile services and devices globally, making them more affordable and accessible to a greater number of individuals than they were in the past

(*The Economist*, 2014). Such differences across countries underscore the importance of context and the need for theories and consequent managerial decisions that are sensitive to context (see Alvesson & Kärreman, 2007; Hong et al., 2014; Johns, 2006; Katsikeas et al., 2006).

Our results revealed low  $R^2$  values for habit in some of the developing countries (i.e., India, Pakistan, and Vietnam). Moreover, habit did not have a significant effect on m-commerce use in India, Pakistan, Bangladesh, and Vietnam. We believe that these findings are due to these countries being at early stages of m-commerce readiness (i.e., m-commerce is still in its infancy). Ashraf et al. (2017, p. 30) argued that “when the consumer moves along the adoption continuum from an early to advanced stage, the continued use of the adopted service will commit the action to habit.” In other words, consumers in these countries are still in the trial and experimental stages and are likely to be more concerned about their ability to learn and use m-commerce than using it out of habit.

We also examined the moderating influence of m-commerce readiness on the relationships between (1) motivation and intention, (2) motivation and habit, (3) intention and use, and (4) habit and use. Our results revealed that individuals in an advanced (early) stage of m-commerce readiness were more likely to be motivated by hedonism (utility) to use m-commerce. Our analysis highlighted the key role of the readiness stage in determining the relationships between consumers’ motivations and their intentional and habitual use of m-commerce. As such, we advance IS literature by examining cross-country effects in technology adoption/use (Cyr et al., 2005; Lam & Shankar, 2014; Malaquias & Hwang, 2019).

### *6.1. Theoretical implications*

First, understanding country-specific differences—m-commerce readiness stage in this study—is key for global companies because they have become increasingly dependent on

revenues from developing markets (Morgeson et al., 2015), where there is a growing middle-class consumer base with increasing purchasing power and materialistic tendencies (Sharma, 2011). Thus, the cross-country nature of our work answers calls for research on more multicountry m-commerce investigations (Chopdar, Korfiatis, Hoehle & Venkatesh, 2015; Hoehle et al., 2016; Sivakumar, & Lytras, 2018; Hajiheydari & Ashkani, 2018; Sharma et al., 2019; Zhang et al., 2018). As our findings suggest, theoretical inferences about how users' motivations shape their conscious versus unconscious processing and m-commerce use are not consistent across countries and are contingent on the degree of m-commerce readiness. These insights contribute to the existing literature by highlighting the role of cross-country differences in understanding m-commerce use at a more granular level.

Second, this research is one of the first attempts to examine the effects of m-commerce relevant value dimensions on consumers' motivations across a broad set of countries. The multicountry, multidimensional approach provides valuable insights into the differential effects of value dimensions on consumers' motivations to use m-commerce, thus offering a nuanced understanding of country-specific differences in value perceptions. These findings have theoretical significance for researchers and managers, as they help identify value dimensions that play a key role in certain countries but not in others. More importantly, by examining the effects of specific value dimensions on hedonic and utilitarian motivations, we address calls in recent literature to examine how consumers' m-commerce motivations are shaped (Andrews et al., 2016; Chopdar et al., 2018; Shaw & Sergueeva, 2018).

Third, our findings show that the m-retailing literature has predominantly adopted a utility-oriented perspective by concentrating mainly on the utilitarian nature of m-commerce rather than on both its hedonic and utilitarian aspects (Alalwan et al., 2017) and is therefore

likely to be incomplete. Our results clarify why and when hedonic and utilitarian motivations may play an important role. In particular, our findings suggest that, as consumers move from an early to an advanced m-commerce readiness stage, hedonic motivation usurps utilitarian motivation as the stronger predictor of consumer behavior. Thus, through a broader view of motivations encompassing both hedonism and utility, we advance the literature by underscoring that consumers' motivations evolve as m-commerce markets advance in terms of technology readiness.

Finally, although there is renewed interest in examining the role of habit in the social psychology and IS literature, research related to habit in the consumer context seems to be scarce (Chopdar et al., 2018; Shah et al., 2014). Our work contributes to the IS literature by investigating not only the role of habit, but also the competing roles of intention and habit across diverse countries. Unlike prior work, our results reveal that besides intention, habit may play a key role in driving m-commerce use. Thus, m-commerce studies that do not account for the role of habit might overlook the explanatory power that the construct can add and this is particularly true for studies that focus on developed countries. Thus, international IS and international marketing researchers should consider the possibility that a deeper investigation of intention and habit, and the effect of countries' readiness stage, may be worth pursuing.

## *6.2. Practical implications*

Our paper offers key takeaways for managers. First, we contribute to practice by showing effective mechanisms by which managers can customize their m-commerce offerings. As m-commerce retailers expand their operations to various emerging and developing economies, they face the challenge of striking the optimal balance between standardizing and customizing their m-retailing strategies (Hajiheydari & Ashkani, 2018). Although various studies have suggested

basing standardization/adaptation decisions on cultural variables (e.g., Dwivedi et al., 2016; Rubera et al., 2011; Sarkar et al., 2020), we propose countries' differing stages of technology readiness—in this case, m-commerce readiness—as a factor that can help m-commerce practitioners better formulate their standardization versus adaptation strategies.

Exposing consumers to inefficient and inappropriate website designs may be a factor that can help explain why revenue from m-shopping still accounts for a small percentage of the overall retailing sector (Kim et al., 2017). The understanding of consumers' value perceptions and motivations put forth in the present work not only adds support to past studies (Dwivedi et al., 2016; Gutierrez et al., 2019), but also helps m-retailers decide which elements to standardize or adapt in their m-commerce environments across different countries. For example, social value, which has usually been linked to hedonic motivation, had a significant effect on both hedonic and utilitarian motivations in all nine countries, albeit to varying extents. Thus, we advise managers to ensure that they incorporate social value not only into hedonic shopping experiences, but also into seemingly functional tasks. One example of this is Amazon offering consumers the option to share their purchases on social media. For customization purposes, managers are encouraged to examine value at a more granular level while being mindful of consumers' desire to seek a cluster of different benefits from m-commerce platforms, instead of looking at value as a broad and general concept. For example, our results revealed that performance and convenience values drive utilitarian motivation in all the studied countries. Interestingly, our results showed that performance and convenience were also significant antecedents of hedonic motivation for individuals in most countries, except Bangladesh and Vietnam. One probable reason for this finding was that individuals in these two countries were at

an earlier m-commerce readiness stage. Thus, they were less likely to derive hedonic motivation from these value dimensions.

Second, our results provide a practical guide to foster intention and habit. Our results suggest that hedonic motivation (utilitarian motivation) had a stronger effect on intention and habit for consumers in developed/advanced readiness (vs. developing/early readiness) countries. Thus, m-retailers targeting consumers in developing countries should offer a more utilitarian experience by paying special attention to usefulness and ease of use when designing mobile websites. In these countries, utilitarian (vs. hedonic) motivation is more likely to drive intention and habit formation. Over time, as consumers overcome initial technology anxiety and proceed to an advanced readiness stage, managers can focus on offering hedonic experiences such as aesthetically appealing and fun-to-use websites. Therefore, simply using the same m-commerce design in both developed and developing countries is unlikely to produce the desired or even similar results (Malaquias & Hwang, 2019). Mobile website experiences need to be customized accordingly. These findings may be specifically useful to m-retailers operating in foreign markets and generally useful to practitioners who are increasingly interested in building profitable consumer habits in developed and developing economies (Beck, Chapman, & Palmatier, 2015).

Finally, findings regarding intention and habit offer an important contribution for managers operating internationally. Our results suggest that intention was the main predictor of m-commerce use in developing countries. In contrast, habit was equally or more important than intention in driving m-commerce use in developed countries. Habit is a key mechanism by which managers can reduce marketing expenses, increase profitability (Shah et al., 2014), and positively affect consumer loyalty (Beck et al., 2015). In the case of developed countries,

managers are encouraged to foster the habitual use of their m-commerce environments by linking their offerings with consumers' routines (de Guinea & Markus, 2009; Limayem et al., 2007). Depending on the product or service offered (e.g., food delivery, mobile banking), managers might target consumers at the times when (e.g., Friday evening, Monday morning) and/or where (e.g., home, office) they are more likely to engage in specific behaviors (e.g., order food, pay bills). Once consumers have started using mobile channels to shop out of habit, research has shown that they are more likely not only to repurchase through this channel, but also to increase their spending (Wang et al., 2015).

## **7. Limitations and future research**

As with any research, the current study has some limitations that provide opportunities for further research. Our first limitation is tied to our method. Although we conducted CMB tests, our data collection was still cross-sectional and the concept of time can play an important role in technology-related behaviors (see Alalwan et al., 2017; Venkatesh, Maruping, & Brown, 2006). Future research needs to account for experience of the individual users, as that is known to play a key role in driving technology-related behaviors, and future work also needs to account for experience as it evolves (e.g., Venkatesh et al., 2012). Conceptualizing the timeframe of behavioral performance (Fang et al., 2017; Venkatesh et al., 2008) will be important in enriching our understanding of the phenomenon.

Second, we present a set of five value dimensions appropriate for m-commerce and study their effects on consumer motivations. However, this list is not exhaustive and future studies should identify other value dimensions in the other value perception frameworks that we identified earlier (Karjaluoto et al., 2019). With a rapidly evolving technology like m-commerce,

the way consumers derive value may also change over time, making it useful for future work to investigate and identify such changes.

Third, we blackboxed the way in which individuals engaged in m-commerce. However, they may have differential perceptions depending on the particular site (e.g., Amazon vs. Walmart), as design of technologies/software in general (e.g., Zhang, Venkatesh, & Brown, 2011), concomitant usability in particular of different sites could play a significant role in individual perceptions, motivations, and behaviors (e.g., Fang et al., 2017; Hoehle & Venkatesh, 2015; Hoehle et al., 2016; Venkatesh, Hoehle, & Aljafari, 2014, 2017).

Fourth, our underlying conceptualization of behavior (here, technology use) and consequent behavior is consistent with a basic lean conceptualization. Recent works have suggested that depending on the conceptualization and concomitant operationalization (e.g., cognitive absorption, deep structure use), the relationship of predictors (here, value) to technology use behavior and consequent outcomes (here, m-shopping) could vary greatly. This has been highlighted in workplace contexts (Robert & Sykes, 2017; Sykes & Venkatesh, 2017; Zhang & Venkatesh, 2017) and bears attention in the m-commerce context.

We also believe that this work serves as an important step toward a better understanding of the effects of different value dimensions on m-shopping behaviors across multiple national markets with varying degrees of m-commerce readiness. Research can advance our findings by examining whether the relationships proposed in our work hold across different categories of m-commerce activities (Chopdar & Balakrishnan, 2020). For example, although not formally hypothesized, the results from the post-hoc multigroup analysis, which tested the differential effects of value dimensions on motivations, were inconclusive. A potential reason for the inconclusive findings may be that we conceptualized m-commerce broadly by including a large



scope of m-commerce activities. Future studies could examine whether the individual value dimensions affect different types of motivations differently depending on the type of m-commerce activities (e.g., mobile banking, purchasing products and services, subscribing to mobile content, information search).

Finally, although our work focuses on cross-country differences based on m-commerce readiness stages, the results suggest that country-specific factors may exist that extend even beyond m-commerce readiness. For example, the state of telecommunications infrastructure in different countries can have an important influence on a country's m-commerce readiness (Thong, Yap, & Raman, 1996; Yap, Thong, & Raman, 1994). Similarly, government technology policies may also help countries to leapfrog their outdated generations of telecommunications infrastructure to enhance their technology readiness for m-commerce (Yap & Thong, 1997). Hence, we believe that the low explanatory power of habit in India, Pakistan, and Vietnam may indicate that there are other country-related factors that we did not include in our conceptual and/or empirical model that may contribute additional insights and help explain habit formation. Future research should also investigate other pertinent factors (e.g., telecommunications infrastructure, economic indicators, goal orientation such as regulatory focus goals, the degree of urbanization in various countries) when examining m-shopping behaviors, especially in the context of developing countries. The available support infrastructure, both through formal and informal channels, especially in developing countries may play a significant role in how m-commerce evolves (see Singh et al., 2020; Sykes, 2015; Venkatesh, Bala, & Sykes, 2010; Venkatesh, Bala, & Sambamurthy, 2016).

## **8. Conclusion**

Our research provides a model that bridges the IS and m-retailing literatures by offering insights specific to the unique and common shopping behaviors of m-shoppers across developed and developing countries, where consumers are at different m-commerce readiness stages. We offer a better understanding of why and when key drivers of m-commerce use—motivation, habit, and behavioral intention—may play a stronger role. Specifically, our results revealed that the effects of key m-commerce drivers (motivations, habit, and intention) on m-commerce use vary depending on the readiness stage. By doing so, we advance prior work, which has primarily focused on examining the influence of cultural differences on m-shopping behaviors, by examining the effects of m-commerce readiness in this context.

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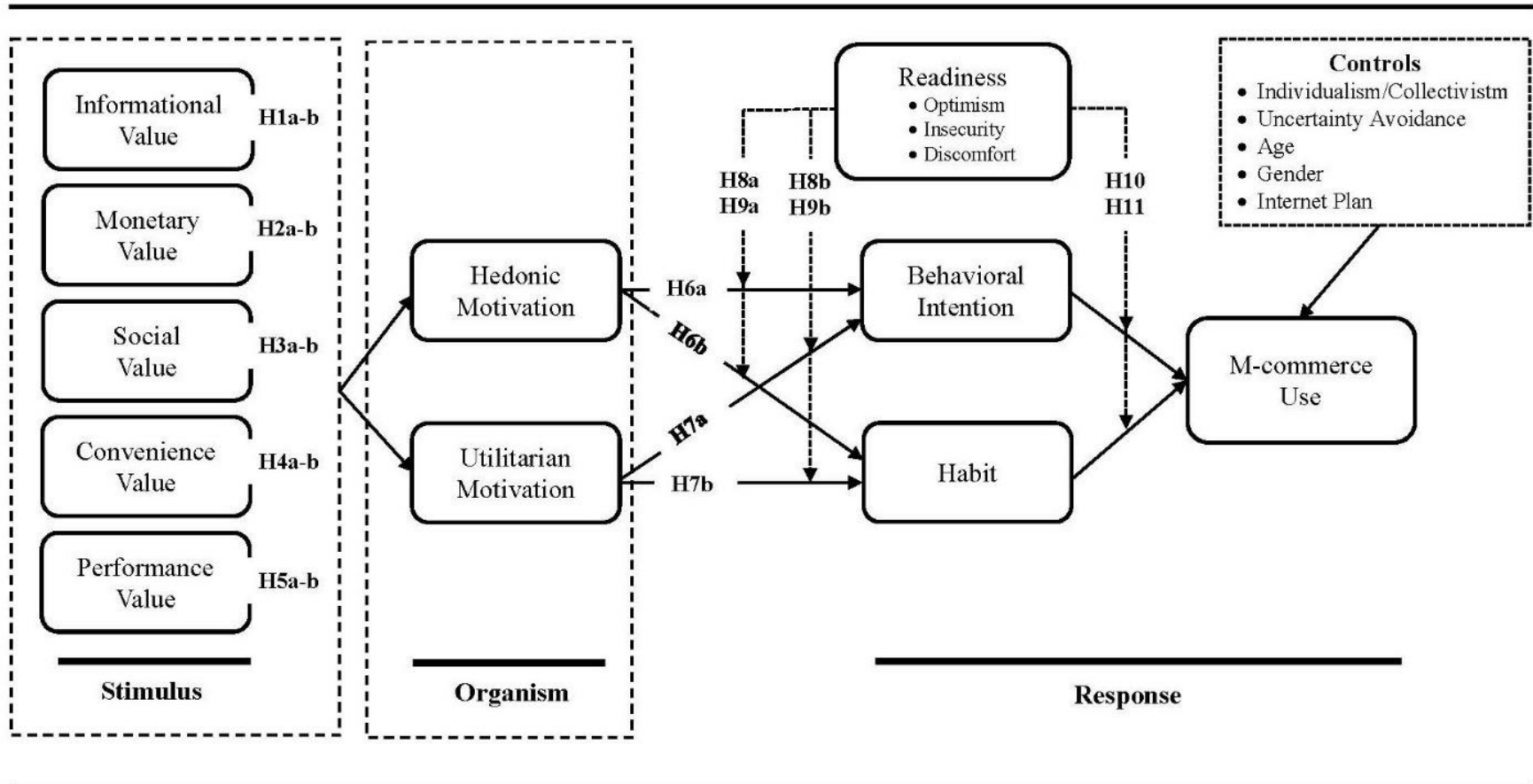
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Figures

Figure 1: Structural Model



## Tables

**Table 1**

Definitions of Value Dimensions.

Value	Definitions	Source(s)
Informational Value	Informational value refers to the consumer's ability to receive specific and precise product/service information anytime, anywhere, helping them stay well-informed all the time, through m-commerce.	Okazaki and Mendez (2013); Lariviere et al. (2013)
Monetary Value	Monetary value is the consumer's cognitive trade-off between the perceived benefits—monetary or nonmonetary—of using m-commerce and the monetary cost for using it.	Venkatesh et al. (2012)
Social Value	Social value refers to the value derived from m-commerce's ability to enhance a person's social self-concept and to gain social approval.	Turel et al. (2007); Sweeney and Soutar, (2001)
Convenience Value	Convenience value is the ability of m-commerce consumers to conduct their tasks easily, quickly, and effectively, as they can engage with it anytime, anywhere, enabling them to derive value of time savings.	Kleijnen et al. (2007)
Performance Value	Performance value is the extent to which the use of m-commerce provides benefits to customers when performing certain tasks.	Venkatesh et al. (2012)

**Table 2**

Measurement Model with Factor Loadings for Overall Model (the United States, the United Kingdom, Singapore, Australia, Brazil, India, Pakistan, Vietnam, and Bangladesh)

Indicators	All Countries
Individualism–Collectivism: $\alpha = .80$ , AVE = .62, CR = .86 (Sharma, 2010)	
I would rather depend on myself than others.	.80
My personal identity, independent of others, is important to me.	.72
Individual success is more important than group success.	.71
Members of a group should not have to rely on others in the group.	.89
Uncertainty: $\alpha = .84$ , AVE = .68, CR = .90 (Sharma, 2010)	
I prefer specific instructions to broad or general guidelines.	.85
I tend to get anxious easily when I don't know an outcome.	.84
I prefer a routine way of life to an unpredictable one full of change.	.85
I do not like taking too many chances in order to avoid making a mistake.	.74
Informational Value: $\alpha = .83$ , AVE = .67, CR = .89 (Okazaki & Mendez, 2013)	
M-commerce allows me to access product/service information at the best moment for me.	.83
Using m-commerce keeps me well informed regarding products/services at all times.	.84
M-commerce is practical because I can use it to shop and search for information without difficulty wherever I am.	.81
M-commerce gives me the freedom to find the information that I need.	.79
Monetary Value: $\alpha = .85$ , AVE = .77, CR = .91 (Turel et al., 2007)	
The m-commerce services are good relative to the price.	.85
M-commerce is a good value for the money.	.89
M-commerce is good for the current price level.	.89
Social Value : $\alpha = .90$ , AVE = .73, CR = .93 (Turel et al., 2007)	
The use of m-commerce helps me feel acceptable.	.88
The use of m-commerce improves the way I am perceived.	.90
The fact I use m-commerce makes a good impression on other people.	.90
The use of m-commerce gives me social approval.	.80
M-commerce is widely used by people around me.	.78
Convenience Value : $\alpha = .88$ , AVE = .74, CR = .92 (Kleijnen et al., 2007)	
I believe m-commerce allows me to efficiently manage my time.	.84

I believe using m-commerce is convenient for me.	.87
I believe using m-commerce allows me to save time.	.89
I believe using m-commerce makes tasks (e.g., searching information or purchasing products) less time consuming.	.85
Performance Value: $\alpha = .93$ , AVE = .70, CR = .92 (Venkatesh et al., 2012)	
I find m-commerce useful in my daily life.	.82
Using m-commerce increases my chances of achieving things that are important to me.	.85
Using m-commerce helps me accomplish things more quickly.	.85
Using m-commerce enables me to do my work more conveniently.	.64
Using m-commerce increases my productivity.	.74
Overall, I find using m-commerce to be advantageous.	.83
Overall, I find m-commerce to be useful.	.80
Hedonic Motivation: $\alpha = .91$ , AVE = .70, CR = .93 (Kim et al., 2013)	
Using m-commerce is fun.	.83
I find using m-commerce enjoyable.	.87
I find using m-commerce very entertaining.	.88
I use m-commerce to enjoy the variety of contents (e.g., product information, applications, and games) that it offers.	.86
I find using m-commerce interesting.	.84
I feel a sense of adventure while using m-commerce.	.73
Utilitarian Motivation : $\alpha = .91$ , AVE = .74, CR = .93 (Kim et al., 2013)	
I use m-commerce to try and find different things.	.85
I use m-commerce to keep myself informed and updated.	.86
M-commerce provides me with many features that I can benefit from.	.89
I use m-commerce to fulfill different tasks and functions in an efficient way.	.87
I use m-commerce because it is helpful in buying or searching what I want online.	.83
Intention : $\alpha = .93$ , AVE = .81, CR = .95 (Kleijnen et al., 2007)	
1 = “very unlikely,” and 7 = “very likely”	.90
1 = “very improbable,” and 7 = “very probable”	.91
1 = “very impossible,” and 7 = “very possible”	.88
1 = “very uncertain,” and 7 = “very certain”	.89
1 = “definitely not use,” and 7 = “definitely use”	.90
Habit : $\alpha = .90$ , AVE = .68, CR = .92 (Venkatesh et al., 2012)	
The use of m-commerce has become a habit for me.	.85
I must use m-commerce.	.83
Using m-commerce has become natural to me.	.86
When faced with a particular shopping task, using m-commerce is an obvious choice for me.	.88
I do not even think twice before using m-commerce.	.84
I am addicted to using m-commerce.	.68
M-commerce Use: $\alpha = .87$ , AVE = .88, CR = .94 (Limayem & Hirt, 2003)	
How many times you have accessed m-commerce during a week for the last month? (1 = “not at all,” and 7 = “several times a day”)	.95
How many times you have used m-commerce during a week for the last month? (1 = “not at all,” and 7 = “several times a day”)	.94

**Table 3**  
Multigroup Comparisons of M-Commerce Readiness.

Country	Optimism	Discomfort	Insecurity	Readiness	Developed vs. Developing	M-commerce Readiness Stage
Australia	M = 5.32 ( $\alpha = 0.80$ )	M = 4.59 ( $\alpha = 0.88$ )	M = 4.23 ( $\alpha = 0.91$ )	M = 4.72 ( $\alpha = 0.86$ )	4.79	Advanced m-commerce

United States	M = 5.41 ( $\alpha = 0.86$ )	M = 4.82 ( $\alpha = 0.87$ )	M = 4.20 ( $\alpha = 0.86$ )	M = 4.81 ( $\alpha = 0.82$ )		readiness stage
United Kingdom	M = 4.91 ( $\alpha = 0.87$ )	M = 4.47 ( $\alpha = 0.82$ )	M = 4.56 ( $\alpha = 0.88$ )	M = 4.65 ( $\alpha = 0.78$ )		
Singapore	M = 5.29 ( $\alpha = 0.84$ )	M = 4.67 ( $\alpha = 0.78$ )	M = 4.99 ( $\alpha = 0.83$ )	M = 4.98 ( $\alpha = 0.79$ )		
Brazil	M = 5.23 ( $\alpha = 0.73$ )	M = 3.38 ( $\alpha = 0.78$ )	M = 3.35 ( $\alpha = 0.82$ )	M = 3.98 ( $\alpha = 0.79$ )		3.85  Early m- commerce readiness stage
India	M = 5.41 ( $\alpha = 0.82$ )	M = 3.02 ( $\alpha = 0.73$ )	M = 3.33 ( $\alpha = 0.83$ )	M = 3.92 ( $\alpha = 0.75$ )		
Pakistan	M = 5.13 ( $\alpha = 0.90$ )	M = 3.11 ( $\alpha = 0.88$ )	M = 3.00 ( $\alpha = 0.91$ )	M = 3.75 ( $\alpha = 0.71$ )		
Bangladesh	M = 4.84 ( $\alpha = 0.85$ )	M = 3.23 ( $\alpha = 0.89$ )	M = 3.11 ( $\alpha = 0.72$ )	M = 3.73 ( $\alpha = 0.73$ )		
Vietnam	M = 4.88 ( $\alpha = 0.78$ )	M = 3.19 ( $\alpha = 0.79$ )	M = 3.26 ( $\alpha = 0.87$ )	M = 3.78 ( $\alpha = 0.72$ )		
<b>Multigroup M-commerce Readiness Comparison</b>						
	Readiness (Mean $\Delta$ )			<i>t</i> -Value		
United States–Brazil	.82***			10.46		
United States–India	.89***			11.51		
United States–Pakistan	1.06***			15.74		
United States–Bangladesh	1.08***			12.43		
United States–Vietnam	1.03***			14.18		
Australia–Brazil	.72***			9.14		
Australia–India	.80***			10.17		
Australia–Pakistan	.97***			14.17		
Australia–Bangladesh	.99***			11.21		
Australia–Vietnam	.94***			12.74		
United Kingdom–Brazil	.66***			7.97		
United Kingdom–India	.73***			9.28		
United Kingdom–Pakistan	.90***			12.84		
United Kingdom–Bangladesh	.92***			10.40		
United Kingdom–Vietnam	.86***			11.67		
Singapore–Brazil	.99***			13.22		
Singapore–India	1.07***			14.77		
Singapore–Pakistan	1.24***			19.38		
Singapore–Bangladesh	1.26***			15.49		
Singapore–Vietnam	1.19***			17.69		
Developed–Developing	.95***			26.82		
Notes: ***Significant at .01						

**Table 4**

Average Variance Extracted and Correlations (Overall Model).

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Indiv/coll.	5.36	1.01	<b>.94</b>											
2. Uncertainty	4.83	1.21	.09*	<b>.82</b>										
3. Information	5.64	1.08	.19*	.14*	<b>.82</b>									
4. Monetary	4.57	1.37	.04	.18*	.04	<b>.88</b>								
5. Social	4.55	1.26	-.03	.16*	.25*	.15*	<b>.85</b>							
6. Convenience	5.30	1.14	.13*	.15*	.49*	.04	.48*	<b>.86</b>						
7. Performance	5.27	1.09	.14*	.05	.57*	.10*	.43*	.61*	<b>.84</b>					
8. Hedonic	5.16	1.12	.04	.14*	.48*	.03	.50*	.65*	.66*	<b>.84</b>				
9. Utilitarian	5.26	1.14	.12*	.17*	.49*	.10*	.50*	.63*	.67*	.67*	<b>.86</b>			
10. Intention	5.56	1.17	.14*	.05	.46*	.03	.40*	.59*	.61*	.57*	.56*	<b>.89</b>		
11. Habit	4.62	1.35	.07	.09*	.30*	.09*	.49*	.47*	.52*	.49*	.51*	.49*	<b>.83</b>	
12. Use	4.31	1.74	-.08*	-.02	.28*	.04	.29*	.29*	.42*	.33*	.39*	.52*	.40*	<b>.94</b>

Notes: \* Significance at .05. The diagonal values represent the square roots of AVE values. The off-diagonal values represent interconstruct correlations. Indiv/coll. = individualism/collectivism.



**Table 5**  
Structural Model Results (Overall Model and Nine Countries).

Constructs	Overall Model	Australia	United States	United Kingdom	Singapore	Brazil	India	Pakistan	Bangladesh	Vietnam
	N (1,975)	N (204)	N (210)	N (285)	N (294)	N (213)	N (186)	N (212)	N (147)	N (224)
	Path	Path	Path	Path	Path	Path	Path	Path	Path	Path
DV: Hedonic Motivation	$R^2 (0.57)$	$R^2 (0.65)$	$R^2 (0.78)$	$R^2 (0.74)$	$R^2 (0.79)$	$R^2 (0.50)$	$R^2 (0.70)$	$R^2 (0.63)$	$R^2 (0.15)$	$R^2 (0.19)$
Informational Value	.13***	.06	.11**	.12**	.22***	.10*	.26***	.15**	.09	.09
Monetary Value	.02	.06	.02	.03	.01	.02	.12**	.03	.06	.08
Social Value	.18***	.33***	.10**	.17***	.12**	.26***	.15**	.16*	.25**	.23**
Convenience Value	.30***	.33***	.34***	.33***	.36***	.23**	.28***	.25**	.05	.17
Performance Value	.31***	.26**	.47***	.41***	.31***	.30***	.30***	.35***	.08	.05
DV: Utilitarian Motivation	$R^2 (0.59)$	$R^2 (0.30)$	$R^2 (0.68)$	$R^2 (0.70)$	$R^2 (0.59)$	$R^2 (0.65)$	$R^2 (0.78)$	$R^2 (0.70)$	$R^2 (0.69)$	$R^2 (0.42)$
Informational Value	.10**	.18**	.09*	.14**	.11*	.13**	.19**	.09*	.13**	.24***
Monetary Value	.01	.06	.03	.04	.01	.09*	.01	.01	.04	.03
Social Value	.16***	.24**	.11**	.12**	.11**	.15**	.08*	.13**	.12*	.15**
Convenience Value	.35***	.26**	.43***	.35***	.31***	.43***	.44***	.43***	.33***	.29**
Performance Value	.30***	.04	.32***	.40***	.33***	.26***	.30***	.31***	.42***	.18*
DV: Intention	$R^2 (0.39)$	$R^2 (0.48)$	$R^2 (0.47)$	$R^2 (0.42)$	$R^2 (0.38)$	$R^2 (0.43)$	$R^2 (0.61)$	$R^2 (0.54)$	$R^2 (0.37)$	$R^2 (0.18)$
Hedonic Motivation	.36***	.63***	.60***	.54***	.51***	.15*	.35***	.36***	.13	.01
Utilitarian Motivation	.32***	.10*	.10	.12	.14	.54***	.48***	.42***	.56***	.42***
DV: Habit	$R^2 (0.30)$	$R^2 (0.54)$	$R^2 (0.58)$	$R^2 (0.60)$	$R^2 (0.46)$	$R^2 (0.47)$	$R^2 (0.08)$	$R^2 (0.07)$	$R^2 (0.31)$	$R^2 (0.07)$
Hedonic Motivation	.29***	.65***	.53***	.52***	.53***	.22**	.09	.01	.08	.07
Utilitarian Motivation	.31***	.13**	.26**	.27**	.19**	.52***	.20*	.26***	.59***	.23**
DV: M-commerce Use	$R^2 (0.31)$	$R^2 (0.47)$	$R^2 (0.42)$	$R^2 (0.48)$	$R^2 (0.20)$	$R^2 (0.31)$	$R^2 (0.33)$	$R^2 (0.26)$	$R^2 (0.25)$	$R^2 (0.27)$
Age	-.02	-.03	.03	-.03	.08	.04	.06	.08	.09	-.06
Internet	.01	.04	.01	.03	-.03	.08	.04	.09	.03	.11*
Gender	.07**	.06	-.07	.01	.08	-.01	-.03	-.02	.22**	.02

Indiv/Coll	-.05*	.09	.09	.14**	.04**	.01	-.02	.01	-.04	-.16*
Uncertainty	-.01	.07	-.08	-.05	.01	.05	-.01	-.04	-.06	-.12
Avoidance	.43***	.36***	.24**	.29***	.15*	.21**	.56***	.50***	.39***	.48***
Intention	.19***	.35***	.35***	.41***	.29***	.37***	.02	.02	.11	.09
Habit										

Notes: \*Significant at .10; \*\*Significant at .05; \*\*\*Significant at .01. DV = dependent variable.

**Table 6**

Summary of Hypotheses Testing.

DV: Hedonic Motivation	
H1a: Informational → Hedonic	Supported (United States, United Kingdom, Singapore, Brazil, India, Pakistan)
H2a: Monetary → Hedonic	Supported (India)
H3a: Social → Hedonic	Supported (All countries)
H4a: Convenience → Hedonic	Supported (Australia, United States, United Kingdom, Singapore, Brazil, India, Pakistan)
H5a: Performance → Hedonic	Supported (Australia, United States, United Kingdom, Singapore, Brazil, India, Pakistan)
DV: Utilitarian Motivation	
H1b: Informational → Utilitarian	Supported (All countries)
H2b: Monetary → Utilitarian	Supported (Brazil)
H3b: Social → Utilitarian	Supported (All countries)
H4b: Convenience → Utilitarian	Supported (All countries)
H5b: Performance → Utilitarian	Supported (United States, United Kingdom, Singapore, Brazil, India, Pakistan, Bangladesh, Vietnam)

Notes: DV = dependent variable.

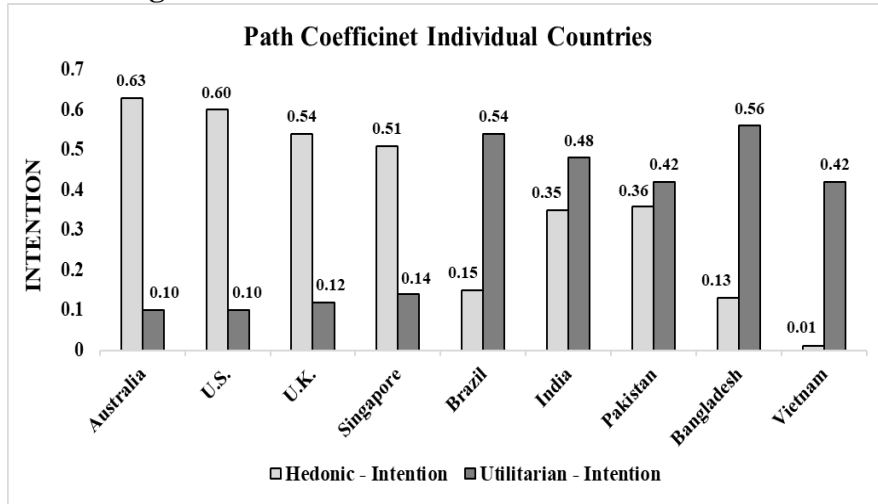
**Table 7**

Multigroup Comparison (Developed vs. Developing Countries).

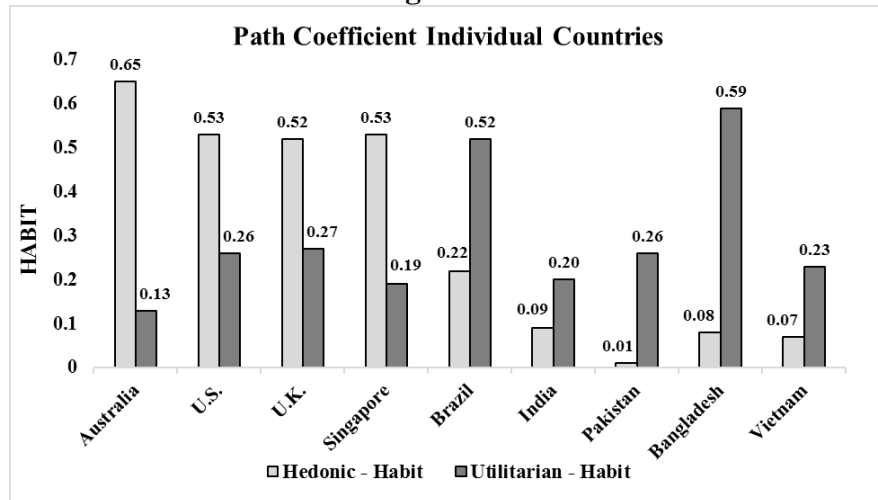
	Hedonic → Intention	Utilitarian → Intention	Hedonic → Habit	Utilitarian → Habit	Intention → Use	Habit → Use
Developed–Developing	.42***	-.42***	.49***	-.13**	-.17***	.29***

Notes: \*Significant at .10; \*\*Significant at .05; \*\*\*Significant at .01.

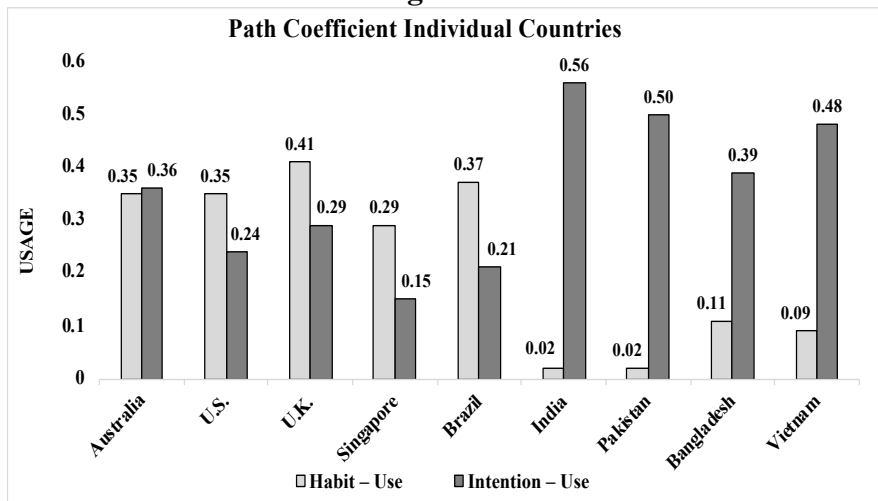
**Fig. 2a.** Path Coefficients for Individual Countries.



**Figure 2b:**



**Figure 2c:**

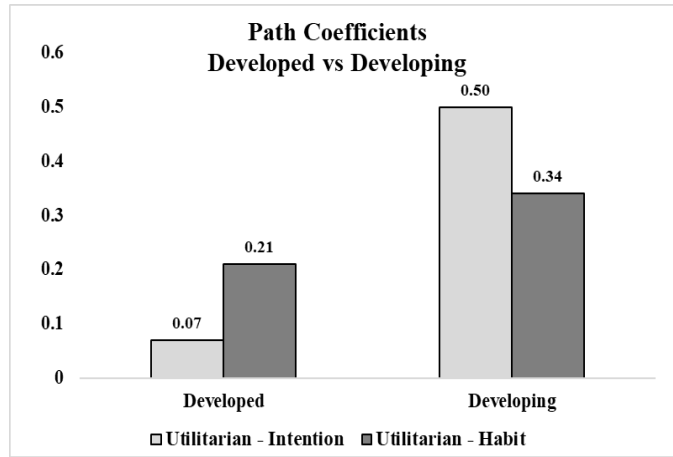


**Table 8**Effect Sizes (Cohen's  $F^2$ ) for Habit, Intention, and M-commerce Use.

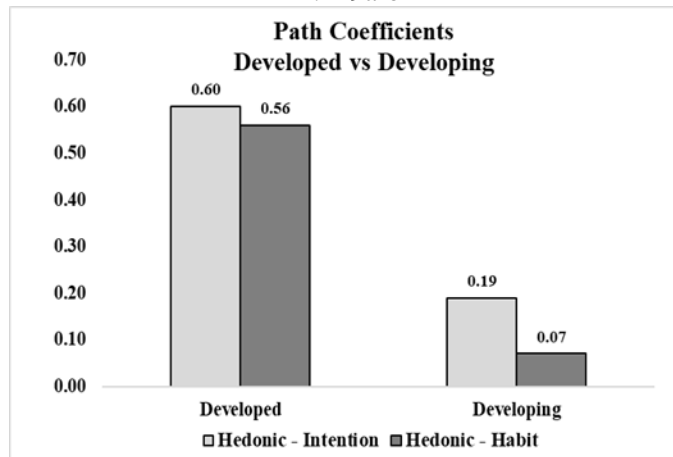
Antecedents	Australia N = 204			United States N = 210			United Kingdom N = 285			Singapore N = 294			Brazil N = 213		
	Intention	Habit	Use	Intention	Habit	Use	Intention	Habit	Use	Intention	Habit	Use	Intention	Habit	Use
Hedonic	.54***	.68***		.19**	.19**		.11*	.12*		.19**	.23***		.02*	.04*	
Utilitarian	.02*	.03*		.01	.05*		.00	.03*		.02*	.03*		.24**	.23**	
Intention			.10*			.07*			.08*			.03*			.04*
Habit			.11*			.10*			.18**			.09*			.11*
Antecedents	India N = 186			Pakistan N = 212			Bangladesh N = 147			Vietnam N = 224					
	Intention	Habit	Use	Intention	Habit	Use	Intention	Habit	Use	Intention	Habit	Use	Intention	Habit	Use
Hedonic	.13**	.04*		.13*	.01		.03*	.01		.00	.01				
Utilitarian	.25**	.02*		.18**	.18**		.46***	.51***		.17**	.05*				
Intention			.19**			.21**			.15**			.25**			
Habit			.02*			.01			.01			.00			

Notes: \*Small effect size .02; \*\*Medium effect size .15; \*\*\*Large effect size .35.

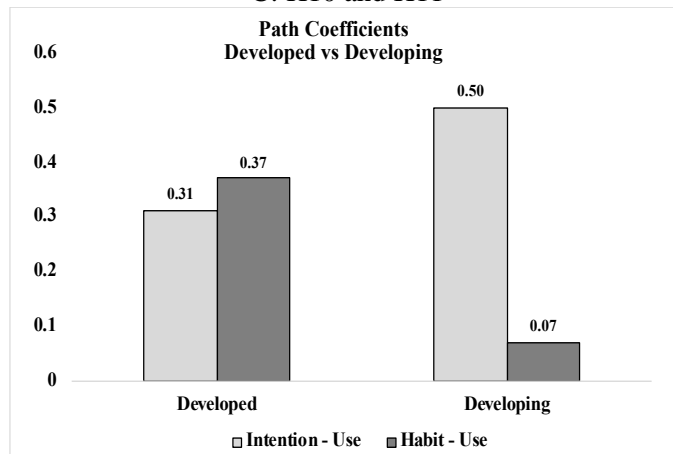
**Fig. 3.** Path Coefficients for Developed versus Developing Countries.  
A: H8a-b



B: H9a-b



C: H10 and H11



## Appendixes

### Appendix A

To have a representative and clear understanding of the m-commerce literature in the IS area, we focused on published research articles from 11 leading IS journals during the 2008–2019 period. In line with past IS research (e.g., Clark, Au, Walz, & Warren, 2011; Goode, Hoehle, Venkatesh, & Brown, 2017; Wall, Stahl, & Salam, 2015), the 11 leading IS journals we reviewed are *Decision Sciences (DS)*, *Decision Support Systems (DSS)*, *European Journal of Information Systems (EJIS)*, *Information Systems Journal (ISJ)*, *Information Systems Research (ISR)*, *International Journal of Information Management (IJIM)*, *Journal of Information Technology (JIT)*, *Journal of Management Information Systems (JMIS)*, *Journal of Strategic Information Systems (JSIS)*, *Journal of the Association for Information Systems (JAIS)*, and *MIS Quarterly (MISQ)*.

We reviewed articles published between 2008 and 2019 related to “m-shopping,” “mobile shopping,” “m-commerce,” and “mobile commerce”. We focused on articles published in the last 12 years because 2008 saw the rise in m-commerce use, as technologically savvy users began to use their smartphones to shop online (Retail Dive, 2010). With a sharp rise in smartphone adoption and the corresponding enthusiasm for shopping via mobile web interfaces in 2008, more and more researchers began exploring this new and growing retail channel (Kim, Shin, & Lee, 2009; Kim et al., 2007; Kleijnen, Ruyter, & Wetzels, 2007; Sheng, Nah, & Siau, 2008; Vance, Elie-Dit-Cosaque & Straub, 2008).

Our initial search produced 48 papers; we removed articles that focused centrally on topics such as mobile risk, mobile privacy issues, and location-based mobile marketing. The removed articles had a narrow focus that did not specifically cover the topic of m-commerce adoption and use. The elimination process resulted in 23 relevant papers.

**Table A1**

Review of Articles Published between 2008 and 2019 Related to “M-shopping,” “Mobile Shopping,” “M-commerce,” and “Mobile Commerce” in Leading IS Journals (*DS*, *DSS*, *EJIS*, *ISJ*, *ISR*, *IJIM*, *JIT*, *JMIS*, *JSIS*, *JAIS*, and *MISQ*)

Journal	Study	Method and Context	Theory Base	Independent Variables	Process Variables	Boundary Conditions	Dependent Variables	Key Findings
		Country						

<i>J AIS</i>	Sheng, Nah, & Siau (2008)	Survey data from 100 participants about u-commerce versus m-commerce.	Expectancy theory Theory of reasoned action Personalization-privacy paradox.	- Personalization (personalized vs. nonpersonalized service)	- Perceived benefits - Privacy concerns	Context (emergency vs. nonemergency)	Intention to adopt	- Customers' privacy concerns increase (decrease) when personalized services are provided (not provided). - Customers have less privacy concerns in emergency versus non-emergency context. - Customers are more likely to adopt a personalized (vs. nonpersonalized) service in emergency (vs. nonemergency) situations.
		Not stated						
<i>J MIS</i>	Vance, Elie-Dit-Cosaque, & Straub (2008)	Experiment on a simulated m-commerce portal (Amazon.com) in 135 the United States and 116 France	General IS literature	- System quality	- Ease of use - Trusting beliefs in IT artifacts	Uncertainty avoidance and institution-based trust	Intention to use	- System quality significantly predicts users' trust in m-commerce. - Culture moderates how system quality affects trust in IT artifacts.
		The United States and France						
<i>DSS</i>	Xu, Liao, & Li (2008)	Survey data from 143 mobile users in dining industry (data collected in 2005)	Theory of planned behavior.	- Entertainment - Creditability - Personalization - Informativeness - Irritation	- Attitude		Intention to use	- Using a Bayesian network model, entertainment, credibility and personalization were found to shape intention to use through attitude.
		China						
<i>ISJ</i>	Kim, Shin, & Lee (2009)	Survey data from 192 cell phone users (who are not registered for mobile banking)	Theory of diffusion of innovation (Rogers, 1995) Social learning theory	- Relative benefits of mobile banking - Personal propensity to trust - Structural assurances - Firm reputation	- Initial trust		Intention to use	- Relative benefits, propensity to trust, and structural assurances has a significant effect on initial trust. - Initial trust and relative benefits are key drivers of intention. - Firm reputation is not related to intention.
		South Korea						



<i>DSS</i>	Luo, Li, Zhang, & Shim (2010)	Survey data from 122 undergraduate student, potential adopters of m-banking.  The United States	UTAUT	<ul style="list-style-type: none"> <li>- Performance expectancy</li> <li>- Trust belief</li> <li>- Perceived risk</li> <li>- Structural assurance</li> <li>- Disposition to trust</li> <li>- Self-efficacy</li> </ul>			Behavioral Intention	<ul style="list-style-type: none"> <li>- Risk perception is a salient antecedent to new technology acceptance.</li> </ul>
<i>DSS</i>	Chong, Chan, & Ooi (2012)	Survey data from 172 Malaysian and 222 Chinese consumers of m-commerce  Malaysia and China	Technology acceptance model (TAM) and diffusion of innovation (DOI)	<ul style="list-style-type: none"> <li>- Trust</li> <li>- Cost</li> <li>- Social influence</li> <li>- Variety of services</li> <li>- Perceived ease of use (PEOU) and perceived usefulness (PU)</li> </ul>			Intention to adopt m-commerce	<ul style="list-style-type: none"> <li>- Trust, cost, social influence, and variety have a significant relationship with decisions to adopt m-commerce, while TAM and DOI variables show a nonsignificant relationship.</li> </ul>
<i>DSS</i>	Ho (2012)	4 weekly questionnaires sent to 130 university students receiving personalized location-based mobile advertisement for restaurants  Australia	Motivational theories	<ul style="list-style-type: none"> <li>- Perceived novelty</li> <li>- Community-based involvement</li> <li>- Perceived accuracy</li> <li>- Perceived precision</li> </ul>	<ul style="list-style-type: none"> <li>- Intrinsic motivations</li> <li>- Extrinsic motivations</li> </ul>		Intention to use m-service	<ul style="list-style-type: none"> <li>- Individuals are intrinsically motivated to use novel mobile services that help them connect with their community and are extrinsically motivated to use accurate and precise mobile services.</li> </ul>
<i>DSS</i>	Kim, Kim, & Wachter (2013)	Survey data from 297 undergraduate students  The United States	Literature on engagement motivations and dimensional stages of human attitude (cognition, affection and conation)	<ul style="list-style-type: none"> <li>- Utilitarian, social, and hedonic motivation</li> <li>- Perceived value</li> </ul>	<ul style="list-style-type: none"> <li>- Satisfaction</li> </ul>		Mobile engagement intention	<ul style="list-style-type: none"> <li>- Proposed Mobile Engagement model and found that users' engagement motivation has a strong and positive relationship with their perceived value, satisfaction, and continued engagement intention.</li> <li>- Perceived value is strongly related to their satisfaction and continued engagement intention.</li> <li>- Satisfaction strongly influences users' continued engagement intention.</li> </ul>

<i>DSS</i>	Zhou (2013)	Survey data from 195 mobile payment users  China.	DeLone and McLean (2003) IS success model.	<ul style="list-style-type: none"> <li>- System quality</li> <li>- Information quality</li> <li>- Service quality</li> </ul>	<ul style="list-style-type: none"> <li>- Trust</li> <li>- Flow</li> <li>- Satisfaction</li> </ul>		Continuance intention	<ul style="list-style-type: none"> <li>- System quality, information quality, and service quality affect continuance intention through trust, flow, and satisfaction.</li> <li>- Trust affects flow, which in turn affects satisfaction.</li> </ul>
<i>DS</i>	Gupta & Jain (2014)	Semi-structured interviews and questionnaires administered to 578 consumers  Rural India	TAM	<ul style="list-style-type: none"> <li>- Mobility, cost of service</li> <li>- Lack of service quality</li> <li>- Mass media and social influence</li> <li>- Lack of transparency of offerings</li> </ul>	<ul style="list-style-type: none"> <li>- Perceived usefulness</li> <li>- Perceived ease of use</li> </ul>		Intention to adopt mobile telephony	<ul style="list-style-type: none"> <li>- Ensuring service transparency and identifying opinion leaders in the local community are key requirements for increasing the speed of adoption in rural India.</li> </ul>
<i>DSS</i>	Maity & Dass (2014)	3 field experiments on a search product (airline ticket) and an experience product (food menu); high (in-store), medium (e-commerce), and low (m-commerce) contexts of media richness  The United States	Media richness theory, task-media fit, and cognitive cost (behavioral decision theory)	<ul style="list-style-type: none"> <li>- Perceived media richness</li> <li>- Perceived channel difference</li> <li>- Perceived product type</li> <li>- Perceived media richness-task fit</li> <li>- Satisfaction</li> <li>- Channel choice</li> <li>- Perceived cost</li> </ul>	<ul style="list-style-type: none"> <li>- Media richness</li> </ul>	Product type	Amount of information searched	<ul style="list-style-type: none"> <li>- Consumers prefer to carry complex decision-making tasks in channels with medium (e.g., e-commerce) and high (e.g., in-store) media richness.</li> <li>- For simple decision-making, consumers prefer channels with low (e.g., m-commerce) media richness.</li> <li>- Product type moderates the effect of media richness on perceived channel-task fit, postpurchase evaluation, and channel choice.</li> </ul>
<i>EJIS</i>	Picoto, Belanger, & Palmados-Reis (2014)	Survey data from 180 organizations using m-business  Portugal	Technology-organization-environment framework Diffusion of innovation theory Resource-based theory	<ul style="list-style-type: none"> <li>- Technological factors</li> <li>- Organization factors</li> <li>- Environmental factors</li> </ul>	<ul style="list-style-type: none"> <li>- Mobile business usage breadth and depth</li> <li>- M-business value (impact on sales, internal operations and procurement)</li> </ul>		M-business impact on firm performance	<ul style="list-style-type: none"> <li>- M-business use has a positive and significant relationship with m-business value.</li> <li>- M-business value has a direct positive impact on firm performance.</li> </ul>
<i>MISQ</i>	Venkatesh,	RFID shopping: 227	Technology	<ul style="list-style-type: none"> <li>- M-shopping artifact</li> </ul>			- Technology	<ul style="list-style-type: none"> <li>- RFID-based hardware design was</li> </ul>

	Aloysius, Hoehle, & Burton (2017)	participants in a general browsing and shopping experiment and 221 in a goal-directed shopping in a retail store laboratory	adoption theories	design (hardware design and content design)			adoption (intention to use, perceived usefulness, perceived ease of use) - Security beliefs (privacy concerns, trust, risk) - Shopping (convenience, word of mouth, customer service quality, attitude toward a retailer)	viewed most favorably in terms of technology adoption outcomes and shopping outcomes but least favorably in terms of security. - Content design conditions (i.e., product information, product reviews, and both) engendered favorable reactions. - RFID combined with both product information and reviews was most positively received in the context of goal-directed shopping.
		Not stated						
<i>IJIM</i>	Liébana-Cabanillas, Marinkovic, & Kalinic (2017)	Survey data from 224 m-commerce customers  Serbia	TAM	- Perceived usefulness - Perceived ease of use - Trust  - Mobility - Customization - Customer involvement			Intention to use	- Customization and customer involvement are the strongest antecedents of the intention to use m-commerce. - Ease of use and mobility have no significant relationship with intention to use.
<i>MISQ</i>	Ho & Lim (2018)	3 field experiments to manipulate the relation between taste-matching, need-matching and location-matching recommendations	Theory of mood congruence	- Partial descriptor use - Taste-matching recommendation - Need-matching recommendation - Location matching recommendation	- Urge to buy	Impulse purchase tendency Consumer mood	Unplanned purchase action	- Consumers in positive moods are more likely to form an urge to buy than those in negative moods. - Need-matching is more influential on urge to buy for consumers in negative moods than for those in positive moods. - For taste-and-need-matched recommendations, location-matching exerts a stronger effect on the urge to buy for consumers in
		Not stated						

								negative moods than for those in positive moods.
<i>EJIS</i>	Hoehle, Aloysius, Goodarzi, & Venkatesh (2019)	AutoID-based m-shopping: 194 participants in a general browsing and shopping experiment and 190 in a goal-directed shopping in a retail store laboratory.	Multidimensional developmental theory of privacy	- Artifact design (hardware design and content design)	- Mobile application usability - Privacy concerns		Shopping efficiency	- Mobile application usability can mitigate privacy concerns and improve shopping efficiency.
		Not stated						
<i>IJIM</i>	Karjaluoto, Shaikh, Saarijarvi, & Saraniemi (2019)	Survey data from 992 m-banking users and 524 m-wallet users  Finland	General consumer and information systems literature	- Personal innovativeness - Self-congruence - Perceived risk - New product novelty	- Perceived value (utilitarian value, hedonic value)		Overall satisfaction Commitment	- Self-congruence and new product novelty are principal drivers of value. - Perceived value yields a strong positive effect on overall satisfaction and commitment.
<i>IJIM</i>	Lu, Wu, & Hsiao (2019)	Survey data from 408 mobile users.  Taiwan	Expectation confirmation theory	- Involvement - Interactivity confirmation - Perceived usefulness	- Customer satisfaction		Loyalty to the products	- Both involvement and interactivity are important drivers of customer product loyalty. - Satisfaction mediates the relationship between perceived usefulness and loyalty.
<i>IJIM</i>	Malaquias & Hwang (2019)	Survey data from 201 Brazilian and 174 U.S. students  Brazil and the United States	TAM	- Perceived usefulness - Ease of use - Trust in mobile banking - Social influence			Use of mobile banking	- Trust and perceived ease of use are both important determinants of use in both countries. - Social influence is relevant in mobile banking use in Brazil, but not in the United States.
<i>DSS</i>	Naegelein, Spann, & Molitor (2019)	Field experiment in a leading fashion online retailer  Europe	Information processing theory, vividness theory, and cognitive fit theory	- Visual product presentation technology			Probability of purchase	- Alternative photos increase purchase likelihood but zoom decreases it. - PCs and tablets are associated with a higher purchase likelihood than smartphones.

<i>IJIM</i>	Shaw & Sergueeva (2019)	Survey data from 287 smartphone users.  Canada	UTAUT2 (Venkatesh et al., 2012)	<ul style="list-style-type: none"> <li>- Social influence</li> <li>- Facilitating conditions</li> <li>- Hedonic motivation</li> <li>- Habit</li> <li>- Effort expectancy</li> <li>- Perceived privacy concerns</li> <li>- Performance expectancy</li> </ul>	<ul style="list-style-type: none"> <li>- Perceived value</li> </ul>	Personal innovativeness	Intention to use	<ul style="list-style-type: none"> <li>- Perceived privacy concerns influence perceived value.</li> <li>- Intention to use is significantly influenced by hedonic motivation and perceived value.</li> </ul>
<i>IJIM</i>	Zheng, Men, Yang, & Gong (2019)	Survey data from 252 m-commerce users.  China	Stimulus-organism-response paradigm	<ul style="list-style-type: none"> <li>- Interpersonal influence</li> <li>- Visual appeal</li> <li>- Portability</li> </ul>	<ul style="list-style-type: none"> <li>- Hedonic browsing</li> <li>- Utilitarian browsing</li> </ul>		Urge to buy impulsively	<ul style="list-style-type: none"> <li>- Portability, visual appeal, and interpersonal influence differently affect hedonic browsing and utilitarian browsing.</li> <li>- Hedonic browsing directly and positively influences consumers' urge to buy impulsively.</li> <li>- Utilitarian browsing indirectly influences consumers' urge to buy impulsively through hedonic browsing.</li> </ul>
<i>IJIM</i>	Chopdar & Balakrishnan (2020)	Survey data from 430 m-shoppers.  India	Stimulus-organism-response paradigm	<ul style="list-style-type: none"> <li>- Perceived ubiquity</li> <li>- Contextual offering</li> <li>- Visual attractiveness</li> <li>- App incentive</li> </ul>	<ul style="list-style-type: none"> <li>- Impulsiveness</li> <li>- Perceived value</li> </ul>	Age	Satisfying experience Repurchase intention	<ul style="list-style-type: none"> <li>- Contextual offering, visual attractiveness, and app incentive positively affect value and impulsiveness.</li> <li>- Ubiquity only had a positive affect on impulsiveness.</li> <li>- Impulsiveness exerted a significant negative impact on user's repurchase intention.</li> <li>- Age significantly moderates the relationship between impulsiveness and satisfying experience, and impulsiveness and repurchase intention.</li> </ul>

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## Appendix B

**Table B1: Respondent Demographics**

	Category	N = 1,975	%
<b>Gender</b>	<b>Men</b>	1022	51.75
	<b>Women</b>	953	48.25
<b>Age (years)</b>	<b>19 or less</b>	201	10.18
	<b>20-25</b>	508	25.73
	<b>26-30</b>	370	18.73
	<b>31-35</b>	240	12.15
	<b>36-40</b>	197	9.97
	<b>41-45</b>	119	6.03
	<b>46-50</b>	134	6.78
	<b>51-55</b>	98	4.96
	<b>56-60</b>	62	3.14
	<b>61 or more</b>	46	2.33
<b>Internet plan</b>	<b>Fixed plan</b>	1137	57.57
	<b>Variable plan</b>	838	42.43

**Table B2: Individual Country Pairwise Comparisons**

	Hedonic → Intention Δ	Utilitarian → Intention Δ	Hedonic → Habit Δ	Utilitarian → Habit Δ	Intention→ Use Δ	Habit → Use Δ
<b>Australia - Brazil</b>	.48***	-.44***	.45***	-.39***	.16*	.03
<b>Australia - India</b>	.28***	-.38***	.57***	.07	-.20**	.33***
<b>Australia - Pakistan</b>	.26**	-.32**	.65***	-.14*	-.14*	.32***
<b>Australia - Bangladesh</b>	.49***	-.46***	.58***	-.46***	.04	.24**
<b>Australia - Vietnam</b>	.62***	-.32**	.59***	.10	-.12	.26***
<b>United States - Brazil</b>	.45***	-.44***	.31***	-.25**	.03	.02
<b>United States - India</b>	.25**	-.38***	.43***	.06	-.31***	.33***
<b>United States - Pakistan</b>	.23**	-.32**	.53***	.00	-.25**	.33***
<b>United States - Bangladesh</b>	.46***	-.45***	.44***	-.32**	-.16*	.24**
<b>United States - Vietnam</b>	.59***	-.32**	.45***	.03	-.24**	.26**
<b>United Kingdom - Brazil</b>	.39***	-.42***	.30**	-.25**	.08	.04
<b>United Kingdom - India</b>	.19*	-.36***	.43***	.07	-.27**	.39***
<b>United Kingdom - Pakistan</b>	.18*	-.30**	.51***	.01	-.21*	.38***
<b>United Kingdom - Bangladesh</b>	.40***	-.44***	.44***	-.32**	-.10	.29**
<b>United Kingdom - Vietnam</b>	.52***	-.31**	.44***	.04	-.20**	.32***
<b>Singapore - Brazil</b>	.36***	-.40***	.31**	-.32**	.06	.08
<b>Singapore - India</b>	.16*	-.34**	.44***	-.01	-.40***	.27***
<b>Singapore - Pakistan</b>	.15	-.29**	.52***	-.07	-.34***	.27***
<b>Singapore - Bangladesh</b>	.38***	-.42***	.45***	-.40***	-.23**	.18*
<b>Singapore - Vietnam</b>	.49***	-.29**	.45***	-.05	-.34***	.21**

Notes: \*Significant at .10; \*\*Significant at .05; \*\*\*Significant at .01