THE QUALITY OF MOBILE SHOPPING SYSTEM AND ITS IMPACT ON PURCHASE INTENTION AND PERFORMANCE

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ABSTRACT

Measuring the quality of mobile shopping (m-shopping) system provides retailers with a greater understanding of what improvements need to be made along the way to increase purchase intention and organizational performance. M-shopping is an alternative sales channel available to optimize marketing investments as it can be tailored to customer's purchase intention and ultimately to drive sales. This study intends to explore the relationships between the m-shopping system quality, purchase intention, and organizational performance based on the extended IS success model. This research model surveyed 217 marketers in Taiwan to measure their perception of m-shopping quality. The results suggest that m-shopping system quality (system, information, and service quality) has a significant effect on purchase intention. This study also confirms that purchase intention has a significant effect on organizational performance. The findings contributed to improved understanding of the practical applications of m-shopping systems. The practical implication of the findings and directions for future research was discussed..

KEYWORDS

Quality of M-Shopping System, Purchase Intention, Organizational Performance, IS Success Model

1.INTRODUCTION

As mobile devices are rapidly changing consumer preferences and transforming the way consumer shopping experience, consumers are expected to use their mobile devices to make purchases and to buy anything which they possibly need and want immediately from anywhere and accessed at anytime (Rose, et al., 2011; Safeena, et al., 2011; Elbadrawy & Aziz, 2011). Mobile devices are becoming increasingly more popular with better networks, cost less, and they have become incredibly easy to use (Suki, 2011; Park et al., 2011).

Retailers have realized the mobile revolution as the new channel where they can create a unique and optimized mobile experience for their customers. The development of a mobile-optimized shopping system allows users to browse products or services, purchase online, and make secure payment over their mobile phone, smartphone, or other mobile devices. However, the system empowers retailers to optimize their mobile strategy and to unify their web, in-store, and catalog channels to increase visibility (Zhou, 2011; Zarmpou et al., 2012).

Potentially, the m-shopping system is a new, easy, practical and price-conscious shopping tool that has placed mobile retailers at the consumers' fingertips and allows them to purchase nearly anything they desire without ever leaving their houses or offices (Barutçu, 2007; Wu & Wang,

2006; Aldás-Manzano et al., 2009; Lu & Su, 2009; Ko et al., 2009). The benefits are powerful. M-shopping delivers real-time product information for on-the-go consumers while allowing them to easily search and to stay in touch with the latest product information by browsing the Internet in a fast and efficient way for exclusive deals, offers, or product comparisons.

In addition, consumers can navigate their purchases through mobile devices without the inherent frustrations with using traditional websites which intended for viewing on PCs and laptops. Retailers stand to benefit from this additional channel that embraces and exploits new sales opportunities and ways to attract new buyers. As a best practice, retailers can capitalize on this trend by creating and distributing targeted incentives to drive revenue and grow market share through overall customer satisfaction. Evidence increasingly indicates that firms use m-shopping to maintain a competitive advantage in terms of new business opportunities in the marketplace.

As with retail, all mobile-optimized websites or mobile applications are not created equal. Some are easier to use, and some are difficult, while others offer more useful features with quick and powerful smartphones. Thus, measuring the quality of the m-shopping system provides retailers with a greater understanding of what improvements need to be made along the way to increase customer satisfaction and organizational performance. At present, relatively little research is directed toward understanding the links between retailers' m-shopping system abilities toward the company's overall organizational performance through the validity of an IS success model. Therefore, this study intends to explore the link between the m-shopping quality and the overall organizational performance based on an update of DeLone and McLean (2003) IS success model.

2. LITERATURE REVIEW

2.1. M-Shopping System Quality and the IS Success Model

As mobile web usage and availability increases, user demand is on the rise as the concurrent decline in conventional voice service tariffs reduces the average revenue per user while offering mobile value-added services. Retailers increasingly seek new opportunities to expand sales and satisfy consumers as they increase their revenues and profitability through new competitive channels, and many are beginning to recognize the benefit of engagement from mobile technologies (Lu & Su, 2009; Zhou, 2011; Zarmpou et al., 2012).

Given the increased use of mobile technologies in marketing efforts, retailers are moving ahead by using the booming mobile web channel as an additional sales channel to strengthen their existing customer relationships and acquire new customers. However, m-shopping must evolve into a system that is more than a connection to the retailers' websites. Such a system must uniquely define the m-shopping operating space and be compatible with all mobile devices. The implication is that, to participate in the m-shopping space, retailers must develop a mobile website that is optimized for various operating systems and their applications must be able to synchronize across devices to deliver product information to customers while also allowing customers to complete transactions effectively. Thus, the emergence of m-shopping presents retailers with both a challenge and options, effectively an opportunity to increase sales and expand markets, offering unparalleled depth of interaction between consumers and their mobile devices, together with the ability afforded by driving retailers to integrate mobile solutions into their shopper-engagement strategy.

Despite the fact that retailers are increasing the development of mobile retail applications or websites with mobility advances that deliver special features for smartphone operating systems, retailers must plan carefully before embarking in this arena in order to ensure the fair value of investment returns for mobile applications at this early stage of the mobile retail market.

Considerable prior research endeavors to examine the effectiveness of IS success, evaluation, and acceptance. Many researchers attempt to examine some or all of the relationships in the original IS success model as proposed by DeLone and McLean in 1992, as shown in Figure 1.
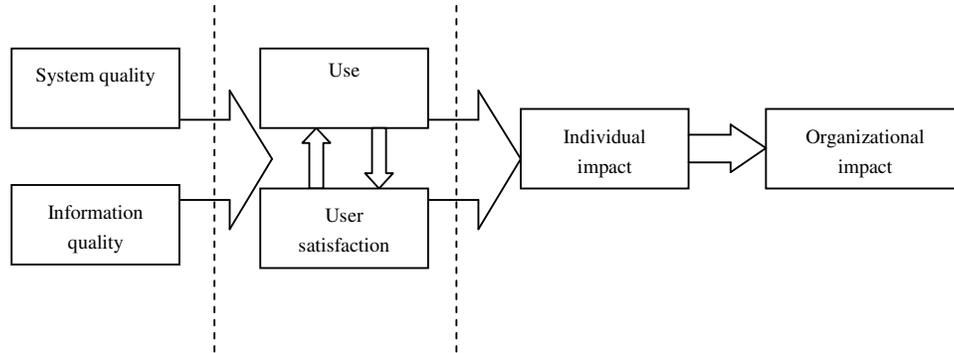
Figure 1. The original D&M IS success model (1992)

Most studies that operationalize the quality of IS focus on the aspect of usability (Smith & Eroglu, 2009; Shibly, 2011). The quality of IS can be measured based on the dimensions of information quality and system quality as well as a portion of service quality (DeLone & McLean, 2003, 2004). As shown in Figure 2, the necessity of service quality along with system and information quality as additional components of IS success to reflect the changing nature of IS as required is successful electronic commerce (e-commerce) systems.
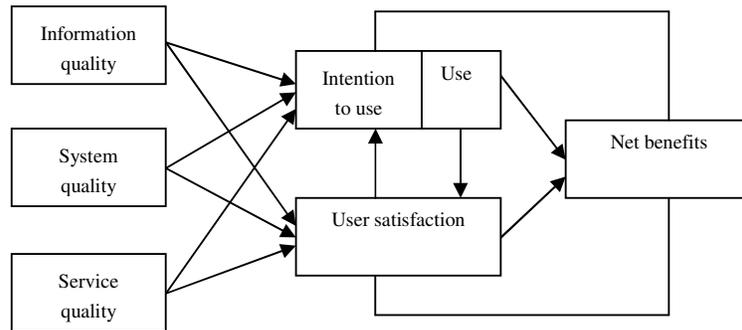
Figure 2. The updated D&M IS success model (2003)

However, Petter and McLean (2009) conduct a quantitative meta-analysis of 52 studies to find the relationships that encompass the updated IS model. They empirically evaluate the role of intention to use and service, and their result supports the majority of the relationships within the IS success model. Li and Sun (2009) adapt the updated D&M IS success model to website system success measurement due to relevance of the theorization behind it to websites and its potential to allow systematic organization of the various success criteria in a meaningful way.

2.2. Adoption of M-Shopping System and Performance

As retailers increasingly seek new opportunities to expand sales and satisfy consumers, increasing their revenues and profitability via new competitive channels, many are beginning to recognize the benefit of engagement from mobile technologies (Moertini and Nugroho, 2012). The beneficial consequences of m-shopping use have the potential to offer retailers incremental

revenue and greater profitability. However, the link between m-shopping and website use and its effectiveness of use is not easy since retail stores are complex environments that benefit from various environmental factors.

In order for retailers to integrate mobile sales into their businesses, they must first understand customer expectations around m-shopping and the implications which are major challenges for retailers. Stimulating adoption of this new advanced system, its robust features and functions create capabilities and efficiencies that can deliver customers with the comparison of thousands of products by helping them find products at competitive prices (Zhou & Lu, 2011). Given the increased use of mobile technologies in marketing efforts, research specific to m-shopping, within the context of familiar e-commerce services primarily focuses on the facilitation of consumption transactions.

Adoption of m-shopping is the strategic marketing process of improving website visibility and having an alternative sales channel available to optimize marketing investments and to increase interest in the retailer's website and ultimately to drive sales. However, optimizing IS-marketing investments in terms of profitability, to facilitate creation of new marketing opportunities within the organization can result in enhanced marketing performance and that performance, in turn, can have profound effects on organizational performance (O'Sullivan et al., 2009; Shaker & Basem, 2010).

3. RESEARCH MODEL AND HYPOTHESES

Conducting research in the mobile Internet field, the focus of this study is to explore the link between m-shopping quality and overall organizational performance based on the IS success model by analyzing the perception of marketers regarding the m-shopping quality. Therefore, this study investigated hypothesized relationships embedded within the model to predict customers' purchase intention and organizational performance by adopt m-shopping in Taiwan. The research model is shown in Figure 3.
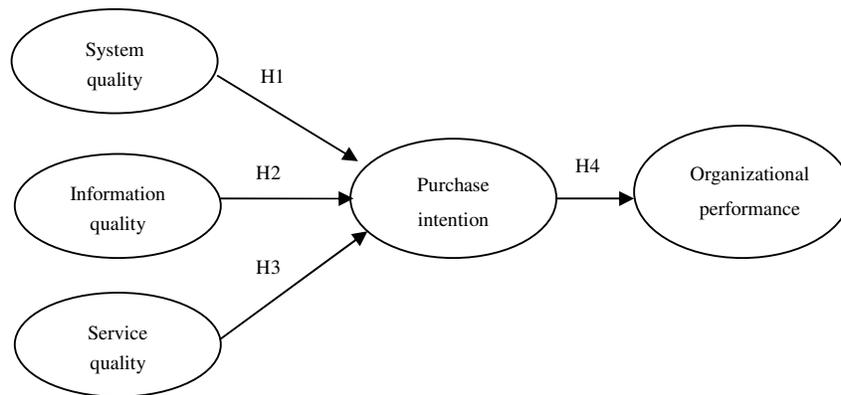
Figure 3. The research model

3.1. M-Shopping Quality, Purchase Intention, and Performance

As mobile shopping system requires a handset that incorporates a web browser, it technically comprises hardware and software system integration as well as customer-driven service. Thus, the three dimensions of quality (e.g., system, information, and service) appear to have the potential to directly affect purchase intention of mobile shopping system. These dimensions also reflect

different aspects of IS quality and have different effects on customer satisfaction (Ho, et al., 2012; Lin et al., 2011; Kim et al., 2011; Safeena and Kammani,2013).

However, organizational performance is a subset of the overall concept of organizational effectiveness. They develop an instrument to measure the success of strategic systems as reflected by the improvements in capabilities of the planning process and key planning objectives (Venkatramen & Ramanujam, 1986). Despite the fact that consumers are increasingly using their mobile phones as their go-to devices for shopping, investment in this new technology to embrace mobile customers appears to enhance the firm's ability to existing current customers and recruit new customers. Renko et al. (2009) finds that investments in expanding a firm's technological capability can be beneficial for both exploration and exploitation.

Organizations can benefit from introducing new technology into existing products and systems to improve performance. Purchase intentions for new products often reflect concerns about the performance of the new technology, which are more pronounced among prevention-focused consumers (Herzenstein et al., 2007). Thus, firm performance is expected to be strongly related to a customer's repurchase intention. Therefore, the hypotheses can be generated as follows:

H1: System quality positively affects purchase intention for m-shopping system.
H2: Information quality positively affects their satisfaction with m-shopping system.
H3: Service quality positively affects purchase intention for m-shopping system.
H4: Purchase intention positively affects organizational performance.

4. RESEARCH METHODOLOGY

4.1. Measures and Data Collection

A questionnaire is used to collect data that is used to validate the hypothesis of this study. Each construct is measured with multiple items which are adapted from previous studies. For each measure, respondents were asked to state their agreement or disagreement on its use on a seven point Likert scale (1=strongly disagree, 5=strongly agree). The operational definitions of each construct and the source for this study are shown in Table 1.

Table 1. The sources and operational definitions of each construct

Construct	Definition	Source
System quality	A system wherein the desired characteristics of both mobile devices and web browsing services are believed to be available to users.	DeLone & McLean (1992); Seddon (1997); Kim et al. (2010)
Information quality	The characteristics of output provided by the m-shopping system that can satisfy users' needs	DeLone & McLean (1992, 2003); Rai et al. (2002)
Service quality	The service characteristics of m-shopping as a measure of how well a delivered service level meets customer expectations.	DeLone & McLean (2003) Petter & McLean (2009)
Purchase intention	The degree to which consumers would like to purchase a particular product or service offered by mobile shopping.	Petter & McLean (2009); Ko et al. (2009); Alda's-Manzano et al. (2009); Ganguly et al. (2010)
Organizational performance	The degree to which firms achieve their business objective of the specific mobile shopping investment.	Venkatraman & Ramanujam (1986); DeLone & McLean (1992)

The survey was pre-tested on 50 professionals to assess the validity of a self-administered questionnaire. A quantitative descriptive study then ensued that examines the perception of marketers who are involved in the process of adopting mobile shopping (e.g., interface design and solutions, advertising and sales personnel) from mobile retailers which included Etmall.com (ETMobile shopping), Fetnet.net (i-style mobile shopping), Hinet.net (Dr. iPhone mobile shopping and mobile eBay), and Taiwan mobile and MOMO shop (mobile shopping added values

services) in Taiwan. In this study, a total of 221 responses were gathered within three and half months and 217 valid samples were obtained. Table 2 shows demographic characteristics of the respondents which include gender, age, education, occupation, and years of experience. Demographics showed that 54.8% were male and 45.2% female. The highest prevalence occurred among respondents aged 31-35 years (26.3%) while the lowest occurred among those aged over 51 years (3.2%). In this study, 45.6% of the total sample reported having undergraduate degree and 19.4% of respondents were analysts. A majority of the respondents have between. 1-5 years of work experience (36.4%), and only 1.8 % have over 25 years.

Table 2. Characteristics of this study

Characteristics of the sample	Item	Frequency	Percent
Gender	Male	119	54.8%
	Female	98	45.2%
Age	Under 30	29	13.4%
	31~35	57	26.3%
	36~40	51	23.5%
	41~45	41	18.9%
	46~50	32	14.7%
	Over 51	7	3.2%
Education	High school	22	10.1%
	Undergraduate	99	45.6%
	Graduate	91	41.9%
	Doctorate	5	2.3%
	Marketing Manager	9	4.1%
	Marketing Specialist	34	15.7%
	Technical Consultant	29	13.4%
Job position	Marketing Analyst	42	19.4%
	Web Project Manager	24	11.1%
	Web Designer	38	17.5%
	Sales Representative	34	15.7%
	Other	7	3.2%
Years of experience	Less than 1 year	12	5.5%
	1~5 year	79	36.4%
	6~10 year	63	29.0%
	11~15 year	37	17.1%
	16~20 year	14	6.5%
	21~25 year	8	3.7%
	Over 25 year	4	1.8%

4.2. Data Analyses and Results

The collected data were analyzed by Statistical Package for the Social Sciences (SPSS) software. The statistical analysis included descriptive statistic analysis, Pearson's correlation coefficients, Cronbach's alpha, and Multiple Regressions to examine the hypotheses and to verify the relationships between variables. In this study, Cronbach's alpha is used to estimate the reliability and internal consistency of the questionnaire. The constructs' reliability scores are ranging from 0.833 to 0.935. As shown in Table 3, the reliabilities of all independent variables and dependent variables were all exceed 0.7 as suggested by Nunnally (1978).

Table 3. Results of reliability of all variables

Variables	Number of Item	Cronbach's Alpha
System quality (SQ)	6	0.900
Information quality (IQ)	5	0.895
Service quality (VQ)	6	0.897
Purchase intention (PI)	3	0.833
Organizational performance (OP)	10	0.935

Pearson correlation analysis is used to explore the correlation between the variables. The results of the correlation analysis range between 0.539 and 0.686 as shown in Table 4. In this study, Multiple Regressions is used to test the hypotheses. Based on the results of multiple regression analysis as shown in Tables 5, the overall coefficient of multiple Determination for Hypothesis 1, 2, and 3 are found as $R2 =0.557$, Adj-R2 =0.551, F=89.401, P=0.000, and D-W=2.172. The results suggest that system quality (P =0.001, β = 0.225, t=3.462) has a statistically significant effect on purchase intention for m-shopping system (hypothesis 1 is supported).With respect to Hypothesis 2, the results indicated that information quality (P =0.000, β = 0.248, t=3.919) has a significant effect on purchase intention. In addition, service quality (P =0.000, β = 0.397, t=6.746) has a significant effect purchase intention (hypothesis 2 and hypothesis 3 are supported). As for hypothesis 4, Notes: R2 =0.291, Adj-R2 =0.287, F=88.131, P=0.000, and D-W=2.042. The results showed purchase intention (P =0.000, β = 0.539, t=9.388) has a significant effect on organizational performance (hypothesis 4 are supported).

Table 4. Correlation between independent and dependent variables

		SQ	IQ	VQ	PI	OP
SQ	Pearson Correlation	1	.660(**)	.590(**)	.622(**)	.686(**)
	Sig. (2-tailed)	.	.000	.000	.000	.000
	N	217	217	217	217	217
IQ	Pearson Correlation	.660(**)	1	.559(**)	.617(**)	.606(**)
	Sig. (2-tailed)	.000	.	.000	.000	.000
	N	217	217	217	217	217
VQ	Pearson Correlation	.590(**)	.559(**)	1	.668(**)	.542(**)
	Sig. (2-tailed)	.000	.000	.	.000	.000
	N	217	217	217	217	217
PI	Pearson Correlation	.622(**)	.617(**)	.668(**)	1	.539(**)
	Sig. (2-tailed)	.000	.000	.000	.	.000
	N	217	217	217	217	217
OP	Pearson Correlation	.686(**)	.606(**)	.542(**)	.539(**)	1
	Sig. (2-tailed)	.000	.000	.000	.000	.
	N	217	217	217	217	217

** Correlation is significant at the 0.01 level (2-tailed).

Table 5. Results of multiple regression analysis for variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.942	.220		4.275	.000		
	SQ	.197	.057	.225	3.462	.001	.494	2.026
	IQ	.232	.059	.248	3.919	.000	.521	1.920
	VQ	.372	.055	.397	6.746	.000	.601	1.664
Notes: R^2 =0.557, Adj-R^2 =0.551, F=89.401, P=0.000, D-W=2.172								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.966	.269		7.317	.000		
	PI	.554	.059	.539	9.388	.000	1.000	1.000

5. CONCLUSION

The emergence of m-shopping presents retailers with both a challenge and options. It is effectively an opportunity to increase sales and expand markets while offering unparalleled depth of interaction between consumers and their mobile devices coupled with the ability afforded by driving retailers to integrate mobile solutions into their shopper-engagement strategy. The study results confirm and significantly extend the IS success model to measure the relationships between mobile shopping quality, purchase intention, and organizational performance. Results indicate that, overall, m-shopping quality dimensions have a significant positive influence on purchase intention and organizational performance.

Moreover, the findings contributed to improved understanding of the practical applications of m-shopping systems. It suggested that the m-shopping system's quality, information quality, and service quality are important antecedents for measuring m-shopping system success. The rationale of this result indicates that retailers can benefit from a unique mobile internet presence such as m-shopping to increase consumers' purchase intention as well as increase revenue by offering a comprehensive and innovative service. It further indicated that m-shopping quality plays a critical role in influencing purchase intention and organizational performance. Thus, retailers should develop a user friendly interface and user-friendly operations for m-shopping system in order to enhance the reliability of wireless communications. The self-report nature of a survey participant may report from incorrect information from memory or respond in a socially desirable manner. Therefore, to ensure content validity, the use of investigator triangulation can help to enhance objective responses because investigator triangulation requires more than one investigator to collect and analyze the raw data.

However, the self-report nature of a survey in which participants may report from incorrect information from memory or respond in a socially desirable manner. Therefore, to ensure content validity, the use of investigator triangulation can help to enhance objective responses because investigator triangulation requires more than one investigator to collect and analyze the raw data. As noted, the sampling limitations may have hindered the ability to yield statistical significance, and therefore additional research is needed to focus on finding an appropriate sample and including more participants to increase the generalizability of the research.

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REFERENCES

[1] Aldás-Manzano, J., Ruiz-Mafé, C., and Sanz-Blas, S. (2009). "Exploring individual personality factors as drivers of m-shopping acceptance", Industrial Management + Data Systems, Vol. 109 No.6 pp. 739-757.

[2] Barutçu, S. (2007). "Attitudes towards mobile marketing tools: a study of Turkish consumers", Journal of Targeting, Measurement and Analysis for Marketing, Vol. 16 No.1 pp. 26-38.

[3] DeLone, W. H. and McLean, E. R. (1992). "Information systems success: the quest for the dependent variable", Information Systems Research, Vol. 3 No.1, pp. 60–95.

[4] DeLone, W. H. and McLean, E. R. (2003). "The DeLone and McLean model of information systems success: A ten-year update", Journal of Management Information Systems, Vol. 19 No. 4, pp. 90-30.

[5] DeLone, W. H. and McLean, E. R. (2004). "Measuring e-commerce success: Applying the DeLone & McLean information systems success model", International Journal of Electronic Commerce, Vol. 9 No.1, pp. 31–47.

[6] Elbadrawy, R. and Aziz, R. A. (2011). "Resistance to mobile banking adoption in Egypt: A cultural perspective", International Journal of Managing Information Technology, vol. 3 No. 4, pp. 9-21.

[7] Ganguly, Boudhayan, Satya Bhusan Dash, Dianne Cyr, and Milena Head. (2010). "The effects of website design on purchase intention in online shopping: The mediating role of trust and the moderating role of culture", International Journal of Electronic Business, Vol. 8 No. 4, pp. 302-329.

[8] Herzenstein, M., Posavac, S. S., and Brakus, J. (2007). "Adoption of new and really new products: the effects of self-regulation systems and risk salience", Journal of Marketing Research, Vol. 44 No. 2, pp. 251-260.

[9] Ho, L. A., Kuo, T. H., and Lin, B. (2012). "The mediating effect of website quality on internet searching behavior", Computers in Human Behavior, Vol. 28 No. 3, pp. 840-848.

[10] Wu, J. W., and Wang, Y. M. (2006). "Measuring KMS success: A respecification of the DeLone and McLeans model." Information & Management, Vol. 43 No. 6, pp. 728-739.

[11] Kim, J. K., Hong, S., Min, J., and Lee, H. (2011). "Antecedents of application service continuance: a synthesis of satisfaction and trust", Expert Systems with Applications, Vol. 38, No.8, pp. 9530-9542.

[12] Ko, E., Kim, E. Y. and Lee, E. K. (2009). "Modelling consumer adoption of mobile shopping for fashion products in Korea", Psychology & Marketing, Vol. 26, No. 7, pp. 669–687.

[13] Li, J., and Sun., J. An empirical study of e-commerce website success model. International Conference on Management and Service Science, pp.1-4, 20-22 Sept. 2009.

[14] Lin, C. C., Wu, H. Y., and Chang, Y. F. (2011). "The critical factors impact on online customer satisfaction", Procedia Computer Science, Vol. 3, No. 1, pp. 276-281.

[15] Lu, H. P., and Su, Y. J. (2009). "Factors affecting purchase intention on mobile shopping web sites", Internet Research, Vol. 19, No. 4, pp. 442- 458.

[16] Moertini1 Veronica S., and. Nugroho, Criswanto D. (2012). "E-commerce mobile marketing model resolving users acceptance criteria", International Journal of Managing Information Technology, Vol.4, No.4, pp. 23-40.

[17] Nunnally, J. C. (1978). Psychometric theory, McGraw-Hill: New York.

[18] O'Sullivan, D., Abela, A. V., and Hutchinson, A. (2009). "Marketing performance measurement and firm performance", European Journal of Marketing, Vol. 43, No.5, pp. 843-862.

[19] Park, Sungbum, Hangjung Zo, Andrew P. Ciganek, and Gyoo Gun Lim. (2011). "Customer's adoption of mobile-commerce:A study on emerging economy", Journal Electronic Commerce Research and Applications, Vol. 10, No.6, pp. 626-636.

[20] Petter, S., and McLean, E. R. (2009). "A meta-analytic assessment of the DeLone and McLean IS success model: An examination of IS success at the individual level", Information & Management, Vol. 46, No. 3, pp. 159-166.

[21] Rai, Arun, Sandra S. Lang, and Robert B. Welker. (2002). "Assessing the validity of is success models: an empirical test and theoretical analysis", Information Systems Research, Vol. 13, No. 1, pp. 50-69.

[22] Renko, M., Carsrud, A., and Brännback, M. (2009). "The effect of a market orientation, entrepreneurial orientation, and technological capability on innovativeness: a study of young biotechnology ventures in the United States and in Scandinavia", Journal of Small Business Management, Vol. 47, No. 3, pp. 331-369.

[23] Rose, Susan, Neil Hair, and Moira Clark. (2011). "Online customer experience: A review of the business-to-consumer online purchase context", International Journal of Management Reviews, Vol.13, No. 1, pp. 24-39.

[24] Safeena, Rahmath, and Kammani, Abdullah (2013). Conceptualization of electronic government adoption", International Journal of Managing Information Technology, Vol. 5, No. 1, pp. 13-22.

[25] Safeena, Rahmath, Hundewale, Nisar, and Kamani, Abdullah (2011). "Customer's adoption of mobile-commerce:A study on emerging economy", International Journal of e-Education, e-Business, e-Management and e-Learning, Vol. 1, No. 3, pp. 228-233.

[26] Seddon, P. B. (1997). "A respecification and extension of the DeLone and McLean model of IS success", Information Systems Research", Vol. 8, No. 3, pp. 240-253.

[27] Shaker, T. I., and Basem, A. Y. (2010). "Relationship marketing and organizational performance indicators", European Journal of Social Sciences, Vol. 12, No. 4, pp. 545-557.

[28] Shibly, Haitham Al. (2011). "Human resources information systems success assessment: An integrative model", Australian Journal of Basic and Applied Sciences, Vol. 5, No. 5, pp. 157-169.

[29] Smith, R. J. and Eroglu, C. (2009) . "Assessing consumer attitudes toward off-site customer service contact methods", International Journal of Logistics Management, Vol. 20, No. 2, pp. 261-277.

[30] Suki, Norazah Mohd. (2011). "Factors affecting Third Generation (3G) mobile service acceptance: evidence from Malaysia", Journal of Internet Banking and Commerce, Vol. 16, No. 1, pp. 1-12.

[31] Venkatraman, N., and Ramanujam, V. (1986). "Measurement of business performance in strategy research: A Comparison of approaches", Academy of Management Review, Vol. 11, No. 4, pp. 801-801.

[32] Zarmpou, T., Vaggelis S., Angelos M., and Maro V. (2012). "Modeling users acceptance of mobile services", Electronic Commerce Research, Vol. 12, Vol. 2, pp. 225-248.

[33] Zhou, T., and Yaobin L. (2011). "Examining mobile instant messaging user loyalty from the perspectives of network externalities and flow experience", Computers in Human Behavior, Vol. 27, No. 2, pp. 883-889.

[34] Zhou, T. (2011). "Examining the critical success factors of mobile website adoption", Online Information Review, Vol. 35, No.4, pp. 636-652.