

Managerial Support, Time Constrain and User Pressure on Digital Technology Adoption

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Abstract: This study aims to explore and analyze the factors that influence the adoption of digital technology mediated by the intention to adopt the technology. The variables used as antecedents of digital adoption are managerial support, time constraints and pressure from users. The object of this research is the adoption of digital technology-based social media marketing. This study used a survey of respondents. The number of samples used is 210 SMEs in the Special Region of Yogyakarta and South Sumatra Indonesia. The data analysis tool used is Structural Equation Modeling. The results of this study indicate that the model of digital technology adoption that is influenced by managerial support, time constraints and pressure from users by mediating the intention to adopt can be accepted.

1 INTRODUCTION

1.1 Background

Industrial Revolution 4.0 has changed the industry and forced businesses in Indonesia to be involved in digitalization, and must be prepared to adopt digital technology (Bettiol, Capestro & Di Maria, 2017; Morrar, Arman & Mousa, 2017)). On the one hand, small and medium enterprises in the Special Region of Yogyakarta are late in applying technology (Sugandini et al., 2018b).

Digital marketing technology is an option in marketing products in the digital era. Digital technology in production, customer service, and sales can also increase business value (Hood, Brady and Dhanasri, 2016). The development of the Internet and its related technologies such as social media platforms has rapidly changed the way people communicate with each other. Many companies and consumers prefer and switch to using online channels rather than traditional channels (Aspasia & Ourania 2014). The last two decades have shown that more and more companies have adopted electronic communications to carry out their operational activities and provide a platform for e-marketing. Social media based marketing is something that is

very much needed by the company (El-Gohary 2012; Ndekwa & Katunzi 2016). But unfortunately, not many business companies have succeeded in adopting the technology (Sugandini et al., 2018a). Thus, research on the success of social adoption of digital technology-based media is still very important. Besides for reasons of competition, also because the business demands of the 4.0 industrial revolution have forced companies to digitize in all aspects of their business.

This study aims to analyze the influence of internal factors from companies in adopting Industrial 4.0 technology. Primarily, this study analyzes the adoption of digital technology that is influenced by managerial support, time constraints and pressure from users. This research is based on the Technology Organization Environment model (Tomatzky and Fleicher, 1990), because: Technology-Organization-Environment (TOE) is an organizational theory used to understand new technology adoption decisions (Matikiti and Mpinganjira, 2018). In addition, (1) TOE can explain that innovation cannot be separated from organizational conditions, the industrial environment, and technological developments (Matikiti & Mpinganjira, 2018). (2) TOE is able to combine the schemes of technological characteristics, organizational factors, and elements of the macro environment (Ifinedo, 2012). (3) TOE can explain

that corporate innovation involves 3 contexts, namely technological context, illustrating that adoption depends on technology both from outside and inside the company; organizational context, describing the scope of the company's business, support of top management, organizational culture, complexity of managerial structures measured by centralization, formalization, differentiation, quality of human resources, and size of problems; and the environmental context related to facilities and the company's operating factors such as competition, customer pressure, social cultural issues, government encouragement, and technological infrastructure (Awa, Ukoha, & Emecheta, 2012).

1.2 Originality/Value

This study analyzes the factors that influence organizations in adopting technology innovation. It is different from the research conducted by previous researchers which emphasize the readiness of users in information system adoption and emphasizes the ex post benefits to adoption testing, namely benefits after adoption occurs or after they estimate the benefits to be enjoyed after innovation adoption (Rubas, 2004; Al-Nashmi & Amer, 2014).

2 LITERATURE REVIEW

2.1 Industry 4.0

Industrial Revolution 4.0 is a new industrial revolution that is activated by the application of advanced technology (such as information technology). Industry 4.0 brings new values and services to customers and organizations, as well as quality flexibility in production and marketing systems to meet the demands of new business service models, which are more innovative and faster. Digitalization and virtualization are tools to bring end-to-end services throughout the product life cycle (starting from product design to recycling) in an effective and cost-effective way. Industry 4.0 is often referred to as a smart factory (Dutton, 2014). In smart factories, virtual copies of the physical world and decentralized decision making can be developed, and people can also work together and communicate with each other in real time (Buhr, 2015). Industry 4.0 has a global impact that includes: digitalization, the internet, intelligent knowledge, and systems (Friess & Ibanez, 2014; Vermesan et al., 2014). Although industry 4.0 brings high uncertainty, if utilized properly it will increase the speed of technological

innovation in various aspects of human life. The industrial revolution has changed buyer-seller relations, both in Business to business (B2B), in business to consumer (B2C), and emphasizes the company's ability to respond quickly to customer needs (Obal & Lancioni, 2013). Companies must be closer to their customers and more reactive in interpreting customer needs. Companies must be able to increase customer involvement at the value chain level - in designing and developing product designs. Another recent study highlights how B2B companies are starting to use digital marketing tools, especially social media marketing, in the same way as B2C companies (Wang, Pauleen & Zhang, 2017)

2.2 Technology Organization Environment Model

Tornatzky & Fleischer (1990) proposed a TOE model for analyzing factors that could influence the adoption of new technologies. The TOE model identifies three important aspects of the organization that influence the process of adoption and application of technology, namely, technology, organization, and environment. The technological context refers to internal and external technologies that are useful to the company (Tornatzky & Fleischer 1990). The technology context can also show the relevant skills needed to use certain technologies (Dwivedi & Schneberger, 2011). The organizational context describes the size and scope of the organization and management structure (Oliveira & Martins 2011). The environmental context shows the external aspects that influence a company's decision to adopt new technology, which includes competitors, customers, and government involvement. As such, the TOE model provides a platform for assessing the application of social media marketing; in this case, it highlights both internal (technical knowledge) and external aspects (such as pressure from competitors) from an organization that can influence the adoption of new technology. The TOE model also provides the framework needed to assess the adoption of new technologies such as social media (Chao & Chandra 2012; Wamba & Carter 2014).

2.3 Hypothesis

- H1: Managerial support affect the intention to adopt digital technology.*
- H2: Time constraints affect the intention towards the adoption of digital technology.*
- H3: User pressure affect the intention towards the adoption of digital technology.*

H4: Intention to adopt digital technology has an effect on digital technology adoption.

3 RESEARCH METHODS

This research is a survey. The setting of this research is the adoption of social media marketing. The study population consisted of all SMEs in the Special Region of Yogyakarta and South Sumatra. The number of samples used is 210 respondents. The data analysis using SEM-AMOS techniques. According to Hair et al., (1998) in testing using SEM the recommended number of samples ranged from 100-200 samples, but as many as 200 samples were considered critical for testing with SEM. The sample units in this study are organizations. This study uses purposive sampling technique because respondents must meet the criteria, namely: as individuals involved in the innovation decision-making process. The items in the questionnaire were adopted from Al-Mamary and Shamsuddin (2015), Matikiti et al., (2018); Sugandini et al., (2018a) which was adopted adjusting to the research of digital technology adoption. This study uses structural equation modeling (SEM) technique

4 RESULT

4.1 The Characteristic of the Respondent

All respondents in this study were SMEs managers. The description of the respondents presented below contains the demographics of the respondents consisting of gender, age, level of education, and length of time the UMKM operates. Description of respondents about the data of respondents who participated in the study can be seen in table 1.

Table 1: Characteristics of respondents.

Classification	Characteristics	%
Gender	Female	43
	Male	57
Age	20 – 35	40
	36 – 55	60
Educational level	High school	26
	Diploma	21,6
	Bachelor	52
	Master	10,1
The duration of SMEs operating	< 10 years	19,8
	≥ 10 years	80,2

4.2 The Test Results for Adoption Models of Digital Technology

The results of testing the model of digital technology adoption using SEM can be seen in Figure 1. Evaluation of the results of testing the model can be seen in table 2.

Table 2: Evaluation of Criteria for Goodness of Fit Indices.

Criteria	Result	Critical Value *)	Evaluation
Cmin/DF	4.495	$1 \leq Cmin/DF \leq 5$	Good
Probability	0.058	$\geq 0,05$	Good
RMSEA	0.012	$\leq 0,08$	Good
GFI	0.994	$\geq 0,90$	Good
TLI	0.927	$\geq 0,95$	Good
CFI	0.977	$\geq 0,94$	Good

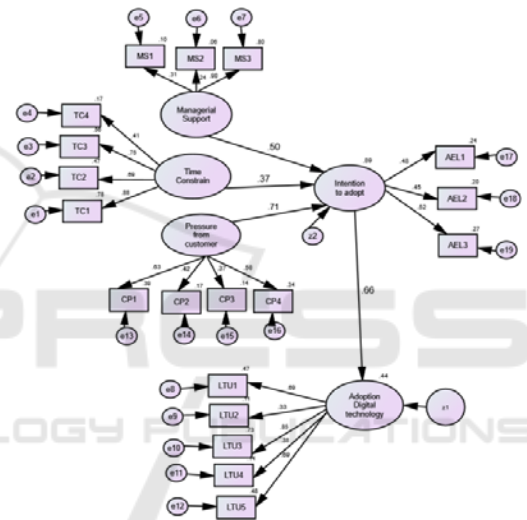


Figure 1: Digital Technology Adoption Model.

From table 2 and figure 1 above, it can be stated that the model of digital technology adoption is acceptable. To test the hypothesis of a causal relationship between managerial support, time constraint, user pressure, intention to adopt and digital technology adoption seen from the CR value greater than 2 or the probability value is less than 0.05 ($p \leq 0.05$). Based on these criteria, all paths are significant. The causal relationship between these variables is shown in Table 3.

Table 3: Standardize Regression Weight between Variables.

Path	Estimate	p	C.R.	Result
MS → IA	0.500	.008	2.654	Supported
TC → IA	0.370	***	4.061	Supported
UP → IA	0.709	***	4.554	Supported
IA → Adopt	0.662	***	5.209	Supported

5 DISCUSSION

The first hypothesis in this study which states that managerial support influences the intention of adopting digital technology is accepted. The influence of managerial support on the intention to adopt is positive. This shows that managers in SMEs studied have been aware of the benefits that can be achieved by using digital marketing through social media. SMEs managers also support their business organizations to use information systems and provide access to both hardware and software. This access is given to all Human Resources (HR) and SMEs business units so that the support provided by these managers is able to increase the intention to adopt social media-based digital marketing for the SMEs they lead. The better the support given by the UKM manager will increase the intention to use digital marketing based on social media. The results of this study support the results of the research of Nguyen (2009) and Dahnil et al., (2014), which states that the process of adopting digital technology is influenced by top management because all innovation decisions are the authority of top managers. Matikiti et al., (2012) also state that the role of managers is important to support digital technology innovation (Tarafdar & Vaidya 2006).

The second hypothesis in this study which states that time constraints influence the intention of adopting digital technology is accepted. The effect of time constraints on the intention to adopt is positive. This shows that managers feel that the application of social media innovation is not too time-consuming so the intention to adopt social media marketing will increase. Proxy time constraints with the time needed to prepare the system that can support the success of this innovation, the difficulty of allocating time in initiating social media marketing applications for his business, and the perception that social media marketing spends a lot of time turn out to affect SMEs intention to adopt social marketing media. Thus it can be concluded that the faster the time needed by SMEs to adopt social media marketing, it will increase the intention to adopt social media marketing. The results of this study support Braun (2004) which states that the adoption of digital technology requires time (Braun 2004). Braun (2004) and Au (2010) also state that time constraints can improve technology adoption.

The third hypothesis which states that user pressure influences the intention to adopt digital technology is accepted. The results of this study indicate that the user, in this case, is HR who handles the marketing of SMEs expecting and demanding that

SMEs are time to apply digital technology in social media marketing. Marketing through social media can satisfy customers, and the user is also ready to adopt digital technology. With the encouragement of the user, the manager is increasingly convinced to adopt marketing through social media. The results of this study support El-Gohary (2012) stating that new technology is a competitive tool that enables MSMEs to have a rapid leap in the face of competition. Wanyoike et al., (2012) stated that the pressure of competitors and users determine the application of Internet-based technology.

The fourth hypothesis states that the intention of adopting digital technology influences digital technology adoption is accepted. The results of this study indicate that SMEs will continue to use social media marketing. SMEs plan to increase social media marketing budgets and intend to adopt more social media sites for digital marketing. The increasing intention to adopt social media marketing means that SMEs have extensive social media marketing policies, have guidelines for social media marketing, SMEs often interact with customers in social media and SMEs have provided a number of links from major social networking pages to other important sites. The intention to use social media has encouraged SMEs engaged in the manufacturing and tourism industry in the Special Region of Yogyakarta and South Sumatra to adopt social media marketing. The results of this study support the TAM theory which states that intention is the cause of someone using a technology (Davis et al., 1989; Davis 1989). Praveena and Thomas (2014) and Shen (2015) also state that technology usage levels are influenced by the intention to use Web technology.

6 CONCLUSIONS

The results of this study indicate that the model of social media marketing adoption as a form of adoption of digital technology from SMEs is accepted. Furthermore, it was explained that the intention of adopting digital technology was signed to affect managerial support, time constraint and pressure from the user. The TOE used as the theoretical basis in this study is also supported.

Managerial support and user pressure are internal organizational factors that are found to have an influence on social media marketing adoption. The adoption of digital technology analyzed in this study is the adoption of technology related to digital marketing based on social media. In this study, it can show that intention has a dominant influence on

social media adoption. This reinforces the reasoned action theory of Fishbein & Ajzen (1975), which states that intention is the most appropriate factor for predicting behavior. This research also supports TAM from Davis (1989) who shows that on information system adoption, intention to use is a predictor of the adoption of Information systems. Another factor that is very influential towards adopting intentions is managerial support. Dahnil et al., (2014); Matikiti et al., (2012); Al-Mamary & Shamsuddin (2015) in his research also showed that in adopting IS, manager support was needed because it was managers who determined innovation policies for their business units. Managers also play a role in determining budgets for technological innovation.

This research is limited to the adoption of digital marketing innovations based on social media. In future research, researchers should conduct research by analyzing the readiness of users (human resources) available in SMEs in accepting new technology, because, in SMEs, the knowledge and skills of HR to adopt new technologies are still lacking (Sugandini et al., 2018b). In addition, several other factors also need to be analyzed in predicting adoption of digital technology innovation, namely consumer pressure (Matikiti, Mpinganjira & Lombard, 2018) and training for HR (Al-Mamary and Shamsuddin, 2015). Matikiti et al., (2018) states that consumer pressure is very influential on the need for the adoption of digital technology. Besides that, the pressure of the industrial revolution 4.0 also requires SMEs to make new breakthroughs in the field of digital technology (Ndekwa & Katunzi 2016).

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