

# Antecedents of E-Commerce Use in The Hospitality Industry: An Empirical Study in Indonesia

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## Abstract

This study aims to explain the influence of Relative Advantage, Compatibility, Organizational Readiness, Management Support and External Pressure on the Use of E-Commerce. In accordance with the purpose of research, this study used a kind of explanatory Research. The study population was star hotels in Bali Indonesia, which already apply the technology of E-Commerce at least one year. Samples were taken using proportionate stratified random sampling. Data were collected using questionnaires, then analyzed using Structural Equation Modeling (SEM) with a method of Partial Least Square (PLS). The analysis showed that all variables have positive effect on the use of E-Commerce, but the results of t-test showed that only four variables (Relative Advantage, Organizational Readiness, Management Support and External Pressure) which have a significant effect. While the effect of Compatibility was not statistically significant. As a theoretical implications, future researchers should carefully consider 1) the longitudinal approach in data collection research, 2) using more than one respondent as key informants representing the leaders and members in each company was chosen as the unit of analysis. As a practical implication, the hotel needs to consider the readiness in the implementation of E-Commerce.

**Keywords:** Relative Advantage, Compatibility, Organizational Readiness, Management Support, External Pressure, E-Commerce Use

## Introduction

Universally, current information technology has been regarded as an important tool in improving the competitiveness of the economy of a country. This effect will only be realized if, information technology spread widely and when the information technology is used (Oliveira and Martins, 2011). In this regard it can be said that in the context of the current global market, information and communication technology is widely regarded as critical to the competitiveness (Dyerson et al., 2009). Increasing number of transactions of electronic commerce (e-commerce between companies has created opportunities and challenges for businesses, because of the E-Commerce reduce many drawbacks associated with an isolated location to reduce the cost of marketing, communication and information (Addo: 2012). Meanwhile El-Gohary (2012) states that electronic marketing is still a relatively new concept, especially for organizations operating in developing countries.

Many companies have tried to use the E-Commerce to enhance their competitiveness and thereby build their own competitive advantage. However, some companies have achieved great performance, while others have failed to produce a competitive advantage. How does the performance of this difference in the use of E-Commerce 'can be explained? This question remains largely unanswered (Peixin and Wei, 2012).

The use of information technology, new technology and the Internet have attracted much attention from researchers, policy makers and practitioners over the past two decades. As a result, there are a number of theoretical frameworks that have been received and has been used by researchers to examine the application of information technology and new technology by the business community (El-Gohary, 2012). One of the theoretical framework to explain the use of technology at the organization level is Technology, Organization and Environment (TOE) framework.

The tourism sector is taking an important position as one of the world's largest industry with a share of 11% of global gross domestic product. The tourism industry is experiencing rapid growth with an estimated annual growth of 10-30% (Kenneth et al, 2012). The tourism sector is one of the largest online industries. The proportion of internet usage is being increased is online purchases. The tourism sector will benefit and a large market share of the online market. (Kenneth et al, 2012). In the hospitality service industry, many information technology investments made to improve the performance is the main reason for managers to apply information technology. (Mihalic and Buhalis, 2013).

Bali is one of the favorite destinations of foreign tourists visiting Indonesia. More than a third (36.08%) of foreign tourists visiting Indonesia in through Bali's Ngurah Rai Airport. Tourist attraction in Bali evidenced also by the number of foreign tourists who always grew from year to year. In 2008 foreign tourists visiting Bali amounted to 2,085,084 people. In a period of four years the number of tourists increased by 41.45% to 2,949,332 people in 2012 (Central Bureau of Statistics).

## Literature Review and Hypothesis Development

### E-Commerce Use

According to Ramanathan et al. (2012), E-Commerce is an organization that includes a variety of activities, including sales, purchasing, logistics and / or other activities of the organization-management via the web or atktivitas fulfilling their business through information networks. Meanwhile, according to Chaffey (2009: 11), E-Commerce viewed as a whole exchange information electronically mediated between an organization and its external stakeholders or third parties associated with the organization.

Gibbs and Kraemer (2004) defines the scope of E-Commerce Use as the extent of the use of E-Commerce for several different activities in the value chain, from advertising, marketing, up to the sale, purchase, service, support, data exchange with customers and suppliers and business process integration. Meanwhile, according Jahanshahi, et al. (2011) there are many, the type of E-Commerce applications, but basically the whole type of E-Commerce applications can be classified into five categories, namely: Electronic Advertisement, Electronic Customer Support Services, Electronic Marketing, Electronic Payment Systems, Electronic Orders and Delivery.

### Technology, Organization and Environment Framework

Technology, Organization and Environment (TOE) Framework was developed in 1990 by Tornatzky and Fleischer. This framework identifies three aspects of the context that affect the process by which companies adopt and use technology innovation, namely the technological context, organizational context and environment context. TOE framework introduced has provided a useful analytical framework that can be used to carry out research on the use and assimilation of the various types of information technology innovation. The TOE framework has a solid theoretical basis, consistent with the empirical evidence support (Oliveira and Martins, 2011).

Technological context illustrates the internal and external technologies that are relevant to the company. Technological Context associated with the technology availability and characteristics (Oliveira and Martins, (2011). There are several technology characteristics considered affects the use of technological innovations, that is Relative Advantage, Compatibility, Complexity, Trialability and observability (Luqman and Abdullah, 2011). However, the five characteristics of technological innovation, the relative advantage and compatibility are considered as the most dominant factors (Rogers, 2003). The second dimension of the TOE Framework is characteristic of the organization. The dimensions of the organization include the size of the organization, organizational readiness and management support. The organization usually have the financial and technical resources are more likely to take risks in the use of new technologies than small organizations (Duan, et al., 2012). The environment context associated with the arena in which companies do business, including industry, competitors and government (Oliveira and Martins, 2011). The presence of a competitor pressures often force the company to use the new technologies to be able to compete in a dynamic environment. There pressure from business partners can also influence the decision of an organization to use the technology (Duan, et al, 2012).

Table 1 Summary of the Antecedents of E-Commerce Use in light of the TOE Framework

E-Commerce Use Context	Antesedents of E-Commerce Use Identified	Relevant Literature
Technological Context	Relative Advantage	El-Gohary (2012) ,Huy (2012) Syaharudin, et al (2012)
	Compatibility	El-Gohary (2012), Huy (2012)
Organizational Context	Organizational Readiness	Alhudaif and Alkubeyyer (2011) Machroeian (2012), Huy (2012)
	Management Support	Ifinedo (2011) , Peixin and Wei ) 2012)
Environment Context	External Pressure	Duan et al. (2012), Peixin and Wei (2012), Ghobakhloo et al. (2012), Syaharudin et al (2012)

Based on the previous studies relate to the E-Commerce use, the relevant antecedents of E-Commerce use have been identified into the three categories of the TOE Framework. Figure 1 presents the conceptual model used in this study.

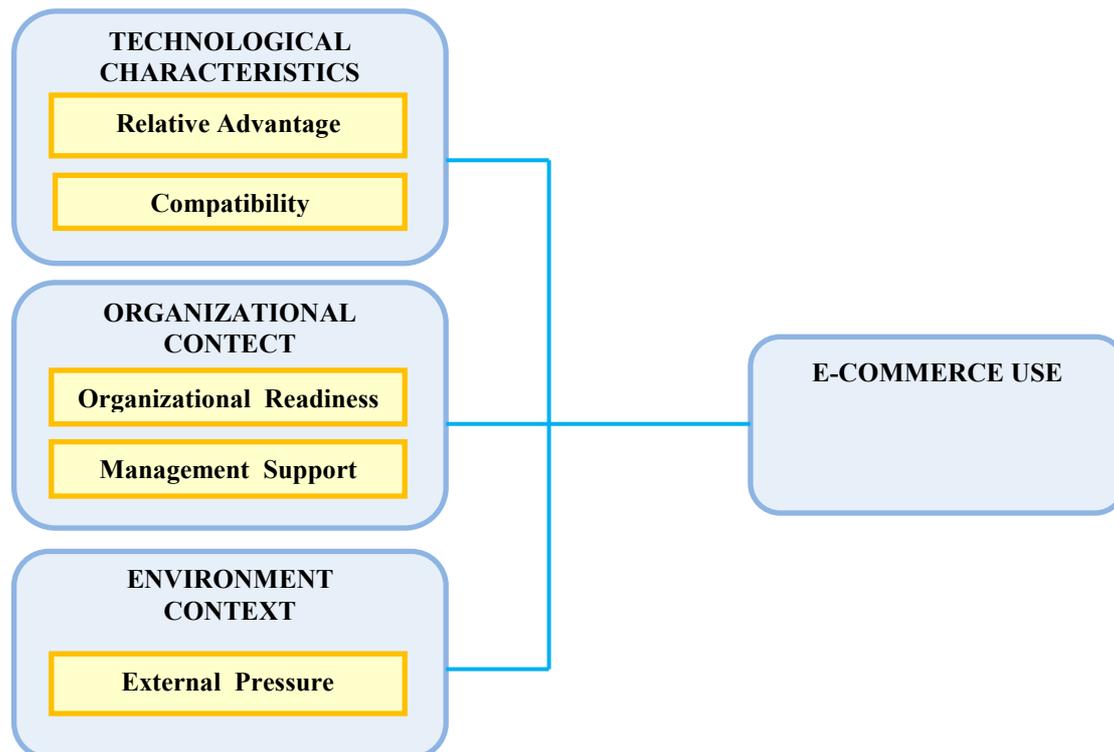


Figure 1 Conceptual Model of Research

### Relative Advantage and E-Commerce Use

Huy, et al. (2012) defines the relative advantage as the degree to which potential users perceive that an innovation is preferred compared to existing conditions. While El-Gohary (2012) defines relative advantage as the degree to which a person believes that using a particular system would be able to improve its performance. Relative advantage requires the parties who will use innovation to analyze the benefits of using the innovation that can be expressed economically, socially or in any other way (Rogers, 2003). Another opinion that examines the use of innovation from the perspective of business organizations say that the degree of relative advantage is often expressed in terms of profitability, cost reduction and acceleration of transactions. (Huy, et al., 2012).

In the context of E-Commerce, Relative Advantage can be categorized as a benefit (usefulness and benefits) of E-Commerce for customers of a company, the benefits for the internal users in a company as well as for the company itself (Globakhloo, et al., 2011). Meanwhile Syaharudin, et al., (2012) divides the perception of benefit in two dimensions, namely the direct benefits and indirect benefits. Relative advantage is found as one of the best predictors and has a positive correlation with the degree of the decision to use technological innovation. (Rogers, 2003). Further, research hypothesis is formulated as follows:

Hypothesis 1: Relative Advantages has an effect on the use of E-Commerce.

### Compatibility and E-Commerce Use

Compatibility is the degree to which an innovation is perceived in accordance with previous experiences, values that are present, as well as the various needs of the parties may adopt the innovation (Huy, et al.: 2012). When the technology is perceived as a technology that is consistent with beliefs, values, cultures that exist within a company and there is no resistance from the staff, the company will tend to use these technologies. The greater conformity with the felt needs, the greater the degree of use of these innovations (Mndzebele, 2013).

Based on the literature, compatibility found to affect the decision to use of the E-Commerce (Cosgun and Dogerlioglu, 2012). The incompatibility system of E-Commerce with the working procedures, as well as the value system of the existing infrastructure negatively affect the attitude of the users, which in turn can inhibit E-Commerce Use. Huy, et al. (2012). Several previous studies indicate that the adoption and use of E-Commerce is influenced by the compatibility of E-Commerce (Globakhloo, et al., 2012). Then, hypothesis is formulated as follows:

Hypothesis 2: Compatibility has an effect on the use of E-Commerce.

### **Organizational Readiness and E-Commerce Use**

Organizational readiness measure whether the organizational attributes is sufficient in deciding to use the E-Commerce. Organizational readiness refers to the degree of financial resources and technology resources that can be supplied by the company ((Syaharudin, et al., 2012). Readiness of the organization can be measured by the availability of two organizational resources, namely financial resources and technological resources (Duan, et al., 2012, Grandon and Pearson, 2004, Machroenian, 2012). The measurement of fuller expressed by Alam, et al., (2011) in which the readiness of the organization is determined on the terms of four factors: technological resources, financial resources, expertise and technological knowledge as well as external support.

Based on a study of small and medium enterprises in Malaysia Alam, et al. (2011) found that the higher the level of readiness of the organization, the greater the desire to use the E-Commerce. Kannabiran and Dharmalingam (2012) revealed a lack of financial capacity and inadequate technical expertise identified as two major limitations in the use of information technology. Meanwhile Iffinedo (2011) says that the greater the knowledge possessed by an organization of technological innovation, the more likely that organizations will use technological innovation. As said by Huy, et al. (2012) that all employees have had knowledge of E-Commerce then it is likely that the organization will be greater in the use of E-Commerce. Furthermore, the research hypothesis is formulated as follows:

Hypothesis 3: Organizational Readiness has an effect on the use of E-Commerce.

### **Management Support and E-Commerce Use**

Management support refers to engagement, passion, motivation and encouragement given by the management to the acceptance of information systems innovation (Iffinedo, 2011). The degree of acceptance of Internet technology / ebusiness will be even greater when the management support is greater. Top management support is a very important consideration in the acceptance of e-businesses for companies that will use the E-Business. In contrast, the support of the management of low or non-existent, then the acceptance of information technology will be placed on the last position in the organization's priorities.

Several studies evaluating the use of information technologies shows that the attitude, support and commitment of management to the information technology directly affects the use of information technology (Globakhloo, et al., 2012). A positive attitude towards the use of information technology in general has a positive correlation with the use of the Internet and E-Commerce (Huy, et al., 2012). There is evidence to indicate that top management support is positively correlated with the use of new technologies in organizations (Hameed, et al., 2012). Further research hypothesis is formulated as follows:

Hypothesis 4: Management Support has an effect on the use of E-Commerce.

### **External Pressure and E-Commerce Use**

External Pressure refers to the influence from external sources. The literature identifies three main sources of external pressures, namely: competitive pressures, supplier pressure and customer pressure. Competitor pressure is considered to have an influence on the use of information systems innovation. It is also one of the best predictors of the use of information systems innovation. (Iffinedo, 2011).

The presence of pressure from competitors individually often force organizations to use technology in order to be more competitive in a dynamic environment. While pressure from business partners have a considerable influence on the use of technology for an organization, with the argument that the company will become more economically connected with the wider business partners to maintain business continuity (Duan, et al., 2012). In view of market competition, some previous studies prove that the more competitive external market, it will be more likely to use the E-Commerce. (Peixin and Wei, 2012). Similarly, Kenneth, et al. (2012) said that there is a relationship between the intensity of competition in the industry with the degree of use of E-Commerce. Furthermore, the research hypothesis is formulated as follows:

Hypothesis 5: External pressure has a positive effect on the use of E-Commerce.

### **Methodology**

The design of this study used a quantitative approach with survey method. In order to support the objectives of the research, this study used the type of explanatory research. The population in this study is star hotels in Bali listed on the Indonesian Hotel and Restaurant Association of Bali which has implemented the E-Commerce technology in its operations for at least one year. These samples included 107 companies are set by the Proportionate Stratified Random Sampling.

Data is collected using questionnaires distributed to the owner, director and marketing manager of the star hotels. The data were analyzed using Structural Equation Modelling with a method of Partial Least Square (PLS). PLS can be used to build a relationship that no theoretical basis for testing proposition. In this study, PLS method is used to test the validity using the method of convergent validity. While the reliability test was using the composite reliability.

## Result and Discussion

### Evaluation of Measurement Model

Measurement model aims to define how each block indicator associated with latent variables. Evaluation of the measurement models is used to determine the accuracy of the use of indicators that can reflect or measure the variables studied, (in the PLS analysis commonly referred to as the Outer Model). The method used in the evaluation of the measurement model are validity and reliability.

One method of the validity testing is convergent validity test. Measurements of reflexive indicators is assessed by the correlation between the scores of items / components of the score to assess loading factors of each of the indicators. Testing the validity of indicator variables is using the t test. Criteria considered valid as a measurement indicator is when t is greater than t table. The validity test is using a significance level of  $\alpha = 0.05$ . Thus, if based on the t-test, there are indicators that have the t value is smaller than t table for a significance level of  $\alpha = 0.05$ , then the indicator will be removed and will be reestimated to the measurement model.

Reliability testing aims to determine the consistency of indicators to measure the research variables. To assess the reliability of the indicator of variables it can be carried out by Composite reliability tes. Reliability testing of the indicators in this study is using the internal reliability, as measured by using a composite reliability criterion of the block indicator that measures the construct. Block indicator of a construct is considered as reliable if the loading factor on the composite reliability is greater than 0.70. (Ghozali, 2006). A reliability of less than 0.60 is unfavorable, while acceptable 0.70 and above 0.80 is good (Sekaran 1992).

Table 2 The Results for Outer Loadings

Variabel/Item	original sample estimate	mean of sub samples	Standard deviation	t-Statistic	p Value	Composite Reliability	
Relative Advantage	RA1	0.724	0.703	0.093	7.743	0.0000	0,833
	RA2	0.395	0.382	0.328	<b>1.205</b>	<b>0.2310</b>	
	RA3	0.626	0.635	0.160	3.905	0.0002	
	RA4	0.762	0.733	0.110	6.941	0.0000	
	RA5	0.840	0.825	0.055	15.354	0.0000	
	RA6	0.654	0.578	0.222	2.941	0.0041	
Compatibility	COM1	0.649	0.643	0.112	5.796	0.0000	0,857
	COM2	0.645	0.626	0.106	6.111	0.0000	
	COM3	0.545	0.509	0.255	2.136	0.0351	
	COM4	0.859	0.860	0.029	29.761	0.0000	
	COM5	0.782	0.795	0.057	13.813	0.0000	
	COM6	0.736	0.732	0.083	8.835	0.0000	
Organizational Readiness	OR1	0.753	0.752	0.080	9.370	0.0000	0,900
	OR2	0.735	0.737	0.076	9.704	0.0000	
	OR3	0.755	0.744	0.059	12.857	0.0000	
	OR4	0.721	0.676	0.117	6.156	0.0000	
	OR5	0.840	0.828	0.057	14.829	0.0000	
	OR6	0.816	0.782	0.099	8.208	0.0000	
	OR7	0.736	0.737	0.057	12.968	0.0000	
	OR8	0.421	0.459	0.172	2.445	0.0163	
Management Support	MS1	0.778	0.757	0.088	8.837	0.0000	0,877
	MS2	0.747	0.730	0.084	8.938	0.0000	
	MS3	0.809	0.808	0.053	15.178	0.0000	
	MS4	0.740	0.739	0.089	8.319	0.0000	
	MS5	0.756	0.745	0.114	6.603	0.0000	
External Pressure	EP1	0.921	0.921	0.029	31.752	0.0000	0,935
	EP2	0.709	0.723	0.101	7.050	0.0000	
	EP3	0.898	0.898	0.031	28.784	0.0000	
	EP4	0.939	0.935	0.041	22.854	0.0000	
	EP5	0.827	0.823	0.066	12.446	0.0000	
E-Commerce Use	EU1	0.933	0.928	0.025	37.451	0.0000	0,960
	EU2	0.863	0.850	0.044	19.582	0.0000	
	EU3	0.940	0.937	0.032	29.150	0.0000	
	EU4	0.747	0.752	0.079	9.496	0.0000	
	EU5	0.766	0.773	0.070	10.945	0.0000	
	EU6	0.972	0.970	0.014	71.805	0.0000	
	EU7	0.913	0.895	0.043	21.418	0.0000	

The results of the evaluation of the measurement model (Outer Model) is shown by Table 2. It can be concluded that:

- a. The convergent validity test of the indicators of each variable indicates that there is one item of variables that are considered invalid and should be excluded from subsequent analysis process, ie one item Relative Advantage (RA-2).
- b. Composite reliability testing for each block indicator variable indicates that all blocks forming the indicator variable is stated as reliable.

### Hypotheses Testing

After the evaluation of the validity and reliability of the measurement model, furthermore necessary to evaluate the structural models to test the research hypotheses. Hypothesis testing is carried out on the structural path coefficients of the influence of exogenous variables on the endogenous variables. Hypothesis testing is done by using the t test for statistical significance of the path coefficients. The level of significance in this hypothesis testing was set at 0.05. This hypothesis testing is using a 2-tail test. The number of observations  $n = 107$ . The evaluation of the inner model is presented in Table 3.

Table 3 The Results for Inner Weigth

Path	original sample estimate	mean of sub samples	standard deviation	t- statistic	p value	Interpretation
Relative Advantage E-Commerce Use →	0.236	0.249	0.101	2.342	0.0211	Hypothesis is supported
Compatibility E-Commerce Use →	0.024	0.047	0.111	0.219	0.8271	Hypothesis is not supported
Organizational Readiness → E-Commerce Use	0.233	0.225	0.112	2.068	0.0412	Hypothesis is supported
Management Support E-Commerce Use →	0.186	0.181	0.083	2.253	0.0264	Hypothesis is supported
External Pressure E-Commerce Use →	0.389	0.359	0.153	2.541	0.0126	Hypothesis is supported

Based on the analysis of inner models in Table 3, it can be concluded that :

- a. The four exogenous variables (Relative Advantage, Organizational Readiness, Management Support and External pressure) have a positive and significant effect on the use of E-Commerce.
- b. The other variables, namely Compatibility has a positive effect, but it was not statistically significant because it has a probability value of  $p > 0.05$  ( $0.8271 > 0.05$ ).

### Discussion

The testing of hypothesis 1 in this study indicates that the Relative Advantage has a positive and significant effect on the use of E-Commerce. The findings of this study supports the Innovation Diffusion Theory of Rogers (2003) which states that the characteristics of an innovation perceived by each individual can explain the differences in the degree of use of innovation. Attributes of innovation consists of five characteristics, one of which is the Relative Advantage. The results of this empirical testing support the Technology, Organization and Environment (TOE) Framework of Tornatzky and Fleischer (1990) who argued that the decision to use the technology innovation is influenced by the availability and characteristics of the technology.

In the hospitality service industry, Relative Advantage is one of the important characteristics possessed by a technological innovation, in this case the E-Commerce technology. The Relative Advantages of E-Commerce system is one of the considerations for the star hotels in Bali to use E-Commerce application in supporting the services marketing system of hotels. The results of this study reinforce the empirical study conducted by Alam, et al. (2011) on a number of factors that affect the use of E-Commerce in Malaysia. Based on the analysis using multiple regression techniques they found that the relative advantage variable has a positive and significant impact on the use of E-Commerce.

One major factor that was found as the cause of the lack of the use of E-Business is a failure to understand the benefits of E-Business, such as increased sales, cost reduction and the better customer relationship. Employees who know the importance of E-Business and know the benefits of the implementation of E-Business, will reduce the resistance in implementing these technologies and implementing online business processes (Burdonaba-Juste, et al., 2012).

These results conflict with the study of the determinants of the use of E-Commerce in Malaysia are conducted by Huy, et al (2012) who found that compatibility has a positive and significant impact on the use of E-Commerce. This study is also contrary to the study of the use of information and communication technologies in Malaysia conducted by Alam, et al. (2011) which proves that the compatibility has a positive and significant

impact on the use of information and communication technologies.

Hypothesis 2 based on the TOE framework of Tornatzky and Fleischer and technological innovation diffusion theory of Roger not proven. According to the theory of diffusion of innovation and TOE Framework the decision to adopt and the degree of use of the E-Commerce system as a technological innovation is based on an assessment of the characteristics of E-Commerce system as an information technology innovation.

The argument can explain the results of testing this hypothesis is not significant are as follows. As noted by Vaugh and Schiavone (2010), in the framework of technological innovation diffusion theory, the adoption of a technological innovation can take place in three domains, namely at the level of macro, micro and meso. Macro level can be related to the process of innovation adoption in the scope of the overall industry, meso levels associated with the adoption of technological innovations in the scope of the organization / business and micro levels associated with the adoption of innovations in individual spheres. The critical difference between the three domains are located on putting the standpoint of evaluating a technology innovation and thinking about the adoption of technological innovations. Each viewpoint is formed by set of interests, rules and norms of a particular scope. Furthermore, each of these perspectives provide glasses in evaluating the characteristics of a technological innovation positively or negatively, which will influence the adoption decision and the degree of use of the technological innovations.

Domain associated with the process of adoption of technological innovations in this research involves meso level (company) and micro level (individual / user / employee). In this study, the studied company is star hotels in Bali are already implementing a system of E-Commerce in the marketing of hotel services (hotels under study is a registered star hotel in Indonesian Hotel and Restaurant Association, which has implemented the E-Commerce system for at least one year). This means that the adoption process had passed the phase of adoption decisions, then enter the post-adoption phase, related to how much the use of E-Commerce by the company after the company decided to adopt the system of E-Commerce. If the initial decision process owners, directors or managers are more dominant in determining the decision to adopt or not adopt the system of E-Commerce, then in the post-adoption phase, the users / employees began heavily involved in determining how much the E-Commerce systems used in the organizing hotel services marketing system. Thus, the compatibility of the system E-Commerce as one of the characteristics of information technology innovation for corporate hospitality will also be evaluated by the user / employee as an individual who may have different interests with the company.

In this regard Huy, et al. (2012) stated that the incompatibility E-Commerce system with a new one, there is a value system that negatively affect the attitude of the users and to improve their resistance to change, which in turn can inhibit the use of E-Commerce. The statement reinforced Tornatzky and Klein (1982), which suggests that an innovation is likely to be used when innovation is compatible with the responsibilities of employment and individual value systems.

In this research, although the results of the analysis indicate that the compatibility has a positive influence on the use of E-Commerce, but this effect was not significant. This is because even though the system of E-Commerce assessed by the owners, directors and managers of the company, as an appropriate technology with technology infrastructure, information systems previously, values and culture of the organization and procedures of the organization, but the E-Commerce system could be less appropriate or even contrary to the interests of individual employees. As a consequence, the high degree of compatibility of E-Commerce systems are not always followed by a high degree of use of the E-Commerce system in the services marketing of hotel. These results are consistent with studies of the determinants of the use of E-Commerce conducted by Machroeian (2012), Wanyoike, et al. (2012) and Adewale, et al. (2013) who found that the influence of compatibility on the use of E-Commerce is not statistically significant.

The testing of Hypothesis 3 shows that the Organizational Readiness has a positive and significant impact on the use of E-Commerce. These results support the hypothesis testing of the TOE Framework Tornatzky and Fleischer (1990) which identifies three aspects that affect the company in deciding to use technology innovation, one such aspect is the organizational context. According to the TOE Framework, the size of the organization influence the processes in the company decided to adopt and use a technological innovation. Large companies have the resources and infrastructure necessary to support the adoption and use of technology innovation. Instead of small companies are constrained in adopting and using technology innovation, because of resource constraints such as limited financial resources (Huy, et al: 2012) Results of the analysis above gives recommendation that one of the efforts to increase the degree of use of the E-Commerce system in a company can be done by increasing the readiness of the organization in the use of E-Commerce system.

The results of this study support previous studies (Syaharuddin, et al., 2012; Machroeian, 2012) which found that the readiness of the organization have a significant effect on the use of E-Commerce technology. Likewise research Huy, et al. (2012) find empirical evidence that the availability of resources have significant effect on the performance of the organization. Meanwhile, studies on the use of E-Business in the telecommunications industry and the tourism industry in Europe conducted by Oliveira and Martins (2010) find evidence that technological readiness has positive and significant impact on the use of E-Business.

Nevertheless, these results conflict with Ifinedo study (2011) who found that the influence of the support of information systems vendor and availability of financial resources not statistically significant to the use of E-Commerce system. Similarly, research on E-Market conducted by Duan, et al. (2012) find empirical evidence that the influence of organizational readiness to use E-Market are not statistically significant.

The Testing of Hypothesis 4 shows that the Management Support positive and significant effect on the use of E-Commerce. Top management support is important to create a favorable climate and provide adequate resources in the organizer's E-Commerce systems. These results support the hypothesis testing of the TOE Framework of Tornatzky and Fleischer (1990) which identifies three aspects that affect the company in deciding to use technology innovation, One such aspect is the organizational context. According to the TOE Framework, communication processes influence the process of the company in deciding to adopt and use a technological innovation. (Oliveira and Martins, 2011). One of the communication process that can support the use of information technology in a company is a leader in the communications between employees. Direction given by the leadership to employees to provide insight into the application of E-Commerce system is one form of communication processes within the company that can support the adoption and use of technology E-Commerce in the hospitality services industry.

Management support ensure the allocation of resources and technical experts to support the main requirements of the operation of new technologies. Management support also helps to overcome obstacles and resistance in the process of change in organizations (Duan, et al., 2012). Without adequate management support the process of implementation of information technology will face the risk is likely to have difficulty in financing both at the stage of initial installation and routine operation phase in addition also could face the risk of possible lack of support for skilled human resources and sufficient expertise in accordance with the system requirements. When management support is low or even no, the acceptance of the technology tend to be placed in the last position of the priorities of the organization (Ifinedo, 2011).

The results of this study support the study of the use of the E-Business system in Canada that has been done by Ifinedo (2011) who found that the Management Support/Commitment has a positive and significant effect on the use of E-Business. Other studies on the use of E-Market in Australia that has been done by Duan, et al. (2012) also found that the Top Management Support has a positive and significant impact on the use of E-Market. Similarly, a study of the antecedents of the use of E-Business in Greece and Cyprus hospitality industry that has been done by Theodosiou and Katsikea (2012) proved that the top management attention has a significant and positive effect on the use of E-Business.

The testing of hipotesis 5 shows that the External Pressure has a positive and significant impact on the use of E-Commerce. The test results of this study support the TOE Framework from Tornatzky and Fleischer (1990) which identifies three aspects that affect the company in deciding to use technology innovation, one such aspect is the environmental context. In the context of the environment, the company's decision to adopt and use technology innovation is influenced by the environment in the organization of the company, such as industry and competition (Oliveira and martins: 2011)

Using a technological innovation allows the company to influence the structure of the industry, generating new ways to outperform competitors and change the competitive landscape of business analysis can be applied to the use of information technology innovation (Oliveira and Martins, 2010). The argument became one of the considerations underlying the use of E-Commerce technology in hotel services marketing system. The level of competition among star hotel in Bali provides a strong incentive for each hotel to implement a system of E-Commerce in the marketing of hotel services. Companies that have a competitor orientation will have a sensitivity to the strengths and weaknesses of the competitors. In the context of hospitality services business competition, a company which has competitor orientation will try to look for the information of the facilities provided by the hotel to another, including the service in the process of booking. The use of E-Commerce system in support of marketing activities by the hotel services is one of the facilities in providing better service to customers. This is the reason why the star hotel in Bali are encouraged to use the E-Commerce system to support the marketing activities of the hotel services when other competitors have also implemented a system of E-Commerce in its marketing activities.

The results of this study support the study of the use of E-Business in the telecommunications industry and tourism in the EU country several years previously has been done by Oliveira and Martins (2010), who found that the pressure of competition and business partners have a significant impact both on the telecommunications industry group or tourism industry group. Similarly, a study conducted by Huy, et al. (2012) also found that the intensity of competition has a positive and significant impact on the use of E-Commerce. Another study on the use of E-Market in Australia conducted by Duan, et al. (2012), a study on the use of Internet / E-Business in Canada that has been done by Ifinedo (2010) as well as studies conducted on the use of E-Business in China conducted by Peixien and Wei (2012) found a positive and significant effect of pressure external to the use of E-Market and E / Business.

While the results of this study conflict with the study of the determinants of the use of E-Commerec in

Malaysia are conducted by Machroeian (2012) who found evidence that the influence of external pressure on the use of E-Commerce is not statistically significant.

### **Conclusion and Implication**

The analysis showed that all variables have positive effect on the use of E-Commerce, but the results of t-test showed that only four variables (Relative Advantage, Organizational Readiness, Management Support and External Pressure) which have a significant effect. While the effect of Compatibility was not statistically significant. The results of this study provide evidence of the applicability of Innovation Diffusion Theory of Rogers (2003) and the TOE (Technology, Organization and Environment) Framework of Tornatzky and Fleischer (1990) in predicting the intensity of the use of information technology in the context of the adoption of E-Commerce in the hospitality services industry. That is, the intensity of the use of information technology within a company can be predicted based on the characteristics of Technology (Relative Advantages and Compatibility) Organizational factors (Organizational Readiness and Management Support) and Environmental context (External Pressure).

These findings provide empirical evidence in explaining how the behavior of the use of information technology within an organization based on innovation diffusion theory and TOE Framework. This study provides a reference for other researchers in preparing the research instruments for the measurement of multiple constructs associated with antecedent of the Use of E-Commerce. In order to increase the intensity of the use of E-Commerce, the hospitality services companies need to consider three factors that affect the degree of use of information technology in an organization, the technological characteristics, organizational context and environment context. Some of the factors that can be controlled by the organization, especially the Organization Readiness and Management Support can be an important consideration to support the successful implementation of e-commerce technology in the hotel services marketing system.

### **Limitations and Future Research**

This study has some limitations that may be enhanced in similar studies in the future:

1. Collecting data in this study is done by using cross-sectional, so not able to describe the dynamics of change or development of the situation and the growing conditions associated with the variables examined.
2. Analysis of the data in this study are based on a single information provided by the key informants in the implementation of E-Commerce in each company, which is the owner, director or marketing manager. This study did not explore the opinions of the employees who are also using the application system of E-Commerce.

Future research is expected to:

- a. Consider a longitudinal approach in collecting research data, so that researchers can describe the dynamics of changes in circumstances that are developing to obtain a more comprehensive picture of the study variables.
- b. Assign more than one respondent as key informants representing the leadership and members or employees in each company was chosen as the unit of analysis, so they can better represent the actual empirical conditions in studying the antecedents of the use of E-Commerce system in the company.

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