

Measuring SME Owners' Acceptance to Adopt ICT Using the Technology Acceptance Model (TAM)

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Abstract

In Malaysia, the Small and Medium Enterprises (SME) are mostly focused on their development of businesses through innovation and it is indeed a competitive ground for all SME owners. It is crucial to create a conducive environment to ensure the growth of the business and to grab all opportunities. Thus, it is argued that the adoption of the application of ICT in running the business operations is crucial where the benefits of adopting ICT include maintaining the business sustainability and allow local and global competition. This paper presents a survey done with 220 SME owners in Malaysia and their age range is from 20 to 25 years old. The study is to gain an understanding on the SME owners' acceptance to adopt the use of Information and Communication Technology (ICT) for their business using the Technology Acceptance Model (TAM) theory. The outcome shows that Perceived Usefulness, Perceived Ease of Use, Attitude towards usage and Behavior Intention to use has significantly affect the SME owners' acceptance to adopt ICT in their business operation. The results are important to the training provider to design and plan the suitable training to encourage SME owners to fully adopt ICT.

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I. INTRODUCTION

ICT offers a comprehensive outcome in wide range of areas including management, business, healthcare, education, finance and engineering. Therefore, Small Medium Enterprise (SME) are recommended to adopt the usage of ICT. There are many issues and challenges face by the SME owners in Malaysia to fully adopt ICT in their business operations. Previous research by Hairuddin et al. (2012) had found that lack of resources such as money, time and expertise are some of the constraints for small companies to adopt ICT. In addition, internal issues of the organization such as lack of knowledge and inadequate funding are the most important obstacle to ICT purchases.

Their study outlines the barriers to ICT's usage in

SME based on past literature to four major classifications which are technology barriers, organizational barriers, environmental barriers and individual barriers. Technology barriers means problems with the security structures and inadequate infrastructure of the ICT. Organizational barriers include management patterns and styles as well as lack of financial resources in the use of ICT in their SME. Environmental barriers mean an insufficient knowledge of employees and individual barriers that reveals an inadequate knowledge and personal relationship within the organization.

Despite the challenges, there are some benefits that may be the reasons of the sustainability in an organization. Stating what is currently known, Eei et al. (2012) identified few benefits of adopting ICT in

business operation. SME will save costs and time which will provide an effective way of improving the organization's efficiency. It also enhances the company's output because of access to new markets or new business opportunities. Additionally, customer will get more satisfied and better business process integration which will lead to more effective communication and enhance business relationships.

By identifying the barriers and benefits of the ICT usage in SME, hence the study will use Technology Acceptance Model by Davis (1989) as the tool to measure the context of adopting ICT among the SME owners. The objective of using TAM is to explain and predict the acceptance of ICT based on two behavioural beliefs which are Perceived Ease of Use (PEOU) and Perceived Usefulness (PU). The internet and its peripheral has evolve in this decade and has bring numerous advantages to business organization. Basic understanding and knowledge about ICT is a must in every working individual. The adoption of ICT in business operation will improve the business capabilities to enlarge their market and to attract potential customers. Customers nowadays are mostly IT literate hence transactions are made easy by using the technologies.

The study focuses to provide the insights of understanding the acceptance of technology adoption in an SME organization in Malaysia. To make a sustainable business operation, SME owners are urged to adopt ICT in their business operation.

II. LITERATURE REVIEW

Advantages of ICT Adoption

SME owners will get some benefits when they adopt ICT in their business. Moreover, countries need SMEs to assist in boosting national economy. The widespread use of ICT has changed the way some groups and companies work. ICT has had a huge impact on innovation especially in the areas of management and communication where information and knowledge are easily communicated, accessed and used. This has somehow revolutionized daily

interactions in managing a business. Adding them further, ICT has the potential to generate substantial changes among SME companies by making them more competitive and innovative. This opinion is in line with the previous study by Eei et al. (2012) where they discover that the usage of ICT will increase the productivity and efficiency of the business operations. In addition, the use of ICT in SME can help entrepreneurs in managing their day-to-day business activities. Setiowati et al. (2015) also agreed that the use of ICT has a positive implication on organizational performance and enhance competitiveness.

According to Bayo-Moriones et al. (2013), ICT usage may improves financial performance. Moreover, ICT enhances coordination of activities by improving SME's internal and external information and communication systems. In addition, the use of ICT not only reduces costs but also affects intangible assets such as improving quality in design processes or life cycle upgrades in inventory management systems.

General commentary on literature by Rizwana (2018) that the most significant impacts on ICT had on SME is the creation of new sales channels. Moreover, Moghavvemi et al. (2012) said that SMEs are encouraged to adopt ICT which is in line with the move to actively participate in the global market. They need to use and develop the latest technologies to enhance operational efficiencies, transform ways of competing in business and create strategic opportunities and changing competition boundaries. For that, the SME will continue to play an important role in economic growth and to become the backbone of industrial development in the country.

For SME to adopt ICT and experience the benefits from the ICT usage, Consoli (2012) added in his research that 5 determinant factors for ICT adoption are Individual factors (top management, personality traits and high skills), and organizational factor (enterprise sizes, human capital, organizational culture and worker's participation).

Macroeconomics costs falls under the classification of economic factor while the other two factors are technological and environmental factors (competitive pressure and public policies). The contribution factors will make positive impacts to the organization in their business operations.

Barriers to ICT Adoption

Everyone is aware on the benefits of using ICT in everyday business transactions conducted by SME entrepreneurs. However, there are still a handful of people who have not used ICT in their company for some reason. This is in line with the research found by Hoque et al. (2016) whereby, they list out the barriers to ICT adoption in SMEs. It includes the lack of ICT infrastructure, financial support, the increasing of digital divide and face greater disadvantages due to competition. Moreover, previous research by Akomea-Bonsu and Sampong (2012) argued that, the main factors in prevent the spread of ICT and intensive use is the weak physical infrastructure, legislative and regulatory issues, weak ICT strategy, lack of R&D, excessive dependence on foreign technology and continued weakness in the implementation of ICT.

Moreover, previous research by Zaied (2012) had listed out barriers to adopt ICT in SMEs. It includes computer illiteracy, difficulty in changing the existing working procedures, lack of awareness on the ICT usage benefits, lack of qualified staff, lack of internet security, lack of management support, lack of financial resources, lack of e-commerce standards and most probably, no simple procedures and guidelines.

In the same research topic, Rozmi et al. (2018) added that high cost and lack of specific ICT knowledge had made the SME owners struggling to fully adopt ICT in their daily business operation.

Low ICT usage among SME entrepreneurs continues to be discussed and amongst the reasons stated is human skills towards the technology, development costs and price issues and concerns

over security against these systems. Not only that, limited knowledge of ICT models, uncertainty methodologies and benefits also contributes to the lack of entrepreneurship awareness of the advantages of using ICT among themselves.

Impact of ICT Diffusion

In running this enterprise of this era of sophisticated technology, the biggest challenge for SME owners is to equip enterprises with equipment and adopt ICT in every aspect of their business. The number of SMEs that use state-of-the-art and ICT communications technology is very limited and this has led to a lack of communication and digital sharing of information. Osorio-Gallego et al. (2016) found that when SME owners diffuse to adopt ICT in the business, the constraints that they will face are the lack of education and skills in ICT which will lead to being uncompetitive in the global market.

Owners who are still failing to adapt and adopt ICT in their companies are faced with some of the risks that dampen their business development. Mahmud et al. (2017) has identified that the effects of not using ICT in the enterprise will cause high levels of stress and tension.

While Ragu-Nathan et al. (2008) defines technostress as an individual who is under pressure because it believes that ICT usage will have a negative impact on them. It means a modern adjustment disease caused by the inability of individuals to overcome the use of computer-based technology. In the context of the organization, he added that this ongoing pressure is going to results in such a lack of engagement in work and a very weak overall performance. Not only that, it also led to a lack of job satisfaction by employees leading to a decrease in commitment to the whole organization. This is because, when technostress occurs, users will be demoralized, disappointed, exhausted with various information, losing motivation and causing dissatisfaction with their workplace. This would be detrimental to SMEs and SME owners if such things

persist.

Mahmud et al. (2017) has classified 6 theories that impact on the barriers to ICT usage in SME companies. Among the key to peeling is the cost of conversion involved in adapting ICT usage where it has involved cost uncertainty and decreased consumer revenue. Furthermore, the impact on the conversion has reflected the quality of work and the perception that the disabled user is also associated with the benefits gained from the exchange. Refusal to utilize ICT is related to perceptions of positive perceived value. The impact of colleagues' opinions plays a role in assessing social value positively in the workplace. Furthermore, organizational support is an external control in support of the state of affairs that require change especially from the point of improvement of ICT infrastructure.

Technology Acceptance Model

According to Davis (1985) who develop the Technology Acceptance Model, there are two major objectives of the study which are to enhance understanding on user acceptance on technology and to provide new theoretical insights into successful design of a technology. Information technology and equipment is a facility provided to facilitate users in managing business.

A study on TAM on consumer attitudes towards ICT usage has also been expanded into various fields. According to Porter et al. (2006), ICT usage has been used among young, educated and richer. This finding is supported by variables where age, education, income and race play a key role in determining the attitude of a user in using ICT for their daily lives. However, this technology is seen to be a useful medium for middle-income earners if it involves online hobbies and entertainment, boosting purchasing power, finding a better job and facilitating online buying and selling.

Arpaci (2016) who used the same theory agreed that the two main constructs to measures attitudes toward using the technology are the perceived usefulness

and perceived ease of use. The next section will explain TAM in detail and the result that exhibits from the data collected.

III. METHODOLOGY

Aim and Hypothesis

The paper intended to investigate the ICT Adoption in the Malaysian SME that indicates their acceptance to accept the use of technology in their business. Our target group is those new SME owners (owned business less than 5 years) in the B40 community in Malaysia. The objective of the survey is to measure TAM towards ICT adoption in SME. The hypotheses are as follows:

Hypothesis 1: Perceived Usefulness (PU) significantly affect the Attitude towards Usage (AT)

Hypothesis 2: Perceived Ease of Use (PEOU) significantly affect the Attitude towards Usage (AT)

Hypothesis 3: Perceived Ease of Use (PEOU) significantly affect the Perceived Usefulness (PU).

Hypothesis 4: Attitude towards Usage (AT) significantly affect the Behaviour Intention to Use (BIU)

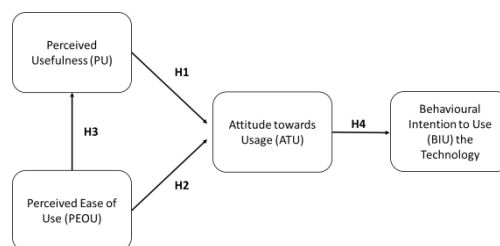


Figure 1: Conceptual Research Model by Davis (1989)

Material

The method used for this study is through questionnaire. The questionnaire is design to gather information on how SME owners in Malaysia adopt ICT and technology in their business. Each element of TAM is represented by few questions and participants record their feedback using 5 points-Likert scale (1= Strongly Disagree and 5=Strongly

Agree). The total number of questions was 20 and the survey was done using physical questionnaire papers. The demographic questions were provided in the first part of the questionnaire to get the information about the participants. After completing the survey, the data collected will be transcript into excel format. The survey data is then analysed using SPSS version 23.

Participants

220 participants from the digital marketing training class participated in this study. The range of age is from 20 to 25 years old. Their higher education levels varies between diploma and degree. All participants are the SME owners of a business in various types of business sectors. All of them are looking forward to adopt ICT and technology in their business. They came to the training to get basic knowledge on how to market their business in social media platforms that are available to offer potential customers to them. All participants are requested to answer all questions according to their acceptance to adopt ICT in their business.

IV. RESULTS

The IBM Statistical Package for Social Science (SPSS) version 23 was used to measure the reliability of the collected data. The construct reliability (Cronbach's Alpha) for all constructs ranged from 0.84 to 0.92 which exceed the recommended threshold value 0.70. Reliability results are in Table 1. Table 2 shows the correlation for every construct significantly ($p < .01$ in all cases). Table 3 shows the correlation between the 3 constructs. The result indicates that there were significantly correlated with the acceptance of SME owners to use ICT.

descriptive statistics and reliability tests

Constructs	Cronbach's Alpha	Number of Items	Mean \pm SD
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Perceived Usefulness	0.92	4	4.43 \pm 0.02
Perceived Ease of Use	0.89	5	4.20 \pm 0.18
Attitude towards Usage	0.87	5	4.29 \pm 0.13
Behavior Intention to Use	0.84	6	4.27 \pm 0.12

correlation analysis

Construct	PU	PEOU	AT	BI
Perceived Usefulness	-	0.605*	0.621*	0.674*
Perceived Ease of Use	0.605*	-	0.522*	0.477*
Attitude toward Usage	0.621*	0.522*	-	0.566*
Behavior Intention to Use	0.674*	0.477*	0.566*	-

*Correlation is significant at the 0.05 level (2-tailed)

Table 2 show a correlation between 4 constructs in acceptance to adopt ICT in SME. The result was shown to determine the strength of variables to another. PU significantly has a significant relationship with BI ($r = 0.674$, $p < 0.05$). There was a moderate relationship between AT and BI ($r = 0.566$, $p < 0.05$). There was a fair relationship between PEOU and BI ($r = 0.477$, $p < 0.05$).

regression analysis

H	Construct	β	Std. Error	t	p	R ²
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H 1	PU - AT	0.33 2	0.076	4.377	< 0.05	0.481
H 2	PEOU - AT	0.20 4	0.057	3.205	< 0.05	0.184
H 3	PEOU - PU	0.60 5	0.049	11.21 0	<0.05	0.605
H 4	AT - BIU	0.24 5	0.074	3.557	< 0.05	0.561

As indicated in Table 3, PU was significantly affect the attitude to usage ($\beta = 0.332$, $p < 0.05$). Thus hypothesis 1 is supported. PEOU was significantly affect the attitude to usage ($\beta = 0.204$, $p < 0.05$). Thus hypothesis 2 was supported. PEOU was significantly affect PU ($\beta = 0.605$, $p < 0.05$). Thus hypothesis 3 was supported. AT was also significantly affect the behavioural intention to use ($\beta = 0.245$, $p < 0.05$). Thus hypothesis 4 was supported.

confirmation of hypothesis

H	Hypothesis	Result
H 1	Perceived Usefulness significantly affect the Attitude towards Usage	Supported ($p < 0.05$)
H 2	Perceived Ease of Use significantly affect the Attitude towards Usage	Supported ($p < 0.05$)
H 3	Perceived Ease of Use significantly affect the Perceived Usefulness	Supported ($p < 0.05$)
H 4	Attitude towards Usage significantly affect the Behavior Intention to Use	Supported ($p < 0.05$)

V. DISCUSSION

The result shows that four factors were significantly affect the acceptance of SME owners to adopt ICT in their business operation. Perceived Usefulness (PU) had a significant positive impact on Attitude toward adopting the technology which supporting H1. According to Park and Chen (2007), years before papers had discussed about the feelings on the usefulness will play more influential factor than perception of its easiness. TAM was derived from Davis (1989) where he claimed that users are assessing how easy or difficult it is to work with ICT. Then, when they see their usefulness, they develop a positive attitude towards it.

PEOU had a significant positive impact on Attitude towards accepting to adopt ICT in their business which supporting H2. Schepers and Wetzels (2007) contributed that Perceived Ease of Use has strong factor that affects attitude towards accepting the technology. Studies in 2014 by Praveena and Thomas also agreed that PEOU influences attitude if they find it easy to encounter and to adopt. Meanwhile, Wu and Chen (2017) identified that the technology are accessible through a medium that comprises few capabilities and features, which may lead to ease to use thus make their attitude accept to adopt ICT.

PEOU had a significant positive impact on PU towards accepting to adopt ICT in their business which supporting H3. Abdullah et al. (2016) stated that Perceived Ease of Use can be the factor to increase SME owners Perceived Usefulness. Therefore, personal support or IT experts has to be provided in the organization to ensure SME owners accept to adopt ICT in their business operation. ICT have to enhance the system's ease of use through good design and by providing clear instructions to SME owners and users. SME owners will enjoy using the ICT and have positive perceptions about the ease of use and usefulness of the system. This validates that ICT is importance to be perceived as enjoyable and stimulating and to promote a strong

positive Behavioural Intention to Use. Training developers and providers need to focus more on making the use of ICT enjoyable to guarantee SME owner's acceptance.

Attitude had a significant positive impact on Behavior Intention to Use towards adopting the technology which supporting H4. According to Alharbi and Drew (2014), SME owners who perceived ICT as easy to use, will developed a positive attitude towards using it. Meanwhile, for the perceived usefulness, it will increase the degree of positivity and affect the behavioural intention to use. In the context of adopting the usage of ICT in the SMEs, attitudes are becoming more common, since ICT directly involves few important transactions and activities, hence the trust of the underlying users of risk and security forms SME owners' attitude. In addition, attitude is regarded as a contagious social function in which people influence each other's attitude by confirming or opposing them through interaction and shared experiences. Many studies using attitude as intermediary variables show that the attitude of mediate the impact of PU and PEOU on consumer intentions to adopt ICT according to Bashir and Madhavaiah (2015).

VI. CONCLUSION

This research attempt to understand the acceptance of the SME owners to adopt ICT in their business. The study conducted a survey based on the TAM theoretical framework. The finding suggests that four factors are crucial to influence SME owners to accept the adoption of ICT in their business. Perceived Usefulness, Perceived Ease of Use, Attitude and Behavioural Intention to Use significantly affect the SME owner's acceptance to adopt ICT. The result is useful to the training provider who work for the Malaysian government to design and plan the suitable training contents for the SME owners. In the future, the author will study about the age factor that has the impact to contribute to the acceptance level of ICT to the SME owners due to younger generation may find it easy to use

technology unlike the experienced SME owners who are in the older generation

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