

The Determinants of Small and Medium Enterprises' Interest in Using E-Commerce (A Study on Small and Medium Enterprises in Denpasar Bali, Indonesia)

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Abstract. *The study aims at examining the effect of relative advantages, compatibility, and internet security on the interest use of e-commerce. The samples are 70 SMEs in Denpasar (242 respondents specified) selected through simple random technique. The data are collected by means of questionnaire and analyzed by PLS. The analysis shows the effect of internet security on the enterprises' interest in using e-commerce, but the relative advantages and compatibility do not affect the use of e-commerce.*

Key words: *user interest, e-commerce, SMEs*

1. Introduction

The use of Electronic Commerce (E-commerce) as one of the new advantages of the Internet has risen rapidly. The presence of e-commerce changes many aspects of transaction for the external and internal use [29]. A greater potential of e-commerce encourages some companies to moving from traditional to online business [6]. Companies have a greater incentive to implement e-commerce from consumers, because it offers many benefits for companies such as cost savings in the transaction, increasing the efficiency and flexibility of strategically by developing a relationship more dynamic and flexible business partner [39].

Electronic commerce or e-commerce seems to be the dominant form of trading. When the ASEAN Economic Community is effectively implemented, the nations within the region will be a single market based on a single production, so that the flow of goods, services, investment, and skilled labors are likely to be freer (Directorate General of International Trade Cooperation). This trend will, in turn, challenge the domestic business. To respond such a trend, the implementation of e-commerce in the SME sector is a must, especially for domestic businesses, both in large and small scales. The administration of research in the SMEs of Bali is due to its potential to be developed in running the economy. The province's local natural resources and creativity in the arts and crafts made a significant contribution in the development of its business.

SMEs in Bali, particularly in its capital city of Denpasar, are facing the challenges; among others are the reasons of small business owners for refusing the implementation of e-commerce and other technological advances in today's business. The refusal is probably caused by lack of information for consumers about the products offered by the SMEs, lack of effectiveness and efficiency of the sales process, limited working capital, poor expertise of the human resources, and lack of technological mastery. However, the role of SMEs, when supported with by right trading technology, is great for the Indonesian economy.

This study focuses on the context of e-commerce to the extent that small business owners accept or reject the use of e-commerce. It examines the owners' behavior in using e-commerce for their own interest (intention) with regard to the theory of Technology Acceptance Model (TAM). TAM is widely accepted as a strong predictive model for a wide range of technological devices [26]. E-commerce in its use is classified as a new way of running a business. E-commerce also offers efficiency in business which triggering its users to try applying the supporting technology.

This study examines the effect of relative advantages, compatibility, internet security, owner's characteristics, and perceived usefulness on the interest of using e-commerce. The variables are a combination of several previous studies carried out by [6, 8, 17, 25, 35, 37, 40, 41]. The merger of variables is intended to better understand the determinants of interest in using e-commerce and provide answers to small business owners' rejection in using such a system.

The study may contribute at least to three aspects, i.e. theory, practice, and policy. Theoretically, this study may widen the academic perspective in the study of information system, in terms of accounting and behavior, concerning with the theory of Technology Acceptance Model (TAM). Practically, this research is beneficial for SMEs implementing e-commerce, as well as raising the economic growth, increasing the competitiveness, and excelling the development of e-commerce as a medium of transaction in the ASEAN Economic Community,

which was effectively implemented by the end of 2015. In terms of policy, the government may encourage SMEs to increase their business qualification by taking some aspects of e-commerce into consideration so that micro businesses are able to advance their own businesses. In addition, the government could appeal to the SMEs to prepare their product innovation and marketing in order to compete with products of other ASEAN countries.

2. Review of Literature and Hypothesis

2.1. Review of Literature

Technology Acceptance Model (TAM) is a model of information system developed to predict the adoption and use of information system. The central part of TAM model is the adoption of individual behavioral intention. TAM has developed an application of a widely adopted TRA as a platform to obtain a better understanding upon user behavior in the acceptance and use of information system. This has been revealed from the various models that have been previously studied [13, 14]. Moreover TAM has been widely tested *vis-a-vis* other models, such as TRA and Theory of Planned Behavior (TPB), and the result is still consistent, showing that TAM is a good model for measuring behavioral intention [20]. Therefore, TAM is applied in this study as a grand theory, supported by such other theories as the diffusion of innovation theory.

This study employs the theory of Innovation Diffusion Theory (IDT) and TAM, mostly by adding the constructs of IDT into TAM model. The use of these constructs are based on the research administered by [6], which states that the IDT is relevant to the study of e-commerce. IDT and TAM are applicable as the theoretical basis of the application of technology products and services [13].

Technology Acceptance Model has five main constructs: perceived usefulness, perceived ease of use, attitude toward behavior, interests behavior using technology, and behavior or actual use of technology [20]. In addition to perceived usefulness, perceived ease of use, interest in the behavior, and behavior as is the main variables of TAM, some external variables like internet security and owner characteristics are also taken into assessment.

This study is also based on the IDT. IDT is a reliable instrument to observe the acceptance toward technology-based information system [28]. Seven construct are used by [28] in the Innovation Diffusion Theory: the relative advantage (*relative advantage*), usability (*ease of use*), image (*image*), visibility (*visibility*), conformity (*compatibility*), demonstration of the result (*result demonstrability*), and voluntary usage (*voluntarism of use*). The admission process of innovation also passes several

stages proposed by [32]; among others are the stage of knowledge, persuasion, decision, implementation, confirmation, and discontinuance. The reason is that because such innovations do not meet the needs for fulfilling the innovation benefits.

When conceived in-depth about the acceptance of small and medium businesses to adopt e-commerce, the process used will experience the similar path as described by [32]. This is certainly an important point, that before deciding to adopt a system of e-commerce, companies must understand and identify the characteristics of the system and go through several steps before deciding to implement a system of information like the e-commerce system. Therefore, the frame of the Innovation Diffusion Theory is strongly associated with the acceptance of information systems.

2.2. Hypothesis

“Relative advantages” is a level indicating an individual’s believes that information technology can provide benefits. The greater the relative superiority perceived by adopters, the faster these innovations can be adopted or implemented. The research of [2] developed through TAM connects the constructs perception on relative advantage, ease of use, and compatibility with the decision to innovate. Some previous studies on relative advantages as one of the best predictors which positively influence the level of innovation have been carried out by [5, 30, 32, 38].

The research studies of [3, 15, 24, 31] reveals that the more advantages obtained by the users, the more people use the internet. Such a finding is actually not consistent with the model of IDT introduced by [32], which shows that the relative advantage has positive influence on using the internet. The IDT model of [28] on that the relative superiority of an individual triggers a belief on the benefits of information technology. The above explanation illustrates that the relative superiority positively affect the interest in using e-commerce. Thus, to reexamine the influence of relative advantages on the interest of using e-commerce, the first hypothesis is formulated as follows:

H1: Relative advantages positively influence the interest of using e-commerce.

Another variable is compatibility, i.e. the degree to which an innovation in information technology is believed to be consistent with the existing values, past experience. As the consequence, the idea which does not fit the values and norms of general social system innovation will not be soon adopted. The research results of [1, 11, 12, 18, 22, 23] show that more users of information technology services tend to be influenced by the suitability of the new technology, which affects the attitude of the users of internet services.

Conversely, [11] proposes the same result that the compatibility on the interest of information technology is very strong. Compatibility has a significant impact on the interest in using a shopping service via the internet [12]. [23] find a positive effect of the construct of compatibility. These findings are not consistent, however, with the model of IDT introduced by [32], which finds that compatibility has a positive influence upon the users to apply new technology.

Based on the above point, it can be summarized that the positive effect of the compatibility comes after the interest of using e-commerce. Therefore, the second hypothesis is formulated as follows:

H2: Compatibility positively affects the interest in using e-commerce.

The last factor is the internet security, i.e. an attempt to avoid such undesirable events as lack of confidentiality and data integrity. The security system attempts to prevent fraud and other misuse of the computer system. There are three reasons why a person commits a crime: opportunities, internet system security flaws, and rationalization or justification for deviant behavior [7]. According to [36], man is a rational being who tends to do something for an appropriate reward. The information system cannot be released from this role, so that good information system is urgently required for security.

The research result of [9,10] confirms that the reluctance of many consumers to include e-commerce is basically centered on their concerns over security issues and lack of confidence in the current set-up e-commerce and the activities containing some risks, such as disturbance upon the website by hackers. This result contrasts with the results of research by [16] and [34], which proves that the internet security construct does not affect the interest. The research of [27] implies that internet security is the level of personal information which transmits a belief that internet is a guaranteed object and will not be accessed by others.

The above phenomenon indicates that the interest on internet security positively affects the use of e-commerce. The hypothesis, therefore, is formulated as follows:

H3: internet security positively affect on interest in the use of e-commerce.

3. Research Method

The data is collected through a survey questionnaire to the small business owners of SMEs selected through simple random technique. The reasons for using the SMEs in Denpasar is to raise the potential to compete with other industries for the sake of achieving better economic growth and uplift its position as a tourist destination in the province. The sampling technique is done by simple random

sampling in which the sample has an equal chance that is infinite for the selection of the samples.

The respondents are characterized based on their gender, age, education, past experience, old business, and business type. The indicators are measured using Likert scale of 7-points, quantified as Strongly Disagree (STS) (1); Disagree (TS) (2); Somewhat Disagree (ATS) (3); Neutral (N) (4); Somewhat Agree (AS) (5); Agree (S) (6); and Strongly Agree Once (SSS) (7).

Two main parameters in the test instrument are validity and reliability testing. The assessment on validity is viewed in terms of AVE (*Average Variance Extracted*) and Communality, worth 0.5. The outer loading is measured by 0.5-0.7. The indicator of loading is not removed along the AVE and Communality indicator score above 0.5 [21]. The reliability degree is tested using Cronbach Alpha, with the rule of thumbs over 0.7 or 0.6 is still acceptable [19].

The relative advantage is measured by indicators developed by [8, 17]. With regard to the validity of the test result, five items were removed because they have a value less than 0.5, and five other items are removed from the lowest value to increase the value of AVE and Communality more than 0.5. The Cronbach alpha's value is 0.8666.

The compatibility is measured by indicators developed by [8, 17, 30]. With regard to the validity of the test result, four items were removed because they have a value less than 0.5 and four other items are removed from the lowest value to increase the value of AVE and Communality more than 0.5. The Cronbach alpha's value is 0.8458.

The Internet security is measured by indicators developed by [4]. Based on the validity of the test result, three items are not removed for more than 0.5 value of Cronbach alpha 0.7615.

4. Results and Discussions

4.1. Results

A total of 242 questionnaires are distributed to owners of SMEs in Denpasar, but only 70 are returned with a response rate of 28.93%. 172 questionnaires are not processed because the owners do not give complete responses, do not understand, and are not consistent (as seen in the negative statements deliberately written in the questionnaire).

The samples consist of 50 females (71.43%) and 20 males (28.57%). 23 respondents aged 20-30 years old (32.86%), 20 respondents are 41-50 years old (28.57%), 19 respondents are 31-40 years (27.14%), and 8 others aged 51-60 years old (11.43%). 38 respondents are graduates of bachelor degree (54.23%), 17 respondents are senior high graduates (24.26%), 7 are Diploma graduates (10.00%), 5 have

earned their master degree (7.14%), and 3 respondents are graduates of junior high (4.23%). In terms of the business duration, 34 respondents have run their business for 1-5 years (48.57%), 17 respondents more than 10 years (24.29%), 11 respondents for 5-10 years (15.71%), and 8 respondents for less than 1 year (11.43%). As many as 90.00% respondents run their business in the field of trading, 7.14% in manufacture, and 2.86% in service.

The data are analyzed by means of Partial Least Square (PLS) assisted with the tool of SmartPLS ver. 2.0 M3. At the end of the PLS model, the hypothesis is tested by looking at the path coefficients and the estimated value of the t-statistic with a significance value $\alpha = 5\%$. When the value of t-statistic is higher than t-table by 1.64 to 1 tail hypothesis (one-tailed), the hypothesis is considered being supported. The hypothesis test result can be seen in Table 1.

Table 1. Hypothesis test results

Constructs	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistic (O/STERR)	Conclusion
AR → IUE	0.3430556	0.4722222	1.5319444	1.5319444	1.55625	rejected
C → IUE	0.4590278	0.7104167	1.2395833	1.2395833	2.5694444	rejected
IS→IUE	1.6451389	1.5576389	0.8965278	0.8965278	1.8346	accepted

Note: AR = Relative advantages, C = Compatibility, IS = Internet Security, IUE = Interest in Using E-Commerce

4.2. Discussion

4.2.1. The Influence of Relative Advantages on the Interests in Using E-Commerce. The first hypothesis in this study is that the relative advantages positively influence the interests in using e-commerce. The information in Table 1 shows that the value of t-statistics is $0.2241 < 1.64$. The test result reveals that the relative advantages factor does not affect the interest. Therefore, the H1 is rejected and it means that the finding does not support the hypothesis.

The result of this study is not in line with that of the previous ones [3, 5, 15, 24, 30, 31, 33, 38], which reveal that relative advantages construct affects the interest. This finding is not consistent either with the model of IDT introduced by [32], who found that the relative advantages has a positive influence in the use of the internet. The Model of IDT [28] shows that the relative advantages of an individual level indicate that information technology can provide benefits. Thus, the respondents are considered not feeling any benefit of using e-commerce to improve the productivity, profitability, and corporate image, as well as not being convinced by the use of e-commerce to complete certain tasks.

4.2.2. The Influence of Compatibility on the Interests in Using E-Commerce. The second hypothesis in this study is that compatibility gives positive effect on the interest in using e-commerce. The information in Table 1 shows that the value of t-statistics is $0.3700 < 1.64$. The test results reveal that conformity does not affect the interest, and therefore H2 is rejected.

The result of this study is not consistent with that of the previous ones [11, 12, 22, 23]. The research of [22] shows the significant influence of compatibility on the attitude of e-government services. The compatibility of the new technology is likely to affect the attitude of the internet service users. According to [11], almost the same result that the compatibility upon the interests of information technology is very strong. Compatibility has a significant impact on the interest in using a shopping service via the internet [12]. According to [23], there are the positive effect of the compatibility construct. This finding is inconsistent with the IDT introduced by [32], who finds that compatibility has a positive influence on the users' applying new technology.

The model of IDT by [28] states that compatibility is the degree to which technological innovation as a trusted information is consistent with the existing values, past experience. It can be concluded that the respondents are not going hand-in-hand with the values, culture, habits, lifestyle and interest in using e-commerce and it is also determined by compatibility of the products offered.

4.2.3. The Influence of the Internet Security on the Interests in Using E-Commerce. The third hypothesis of this study assumes the positive effect of the internet security on the interest in using e-commerce. The data on Table 1 shows that the value of t-statistics is $1.8346 > 1.64$. The test results reveal that internet security influences the interest in using e-commerce, and it means that H3 is accepted. These findings indicate that the third hypothesis is accepted.

The results of this study support the previous research [10], who finds that internet security affects the interest in using e-commerce. Internet security

significantly influences the interest in the use of internet banking [9]. Conversely, these results contrast the study of [16, 34], which affirm that internet security construct does not affect any interest for using e-commerce.

Internet security is the level of personal information being emitted, believing that the Internet is guaranteed and will not be accessed by others [27]. Thus, the respondents of this study is considered following the current laws and regulations, having confidence in the payment system, and feeling secure with the system of transaction via the Internet.

5. Conclusions and Suggestions

This study examines the effect of relative advantages, compatibility, and internet security on the interest in using e-commerce. The results of the empirical research show that SMEs owners' interest in the use of e-commerce is affected by internet security because the respondents are following the current laws and regulations, having confidence in

the payment system, and feeling secure over the transacting by the internet. Conversely, the interest in using e-commerce is not affected by the relative advantages and compatibility, probably because the respondents do not find any benefit of using e-commerce to increase productivity. They do not feel confident in using e-commerce to complete certain tasks and that the respondents do not take values, culture, and habits into consideration for using e-commerce.

This study has limitations. Among others are that not many SMEs give the distributed questionnaires back to the researcher and that the area of the research object is too broad because of the distance among the respondents, which is not easily accessed. To improve the quality of similar studies, it is suggested that the future researcher involve some field co-researchers to help him/her distributing the questionnaires and providing incentives to the respondents so that the number of returned questionnaires is higher.

APPENDIX

Validity test algorithm results

No	Variable	Calculate Phase X		Information
		AVE	Communality	
1	AR	0.5532	0.5532	Valid
2	C	0.5156	0.5156	Valid
3	IS	0.5670	0.5670	Valid
4	IUE	0.9181	0.9181	Valid

Note: AR = Relative advantages, C= Compatibility,
 IS = Internet security,
 IUE = Interest in Using E-Commerce

Loading outer item results of questionnaire final after removal item

Statements in the Questionnaire	Loading Factor
Relative Advantages	
I feel using e-commerce provides new opportunities for me	-
I feel using e-commerce enables me to complete certain tasks more quickly	-
I feel using e-commerce improves my productivity	-
I feel using e-commerce gives me more time to searching for the source	-
I feel using e-commerce improves the quality of my work	5.2277778
I feel using e-commerce provides me more convenience to purchase products and services for business	-
I feel using e-commerce gives me more information about my business competitors	4.4604167
I feel using e-commerce provides me more facilities to better advertise and market my products / services	5.2423611

I feel using e-commerce provides me with timely information for decision making	5.3756944
I use an e-commerce to build the company image	6.1694444
I feel using e-commerce increases my profitability	5.7354167
Compatibility	
I feel using e-commerce conforms the values and culture	6.1583333
I feel using e-commerce conforms the needs of my work.	-
I feel using e-commerce is a need to create a business	6.1069444
I feel the security of e-commerce conforms my business	-
I feel e-commerce legal issue is appropriate for my business	-
I feel using e-commerce conforms my customer needs	5.93125
I feel using e-commerce conforms the existing information technology	-
Internet Security	
I feel the current laws and regulations are sufficient to protect the interests of e-commerce users	5.7888889
I feel the company has a confidence in e-commerce payment system	6.1291667
I am concerned on the highly confidential transactions over the Internet	5.1881944

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