



A Research Model to Investigate Influencing Factors of Inter-Organizational Collaboration for Mobile-Commerce

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Abstract

Ubiquity, convenience, localization and personalization are described as features of the use of mobile commerce (m-commerce) by customers. Therefore, organizations are rapidly implementing m-commerce to provide their customers services, information and products anywhere and anytime. To implement m-commerce solutions successfully, organizations tend to collaborate with other members of the m-commerce value chain. The m-commerce value chain is a group of organizations that collaboratively provide m-commerce applications. This research paper aims to propose a model for examining the factors that influence organizations to participate in a collaborative manner for successful implementation of m-commerce. A research model is proposed, based on a literature review, which identifies influencing 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 propositions are made from which testable hypotheses are generated. A survey is proposed as the research methodology to empirically test these hypotheses. The survey instrument is a questionnaire based on existing IS literature to evaluate the underlying factors. Data will be collected by sending the questionnaires to organizations in the m-commerce value chain. This proposed model aims to enlighten the underlying factors for organizational collaboration for successful implementation of m-commerce applications.

Keywords: Mobile-Commerce; Collaboration; Factors; Survey; Questionnaire

1. Introduction

Over the last few years m-commerce has evolved and provided its customers a set of applications and services people can access from their web enabled mobile devices such as mobile phones, personal data assistants, and laptops (Viswanath, Ramesh et al. 2003). Apart from wireless web applications similar to e-commerce applications, m-commerce provides its customers with location-based and time-critical services (Yuan and Zhang 2003). This enables the organizations to access their potential customers and employees and provide them valuable information (nearby restaurants, air flight schedule, and weather information) and services (mobile banking, mobile videoconferencing) anywhere and anytime. However, due to the emergent nature of m-commerce, organizations have to face certain problems such as technological (equipment, interoperability), human (application developers) and financial (expensive equipment) while implementing m-commerce applications. Currently, organizations in m-commerce value chain are encouraged to work in collaboration for successful implementation of m-commerce solutions (Coursaris and Hassanein 2002; Yuan and Zhang 2003).

As defined by Yuan and Zhang (2003) *m-commerce value chain is a group of companies that interrelate with each other to create value for the mobile users that use the service, and share revenue.*

Members of a value chain include mobile network operators, technology suppliers, portal providers, application developer and product/service providers (Coursaris and Hassanein 2002; Yuan and Zhang 2003).

The goal of this research paper is to develop propositions and hypotheses for testing the factors that influence organizations to form part of an m-commerce value chain.

The remainder of this article is organized as follows: Section 2 discusses the background. Section 3 elaborates on the proposed research model and hypothesis. In addition, Section 3.1 discusses collaborative organizational m-commerce and section 3.2 gives us a detailed view of Influencing Factors for COM Implementation. Section 4 elaborates on the research methodology and its validation. Finally, Section 5 outlines the conclusion of the article.

2. Background

In the last few years extensive work has been conducted in the area of m-commerce theory and research (Ngai and Gunasekaran 2007). The research has focused on the exploration of m-commerce business models, m-commerce context and usage and to highlight the success factors and barriers in the adoption of m-commerce applications. For example, Coursaris and Hassanein (2002) gives us the basic understanding of m-commerce applications, technologies, protocols, mobile devices and wireless networks. Apart from the basic m-commerce

concepts, various technological limitations and consumer needs and concerns that become an obstacle in adoption of m-commerce applications, are addressed. The author concludes that various technological advancements such as better wireless networks, protocols and advance mobile devices will address technological limitations in future. However, basic consumer needs and concerns which are mainly cost, security, privacy and usability must be addressed through the collaboration of m-commerce value network members such as content providers, network operators and mobile service providers. Coursaris and Hassanein (2002) argues that organizations are involved in multiple interactions with each other in the m-commerce market place. Thus a value network is proposed in Figure 1 that demonstrates various interactions between various players of the m-commerce industry (Coursaris and Hassanein 2002). Furthermore, Yuan and Zhang (2003) argues that it is not the m-commerce application, rather a business model behind the m-commerce application, that determines the success of m-commerce. Therefore, they propose a framework that provides some guidelines to organizations on how to analyze various business models along two dimensions; firstly, by identifying key components of m-commerce business models such as scope of market, value propositions, revenue sources and roles in value chain and secondly, taxonomy of m-commerce business models and associated strategies. Besides, emphasizing m-commerce players to carefully plan their m-commerce strategies the author also stresses the need for cooperation between the m-commerce value chain, such as communication providers, equipment suppliers and product/service providers for overcoming certain technological barriers (limited frequency spectrum, high cost, and numerous gateways).

Similarly, Wang and Cheung (2004), investigates the hurdles involved in the implementation of m-commerce in Taiwan travel agencies. They found that *Technology uncertainty*, that is limitations of the display, storage and

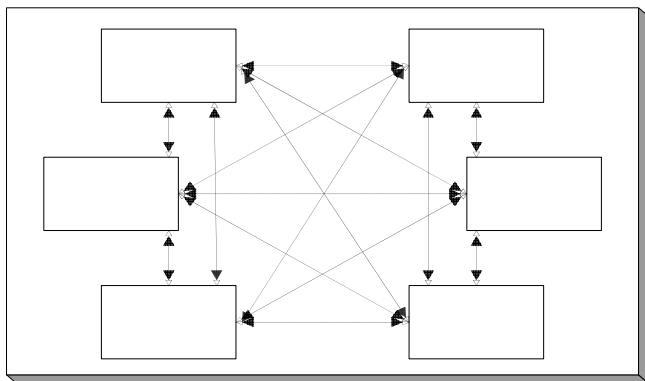


Figure 1. The M-Commerce Value Network
(Source: Coursaris and Hassanein 2002)

processing capability of mobile devices and *instability of mobile technology* were among the highlighted hurdles in m-commerce implementation. Their findings suggested that technology vendors must work in association with technology users and incorporate user specific needs into design and promotion of new technologies.

Another example is collaboration between the Nordea Bank in Finland, Nokia and Visa International to make a dual chip that consists of plug in size smart card issued by a bank and a GSM SIM card. This will allow customers to use the smart card inside the mobile phone to pay their bills (Phones October 2003). Similarly, amazon.com collaborated with Nokia worked together to form www.amazon.co.uk WAP site (Denvir 2000). This WAP site enable users to shop anywhere and anytime with the help of their web enabled mobile phones.

The above literature indicates that the collaboration between the organizations of m-commerce value chain can alleviate technological, financial and customer related issues. However, not enough research has been conducted to identify and evaluate the factors that influence inter-organizational collaboration for productively and profitably implementing m-commerce applications.

3. Proposed Research model and Hypothesis

Based on the emerging literature of m-commerce, a research model is proposed that elaborates on the influencing factors for inter-organizational collaboration for m-commerce. The proposed framework as depicted in Figure 2 can be categorized into two main modules:

- Collaborative Organizational M-commerce COM (*Module-1 of the model*)
- Influencing factors for COM implementation (*Module-2 of the model*)

Before discussing the influencing issues and factors we would first discuss COM in detail.

3.1 Collaborative Organizational M-Commerce (COM)

As defined earlier, m-commerce value chain is a group of companies that interrelate with each other to create value for the mobile users that use the service, and share revenue (Yuan and Zhang 2003).

With respect to our model, this collaboration of organizations for m-commerce applications is known as **Collaborative Organizational M-Commerce (COM)**. The framework describes the complex interactions among the organizations of COM. Moreover, the organizations in COM play overlapping roles in m-commerce marketplace (Coursaris and Hassanein 2002). For example, NTT DoCoMo, a wireless company in Japan is working as a wireless network provider as well as a portal provider (Yuan and Zhang 2003). In addition, they can be broken down into subsets of organizations with specific business

objectives (Coursaris and Hassanein 2002). According to the literature the following five are the main organizations in the COM. Customer is not included in COM because customer orientation (feedback) can be an essential factor in the organizational interaction/collaboration not an organization itself.

▪ **Wireless Network Providers:**

They are responsible for creating and maintaining wireless network infrastructure necessary for the mobile communication (Yuan and Zhang 2003). Wireless network providers are the most important organizations in the m-commerce marketplace because they provide the basic infrastructure for the wireless communication. Moreover, they must work with other organizations to ensure interoperability with wireless networks of other providers so that the users can access all the wireless content regardless of any wireless network provider (Coursaris and Hassanein 2002). Network providers rely on a subscription fee model with customers and transaction based model with content providers for making money (Coursaris and Hassanein 2002).

▪ **Wireless Services Providers:**

They work with network providers and provide its subscribed customers the way to access wireless networks and m-commerce applications as news, temperature, bus schedule, and much more (Coursaris and Hassanein 2002). Some literature suggest that the role of service providers is undertaken by the network operators for example Vodaphone UK and NTT DoCoMo Japan (Yuan and Zhang 2003). Others suggest that content providers are also included in this category as wireless service providers offer non-voice products to their wireless customers (Coursaris and Hassanein 2002).

▪ **Technology / Equipment Vendors:**

These organizations provide necessary hardware and some of the software, from wireless network equipment to end-user wireless devices, to create and maintain the wireless infrastructure (Coursaris and Hassanein 2002; Yuan and Zhang 2003). AT&T, Cisco and Motorola are the most popular companies that manufacture wireless network equipment whereas, Compaq, Nokia, Samsung are the most popular companies that provide mobile handsets (Yuan and Zhang 2003). However, these technology vendors may team up with other organizations to provide specific end-user wireless equipment for particular m-commerce applications. In addition, it may also work in collaboration with content/portal providers and application developers to provide equipment that is usable, secure, high speed and according to the customer needs and requirements. Since they provide specific devices for some applications, a device may be given to the user free of charge, as part of the user subscription deal_ (Yuan and Zhang 2003). In this case they share their revenue with wireless network provider or wireless service providers by providing them cheap equipment (Yuan and Zhang 2003).

▪ **Content / Portal Providers:**

All the information/services that an m-commerce customer receives on his mobile device is provided by the content/portal providers (Coursaris and Hassanein 2002). One of the most popular m-commerce portals is Yahoo. M-commerce portals provide timely and personalized information to its users (Yuan and Zhang 2003). Content providers work in association as well as share revenue with wireless network providers to provide content to the subscribers of a particular network (Coursaris and Hassanein 2002) . In addition, equipment vendors, application developers and content providers must work together to create content that give timely and usable information in the user-friendly environment.

▪ **Application developers:**

They provide a wide range of services and programs that run on the wireless devices.

Microsoft and IBM are examples of such organizations that invest in application development (Yuan and Zhang 2003). Mobile-banking services, specific applications for travel agencies and insurance industries are examples of the application developers that develop applications according to the specified needs of the customers_ (Yuan and Zhang 2003). Currently, application developers are facing problems due to a lack of technology compatibility and device limitations (Yuan and Zhang 2003) that can only be resolved through collaboration of COM members. Application developers depend on software licensing fees, utility transaction cost and

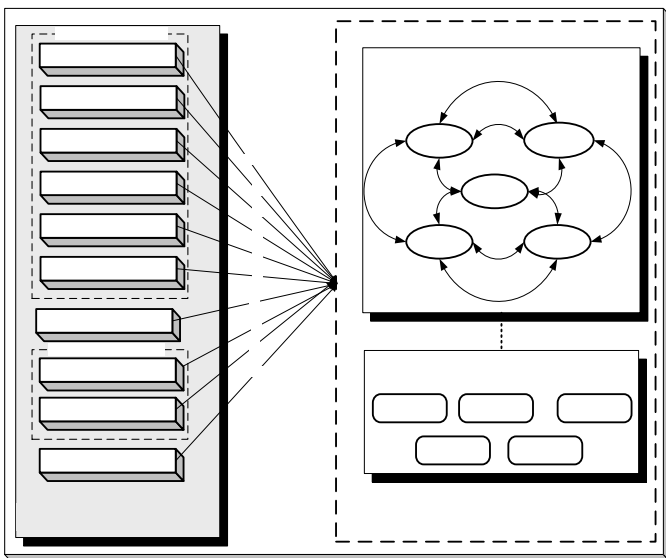


Figure 2. Proposed Research Model

subscription fees for generating revenue (Coursaris and Hassanein 2002).

As mentioned earlier these organizations in the COM cooperate with each other to provide efficient, usable and timely information/services to their customers regardless of the limitation of space and time through portable mobile devices. These information, entertainment, transaction based, location based and telemetry applications that are delivered through portable web-enabled wireless devices are known as m-commerce applications (see for example (Senn 2000; Coursaris and Hassanein 2002; Wang, Song et al. 2005; Zeeshan, Cheung et al. 2007).

3.2 Influencing Factors for COM Implementation

This module proposes various factors involved in the implementation of COM. These factors can effect organization's decision to implement COM. As mentioned earlier, m-commerce is an emerging technology and organizations tend to acquire this technology to enhance their market value, increase productivity and customer satisfaction (Zeeshan, Cheung et al. 2007). Moreover, collaboration of organizations facilitates m-commerce implementation. Therefore, some important factors are highlighted in our framework that can persuade organizations to implement COM.

In order to study implementation of innovation/technology different frameworks are adopted by researchers. For example, Roberts and Pick (2004) presents a conceptual model to study the technological factors that companies consider important in adopting and deploying wireless devices in organizations. They combine the factors from technology acceptance model (TAM) and innovation adoption model such as usefulness, compatibility, ease of use, observability, triability, adding the factors of security, cost, reliability, digital standards, technology product suitability and future web connectivity in their conceptual model. Security, reliability and web connectivity were found to be the key technology decision factors in the adoption of wireless devices.

Similarly (Majorique, Luc et al. 2004), investigates three factors such as digital nature of the offering, level of electronic-commerce adoption and B2C (Business to Consumer) orientation in the adoption of m-commerce by the organizations. Results indicated that the adoption of e-commerce was a strong factor for m-commerce implementation. Whereas, business to consumer (B2C) orientation has no positive effect on m-commerce adoption. In addition the nature of the products offered by the organization was a strong factor for m-commerce implementation. Hence, software producing organizations were more inclined to adopt m-commerce. Organizational size which was a control factor did not influence the adoption of m-commerce, which means that m-commerce applications are being used by all sizes of organizations.

Most recently, Sharma (2007) presented a research model that outlined factors involved in RFID adoption and its expected integration by an organization. These factors are categorized as technological, inter-organizational pressure, organizational readiness, and external environmental factors. These factors were empirically tested by conducting interviews with 10 organizations and the results showed that both strategic choice and institutional rationales are implicit drivers for adoption of RFID and its early integration. Whereas, inter-organizational pressure, organizational readiness, technological and external environmental factors were explicit factors in the adoption and integration of RFID.

Furthermore, Wang and Cheung (2004) presents a multilevel framework based on the knowledge that organizational adoption decision can be influenced by a combination of environmental, organizational and managerial factors. They studied 7 factors under these 3 levels to investigate e-business adoption by travel agencies. They concluded that external competitive pressure, innovation orientation, financial slack, IT resources, CEO's risk taking propensity and organization size were found to have a profound effect on e-business adoption.

Based on the above literature we propose a list of influencing factors under managerial, organizational and environmental levels that may influence organizations to implement COM. These highlighted factors will help decision makers in an organization to work in collaboration for successful implementation of m-commerce applications and to excel in the m-commerce market by fulfilling the customer needs (by providing them updated and timely information/services) as well as by increasing the organizational productivity and profitability (by providing valuable m-commerce applications to its employees).

Based on the theoretical view point, propositions are proposed. Each proposition is associated with its corresponding factor. As illustrated by Shank and Parr (Shanks and Parr 2003), "*terms in propositions belong to abstract world of theory. Each of the terms must be assigned an empirical indicator. These empirical indicators are then substituted into the propositions to form a corresponding hypothesis*". Therefore, hypotheses are then deduced from these propositions to empirically test the proposed factors.

Key factors of COM implementation along with testable hypothesis are:

Organizational Factors: Following are some of the important internal organizational factors which play important role in the adoption of COM.

- **Technological Resources:**

Technological infrastructure (hardware, software) is required for the organizations to implement m-commerce applications. According to Leung and Antypas (2001) and Coursaris and Hassanein (2002), some of the technological requirements of m-commerce applications are i) wireless networks and networking solutions ii) specific wireless equipment or wireless access devices such as Mobile phones, Personal Digital Assistant (PDA's); ii) wireless Application Protocol WAP / iMode (used in Japan) are the communication protocol used by the mobile devices to conduct m-commerce activities; iii) These protocols only support WML (Wireless Markup Language) or cHTML (compact hypertext markup language) application development languages for wireless applications; iv) customized applications made by application developers .

Organizations that need to implement m-commerce applications must have proper wireless technologies. However, lack of technological resources may have a positive relationship with the implementation of COM. Because organizations will collaborate to get technological assistance in order to implement m-commerce.

Proposition 1: *Lack of technological resources have a positive relationship with the implementation of collaborative organizational m-commerce.*

Hypothesis 1: *Lack of suitable hardware, software, bandwidth, interoperability has a positive relationship in the implementation of collaborative organizational m-commerce*

▪ **Financial Resources**

Financial investment must be available in the organization to bear the cost for implementing new technology (Sharma, Citurs et al. 2007). Similarly, financial stability of the organization is essential to get the technological resources and the expertise required in order to adhere to the new technology. For example a wireless network operator may collaborate with equipment vendors/suppliers to get cheaper equipment to reduce initial setup cost. As well as organizations that want to implement m-commerce solutions may work in association with application developers to reduce application development cost by getting qualified application developers and licensed software used for the development of m-commerce applications. In addition organization learning cost will also decrease. Therefore, lack of financial resources may also have a positive relationship with the COM implementation. Organizations can collaborate to get financial support to successfully launch their web portals on mobile devices.

Proposition 2: *Lack of financial resources have a positive relationship with the implementation of collaborative organizational m-commerce.*

Hypothesis 2: *Reduction of initial setup cost, application development cost, organizational learning cost and marketing cost has a positive relationship in the implementation of collaborative organizational m-commerce*

▪ **Human Resources:**

Human expertise is required to successfully implement any new technology. In addition, it is also important to have IT knowledge available within the organization in order to implement m-commerce (Wang and Cheung 2004). Moreover, expert people are required to train the employees of the organization. Lack of technical human resource may result in positive relationship with the COM implementation. COM implementation will help an organization to gain expert people required to successfully implement m-commerce applications.

Proposition 3: *Lack of technical human resources have a positive relationship with the implementation of collaborative organizational m-commerce.*

Hypothesis 3: *Lack of application developers, network and device experts and essential technological knowledge has a positive relationship with the implementation of collaborative organizational m-commerce.*

▪ **Customer Orientation**

Customer oriented organizations base their strategic decision on their existing customer feedback and preferences (Wang and Cheung 2004). According to this strategy organizations may implement COM because customer related issues such as usability, cost, privacy and security of m-commerce applications (Coursaris and Hassanein 2002), can be addressed by implementing COM. Moreover by implementing COM organizations may provide better customer services.

Proposition 4: *Customer Orientation has a positive relationship with the implementation of collaborative organizational m-commerce.*

Hypothesis 4: *Customer Satisfaction that is increase in usability, privacy, security and reliability and decrease in cost and downloading time has a positive relationship with the implementation of collaborative Organizational m-commerce.*

▪ **Innovation Orientation:**

Innovation oriented organizations implement new technologies by making resource commitments and create new products for their potential customers (Wang and Cheung 2004). These organizations tend to increase their knowledge and their influential position in the market by adopting new innovations. Therefore, innovation oriented organizations may have a positive relationship with the implementation of COM, because these organizations will

make significant technological, financial, human and managerial resource commitments to collaborate with other organizations for the implementation of m-commerce solutions.

Proposition 5: *Innovation Orientation have a positive relationship with the implementation of collaborative organizational m-commerce.*

Hypothesis 5: *Introducing new trends in the use of financial, technological and human resource commitment has a positive relationship with the implementation of collaborative organizational m-commerce.*

▪ **Perceived COM Advantages:**

COM technology brings advantages to both customers and organizations (Zeeshan, Cheung et al. 2007). For example collaborative organizational m-commerce helps the organizations in increasing their profitability by increasing the number of customers through improved customer care and enhanced services. Moreover, profitability can also be viewed as enhanced relative position of the organization in the marketplace. Similarly, productivity of the organization can be improved by pooling the inter-organizational resources. In addition, as organizations collaborate to address customer issues related to m-commerce applications, this ensures better customer services, care and pricing, which ultimately results in better customer satisfaction.

Proposition 6: *Various COM advantages have a positive relationship with the implementation of collaborative organizational m-commerce.*

Hypothesis 6: *An increase in organizational performance, knowledge, productivity, profitability has a positive relationship with the implementation of collaborative organizational m-commerce.*

Managerial Factor:

▪ **Top Management Support:**

Management support is essential whenever organizations tend to implement certain types of innovations. Moreover, this support can be positively or negatively associated with COM implementation. Top management may influence the implementation of COM. For example, if the organization has financial resources and is in the position of buying technological resources, top management will most likely support collaboration with another organization which has prior knowledge and expertise for implementing m-commerce application. Because organizations collaborate to get performance improvement, knowledge creation, technological advancements and enhancement of organizational competitive position (More and McGrath 2003). Hence,

top management can be an important influencing factor of COM implementation.

Proposition 7: *Management support have a positive relationship with the implementation of collaborative organizational m-commerce.*

Hypothesis 7: *Top management (CEO, IT manager) has a positive relationship with the implementation of collaborative organizational m-commerce.*

Environmental Factor:

▪ **Institutional Pressure:**

Pressures from external organizations such as resource dominant organizations, supply chain partners, government organizations and customer readiness can influence organization's adoption behavior (Wang and Cheung 2004; Sharma, Citurs et al. 2007). Organizations may adopt COM due to the institutional pressure from organizational stakeholders.

Hypothesis 8: *Institutional pressure has a positive relationship with the implementation of collaborative organizational m-commerce.*

▪ **Competitive Pressure:**

Pressures originating from competitors, that create a threat for the organization of falling behind in the competition may influence organizations decision to adopt innovation (Wang and Cheung 2004). In case of COM, organizations may collaborate to implement m-commerce in order to keep up with the new m-commerce trends and meet the competitive pressure.

Hypothesis 9: *Competitive pressure has a positive relationship with the implementation of collaborative organizational m-commerce.*

▪ **Organizational size:**

Organization size is a key factor in the innovation. In an m-commerce context Majorique et al. (2004), found that both large and small organizations have succeeded in the development of strategies to implement m-commerce applications. Moreover, the study conducted by Wang and Cheung (2004) shows that organization size has little effect on the degree of e-commerce adoption. According to the literature, it is suggested that organization size may be an important factor in COM implementation. Larger organizations may be more prepared to commit resources for the implementation of an collaborative agreement for m-commerce than smaller firms.

Proposition 10: *Organization size may have a positive relationship with the implementation of collaborative organizational m-commerce.*

Hypothesis 10: Larger organizations has a positive relationship with the implementation of collaborative organizational m-commerce.

4. Validation of Propositions/Hypothesis:

In order to validate the research model and hypothesis, the research methodology used for this research is a survey. *Survey is a collection of data about situations by questioning representative samples of appropriate populations (Neuman and Lawrence 2003).* Data will be collected from a large sample of organizations that are willing to implement or have implemented m-commerce solutions such as wireless network providers, wireless service providers, content providers, technology vendors and application developers. For the purpose of data collection a questionnaire is designed to validate the hypotheses. The questionnaire items can be carefully deduced from the literature (Tojib and Sugianto 2006) or adopted from existing COM adoption instrument reported in the literature. The questionnaire items for the current research are based on the existing IS literature. These items are pertinent to factors identified in previous sections. These items are not validated in this paper but will be validated later by sending the questionnaire to the content experts (Tojib and Sugianto 2006). Items in the questionnaire are measured using five-point Likert-type scales.

This section presents the questions that are used to validate the hypothesis mentioned in the previous section.

Hypothesis 1: Lack of suitable hardware, software, bandwidth, interoperability has a positive relationship in the implementation of collaborative organizational m-commerce

As mentioned by Leung and Antypas (2001) and Coursaris and Hassanein (2002) successful implementation of m-commerce requires networking solutions (bandwidth, interoperability), WAP, suitable application development languages and application developers to develop customized software. The following questions are used in the questionnaire:

- Is collaboration of organizations useful to attain essential hardware (mobile equipment) for the implementation of m-commerce?
- Is collaboration of organizations useful to attain essential software (WAP, WML, cHTML) for the implementation of m-commerce?
- Is collaboration of organizations useful to attain suitable bandwidth required for m-commerce?
- Is collaboration of organizations useful to attain interoperability between m-commerce applications and its carriers (GSM, TDMA, and CDMA)?

Hypothesis 2: Reduction of initial setup cost, application development cost, organizational learning cost and marketing cost has a positive relationship in the implementation of collaborative organizational m-commerce

Numerous studies show that financial resources are necessary for the implementation of organizational innovation (Wang and Cheung 2004; Sharma, Citurs et al. 2007). Therefore implementation of m-commerce in an organization also requires huge investments by the organization, for example the mobile network operators require a high financial investment to develop the network infrastructure by procuring, deploying equipment and purchasing the license for frequency spectrums (Yuan and Zhang 2003). Nevertheless, application developers may also need financial investment in creating and advertising their customized products. Therefore, organizations may implement COM to overcome their financial deficiencies. Therefore, the following questions are used to test the hypothesis:

- Is collaboration of organizations helpful to reduce initial setup cost necessary to implement m-commerce solutions?
- Is collaboration of organizations helpful to reduce application development cost necessary to implement m-commerce solutions?
- Is collaboration of organizations helpful to reduce organizational learning cost necessary to implement m-commerce solutions?
- Is collaboration of organizations helpful to reduce advertisement/marketing cost necessary to implement m-commerce solutions?

Hypothesis 3: Lack of application developers, network and device experts and essential technological knowledge has a positive relationship with the implementation of collaborative organizational m-commerce.

Organizations must have enough technical human resources and knowledge to implement new technology (Wang and Cheung 2004). In the case of m-commerce technical human expertise is required to develop customized applications according to customer needs and software needed to operate wireless devices. In addition, staff training is also carried out by experts in the organization (Coursaris and Hassanein 2002). Furthermore, managers and IT staff may also lack the latest technical knowledge of the upcoming mobile technologies/devices and software. Therefore, the organization may implement COM to acquire human expertise and knowledge essential for m-commerce implementation. Therefore, the following questions are used to test the hypothesis:

- Is collaboration of organizations useful to attain essential technical expertise/human resource (for example application developers, device experts,

network experts) for the implementation of m-commerce?

- Is collaboration of organizations useful to attain essential “technological knowledge” (WML, cHTML, GSM, TDMA and much more) required for the implementation of m-commerce.

Hypothesis 4: Customer Satisfaction that is increase in usability, privacy, security and reliability and decrease in cost and downloading time has a positive relationship with the implementation of collaborative Organizational m-commerce.

As mentioned above, an organization’s decision to adopt innovation may depend on its current customer needs and concerns (Wang and Cheung 2004). Such organizations are known as customer oriented organizations which are highly concerned with customer satisfaction. Moreover, there are various customer needs and concerns related to m-commerce applications such as cost, speed, usability, security, privacy, reliability which can be solved through inter-organizational collaboration among the members of value network (Coursaris and Hassanein 2002). For example, the content providers may collaborate with application developers and technology vendors to provide usable m-commerce application which will work on customized mobile devices (specifically PDA’s). The following questions can be used to test whether customer oriented organizations implement COM:

- Is “Customer Satisfaction” a goal behind organizations’ decision to collaborate with other organizations for m-commerce implementation?
- Is an increase of “Usability” (increased data accessibility) of m-commerce application a goal behind organization’s decision to collaborate with others for m-commerce implementation?
- Is increase of “User Privacy” (secure private user information such as location of the mobile user) in m-commerce application a goal behind an organization’s decision to collaborate with others for m-commerce implementation?
- Is the increase of “Security” (secure exchange of sensitive information for example in mobile-banking) in m-commerce application a goal behind organization’s decision to collaborate for m-commerce implementation?
- Is Decrease of “Cost” for acquiring m-commerce application a goal behind organization’s decision in collaborates for m-commerce implementation?
- Is an increase of “Reliability” of m-commerce application a goal behind organization’s decision of collaboration for m-commerce implementation?
- Is a decrease of “time” for downloading m-commerce application a goal behind organization’s decision of collaboration for m-commerce implementation?

Hypothesis 5: Introducing new trends in the use of financial, technological and human resource commitment has a positive relationship with the implementation of collaborative organizational m-commerce.

Innovations oriented organizations are most likely to implement COM because according to Wang and Cheung (2004) the priority of innovation adopters is to develop new technology and products by committing significant resources and exceed in the external market by adopting evolving technologies. Therefore, organizations may implement COM as it is an emerging technology and organizations need to implement it to access their employees and customers anytime and anywhere and to excel in m-commerce market by solving certain issues in its implementation. The following questions can be asked from the organizations to test whether or not innovation oriented organizations implement COM.

- Has/will your organization made/make financial resource commitment for its collaboration with other organizations, for the implementation of m-commerce solutions.
- Has/will your organization made/make technological resource commitment for its collaboration with other organizations, for the implementation of m-commerce solutions.
- Has/will your organization made/make human resource commitment for its collaboration with other organizations, for the implementation of m-commerce solutions.

Hypothesis 6: organizational increase in performance, knowledge, productivity, profitability has a positive relationship with the implementation of collaborative organizational m-commerce.

As discussed earlier, collaboration among the COM organizations is not only useful to solve certain technological and customer issues (Coursaris and Hassanein 2002; Yuan and Zhang 2003), rather organizational profitability and productivity and its performance is also increased by this process (Zeeshan, Cheung et al. 2007). The following questions can be used to test whether perceived advantages have any positive influence in the implementation of COM:

- Do organizations collaborate to achieve performance improvement in the implementation of m-commerce?
- Do organizations collaborate to achieve advancement in technologies required for m-commerce implementation and enhancement?
- Do organizations collaborate for m-commerce applications to increase their productivity?
- Do organizations collaborate for m-commerce applications to increase their profitability?

Hypothesis 7: Top management (CEO, IT manager) has a positive relationship with the implementation of collaborative organizational m-commerce.

Organizations' strategic decision to adopt an innovation is often supported by its top management (Wang and Cheung 2004). In the case of m-commerce implementation, managers must take strong strategic decisions due to technological and financial uncertainties and customer issues and concerns. Therefore, issues such as a need for a large initial investment, need for customized mobile equipment, need for technical help and support and need for wireless space and subscribers can be resolved by effective collaboration by organizations in the m-commerce value network (Yuan and Zhang 2003). Hence, top managers may take critical decisions for the implementation of COM in the organization. The following questions are used to test this hypothesis:

- Is top management willing to or has participated in collaboration with other organizations to attain successful implementation of m-commerce solutions?
- Does top management support collaboration to solve its technical, financial or/and customer issues encountered during m-commerce implementation?

Hypothesis 8: Institutional pressure has a positive relationship with the implementation of collaborative organizational m-commerce.

- Is collaboration of organizations to implement m-commerce helpful to reduce institutional pressure (pressure from partners, customers, and business media)?

Hypothesis 9: Competitive pressure has a positive relationship with the implementation of collaborative organizational m-commerce.

- Is collaboration of organizations to implement m-commerce helpful to reduce competitive pressure (pressure from business competitors)?

Hypothesis 10: Larger organizations has a positive relationship with the implementation of collaborative organizational m-commerce.

The following questions are used to test whether organization size is an important factor of COM implementation.

- What is the approximate number of employees in your organization?
 - Below 10
 - 11-50
 - 51-100
 - 101-200
 - More than 201

- Will/Has your organization collaborate(d) to solve m-commerce related issues for its successful implementation?

5. Conclusion

Currently, organizations are collaborating to implement emerging m-commerce technologies to successfully communicate with their customers and employees anywhere and anytime. In this paper we have identified some influencing factors of m-commerce such as technological, human, financial, organizational readiness, customer orientation, innovation orientation perceived COM advantages and organizational size. In order to empirically test these factors we will conduct a survey. The survey instrument, a questionnaire is presented in this paper that is based on a literature review of m-commerce technologies and applications. The next stage of this research is to validate the questionnaire items by sending it to the content experts.

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