Mobile Commerce Adoption in Organizations: A Literature Review and Future Research Directions

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ABSTRACT

The paper comprehensively reviews research conducted on mobile commerce adoption in organizations. From the literature, factors adopted form a number of adoption theories such as the diffusion of innovation theory, the technology acceptance model, etc. are identified, analyzed and tabulated together with a set of research propositions in order to demonstrate areas in need of further research. The paper proposes 15 adoption factors that may affect the intention to adopt mobile commerce in organizations. These factors are categorized into three groups, namely environmental and organizational, technological, and managerial and other factors. We conclude our argument by presenting a proposed adoption model and showing potential areas of interest to future researchers.

Keywords: Information Systems in Organization, Information Technology Adoption, Mobile Commerce, Mobile Devices, Mobile Electronic Commerce

1. INTRODUCTION

Wireless technologies and telecommunication networks are playing a significant role in modern life. Moreover, the use of innovative wireless devices such as smart phones and personal digital assistants (PDAs) is widespread and facilitates access to critical information and electronic transactions ubiquitously (Benou & Vassilakis, 2010). For example, one study showed that, 50% of Australians access the internet using their mobile phone in 2011 (Sensis, 2011). Another study by Allied Business Intelligence (ABI) Research (2010b) reported that in 2010, 28% of Americans use their mobile phone to access the Internet on daily bases. Mobile or wireless devices are ubiquitous tools and are enablers of Mobile Commerce (m-commerce) or what’s known as mobile electronic commerce. In reality, the interaction between technologies such as the Internet, mobile computing devices, and wireless networks (e.g. mobile network)
facilitates the existence of m-commerce to offer many services to mobile consumers (Siau, Lim, & Shen, 2001). M-commerce is directly linked to electronic commerce (e-commerce) (Tiwari, Buse, & Herstatt, 2006). Whereas e-commerce provides “anytime” access to online services, m-commerce potentially allows users to perform online transactions “anytime and anywhere” (Saidi, 2009). This concept of “anytime and anywhere” transacting and accessing important business information can be considered as one of the most significant advantages of m-commerce that draws the attention of businesses and their employees (Varshney, Mallow, Ahluwalia, & Jain, 2004). According to Siau et al. (2001), m-commerce “is about delivering the right information to the right place at the right time” (p. 5) meaning that they are ubiquitous and purposeful tools reshaping the landscape of commerce.

M-commerce can be considered as the next generation of e-commerce. Therefore, to understand m-commerce as a modern concept, it is important to be aware of the definition of e-commerce; that is, “the sharing of business information, maintaining business relationships and conducting business transactions using computers interconnected by a telecommunication system” (Rajaraman, 2005, p. 90). These telecommunication systems can be a secure private network or a public network such as the Internet (Rajaraman, 2005). On the other hand, m-commerce can be defined as any transaction (such as data entry and purchasing) or content delivery (such as reporting and notification) with monetary value that is performed through mobile networks and devices (Clarke III, 2008; Leung & Antypas, 2001; Zhang, Yuan, & Archer, 2002). There are many applications for m-commerce; for example, users can download ringtones or music, buy tickets to performances, perform banking transactions, shop for goods, send or receive emails, play interactive online games, and trade stocks (AlHinai, Kurnia, & Johnston, 2007). Other examples of m-commerce may include purchases from vending machines or paying for fuel using a cell phone’s credit as a payment option. A recent study by ABI Research (2010a) estimated that in 2015, the m-commerce market would reach about $119 billion, representing about 8% of the total e-commerce market. M-commerce also can improve productivity, and thus, organizations and businesses have opted to innovate and adopt m-commerce to offer greater and more widespread services to their different stakeholders.

M-commerce is not only an extension of e-commerce, it also represents a different business philosophy which requires the introduction of new business models (Alvarez et al., 2009; OECD, 2007; Stoica, Miller, & Stotlar, 2005; Tsalagatidou & Pitoura, 2001). Moreover, Nohria and Leestma (2001) stated that m-commerce is a modern channel of consumerism and a very powerful way to reach customers. According to Nohria and Leestma (2001), m-commerce offers ideal opportunities for companies that understand how consumers can benefit from a collaborative market such as a mobile services market. Furthermore, Varshney et al. (2004) stated that “in today’s marketplace, where more and more organizations are decentralized and workers are increasingly more mobile, the ability of an organization to equip its workforce with access to vital information, anytime and anywhere, is becoming a strategic asset” (p. 356). Siau et al. (2001) was one of the first to foresee the current movement towards mobile business and stated that “m-commerce will likely emerge as a major focus of the business world and telecommunication industry in the immediate future” (p. 4), but embracing m-commerce has its difficulties.

Due to the importance of the topic and the lack of research about m-commerce organizational adoption, this review of the literature has been conducted in order to give some directions for future research. According to Ngai & Gunasekaran (2007), m-commerce is an emerging area of research as it offers a number of promising opportunities at the research and applications level. Their trend is evident on many levels; for instance, Al-Mashari (2002) stated that m-commerce is increasingly growing as the new Internet business model, in which
wireless devices and technologies are used to expand e-commerce services. In addition, there is a high expectation for the adoption of m-commerce (Khalifa & Sammi, 2002) based on the high penetration rate of mobile phones in many countries, as well as the resulting experiences of users related to mobile technology. According to Lee and Benbasat (2003), the quick growth of mobile phones has provided a solid base for m-commerce adoption but the research conducted so far has not matched this growth. Because of the evolving nature of m-commerce, organizations face certain technological, financial, and human resources challenges when implementing m-commerce applications (Zeeshan, Cheung, & Scheepers, 2007). In order to overcome such challenges it is essential to study m-commerce adoption at the organizational level in order to have an orderly and successful approach to its introduction. This field of research is quite new and understanding the adoption of m-commerce within organizations can be guided by understanding the adoption of new information technology (IT) and electronic services (e.g., e-commerce) in organizations. Because of this, the review will include a number of studies that address the adoption of other electronic services.

In the past years, many studies have presented some theoretical frameworks for research in the acceptance of information systems (IS) and IT (Moore & Benbasat, 1991). Early studies and theories that address the adoption of IT present a clear explanation of the reasons regarding whether decision makers adopt new innovations or not (Akkeren & Harker, 2003). In addition, these studies and theories introduced and identified many factors believed to influence the adoption of new technologies at both the individual and organizational levels. Some of the early studies and theories, which will be adopted and used in the proposed research, are presented in the next sections.

2.1. Diffusion of Innovations

In 1962, E. M. Rogers introduced the Diffusion of Innovation Theory (DIT) which concentrates on the conditions and characteristics that affect the adoption of a new idea, product, or practice (Rogers, 2003). Diffusion can be defined as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p. 5). According to DIT, the...
four main elements of the diffusion process are: innovation, communication channels, time, and social system. The first element in the diffusion process is the innovation which can be defined as “idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2003, p. 11). Roger (2003) also defined the most important innovation’s characteristics that determine its rate of adoption. These characteristics are: relative advantage, compatibility, complexity, trialability, and observability. Innovations that are perceived with high relative advantage, compatibility, trialability, observability, and less complexity will be adopted more quickly than others (Rogers, 2003). Based on the DIT, the five characteristics are considered as direct determinants for the rate of adoption of new idea or innovation. The DIT provides a framework for studying the adoption of innovation, especially IT. For example, Al-Qirim (2006) cited that the DIT can be considered as the “most widely accepted model by researchers in identifying “perceived” critical characteristics for innovations in IS research.” (p.1). On the other hand, according to Al-Qirim (2006), the same researchers, who supported the DIT model, argued that the model should be combined with other models in order to provide a more holistic adoption model.

2.2. TRA, TPB, and TAM

The Theory of Reasoned Action (TRA) is considered as one of the most significant and basic theories that explain human behavior (Venkatesh et al., 2003). TRA is “designed to explain virtually any human behavior” (Ajzen & Fishbein, 1980, p. 4). Moreover, TRA has been widely verified and proved to be successful in predicting and describing individuals’ behavior in many domains (Davis, Bagozzi, & Warshaw, 1989). According to TRA, an individual’s action of a particular behavior is determined by the individual’s behavioral intention; also, the individual’s behavioral intention is jointly determined by the individual’s attitude towards the behavior and the subjective norms (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). TRA has been studied and tested extensively in sociological and psychological research and was found to be missing certain aspects (Thompson, Higgins, & Howell, 1991). According to Thompson et al. (1991), although TRA “considers all beliefs that a person has about an act or behavior,” other researchers make “a distinction between beliefs that link emotions to the act (occurring at the moment of action) and beliefs that link the act to future.” Davis et al. (1989) proposed that TRA should be suitable for identifying the determinants of computer usage behavior. When applying the TRA to the adoption of new technology, TRA suggests that the usage of new technologies can be expected by the individual’s behavioral intention which can be predicted by the individual’s attitude towards using the new technology (Standing, McManus, Standing, & Karjaluoto, 2007) and the individual’s subjective norms.

Davis’s (1989) Technology Acceptance Model (TAM) explains the diffusion, implementation, and adoption of IT in terms of perceived usefulness and perceived ease of use. According to Davis et al. (1989), TAM which is an adaptation of TRA was particularly introduced in order to establish a model that describe the user acceptance of IS. Furthermore, TAM, as a major contribution to establish a well-developed acceptance model, was created to predict the user acceptance and usage of technology in daily work activities (Davis, 1986; Venkatesh et al., 2003). Compared to TRA, TAM “was found to be a much simpler, easier to use, and more powerful model of the determinants of user acceptance of computer technology” (Igbaria, Guimaraes, & Davis, 1995, p. 89). TAM2 was then introduced as an extension for TAM by adding subjective norms as an extra predictor of the users’ intention to use and adopt new technologies in mandatory systems (Venkatesh & Davis, 2000).

The Theory of Planned Behavior (TPB), introduced by Ajzen (1991), extended the TRA by including perceived behavioral control as a new determinant of both the intention and behavior. According to Ajzen (1991), TPB can
be summarized as the “intentions to perform behaviors of different kinds can be predicted with high accuracy from attitudes toward the behavior, subjective norms, and perceived behavioral control; and these intentions, together with perceptions of behavioral control, account for considerable variance in actual behavior.” (p. 179). The TPB suggested that the adoption of new IT could be determined by the attitude toward the behavior, subjective norms, and perceived behavioral control. According to Riemenschneider, Harrison, and Mykytyn (2003) in TPB, the decision or behavioral intention of executive in small business to take an action, such as adopting m-commerce, is a function of attitude, subjective norm, and perceived behavioral control. In the IS literature and context, the TPB has been used widely to explain the individuals’ adoption of many new IT and there are many examples of such application and usage (e.g., Taylor & Todd 1995).

In order to study the organizational adoption of new technologies, it is important to include the human factor in such a study and should involve all workers in IT adoption decisions (Shaukat & Zafar, 2010). In addition, according to Szewczak and Snodgrass (2002), individuals are playing a significant role in the adoption process of new technologies in any organization. Indeed, individuals such as decision makers and users can play such role since they are the one who will decide which IS should be implemented to achieve organizational goals. The previous mentioned theories will be very helpful to cover all aspects of m-commerce adoption in organizations especially the ones that are related to the individuals who works in these organizations. The reason for the inclusion of these theories is that they can be used as the base for understanding the adoption of m-commerce in organizations. Moreover, these theories should be applied and tested in this new field of research.

Since the introduction of the theories, researchers have modified and applied them to the adoption and usage of different IT within different settings. These modifications brought about the introduction and presentation of many models that deal with the adoption and usage of new technologies and services at both the individual and organizational level. Furthermore, researchers have identified many factors that influence the adoption, usage, and diffusion of new technologies and services from these theories as shown in the following section.

Newer models, such as UTAUT, which has four determinants of intention and usage of new technologies and four main moderators, (Venkatesh et al., 2003) is an important model that has been added to this literature. UTAUT combines and integrates eight models and theories: DIT, TRA, TAM, TPB, combined TAM and TPB, The Social Cognitive Theory, The Motivational Model, and The Model of PC Utilization. UTAUT (Figure 1) was developed due to the empirical and conceptual similarities of these eight models (Venkatesh et al., 2003). When Venkatesh et al. (2003) analyzed and studied these eight theories and models, they proposed that only four major factors should be considered as important factors that influence and are direct determinants of user acceptance and usage behavior of new technologies. The four most significant determinants according to UTAUT are performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Moreover, as illustrated in Figure 1, the four moderators, that were used in UTAUT, are gender, age, experience, and voluntariness of use (Venkatesh et al., 2003).

According to Pedersen (2005), research into the adoption and usage of mobile services revealed that the traditional adoption models have to be modified and extended in order to be applied to mobile services adoption. As an example into the extension of the previous theories and models, Lu, Yu, Liu, and Yau (2003) proposed and developed a conceptual framework which predicts and describes the factors that influence the user acceptance of wireless Internet via mobile devices (WIMD) based on TAM. The study extended the TAM model and applied it to the study of mobile technologies adoption. The extended model is illustrated in Figure 2.
Since wireless systems have some unique characteristics and features that do not exist in other systems, TAM for wireless Internet was introduced. The model includes five factors which are: technology complexity, individual differences, facilitating conditions, social influences, and wireless trust environment (Lu et al., 2003). These factors determine the short and long term usefulness as the user perceives them, and ease of use which in turn determines the user intention and readiness to adopt and use the WIMD (Lu et al., 2003). The article concluded by promoting twelve theoretical propositions, which were developed from the model in order to facilitate future empirical research related to the same area.

3. RESEARCH INTO M-COMMERCE ORGANIZATIONAL ADOPTION

AlHaj Ali (2005) studied the adoption of m-commerce across the supply chain of three businesses in New Zealand. These businesses were surveyed as case studies as they have already implemented m-commerce. AlHaj Ali (2005) utilized the technological innovation and supply chain literature to construct a framework in order to provide an understanding about m-commerce adoption. The study findings revealed that most of the m-commerce applications in the case studies are focused on making internal mobile operations more efficient in the business-to-business aspect of the supply chain (AlHaj Ali, 2005). The study findings showed that the adoption of m-commerce within businesses in New Zealand was stimulated by the advantages of the services, the availability of internal IT experts and expertise, top management support, competition, the suitability of the m-commerce to fill the mobile gap, and the support from technology vendors (AlHaj Ali, 2005). Moreover, according to AlHaj Ali (2005), the adoption of m-commerce impeded by its incompatibility with the business environment and the complexity associated with mobile technologies.

According to Stoica et al. (2005), m-commerce adoption in firms can be a complex process as it can be influenced by internal and external variables such as government
involvement. This complex process involves the “organizational structure of the firm, its business strategy, organizational culture, and the environment in which the business operates” (Stoica et al., 2005, p. 220). In addition, Stoica et al. proposed a comprehensive framework which presents all the variables that were addressed in the study and they suggested ten propositions to

Figure 2. TAM for wireless Internet (Source: Lu et al., 2003)

Figure 3. The framework for technology adoption (Source: Stoica et al., 2005)
be tested in future research (Figure 3) (Stoica et al., 2005).

Léger, Cassivi, and Fosso Wamba (2004) studied the adoption of customer-oriented m-commerce initiatives in organizations. The study investigated the nature of businesses that offer m-commerce services to their customers (Léger et al., 2004) and a predictive model was proposed and tested. Three determinants were found that influence the adoption of m-commerce in businesses according to business size. The three determinants are: business to consumer orientation, digital nature of the product offered, and level of e-commerce adoption (Léger et al., 2004). The results showed that prior adoption of e-commerce is considered a strong determinant for m-commerce adoption. In addition, issues addressed during e-commerce implementation such as: suitable technological infrastructure, organizational culture and learning facilitated m-commerce adoption. Other findings include:

- The size of the organization does not affect the adoption of m-commerce.
- Software companies are more likely to adopt m-commerce.
- Business to consumer (B2C) orientation does not affect the adoption of m-commerce.

Snowden et al. (2006) presented a case study about the adoption and implementation of mobile technologies in an operations management environment. They used action research to assess TAM for wireless Internet, introduced by (Lu et al., 2003), in adopting m-commerce within an operation management environment inside a manufacturing organization. The findings showed that technology acceptance is not just a simple set of single dimensional factors and their inter-relationships. Instead these factors sometimes have two dimensional relationships, and have an impact among different levels within an organization (Snowden et al., 2006). For instance, the facilitating conditions factor seems to influence both perceived usefulness and ease of use. In addition, the increased resources from management (as one of the facilitating conditions) were based on the managers’ perception of technology usefulness (Snowden et al., 2006). Therefore, the one way relationship that was proposed in TAM for the wireless Internet model seems to be a two way relationship (Snowden et al., 2006). Furthermore, according to Snowden et al. (2006), this case study showed that individual differences factor seems to be less significant.

O’Donnell, Jackson, Shelly, and Liertwood (2007) used a multiple case study approach to explore the challenges, especially legal and regulatory aspects, faced by a number of organizations during the implementation of m-commerce projects. In their study, sixteen case studies from different industries in Australia were investigated using the Fit-Viability framework. For instance, one of these case studies was a telecommunication company that offers services, which allow customers to buy soft drinks from vending machines and to pay for parking using mobile phones. The findings of the study revealed that the Australian Goods and Services Tax (GST) law increases the complexity of the transactions as well as backend systems for many m-commerce projects. According to O’Donnell et al. (2007), in order to apply the GST law probably, some systems have to distinguish between some goods such as a water and soft drink because GST have to be applied to all goods except water and other particular exceptions. In addition, the finding of the study introduced another challenging issue regarding governmental regulations and payment models. A need to change how credit is handled, when for example, a software company is selling a software to customers via mobile phones (O’Donnell et al., 2007) was noticed. The reason why such a case becomes an issue is that in Australia only registered credit suppliers are able to accept money from customers in order to purchase products from third parties (O’Donnell et al., 2007). In such cases, both telecommunication companies and banks become concerned in terms of their business area are being taken over by credit suppliers (O’Donnell et al., 2007). Consequently, accord-
ing to O’Donnell et al. (2007), this becomes not only a legislative matter but also a political issue between the two sectors. Although Australian government’s regulations have been changed recently, the mentioned issues have not been resolved yet and are not facilitating the adoption of m-commerce (O’Donnell et al., 2007). As a recent response to solve one of the stated problems, Visa, a well-known credit card company, introduced a new mobile wallet for its customers (Kats, 2011). According to Kats (2011), the new mobile wallet supports near field communication (NFC) payments using the Visa payWave application and it is a digital wallet that can use Visa and non-Visa payments accounts. In addition, banks start to introduce mobile applications (e.g., Kaching from commonwealth bank of Australia) that can be used to pay for purchases from your bank accounts using your smart phone.

Establishing new laws to regulate and control m-commerce is considered a big challenge for governments as well as organizations. This challenge can be predicted from the special characteristics of m-commerce such as mobility. Moreover, according to the Organisation for Economic Co-operation and Development -OECD (2007), the introduction of m-commerce regulation to protect customers’ needs a combination of government initiatives and companies self-regulation. Furthermore, Tiwari et al. (2006) introduced a general regulatory framework for m-commerce and mentioned the following:

“M-commerce, like e-commerce, requires transparent and clear regulations as the contracting parties do not necessarily know each other and there is hardly, if any, face-to-face contact while negotiating an agreement. A clearly defined regulatory framework is hence indispensable to boost consumer confidence and to increase acceptance amongst broad sections of the society as well as to ensure smooth functioning of m-commerce.” (Tiwari et al., 2006, p. 43)

Some countries from the OECD consider the current e-commerce regulations as sufficient to cover most aspects of m-commerce (OECD, 2007). The results of surveys that were conducted by countries revealed that there are some gaps between reality and expectation regardless of current legal protection and serious efforts from businesses (OECD, 2007). Consumer policy is becoming a global concern in the m-commerce market (OECD, 2007). For instance, the results of one study showed that, 50% of lodged complaints about problems related to m-commerce were unable to be solved successfully (TACD, 2006). In addition, Bohlin, Bjorkdahl, Lindmark, and Burgelman (2003) make some suggestions regarding the introduction of future European m-commerce policies, based on the Japanese mobile Internet initiative’s success factors. Further, in order to adopt and use m-commerce widely, there are many challenges and concerns that have to be acknowledged which are related to public policies, consumers, and technologies (Balasubramanian, Peterson, & Jarvenpaa, 2002).

Siau, Sheng, and Nah (2003) developed a framework that addressed factors that affect trust within m-commerce context and discussed the improvement of such trust via a means-ends objective network. In this study, the Value-Focused Thinking method was utilized to interview the target sample (Siau et al., 2003). The proposed trust framework was then developed which contains different factors that may affect m-commerce trust. These factors were categorized under the following areas: vendor characteristics, website characteristics, technology of wireless services, technology of mobile devices, and some other factors (Siau et al., 2003). The proposed framework validates the adopted views of trust, which is related to e-commerce, within m-commerce context.

Collaboration between businesses along the supply chain can be critical to the success of m-commerce applications. According to Zee-shan, Cheung, and Scheepers (2007), in order to apply m-commerce applications successfully, organizations tend to work in partnership with other members of the m-commerce supply chain. They proposed a model for investigating the factors that influence organizations to
engage in a collaborative way for successful implementation of m-commerce (Zeeshan et al., 2007). The proposed model includes factors such as technological resources, financial resources, human resources, customer orientation, innovation orientation, perceived organizational collaboration advantages, top management support, institutional pressure, competitive pressure, and organizational size. Based on these factors, the study concludes with some propositions and hypotheses were generated to be empirically tested in future research (Zeeshan et al., 2007).

Chang, Peng, Hung, Chang, and Hung (2009) discussed the adoption, application, and development of m-commerce in Taiwan. The study aimed to find the critical success factors for m-commerce adoption in every stage of the system development life cycle and to construct a model that can be used for a successful adoption of m-commerce (Chang et al., 2009). Initially, 21 critical factors were identified and arranged into a model. The findings of this study revealed that the three most significant factors for the adoption of m-commerce were senior management support, the support capabilities of the technology vendors, and capabilities of the project team. Furthermore, Buellingen and Woerter (2004), used structured expert interviews to explore and identify the factors that play a significant role in the success of m-commerce initiatives. According to Buellingen and Woerter (2004), some of the recent social, technological, and economic trends have formed an environment which facilitates the demand and distribution of mobile communication services. They classified the driving factors under three general categories, which are social development drivers, transmission and technology drivers, and economic drivers.

The growth in the usage of m-commerce services depends heavily on trustable mobile payment systems (Mallat & Tuunainen, 2008). Mallat and Tuunainen (2008) empirically explored factors that drive the adoption of mobile payment systems by merchants (Mallat & Tuunainen, 2008). The study results revealed that the main adoption drivers are associated with increasing sales or reducing the costs of payment processing. On the other hand, the main barriers to adoption are the lack of critical mass, unfavorable revenue sharing models, complexity of the systems, and lack of standardization (Mallat & Tuunainen, 2008).

In order to identify the environmental factors, some of the research and studies presented in the literature compare m-commerce infrastructure across countries. For instance, Henten, Olesen, Saugstrup, and Tan (2004) presented an empirical overview and comparison of the developments of new mobile systems and services in Europe, Japan, and South Korea. This comparison was based on explanatory factors such as technology, economy, market development and structure, marketing, socio-cultural factors, and policy intervention and regulation (Henten et al., 2004). The study findings showed that the success of mobile data and Internet development in Japan is likely due to the implementation of a business model that supports the collaboration between content providers and aggregators, handset and network manufacturers, and network operators (Henten et al., 2004). This business model is called i-mode and it can be considered as the most common and successful mobile business model. In 1999, i-mode was introduced as a service that utilizes packet switched technology to offer continuous Internet access (‘always on’), e-mail, and other services through mobile phones (Henten et al., 2004). According to Henten et al. (2004), the i-mode as a business model has had quite massive success and is starting to be implemented in other parts of the world, particularly the USA, Europe, and other East Asian countries.

Harris, Rettie, and Kwan (2005) compared the usage of m-commerce in the United Kingdom (UK) and in Hong Kong, since they have similar mobile telecommunications infrastructures but they have visible cultural differences. The study findings revealed that there are significant differences between the two countries in the usage of m-commerce.
services (Harris et al., 2005). They attributed these differences to the levels of collectivism and power distance in the cultures as well as to the structural and price differences between the two markets. The study finding revealed that culture plays a significant role in user attitudes toward m-commerce services (Harris et al., 2005). In addition, Harris et al. (2005) concluded their study by suggesting that further research is necessary in order to investigate the association between pricing strategy, m-commerce usage, and culture.
4. FUTURE IMPLICATIONS

According to Rogers (1995), “in many cases, an individual cannot adopt a new idea until an organization has previously adopted” (p. 371). Therefore, we think it is essential to understand the adoption of m-commerce in organizations in order to plan and implement successful m-commerce initiatives. There is an evident lack in the literature of a model that facilitates the understanding of the adoption process of m-commerce in organizations. The few existing models did not cover all the aspects of m-commerce adoption and were missing factors that are likely to have significant influence on such organizational adoption. For example, Stoica et al. (2005) proposed a model that relates to adoption leading to performance. However, the model is mostly based on structural factors and an underlying assumption that adoption leads to performance. Other recent work such as, San Martin et al. (2012) also proposes a performance-based model, ignoring factors leading to adoption and whether adoption leads to evidence of increased performance. Further, the sample size used in the study is small so it’s difficult to determine if any significance can be drawn from it. This means that in spite of continuous entrepreneurial development and government support, m-commerce, as an area of development, still lacks serious academic attention. Specifically, we still don’t know what key factors influence the adoption of m-commerce in organizations. There is no single model from research that has developed these concerns in a very comprehensive way including all the possible adoption factors.

This article provides a comprehensive understanding about the adoption of m-commerce in organizations in order to fill the identified gap in the literature. The above review of the literature revealed a number of factors that may influence the adoption of new technologies in various settings and may influence the adoption of m-commerce in organizations. To better visualize these factors, Figure 4 is the proposed adoption model which presents these factors and organize them around three broad groups. These groups are Environmental & organizational, Technological, and managerial & other factors. M-commerce has significant social and economic value and producing a model that leads to a better understanding of the adoption of mobile applications in organizations is also considered a significant contribution (Narduzzi, 2001; Stoica & Roach, 2006). The proposed factors are detailed in Table 1 (in the following page) with the definition of each factor.

Our first research question for future researchers is “What factors influence the adoption of m-commerce in organizations?” Exploring these concerns will address the main problem of the research. A related research program may also like to use the existing factors presented in a more exploratory fashion. Specifically researchers may wish to develop the following research question “Do existing factors for e-commerce adoption influence m-commerce adoption in organizations?” This more exploratory question may find that the existing factors can easily be transferred to the m-commerce context. The authors have on-going research that seeks to contribute to the existing knowledge by introducing a model for m-commerce adoption that aims to include the pertinent factors. A number of factors that may have impact on the adoption of new technologies in organizations were adopted from the existing literature and at present are being tested. Such factors will be investigated in the future studies within the m-commerce context within different settings and countries in order to further explore the context of m-commerce adoption.

5. CONCLUSION

The paper has highlighted a gap in the research concerning m-commerce adoption. In particular, it noted that organizational factors contributing to m-commerce adoption have not yet been
Table 1. Summary of the proposed adoption factors that may affect the adoption of m-commerce

<table>
<thead>
<tr>
<th>Factors</th>
<th>Research Propositions</th>
<th>Supporting Literature</th>
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<tbody>
<tr>
<td>Policy &amp; legal environment</td>
<td>Policy &amp; legal environment, including all the relevant governmental regulations impacts on the intention to adopt m-commerce in organizations.</td>
<td>(O’Donnell et al., 2007; OECD, 2007; Tiwari et al., 2006; Yang, 2005; Zhu, 2009)</td>
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<tr>
<td>Organizational policy</td>
<td>Organizational policy, including internal policies and regulations that are enforced by organizations to govern the usage of the Internet, e-commerce, and wireless technologies within m-commerce context, impacts on the intention to adopt m-commerce in organizations.</td>
<td>(OECD, 2007)</td>
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<td>ICT infrastructure</td>
<td>Information and communication technologies (ICT) infrastructure includes telecommunication networks as well as both the national and organizational Internet, e-commerce and m-commerce infrastructure, impacts on the intention to adopt m-commerce in organizations.</td>
<td>(AlHaj Ali, 2005; Chang et al., 2009)</td>
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<td>Organizational culture</td>
<td>Organizational culture referring to “the basic pattern of shared assumptions, values, and beliefs considered to be the correct way of thinking about and acting on problems and opportunities facing the organisation” (McShane &amp; Traviglione, 2007, p. 476), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Elahi &amp; Hassanzadeh, 2009; Helms, Ahmadi, Jih, &amp; Ettkin, 2008; Stoica et al., 2005)</td>
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<td>Relative advantage</td>
<td>Relative advantage, which can be defined as “the degree to which an innovation is perceived as better than the idea it supersedes” (Rogers, 2003, p. 15), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Mallat, 2007; Moore &amp; Benbasat, 1991; Rogers, 2003)</td>
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<td>Perceived usefulness</td>
<td>Perceived usefulness, defined as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p. 320), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Davis, 1986, 1989; Davis et al., 1989; Venkatesh et al., 2003)</td>
</tr>
<tr>
<td>Perceived ease of use</td>
<td>Perceived ease of use, referring to “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p. 320), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Davis, 1986, 1989; Davis et al., 1989; Venkatesh et al., 2003)</td>
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<tr>
<td>Complexity</td>
<td>Complexity, which can be defined as “the degree to which an innovation is perceived as difficult to understand and use” (Rogers, 2003, p. 16), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Rogers, 2003; Sait, Al-Tawil, &amp; Hussain, 2004; Thompson et al., 1991; Venkatesh et al., 2003)</td>
</tr>
<tr>
<td>Compatibility</td>
<td>Compatibility, referring to “the degree to which an innovation is perceived as being consistent with the existing value, past experiences, and needs of potential adopters” (Rogers, 2003, p. 15), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Elahi &amp; Hassanzadeh, 2009; Moore &amp; Benbasat, 1991; Rogers, 2003; Sait et al., 2004; Venkatesh et al., 2003)</td>
</tr>
<tr>
<td>Job-fit</td>
<td>Job fit, which can be defined as the capabilities of an innovation to enhance an individual’s job performance (Thompson et al., 1991), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Thompson et al., 1991; Venkatesh et al., 2003)</td>
</tr>
<tr>
<td>Top management support</td>
<td>Top management support “for IS refer to the senior executives’ favorable attitude toward, and explicit support for IS” (Sabherwal, Jeyaraj, &amp; Chow, 2006, p. 1853), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Elahi &amp; Hassanzadeh, 2009; Premkumar &amp; Ramamurthy, 1995).</td>
</tr>
<tr>
<td>Security</td>
<td>Security, which “refers to the protection of data and intellectual property” (Stoica et al., 2005, p. 224), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Mallat &amp; Tuunainen, 2008; Siau &amp; Shen, 2003)</td>
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</table>
conclusively researched. To this end, we presented the findings of an extensive literature review leading to the identification of promising factors able to support a program for future research. This included a research proposition for the investigation of what factors influence the adoption of m-commerce in organizations, supplemented by an exploratory investigation into how well factors concerning e-commerce adoption influence m-commerce adoption in organizations. In this case the organizational adoption factors extracted from the literature were presumed to inform these questions in the form of propositions for future research. The paper explored possible factors that explain m-commerce adoption and asked if existing e-commerce factors could be easily synthesized to the m-commerce context. We suggested two research propositions that could be used to extend this development as stated above namely, a research proposition for the investigation of what factors influence the adoption of m-commerce in organizations, and an exploratory investigation into how well factors concerning e-commerce adoption influence m-commerce adoption in organizations.

**Table 1. Continued**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Research Propositions</th>
<th>Supporting literature</th>
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</thead>
<tbody>
<tr>
<td>Trust</td>
<td>Trust, which can be defined as the following “trust indicates a positive belief about the perceived reliability of, dependability of, and confidence in a person, object, or process” (Fogg &amp; Tseng, 1999, p. 81), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Mallat &amp; Tuunainen, 2008; O’Donnell et al., 2007; Yang, 2005)</td>
</tr>
<tr>
<td>Social factors</td>
<td>Social factors, which refer to “the individual’s internalization of the reference group’s subjective culture, and specific interpersonal agreements that the individual has made with others, in specific social situations” (Thompson et al., 1991, p. 126), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Al-Somali, Gholami, &amp; Clegg, 2009; Yaseen &amp; Zayed, 2010)</td>
</tr>
<tr>
<td>Subjective norms</td>
<td>Subjective norms, referring to “the person’s perception that most people who are important to him think he should or should not perform the behavior in question” (Fishbein &amp; Ajzen, 1975, p. 302), impacts on the intention to adopt m-commerce in organizations.</td>
<td>(Davis et al., 1989; Mathisson, 1991; Taylor &amp; Todd, 1995; Venkatesh &amp; Davis, 2000).</td>
</tr>
</tbody>
</table>

**REFERENCES**


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