



## The relationship between ICT adoption and business performance in Malaysia and Indonesia

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### Abstracts

This paper reviews the relationship of information communication technology adoption (ICT) and Business Performance (BP) from women entrepreneur perspective in Malaysia and Indonesia. The aim of this paper is to identify the dimension of ICT adoption and BP to develop a conceptual framework for further study about the relationship to identify those that can determine women entrepreneur success. To achieve this objective, literature review is conducted by extend number of literature in ICT, BP, and women entrepreneur. Related studies are review and analyze by using literature table. The finding of this paper reveals a proposed conceptual framework and hypothesis that gain support from literature. The significant of this study is expected to provide guideline for women entrepreneurs in Malaysia and Indonesia who wish to adopt ICT in their business and help them to evaluate the relationship with BP. This study can assist women entrepreneurs in considering the adoption of Electronic commerce (EC) and Mobile commerce (MC) to embark themselves in technology and innovation. Further efforts are to test this conceptual framework and hypothesis by using Structural Equation Modelling (SEM) to develop a research model.

**Key Words:** ICT adoption, e-commerce, m-commerce, business performance, financial performance, non-financial performance.

### Introduction

Women in Asia is often being lay on responsibility to take care of household, children, family and struggling to balance between work and domestic responsibility. Therefore, women entrepreneur in Asia are often not in prominent role of entrepreneurship (Karami, Moradi, Mazhari, Yarkarami, & Khan, 2013). Nugroho and Chowdhury (2015) also stated that women entrepreneur from Muslim countries such as Indonesia had difficulties in conducting business activities outside of their house due to home responsibility. This might effect on their Business Performance (BP). In this paper, researchers select Malaysia and Indonesia as both countries are Asia Muslim countries that have similar cultural and social background (Ball, 2010). Women entrepreneur in both countries are also facing similar dilemma such as balance between works and to perform in business (Karami et al., 2013; Nugroho & Chowdhury, 2015).

This limitation of women entrepreneur (domestic responsibilities of women especially married or women entrepreneur that having family) cause women entrepreneur had difficulties in BP. Therefore, ICT adoption plays an important role of helping women entrepreneurs in reduce the limitation (Nugroho & Chowdhury, 2015). Further, the GEM report of Malaysia and Indonesia country profile (2013) had stated that entrepreneur in Malaysia and Indonesia need to

improve new technology to remain in market. Hence, ICT adoption might as well have positive relationship with Business Performance (BP). This is supported by Salwani, Marthandan, Norzaidi, and Chong (2009) where the study suggested that ICT and BP are closely linked together. ICT adoption is believed to allow women entrepreneur to manage business online. This can help women to balance between works, social responsibility and contribute to business performance.

Moreover, previous studies also show that women entrepreneur are facing underperformance compare to male entrepreneur (Cron, Bruton, and Slocum, 2006; Driga & Prior, 2010). In Malaysia, Man (2010) mentioned about Women Economic development (WEDA) program has been launched to assist women entrepreneur. However, the evaluation show only 35% of women entrepreneur has achieved the targeted requirement. In Indonesia, research by Singh, Reynolds, and Muhammad (2001) show that women entrepreneurs BP is influences by amount of family workers and the industry sector. Ismail (2015) also mentioned that report by Ministry of Cooperative and Micro-, Small-, and Medium-scale Business indicate that women entrepreneur in Indonesia are lack of family support, lack of support from the local government and unbalance responsibility are the factors that have caused women to fail in business. Hence, given the relevance of these factors, the aim of this paper is to identify the dimension of ICT adoption and business performance and to develop a conceptual framework to determine women entrepreneur success. The remaining section of this paper provides literature review, follows by method, finding, conclusion, and future research.

## Literature review

In order to, help women entrepreneur in reduce limitation and improve BP, the analysis and review of various related article are presented as below:

### *Information Communication Technology (ICT) adoption in Malaysia and Indonesia*

In Malaysia and Indonesia the number of internet and mobile technology is increasing. According to Malaysia Communication and Multimedia Commission (2015) the percentage of internet user in Malaysia are 66.6 % of population while report of hand phone user survey 2014 stated that there are 87.9% of Malaysian are mobile user.

In Indonesia, The Jakarta Post reported that the internet user had increased to 29.0% of population. These indicate the increase usage of internet among Malaysian and Indonesian. Consequently, this might create another platform for women entrepreneur to approach customer easier. According to Ong, Habidin, Salleh, and Fuzi (2015) modern women entrepreneur should utilize ICT adoption to help them in solving limitation in business. This drawn to the analysis of ICT adoption dimension by summary of ICT dimension used in previous research. Table 1 is presented to show the summary of the analysis. Although the studies listed might not be exhaustive, it added some insight of ICT adoption phenomena.

### *Electronic Commerce (EC)*

In the literature, there is diverse of definition for EC. Kurnia et al. (2015a) mentioned that the interpretation of EC might be different according to the scope of studies and research. Ong et al. (2015) and Kurnia et al. (2015a) both suggested to use definition provided by Turban, Lee, King, McKay, and Marshall (2008) as it is simple and comprehensive. Turban et al. (2008) define EC as exchange, buying or selling process that conducted electronically using network and internet. Researcher concludes the definition as any of the transaction regarding goods and services ownership transfer that involve electronically by using internet and helps from computer network such e-mail, B2B exchange, B2C exchange and barcodes.

**Table 1. The summary of ICT adoption dimension analysis**

Literature	Country	Related ICT dimension
Salwani et al. (2009)	Malaysia	Mobile Commerce (MC)
Chong, Chan, and Ooi (2012)	Malaysia and China	
Nabhani, Daryanto, Yassin, and Rifin (2015)	Indonesia	
Feizollahi, Shirmohammadi, Kahreh, and Kaherh (2014)	Iran	Electronic Commerce (EC)
Kurnia, Choudrie, Mahbubur, and Alzougool (2015a)	Malaysia	
Kurnia, Karnali, and Rahim (2015b)	Indonesia	

*Mobile Commerce (MC)*

In previous studies, there are extensive and diverse of definition about MC. However, most of the studies relate it with mobile device (Coursaris & Hasanein, 2002). This definition had narrow down the definition of MC by differentiate it using devices. Feng, Hoegler, and Stucky (2006) imply that MC is not just about mobile device, it also involve in the communication styles, value-chain and mobile usage pattern. Therefore, definition suggested by Chong (2012) is more appropriate in this paper. Chong (2012) suggest that MC is transaction that involve ownership transfer and authority to use goods or services that begin with mobile access to computer-mediated network and mobile devices.

**Business performance of women entrepreneur in Malaysia and Indonesia**

According to Driga and Prior (2010), the impact of initial resource endowment on women entrepreneur performance had been understudied. Review by Driga and Prior (2010) also mentioned that previous research employ variety of performance measurement to analyze women entrepreneur BP. The summary of research on women entrepreneur performance is presented in Table 2. Most of the studies in the summary are mainly examine the impact of ICT adoption towards performance and some of the studies are focusing on performance measurement itself.

In order to find and analyze the dimension of business performance, the brief analysis of performance measurement is categorized. The literature reveal that BP dimension can be categorize in financial and non-financial performance (Franco-Santos, Lucianetti, & Bourne, 2012). Driga and Prior (2010) also stated that there is need to include financial item and social item in performance measurement. Thus, Table 3 is presented to show the summary of BP dimension.

**Table 2. The summary of research on women entrepreneur performance**

Authors	Performance measure	country
Cron et al. (2006) Professional service ventures, performance and the gender effect	Personel income of the entrepreneur	Australia
Aziza and Inanga (2011) Financial performance of telecommunications companies and their stock price movements in the Indonesian stock market	Financial performance: earnings per share, return on assets, and return on equity and debt to equity ratio.	Indonesia
Krishnan and Ramasamy (2011) The key financial and non-financial performance measures of manufacturing firms in Malaysia.	Financial and non-financial measures	Malaysia
Bastian and Muchlish (2012) Perceived environment uncertainty, business strategy, performance measurement systems and organizational performance	Financial and non-financial performance	Indonesia
Consoli (2012) Literature analysis on determinant factors and the impact of ICT in SMEs	Efficiency, effectiveness and competitiveness, innovation business, intangible business	Italy
Santos and Brito (2012) Toward a subjective measurement model for firm performance	Profitability, growth, customer satisfaction, employee satisfaction, social performance, and environmental performance	United Kingdom
Bakar, Sulaiman, and Osman (2014) Exploring the relationship between business factors and performance in the Malaysian Halal Biotechnology SMEs Context	Financial profitability, enterprise growth and satisfaction.	Malaysia
Tarute and Gatautis (2014) ICT impact on SMEs performance	Productivity growth, organization expansion, efficiency, effectiveness, competitiveness	Lithuania
Nabhani et al. (2015) M-Commerce adoption and performance improvement: proposing a conceptual framework	Revenue mix and operating efficiency	Indonesia

**Table 3. The summary of BP dimension**

BP dimension	Related dimension/ measurement/indicator
Financial Performance (FP)	Profitability, growth, income earnings per share, returns on assets, and return on equity, and debt to equity ratio, and financial measure.
Non-financial performance (NP)	Customer satisfaction, employee satisfaction, social performance, non-financial measures, and environmental performance.

## The relationship of ICT adoption and business performance

In this section, all of the studies selected are conducted in Malaysia and Indonesia. Most of the studies are focusing on only one dimension of ICT; it is either EC or MC. However, few of the studies did not specify the dimension. Other than that, researchers found that there are less studies on ICT and BP relationship that focus on women entrepreneur especially women entrepreneur in Malaysia and Indonesia. Most of the studies selected are general without specify the gender and most of the studies found by researchers are focusing on factors or the determinants of EC and MC. There is still lack of study regarding the relationship between ICT and BP.

The literature review show that most of the studies indicate direct positive relationship between ICT adoption and BP. While some of the studies show indirect positive relationship. This is supported by Zaremohzzabieh et al. (2015), where they imply the efficient of ICT adoption in performance. In the same study also stated that Malaysia government has policies to encourage entrepreneur to adopt ICT in business. Yet, this is only applicable if ICT is conducted with planning and justification (Kartiwi, 2006). Overall, these studies supported that ICT adoption have positive relationship with BP. Further, Researchers also found that most of the studies conducted in Malaysia are focusing on EC while in Indonesia there are more studies that concern about MC. To have a clearer understanding of the relationship Table 4 and 5 is presented to show the summary of studies conducted in Malaysia and Indonesia.

**Table 4. The summary of studies conducted in Malaysia**

Literature	Method/ Technique	Approach/	Findings
Khan, Dominic, Khan, and Naseebullah (2010) Adoption of e-commerce in Malaysia and its affect on the business performance: An organizational perspective.	Literature Review		Most of the studies have found the support from the previous research about the affect of this technology on the business performance. However, to prove an integrated model was still an issue to support the idea of the post adoption affect of this technology on the business performance.
Jehangir Dominic and Downe (2011) Technology Resources and E-Commerce Impact on Business Performance	Regression analysis and Survey		Results indicated that technology resources are the key drivers of E-commerce and lead to better business performance.
Sobihah, Embat, Amin and Muda (2014) The Relationship between E-Commerce Adoption and Organization Performance. (Tourism industry)	Regression analysis		The finding shows that there is a correlation between organization performance with E-commerce business network, and E-commerce competency.
Ainin, Parveen, Moghavvemi, Jaafar, and Mohd Shuib (2015) Factors influencing the use of social media by SMEs	Partial Least Squares (PLS)		The study revealed that Facebook usage has a strong positive impact on financial and non-financial performance of SMEs.

and its performance outcomes		
Chen (2015) Exploring the quality of mobile shopping system and its link to the organizational performance	PLS	The finding indicates that both perceived usefulness and consumer satisfaction directly impact organizational performance.
Kurnia et al. (2015a) E-commerce technology adoption: A Malaysian grocery SME retail sector study.	Quantitative survey	Systematic efforts are thus needed to determine how SMEs within this particular sector are responding to the call of EC adoption to improve their efficiency, productivity and overall performance.

**Table 5. The summary of studies conducted in Indonesia**

Literature	Method/ Technique	Approach/	Findings
Kartiwi (2006) Case studies of e-commerce adoption in Indonesian SMEs: The evaluation of strategic use	Case studies		Applying technology without planning and justification frequently result in poorer performance.
Alqatan et al. (2011) A Theoretical discussion of Tourism m-commerce	Literature review		M-commerce can be serving as tool to enhance performance of tourism industry.
Cofriyanti and Hidayanto (2013) The relationship among organisations' factors, information technology, innovation and performance: an Indonesian SMEs study.	Survey Data		The results showed that the utilization of information technology has a significant positive impact on innovation and performance.
Cai, Chew and Levy (2015) Mobile value added services: the case of women micro entrepreneurs in Indonesia	Telephone Interview		The finding indicates that MC or mobile device derived economic benefit from using the service.
Nabhani et al. (2015) M-Commerce adoption and performance improvement: proposing a conceptual framework	Technology Model (TAM)	Acceptance	Technology should give improvement on creativity, innovation and then ultimately BP.
Setiawan Indiasuti, and Destevanie (2015) Information technology and competitiveness: evidence from micro, small and medium enterprises in Cimahi District, Indonesia	Factor analysis		This research also found that the adoption of information technology has a positive contribution to competitiveness and maybe to performance.

## Methodology

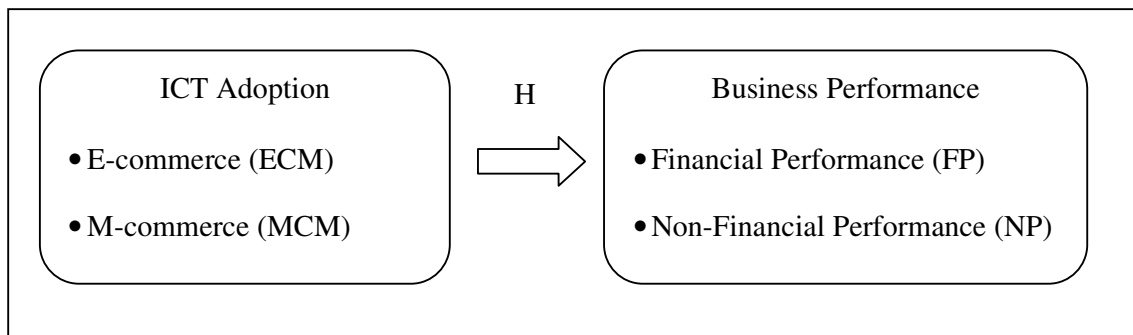
In order to analyze research in women entrepreneurship field that related with this paper, researcher has performed literature review based on recommendation from methodological and women entrepreneurship literature (Dana & Dana, 2005; Henry, Foss, & Ahl, 2013). Further, researcher select related studies conducted in Malaysia and Indonesia as it is suitable with the focus of the paper. Researcher also conducts analysis and review by category related finding into table according to authors, methods, approach, technique, finding, and country. This is to develop a conceptual framework and hypothesis that supported by literature. Hence, literature review is selected as method in this paper.

As for future studies, Structural Equation Modeling (SEM) will be used to test the conceptual framework, hypothesis and building research model in further studies. Habidin, N.F. (2012) suggested that SEM is suitable to analyze research hypothesis as the instrument is reliable and validated. Other than that, SEM is suitable for research model building. Hence, SEM technique is choosing as instrument for future studies.

### *Proposed conceptual framework and hypothesis*

The literatures reveal that the relationship of ICT adoption and BP might be positive. Thus, the proposed conceptual framework and hypothesis are created from support of previous studies. The following section will present the proposed conceptual framework and hypothesis:

## The proposed conceptual framework



### *The proposed hypothesis*

Therefore, the relationship between ICT adoption and BP for both countries is formulated as below:

- H1: There is a positive relationship between ICT adoption and business performance.
- H1a: Malaysia
- H1b: Indonesia

## Conclusions and future research

This paper had analyzed the dimension of ICT adoption and BP. The dimension found in this study had support from various prior studies that conducted in different countries and timeline. Most of the studies found had support the dimensions of ICT to be EC and MC as both

dimension had positive relationship with BP. Other than that, past studies also suggest the dimensions of performance measurement to be FP and NP as there is need to include financial and other measurement. The significant of this study is expected to provide guideline for women entrepreneurs in Malaysia and Indonesia who wish to adopt ICT in their business and help them to evaluate the relationship with BP. This can assist women entrepreneurs in considering the adoption of EC and MC to embark themselves in technology and innovation. As for method, by only using literature review might limit the potential interpretation of the analysis. Therefore, in future research, questionnaire and SEM technique will be used by researcher to obtain more interpretation of analysis about Malaysian and Indonesian women entrepreneur ICT adoption and BP.

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