

# THE DETERMINANTS OF THE ADOPTION OF ELECTRONIC PUBLISHING AMONGST MALAYSIAN PUBLISHERS

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**ABSTRACT:** This paper examines the importance of technological, organizational and environmental context in the adoption of electronic publishing amongst Malaysian publishers. The research is based upon a questionnaire survey of 22 publishers in Malaysia. The framework for the adoption of electronic publishing in Malaysian was developed for this study based on the Technology, Organization, and Environment Framework (TOE). The objective of this study is to explore the technology, organization and environmental context that would facilitate the adoption of electronic publishing in Malaysia. The result revealed that trialability, observability, top management support, IT expertise, communication, organizational slack and influence of trading partners are significant in explaining the adoption of electronic publishing by Malaysian publishers. Based on the findings of the pilot study, technology, organization and environmental contexts would facilitate the adoption of electronic publishing amongst Malaysian publishers.

**Keywords:** Electronic publishing adoption, electronic publishing, technology adoption, information technology

## 1. INTRODUCTION

Today, information technology is globally recognized as an essential tool in enhancing the organizational competitiveness and performance. It can make a huge difference to the way organization operates and the way employees perform their tasks and responsibilities. Information technology benefitted both employees and organization. It increases the employees' skills and motivates them to be more innovative and response positively towards organizational change. Organization that adopted new technology is able to innovate and produce good quality of products and services and increase returns drastically. The introduction of World Wide Web and Internet has made this endeavour more fruitful. The continuance of electronic publishing depends on the adoption of this media by publishers. However, previous research demonstrates that the rate of adoption of electronic publishing amongst Malaysian publishers is low. Therefore, this study will identify the contributing factors that have influenced that scenario.

## 2. THE FRAMEWORK

The TOE framework was introduced by [1]. Since then, it has been argued to be an integrative framework that provides a holistic and guiding theoretical basis for research in the adoption/diffusion of ICT at the organization level. The prediction of technology adoption decision in this theory is explained by three different contexts. They are described as technological, organizational and environmental context.

Technological context describes the attributes of the organization that ensure the decision making towards technology [2]. The technology factors that are studied and measured in this study are ICT infrastructures, relative advantages, compatibility, complexity, trialability and observability. Organizational context captures descriptive measures about the organization such as top management support, IT expertise, communication and organizational slacks. Environmental context relates to the activities in which the organization conducts its business [3]. These include competitive pressures, government support and influence of trading partners.

TOE framework has been broadly used to explain the adoption and diffusion of IT innovation over variety of areas including mobile commerce (mcommerce) adoption [4], mobile communication technologies adoption decision [5] and e-voting system adoption [6]. It has always been reviewed as a theory that has consistent empirical support and solid theoretical basis [4-5,6], and has been successfully used to explain the study of technology adoption within organization [5]. TOE serves as a useful framework for researchers to evaluate various technological, organizational and environmental factors in which various technology innovations being implemented [7], providing comprehensive details what the organization should consider when investigating factors that influence the organizational adoption of technological innovation [8]. It also serves as suitable theoretical guidelines for explaining factors that impact new technology innovation [9]. Figure 1 illustrates the research model for this study.

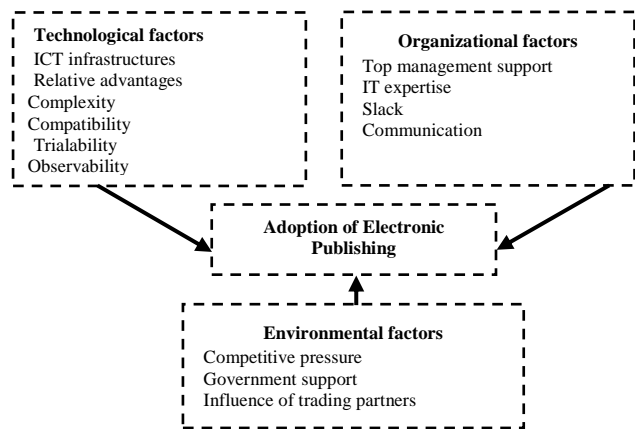
### a. Technological Factors

#### i. ICT Infrastructure

In order to adopt electronic publishing, the publishers need to justify the availability and capability of infrastructure in the organization. The characteristics of available innovation are believed to influence the adoption of a new technology [1]. It has been used to examine various distinct areas of study including e-government assimilation [7], Internet adoption, enterprise resource planning adoption [4] organisational business intelligence, etransformation, e-business, RFID readiness.

#### ii. Relative advantages

The decision is possible to be made if the publishers do not recognised the potential benefits of electronic publishing. It implies that a high level of perceived benefits was positively impact the technology [10]. It is also one of the antecedent for electronic journal adoption in Malaysia [11]. Similarly, perceived benefit was also found to have a positive and significant correlation with e-commerce adoption. In other words, perceived benefit is one of the determinant factors of e-commerce adoption by SMEs in Indonesia [12].



**Figure 1: The Electronic Publishing Adoption Model**

### iii. Compatibility

In electronic publishing industry, publishers would have to perceive electronic publishing to be compatible with their value, past experiences and needs. The decision will be made when the managers or decision makers in an organization are able to see that the new technology suits with the needs or existing programs in the workplace. The new ideas that are incompatible with the values and norms of an organization will be adopted more slowly. As regard, compatibility is positively related with technological adoption [13,11].

### iv. Complexity

Complexity is suggested as a factor that would facilitate the adoption of electronic publishing in Malaysia. This concept emphasize on the simplicity attribute of technology. Therefore, the more simplistic and less complex the new technology is, the easier it is for the organization to adopt it [20]. Those who perceived less complexity of new technological innovation will relatively interest in venturing into it [10]. In addition, complexity could stands as impediments to the adoption of electronic publishing.

### v. Trialability

Trying any new technologies on the installment plan will stimulate the rapid adoption of new technology compared to new technologies that are not devisible [21]. In electronic publishing decision making, trying this new technology is important for the decision makers to make a decision. It gives an opportunity for the potential publishers to observe how the electronic publishing process complies with the existing technology. They might also gain exposure to the new technology through their direct involvement with the technology. Therefore, trialability is relatively a great way for potential adopters to reduce uncertainty or doubt that they might have in the technology adoption decision process.

### vi. Observability

In this study, observability is operationalized as some new ideas about innovation are observable and can be revealed clearly to the others, whereas other new technologies are hard to be observed or to communicate to others [21]. According [22], in their study on the adoption of software as a service (SaaS) in Indonesia, observability is positively contributed to SaaS adoption in Indonesian companies.

### b. Organizational Factors

#### i. Top management support

In this study, top management support is seen as vital for the survival and success of organizations. Top management

attitude and commitment toward organizational management will lead to a better decision making towards organizational change, for example, making decision and support the adoption of new technology. In other words, top management support is one of the most common predictors for technology adoption. Prior studies on various field had confirmed the significant effect of top management to technology adoption [18,10].

#### ii. IT Expertise

IT expertise is one of the organizational factors that could compensate the adoption of electronic publishing in Malaysia. In order to move from print publishing to electronic publishing, the organization needs to have employees who are well-trained with technical skills and have experience using various types of ICT as part of their routine jobs. A study by [7] indicates that ICT skills of human resources in organization supported the adoption and implementation of e-government. This is very important factor in the electronic publishing context as IT expertise could be able to handle the technological and technical related issues.

#### iii. Organizational slack

Organizational slacks also enable manager to achieve optimal organizational slack and increase the initiative with new projects [19]. In addition, slack is one of the capital-based firm resources such as financial, physical, human resource and organizational that the organization deploys to improve organizational effectiveness. Moreover, it is a medium for effective learning, giving potential for further enhancement of alignment skill [20]. In the case of electronic publishing, publishers need to have excess financial and human resources in order to pursue electronic publishing.

#### iv. Communication

Likewise, communication is also vital in the change process and overcoming resistance in organization. It is important to make everyone in the organization understands the need for change, what the changes are and what impact will they have. Poor communication would cause resistance because only the people in charge of the changing process will know and understand the changes while the others will become resistant. In this essence, communication can increase understanding of the commitment to change, as well as reducing confusion and resistance to it.

### c. Environmental Factors

#### i. Competitive Pressure

Competitive pressure has long been recognized as a driver of a technology adoption [21,10]. The Internet adoption by companies in the United States and China was increased because the companies faced more pressure from their competitors [10]. Similarly, competitive pressure facilitates the adoption of electronic supply chain management systems. [29] confirmed that competitive pressure was positively related to organisational likelihood to adopt cloud computing.

#### ii. Government support

Government support is one of the important factors in organizational factors that could facilitate the adoption of electronic publishing. In other words, government support plays a key role for the adoption of technological innovation. The support could be executed through its regulatory

compliance and its full commitment to the development of technology by providing good ICT infrastructures and funding [18].

**iii. Influence of trading partners**

Trading partners is important in term of providing information on innovation process. The influence of trading partner would probably change the decision made by organizations. Generally, the organization will go along with the ideas or request from the trading partners. This will ensure the continuity of business partnership.[29] has proposed trading partners as a determinant of cloud

**Table1: Measures of the Variables**

Correlates	Adoption
ICT infrastructures	.208 n.s
Relative Advantages	.132 n.s
Compatibility	.090 n.s
Complexity	-.279 n.s
Trialability	.671**
Observability	.460*
Top Management Support	.760**
IT Expertise	.682**
Communication	.498*
Organizational Slack	.457*
Competitive Pressures	.174 n.s
Government Support	.201 n.s
Influence of Trading Partners	.497*

computing adoption. The result of the coefficient regression found a positive relationship between trading partners and cloud computing adoption.

**3. RESEARCH METHODOLOGY**

In this study the researcher is interested to know the determinants of the adoption of electronic publishing amongst Malaysian publishers through a quantitative research. The population sampled and surveyed is Malaysian publishers representing their organizations. They are managers, editors or decision makers responsible for the management and publication of publishing materials. Figure 1: depicts the Electronic Publishing Adoption Model.

In this study, the survey questionnaires consisting of both open and closed questions was adopted, using the TOE framework by[1].

**4. DATA ANALYSIS**

Based on pilot study, about 27.3% (6) are editors, 31.8 % (7) are managers and 40.6% (9) are those who are involved in the publishing process. The majority (40.9%) of the respondents have involved in the publishing industry for 11-20 years. Of the 22 respondents, a majority (50%) of the respondents are between 21-30 years old. It suggests that the age of the respondents reflects their working experiences. The size of the respondents' organization, measured in numbers of employees, included 31.8% of the publishers in this survey have less than 10 employees, 40.9% have between 11-20 employees, 18.2% have between 21-30 employees, 4.5% have between 31-40 and another 4.5% have more than 51 employees. Measured by revenue, 86.4% of the publishers are having revenue of less than 5 million, while the rest are having revenue of RM6-RM10 million (9.1%), and RM11-RM20 million (4.5%). These indicate that the majority of the

respondents are from a small scale business. The data collected reveals most of the publishers in this study published academic publications and e-book is the most adopted materials for electronic publishing. According to the survey, about 86.2% of the publishers have already adopted electronic publishing. About 13.6% (3) have decided to adopt it at a very great extent and 4.5% (1) to a small extent. Majority (27.3%) of the publishers have moderately decided to adopt electronic publishing. These suggest that the rate of adoption is still at the moderate level. Notably, it is assumed that more publishers are still practising print publishing.

Cronbach's coefficient Alpha is used to measure internal consistency. This is to make sure that the items that make up the scale are measuring the same underlying attributes [23]. The recommended Cronbach's alpha is a range from 0 to 1 with values of .60 to .70 [24]. Based on the pilot study, all factors have values of more than .70, which are acceptable. In this study, the values of Cronbach's alpha are between .90 and .70 respectively for all items. Thus, as recommended by [24] the scale has good internal consistency because all reliability measures have exceeded the minimum value of .60.

To answer the research questions, statistical inferential tests such as the Pearson product-moment correlation coefficient was conducted. Result shows that amongst the constructs, trialability (r=.671, p<0.5), observability (r=.460, p<.05) top management support (r=.760, p<0.5), IT expertise (r=.682, p<0.5), communication (r=.498, p<0.5), organizational slack (r=.457, p<0.5) and influence of trading partners (r=.497, p<0.5) are significant in explaining the adoption of electronic publishing amongst Malaysian publishers. However, ICT infrastructure (r=.208, p>0.5), relative advantages (r=.132, p>0.5), compatibility (r=.090, p>0.5), complexity (r=-.279, p>0.5, competitive pressure (r=.174, p>0.5), and government support (r=.201, p>0.5) are not significant in explaining the adoption of electronic publishing amongst Malaysian publishers (Table 3).

**5. CONCLUSION**

This paper has presented the results of an investigation on the effect of technological, organizational and environmental factors on the adoption of electronic publishing amongst Malaysian publishers. The finding shows that the Malaysian publishers perceive a certain degree of experimenting with a new innovation. They will be receptive to a new technology if they are able to try in a limited basis as to reduce uncertainty or doubt that they might have in the technology adoption decision process. Inadequate ICT infrastructures have stands as an impediment for the organization to gain competitive advantages<sup>[33]</sup>. It is observed that there must be another factor that could influence the adoption of electronic publishing rather than the ICT infrastructure itself, such as, the preference of print book amongst Malaysian readers. Thus, good ICT infrastructures do not hastened the production of electronic publishing in Malaysia. The finding indicates that Malaysian publishers were not seemed to recognize the potential benefits of adopting electronic publishing to their organization and business. They also perceived that electronic publishing is incompatible with the values and norms of their organization. The more simplistic and less complex the new technology is, the easier it is for the



organization to adopt it [26]. It is observed that Malaysian publishers perceived electronic publishing to be complex and difficult to use[35]. So that, the chances that they will decide to implement technology that is complex are very low. Observability is found to have significant effect on electronic publishing adoption. It implies that, managers who are able to see and observe others in the same industry intended to adopt and implement e-journal publishing would also most likely adopt it.

Top management support, IT expertise, communication and organizational slack are relevant constructs in explaining the adoption of electronic publishing in Malaysia. In publishing industry, top management support plays a vital role in the adoption process, as they are the ones who would decide what is best for their organization. Even if the employees perceived that electronic publishing is good for the organization performance, but without the top management support of their views, the decision to adopt would never be materialized. The availability of employees with adequate understanding of information technology, particularly electronic publishing technology, facilitates electronic publishing adoption in Malaysia. This is because the organization that faced the problem of lack of IT expertise would have less concern to innovate. Furthermore, it would become a hindrance factor if the level of understanding of technical knowledge amongst managers and employees of the organization is low[36]. Communication is also vital in the change process and overcoming resistance in organization [28]. It is important to make everyone in the organization understands the need for change, what the changes are and what impact will they have. Poor communication would cause resistance because only the people in charge of the changing process will know and understand the changes while the others will become resistant. In this essence, communication can increase understanding of the commitment to change, as well as reducing confusion and resistance to it. Slack resources also enable manager to achieve optimal organizational slack and increase the initiative with new projects[38]. In the case of electronic publishing, publishers need to have excess financial and human resources in order to pursue electronic publishing.

It is observed that competitive pressure and government support do not facilitate the decision of electronic publishing adoption in Malaysia. In the case of electronic publishing, government support is vital in order to ensure the continuous of its development. The financial support infrastructure and sharing of information is predicted as important factors that affect the adoption of electronic publishing. However, it is observed that, Malaysian publishers perceived that there is lack of government support in term of financial support and information provided. Although there are initiatives done by government, it is however does not seem enough to facilitate the adoption of electronic publishing by Malaysian publishers. In Malaysia competitive pressure is not the supportive factor for the adoption of electronic publishing because of several reasons. These are a) size of the business, ambiguity in the publishing market, b) lack of confidence among Malaysian publishers that there is a demand for the electronic publishing and c) some Malaysian publishers don't feel the urge to set their feet into the new grounds which in

turn, hinder the adoption decision. It is suggested that the adoption of electronic publishing in Malaysia depends on the promises regarding benefits to be received from organization's adoption of electronic publishing, request and recommend of the implementation of the electronic publishing by the trading partners.

The findings from this study are limited to publishers that participate in the pilot study and, as such, cannot be generalized. However, the study does highlight and discuss the determinant factors that may potentially influence the adoption of electronic publishing in Malaysia which would be achieved by identifying the technological, organizational and environmental contexts. These factors perhaps would facilitate the decision making of the electronic publishing adoption in Malaysia.

The findings are useful in understanding what needs to be considered by decision makers, academic researchers and practitioners as it may assist in the making decision on technology adoption particularly in the adoption of electronic publishing.

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