The Role of Social Media Adoption as Mediating Variable between Environment Context and SME Performance

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Abstract: Acceptance of social media in small and medium businesses has been largely achieved through previous studies. However, previous literature paid less attention to Indonesia's small-medium enterprise (SME). This study aims to explore the role of social media adoption as a mediator between environmental factors and the economic performance of SMEs. To understand the relationship of these variables, researchers use Technology-organization-environment (TOE). SEM-PLS is used to analyse the primary data. The results show that environmental factors have a positive correlation with the adoption of social media. Futhermore, the environmental factor is also associated with business performance. however, social media adoption does not play the role of mediator between the environmental factor and business performance of SME. Theoretical and practical implication are discussed in this article.

1 RESEARCH BACKGROUND

One important aspect of technology is social media and being used by many organizations in their activities. (Kaplan and Haenlein, 2010) said, Social media refers to a class of cyberspace derived discharge that develop in the principle and state of the art foundation of Web 2.0, and that enable the exchange and creation of user produced contents. In addition, (Constantinides and Fountain, 2008) add that social media entail exchanging content generated by user, taking feedback in real-time basis and constructing society of customers to sustain the process. Social media adoption by business organization has been enhancing to many functional management areas, like customer support, operation, sales and marketing, and research and development (Bernoff and Li, 2008). Social media adoption in business is a part of technology information implementation and it can allow business organizations to performance better in the competitive edge (AlSharji et al., 2018). Technology innovation adoption has been explained by many theories (Rogers, 2010; Tornatzky et al., 1990; Swanson, 1994). In organization level, TOE is famous theory used to underpin the technology & environment and organization outcome relationship.

Social media can be utilized by enterprise (SME) to gain the competitive advantage due to minimal technical requirement and its low cost (Ferrer et al., 2013). Technology adoption among SME has been documented by many researchers (Ahmad et al., 2015; Gangwar et al., 2015; Maduku et al., 2016; Shi and Yan, 2016). (Ahmad et al., 2015) examine the introduction of retail e-business in many countries and use regulatory support and competitive pressure like environmental factors. In addition, (Gangwar et al., 2015) examine cloud computing in Indian SMEs and consider competitive pressures as environmental factors. Further, (Maduku et al., 2016) examine the e-marketing taken by SMEs in South African and involve external factors such as customer pressure, supplier support and competitive pressures. Moreover, (Ramdani et al., 2013) examine the takeover of business applications by SMEs in north-west England and include industry, market support, competitive pressure and external support for ICT as environmental factors. (Shi and Yan, 2016) investigate the adoption of RFID by agriculture SME in China and apply the environment factor, such as competitive pressure, uncertainty and government support.

Study on social media adoption also has been done by previous researchers (Ahmad et al., 2018; Ainin et al., 2015; Carlos Martins Rodrigues Pinho and Soares, 2011). (Ahmad et al., 2018) examine

the social media adoption among UAE SME by examining the effect of organization context, environment factors, technology factor on social media adoption. (Ainin et al., 2015) investigate the factor affecting the Facebook usage and its relationship with Malaysia's SME non-financial and financial performance. (Paniagua and Sapena, 2014) examine the impact of social media adoption on business success. (Parveen et al., 2015) use the qualitative approach to analyse the usage of social media purpose and its influence on organizational outcome. (Carlos Martins Rodrigues Pinho and Soares, 2011) survey the university student regarding to social network adoption and ascertain TAM explanatory power in the social network adoption. Based on extensive literature review above, study on social media adoption among SME is limited. Even thought, there is one study that examines the adoption of social media using Indonesia's SME (Sarosa, 2012), but the study use the qualitative approach. Therefore, it needs the further study that investigate the adoption of social media using an Indonesia's SME. The aim of this of this study is to analyse the function of social media adoption as mediating variable between environmental factor and business performance of SME. This paper is organised as follow. The background to the study was explained in the first session. It continues to discuss theory and hypothesis development. Following session is research method. The results and discussion are in the fourth session. Last session is conclusion and recommendation.

2 THEORETICAL ASPECT AND HYPOTHESIS

2.1 Social Media Adoption

The important of social media adoption among small and medium enterprise have been documented by social media experts. However, there is no consensus among experts about definition of social media. In addition, social media can be employed for various management functional sectors, like operation, research and development, sales and marketing, customer support and etc (Bernoff and Li, 2008). Social media adoption improve an interaction and information sharing, enhancing brand visibility, leveraging community service, and building customer relationship and social interaction, and reaching wide range of customers and expanding existing markets (Ahmad et al., 2018). The relationship between

adoption of social media with business performance has been researched by previous researchers. (Ahmad et al., 2018) found that there is no relationship between adoption of social media with business performance of SME in UAE. (Ahmad et al., 2018) documented that adoption of social media improve the performance outcome:

- improve costumer clientele,
- increase brand awareness, loyalty, and reputation,
- reducing communication and marketing cost,
- revenue generation,
- attracting new customers and
- increase the competitive advantage.

(Bakri, 2017) found no significant effect of social media application on SME's business performance. (Ainin et al., 2015) conclude that adoption of social media adoption and business performance has positive impact. (McCann and Barlow, 2015) also conclude that the positive impact of the social media adoption and business performance. Furthermore, the hypothesis can be developed as follows.

H1: Social media adoption positively affect Business performance

Previous research on relationship between environmental factors and technology adoption has been done by several studies (Lippert and Govindarajulu, 2006; Pan and Jang, 2008). (Lippert and Govindarajulu, 2006) examine the impact of environmental factors on the introduction of web services and suggest that the higher the competitive pressure, the more likely the introduction of web service technologies. In addition, (Pan and Jang, 2008) studied the relationship between environmental factors and enterprise resources planning (ERP) adoption and conclude that the environmental factor is not an important factor for the introduction of ERP. Study on relationship environmental and technology adoption among small-medium enterprise has been done by (Ahmad et al., 2018; Ahmad et al., 2015; Scupola and Nicolajsen, 2013). (Ahmad et al., 2018) concluded that there was a positive influence of environmental factor and adoption of social media by UAE's SME. (Ahmad et al., 2015) have shown that there is a link between the environmental factor (external change agent) and the takeover of electronic commerce by SMEs in Malaysia. (Scupola and Nicolajsen, 2013) describe level of adoption e-commerce among Australia's SME. Due to competitiveness intensity and industry, small-medium enterprise will adopt the technology and several management areas, such as operation, customer support, sales and marketing,

and research and development areas, are becoming value for money (efficient, effective and economics). Therefore, the business outcome will be enhanced and profitability as one of business performance measurement finally increase. Previous studies on the relationship between the environmental factors with SME business performance has been done (Aziz and Yassin, 2010; Gaur et al., 2011). However, the effect of environmental factors on business performance might be through technology adoption (adoption of social media). Further, there is a insufficiency of studies investigating this social media role as mediator. Based on the explanation above, we develop three hypotheses as follow.

H2: Environmental factors positively affect Social media adoption

H3: Environmental factors positively affect Business performance

H4: Social media adoption mediated relationship between Environmental factors and Business performance

2.2 Environmental Factors

Environmental factors are factors from business environment where business operates. business environment has been becoming competitive (Wang, 2016). In fact, the business environment requires innovative behavior and a higher level of risk (José Ruiz-Ortega et al., 2013). Environmental factors could stem from technological development, globalization and the rapid spread of new technologies (Derham et al., 2011). In addition, (Tornatzky & Fleischer, 1990) argue that environmental factors might be categorised as industry structure, regulatory system and suppliers. There are three environmental factors: a industry competitiveness (Thong and Yap, 1995); Train pressure (Sun, 2013); and competitive pressures (Gutierrez et al., 2015). The competitive intensity of the sector is the pressure of impending competitive advantages (Zhu et al., 2003). In addition, if a business organization adopt the technology, it has a large opportunity to gain the competitive advantage. Thus, bandwagon pressure is a psychological phenomenon and a business organization use the technology or innovation largely due to its peer doing so (Ahmad et al., 2018), and not because the technology fit with its own strategy. Finally, competitive pressure refers to level of competitiveness inside industry (Lertwongsatien and Wongpinunwatana, 2003). Another word, a business organization will adopt a technology because of its business partner has adopted that technology.

3 RESEARCH METHODS

This research object is owner/manager of small medium enterprise (SME). This study uses the simple random sampling. This study applies primary data and gathered via online survey. Latent variables in this study consisted of three types: independent latent variable (environmental factor), mediation latent variable (social media adoption), and dependent latent variable (business performance). Environmental factor consists of eight items which were developed by (Gutierrez et al., 2015; Sun, 2013; Thong and Yap, 1995). Social media adoption has five items which gathered from (Cesaroni and Consoli, 2015). Finally, business performance construct has six items was taken from (Ahmad et al., 2018). SEM-PLS is used to analysis the data. PLS is used because of relatively new research phenomena (adoption of social media in Indonesian SMEs), which is why a PLS approach is often more appropriate (Chin et al., 1998). Smart-pls is used and includes two model evaluations (Wang, 2016): measurement model and structural model. The measurement model includes two validity tests: convergent validity and discriminant validity (Wong, 2013). In addition, discriminant validity use Fornell-Lacker criterion (Fornell and Larcker, 1981), crossloading (Henseler et al., 2015), and Heterotraits-heteromethod (HTMT) ratio (Hair Jr et al., 2016; Henseler et al., 2015). The structural model assessment applies bootstrapping and aims to determine the predictive relevance and power as well as testing the hypothesis.

4 RESULT AND DISCUSSION

4.1 Demographic Variable

This styudy employs twenty-nine small middle entreprises (SME). 20.69% SMEs run the business in Padang city. SMEs operates in Payakumbuh city is 24.14%. in addition, 27.59% SMEs run its business in Bukittinggi city. the rest is in other city in west sumatra. Regarding to SME's business category, three SMEs (10.34%) has in the restourant and catering business. Further, three SMEs (10.34%) is categorised as profesional service business. One SME (3.45%) is classified as tour and travel business. Finally, the rest of SME is in other business type.

4.2 Measurement Model Assessment

This section discusses the results of the assessment of the measurement model (convergence validity and

discriminatory validity). Table 1 shows the result of the convergence validation test. Four properties are used to evaluate the convergent's validity (Hair Jr et al., 2016): "outer loading, Cronbach's alpha (CA), composite reliability (CR) and average variance extracted (AVE)". he results show that the external load of all constructions is greater than 0.700 (Hulland, 1999). Environmental factor construct has eight items and two items have outer loading lower than 0.700 (eci1 and eci2) and they are, therefore, excluded in next analyse. Besides, social media adoption construct also has two items that have outer loading lesser than 0.700 (sma1 and sma5). Internal consistency of all construct are reliable due to the CA and CR value are greater than 0.700 (Bagozzi and Yi, 1988). Finally, AVE for all construct is also greater than cut-off value, 0.500 (Bagozzi and Yi, 1988).

Table 1: Convergent validity.

construct	items	outer loading	CA	CR	AVE
business performance	bp1	0.919			
	bp2	0.963			
	bp3	0.947	0.963	0.97	0.845
	bp4	0.919			
	bp5	0.933			
	bp6	0.827			
environmental factors	ebp1	0.905			
	ebp2	0.932			
	ebp3	0.956			
	ecp1	0.941	0.960	0.968	0.836
	ecp2	0.911			
	ecp3	0.836			
social media adoption	sma2	0.809			
	sma3	0.802	0.718	0.842	0.639
	sma4	0.787			

Table 2 provides us with result of discriminant validity that indicates the uniqueness of a construct compared to another construct. There are three types of discriminant validity tests: the Fornell-Lacker criterion, crossloading, and the heterotrait-monotrait ratio (HTMT). Table 3 shows the result of discriminant validity using the Fornell-Lacker criterion. The diagonal value (in bold) corresponds to the square root of the AVE, while the value outside the diagonal corresponds to the correlation. (Chin et al., 1998), (Fornell and Larcker, 1981) the squared correlations between the latent variable and all latent variables should be lower than the latent variable AVE. For example, square root of environmental factor's AVE (0.914) is greater than relationship between this construct and all other constructs (business performance and social media adoption).

Second discriminant validity test using cross strain. The cross-burden is the burden of one indicator for the identified latent variable, which must be higher than that of all other latent variables (Hair Jr et al.,

Table 2: Discriminant validity-Fornell-Lacker Criterion

construct	1	2	3
Environmental factors (1)	0.914		
business performance (2)	0.790	0.919	
social media adoption (3)	0.652	0.623	0.799

2016; Henseler et al., 2015). Jörg (Henseler et al., 2015) argue that the lack of discriminant validity, when two constructs are perfectly correlated, is a defect that is not effective for empirical research. As shown in Table 3, the load of one indicator of the latent variables associated with it is greater than that of the other latent variables. For example, indicator of bp1 to bp6 loaded to business performance construct and have a higher loading value (bold).

Table 3: Questionnaire's Indicators.

Items	Environmental factors	business performance	social media adoption
bp1	0.632	**0.919**	0.573
bp2	0.697	**0.963**	0.574
bp3	0.689	**0.947**	0.583
bp4	0.721	**0.919**	0.496
bp5	0.800	**0.933**	0.614
bp6	0.785	**0.827**	0.578
ebp1	**0.905**	0.710	0.622
ebp2	**0.932**	0.744	0.674
ebp3	**0.956**	0.732	0.623
ecp1	**0.941**	0.786	0.591
ecp2	**0.911**	0.742	0.542
ecp3	**0.836**	0.611	0.511
sma2	0.562	0.525	**0.809**
sma3	0.448	0.515	**0.802**
sma4	0.547	0.452	**0.787**

The third discriminant validity test is heterotrait-monotraits ratio (HTMT). The HTMT ratio is the mean heterotropy-heteromethod correlation to mean single heteromethod correlations (Hair Jr et al., 2016; Henseler et al., 2015). The HTMT value near 1 indicates a lack of discriminatory validity. The HTMT value of more than 0.85 indicates a insufficiency of discriminant validity (Kline, 2005)(Kline, 2011). As can be seen from the Table 4, all value of HTMT is lesser than 0.85. The measurement model is shown in Figure 1.

Table 4: Discriminant validity-HTMT

construct	Environmental factors	business performance	social media adoption
Environmental factors			
business performance	0.814		
social media adoption	0.779	0.745	

4.3 Structural Model Assessment

Based on the measurement model assessment, the measurement model is valid. Therefore, it continues to the structural model assessment. This assessment is for hypothesis testing and is related to the relationship between latent variables. we use the bootstrapping technique. In addition, bootstrapping is a test that indication whether the relationship is significant. SEM-PLS aims at maximizing R2 of endogenous variable in a path model. R2 measure a predictive power of model and predictive relevance is measured by Q2. The value of Q2 for business performance and social media adoption is 0.481 and 0.234 respectively. In addition, business performance has a large predictive relevance and medium predictive relevance (Henseler et al., 2009) for social media adoption construct.

Table 5: Discriminant validity-HTMT

endogenous construct	Q square	decision	R square	decision
business performance	0.481	large	0.645	moderate
social media adoption	0.234	medium	0.425	moderate

relationship	path coef.	t statistic	p-value	decision
Environmental factors -> business performance	0.669	3.558	0.000	supported
Environmental factors -> social media adoption	0.652	6.984	0.000	supported
social media adoption -> business performance	0.186	1.015	0.311	not supported

R^2 for both endogenous constructs are 0.654 and 0.425 respectively. Both constructs have moderate predictive power due to their value around 0.50 (F. Hair Jr et al., 2014). The first assumption is that there is a positive relationship between the environmental factor and the company's performance because the p value (0.000) is below 0.05. In addition, its path coefficient is positive (0.669). The second hypothesis is developed as follow: environmental factor has a positive influence on the acceptance of social media. The result show that this hypothesis is supported because of its p-value lower than 0.010 (0.000) and positive path coefficient (0.652).

Table 6: Assessment of mediation

relationship	Indirect effect (p-value)	direct effect (p-value)	conclusion	decision
Environmental factors -> social media adoption -> business performance	0.351	0.000	no mediation	not supported

The third hypothesis is not supported because the value p is greater than 0.050 (0.311). As a result, there is no link between social media adoption and business performance. The fourth hypothesis is analyzed using the evaluation approach of mediation proposed by (Zhao et al., 2010). (Zhao et al., 2010) argue that there should be a precondition for the establishment of mediation (the indirect effect (axb) is significant and it is not necessary that an "effect is mediated" (path c) The Sobel test compares to a low bootstrap test (Zhao et al., 2010). According to the result of the indirect effect its p-value is greater than 0.050 (see Table 6) and therefore there is no mediating effect. Thus, the fourth hypothesis is not supported. The figure below shows the mediation analysis.

Contrary to expectation, the influence of social media adoption on business performance of SME is not significant. Although, this finding diverge from some published studies (Ahmad et al., 2018; Ainin et al., 2015; McCann and Barlow, 2015), it is consistent with those of (Ahmad et al., 2018; Bakri, 2017). It is difficult to explain this result, but it may be related to the sample size of this study is small. Other possible explanation is that the low level of social media adoption among SME and its customer, suppliers and other stakeholders are less familiar with social media or technology. Even though, SME has adopted the social media for promotion (for example), its customers don't use the social media. Therefore, they don't know about SME product or service and they would not buy the product or service. Finally, marketing or financial performance as measure of business performance would not increase. Second hypothesis is the effect of environmental factor is positively related to social media adoption and hypothesis is supported (β=0.652, p-value=0.000). This finding confirm the previous studies (Ahmad et al., 2018; Ahmad et al., 2015; Scupola and Nicolajsen, 2013). However, the reason why SME adopted the social media in this case is bandwagon pressure and competitive pressure.

Adoption of social media among SME is due to psychological phenomena or SME adopted the social media because of others doing so (Ahmad et al., 2018). Second reason why SME adopt SME is because of its business, such as supplier or customers, use the social media (Lertwongsatien and Wongpinunwatana, 2003). If they do not use the social media, they would lose the opportunities and lose the competitive advantages. The third hypothesis is also supported which means that there is a positive effect of environmental factors on business performance (β=0.669, p-value=0.000). This finding is conformable with those of other studies (Aziz and Yassin, 2010; Gaur et al., 2011) and suggest the higher the environmental factors, the higher of SME business performance. Last hypothesis state that social media adoption mediated the relationship between environmental factors and business performance of SME. The result show that

there is no role of social media adoption as mediator. The possible explanation why this happened is because of small sample size, social media adoption level, and other stakeholders might not familiar with technology or social media.

5 CONCLUSION AND RECOMMENDATION

Social media usage among SME has been critical and discussed by practitioners and academician recently. However, there is limited previous studies investigating this subject matter, especially using an Indonesia's SME. This study investigates the role of social media adoption among SME as mediating variable between environmental factors and business performance of SME. Besides, this study also analyses the effect of environmental factors on social media adoption and business performance. SME which is familiar with and adopter of social media is research object. Business operation of SME is in west Sumatra, Indonesia. Using smart-pls, we conclude that there is a positive relationship between environmental factors and adoption of social media between SMEs and business performance. However, the effect of social media adoption on business performance of SME is not supported. Further, the role of social media adoption as mediating variable between environmental factors and business performance is also not supported. Theoretically, this finding partially contributes to TOE in the sense that social media adoption among SME is also pressured by external factors, such as business partner. Practically, the positive effect of the environment factors on social media adoption and business performance of SME imply that the local government can improve the adoption of social media among SME by educating the society in order to be familiar with social media and other technology break-through. Finally, number of limitations need to be considered. First, this study uses a limited number of small-medium enterprise. Second, this study applies a limited number of independent variables as factor affecting social media adoption and business performance. finally, detail investigation need to be conducted asking why SME adopt social media. Future research in regarding to role of social media adoption in mediating the relationship between environmental factors and business performance would be of great help by adding the number of sample size. Further investigation into social media adoption is strongly recommended by adding other independent variables from other perspective, such as

technology context. Finally, more research is needed to better understand by using other approach, such as qualitative approach.

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