

Developing E-Commerce Adaptation in Creative Industry: A Practical Approach

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Abstract: A successful tourism required the support from MSMEs that affiliated with the tourism area. The problem of the growth of the industry in North Sumatera is related to the low competitiveness of MSMEs so that this business will become unsustainable in the long run. Today's revolution industry 4.0 forced much more digitized and internetization of MSMEs in near future. The existence of advanced technologies lead to application of e-commerce. The future of MSMEs' growth will be driven with e-Commerce. This paper reported the result of longitudinal study to improve MSMEs readiness to adopt e-commerce in Tourism Area. As e-commerce will improve overall business which may also promote tourism in the future, our experiment was a great success. A number of 200 MSMEs were participated in this study. The MSMEs' were collected from four main area of tourism, the lake, mountain, coastal and city tour. A paired t-test were used to evaluate the change within MSMEs. The result indicate that it is better to help MSMEs with training and advocating rather than waiting for a pro-active approach from MSMEs to take action.

1 INTRODUCTION

Tourism has become the spotlight for Indonesia and has been growing steadily since 2012 (Indonesia Statistics Bureau, 2015). It has become the great source to improve economic development, both for the local society and national as whole. As we talked about tourism, North Sumatera were blessed by many tourism spot such as Toba Lake, especially Samosir Island. North Sumatera also hold many hills and beach tourism spot around the proviciency. It is for a reason North Sumatera selected as one of featured tourism destination in "Visit Indonesia Program."

Tourism was not defined as a stand-alone activity or program that could satisfy consumers without other aspects. Spillane (1994) argued that tourism at least involved in socio-cultural aspect, economic aspect, and political aspect. Tourism required the existence of many industries to support themselves. Creative industries helped to improve the tourism experience for good (Lumbanraja et al., 2017). Many industries helped to improve tourist's tourism experience in a good way that lead to satisfaction. A satisfied tourist tend to become loyal (Kotler and Keller, 2012) which will shape their behaviour, such as revisited the tourism spot, even recommend their vacation to others in near future.

Tourism is supported by the pillar of economic aspect. A certain ghost town has been fully regenerated by the support of creative industries that reshaped the dying village into tourism spot (Dahm, 1994). Jayne (2004) and Rogerson (2008) also studied the importance of MSMEs to support tourism. Both of the previous work focussed on how creative industry support tourism.

As we discussed about how MSMEs will support tourism, we need to take a note that MSMEs also will undergo transformation, the more digitalized and automated industry as described in the forth industrial revolution, Industry 4.0. Almada-lobo's work (2016) stated that cloud computing and Internet of Things (IoT) will become the core and the driver to stimulate MSMEs' growth. MSMEs will become more globalized that globalization itself. It will ease the integration for both forward or backward integration (Lubis et al. 2018).

Industry 4.0 will be more likely give most part of opportunities to MSMEs. However many of MSMEs were not ready to adopt in Industry 4.0 (Shcroder, 2017). The biggest hurdle to overcome to adopt Industry 4.0 was the poorly equipped MSMEs in addition to their lack of advanced technology development acceptance behaviour. Still, it is important to evaluate their readiness to accept the

change as it will be the source of their future growth (Bettiol et al., 2017).

Rahayu and Day (2017) studied the important factor that affect Indonesia's adaptation toward e-commerce. They conclude that perceived usefulness, technological readiness, innovation, information and technologies exposure, and the owner's experiences were the decisive factor that affect MSMEs' readiness to adopt MSMEs. Nurrohmah and Alfanur (2016)'s work suggested three factor that affect MSMEs' e-commerce adoption which were their technological readiness, external factor, and internal factor. Kabanda and Brown (2017) suggested that technological readiness was the most influential factor.

Li and Xie (2012) argued that e-commerce related buying and selling products or services through electronic data transmission using the internet, thus it promote easiness and effectiveness in each transaction. E-commerce can also help to promote business, even the tourism as one product. E-commerce will help to promote and stimulate tourism itself.

This study aimed to evaluate the e-commerce readiness in MSMEs that support tourism spot. The ultimate goal of this study was to promote and support tourism through the existence of MSMEs that readily adapt themselves toward changes.

2 LITERATURE REVIEW

2.1 North Sumatra Tourism Region

2.1.1 Lake Tourism Area

The most famous Lake tourism area in North Sumatra is the Lake Toba Region consisting of Parapat, Lake Toba, and Samosir Island. In this area, the main tourist attractions are scenery, culinary and cultural tourism. Strong cultural values themselves become an attraction for visitors. Even some of the visitors mentioned the Lake Toba area as Mythical Tourism with a unique tourist experience. Industries such as handicrafts and souvenirs, culinary, transportation, rentals (vehicles), lodging, and fashion have grown and developed quite well in this area.

2.1.2 Mountain Tourism Area

Berastagi is a small highland town located 60 kilometers to the south of Medan. The area can be accessed by taking a mountain path. The temperature

in the area is relatively cooler than Medan which makes it very suitable for the fresh fruit and vegetable plantation area. This tourist area has many tourism sectors such as Lumbini Natural Park (Temple), Hot Springs, Hillpark, Mickey Holiday, Wajik Peceren, Berastagi, Sibolangit Campground, and so on. In this tourist area, many fresh fruit sellers were found. Industries that have grown and developed include entertainment, lodging, cafes, and the experience of picking fruits from the garden.

2.1.3 Coastal Tourism Area

In this area, many business developers use the beach as a basis for building tourist attractions. Since seeing the success of Cermin Beach as a tourist attraction, there are now many beach-based tourism objects that are growing and developing, such as Romance Bay, Mangrove Beach, Bali Lestari Beach, and so on. The industry that grows a lot in this area is the handicraft, rental place, photography, and culinary.

2.1.4 City Tourism Area

Medan is the capital of the province of North Sumatra, Indonesia. Medan is also the city center. Medan has the main attraction for visitors because here is the center of all tourism activities, especially as a source of information and access to the tourist area. The city center also has various landmarks that attract tourists. Medan has a lot of attraction that can be a tourism spot, such as the Maimum Palace with its historical and cultural stories; Shopping center for visitors who like shopping; day and night various culinary; Museum; Zoo, and many other interesting attractions. In this city, there are also many centers of developing creative industries that are supported by the advancement of infrastructure that helps smooth business operations of the business. All types of industries grow and develop in the center of this city such as culinary, advertising, travel, lodging, and so on.

2.2 E-Commerce

E-commerce is a transaction-level activity of business activities conducted electronically. This includes online marketing, internet banking, online delivery of goods, and transactions without having to face to face (Pease and Rowe, 2003). Pease and Rowe (2003) indicate that e-commerce is a substantial factor in the era of global competition in an effort to achieve business excellence, growth, and sustainability.

Savrul et al. (2014) stated that the weakness of the small business size of MSMEs in global competition can be covered by optimal e-commerce applications.

E-commerce activities play an important role in encouraging MSME performance. The study indicates that MSMEs that conduct e-commerce practices have a performance of 1.35 times or 35% better than MSMEs that do not practice it (Zou and Liu, 2012). However, there are still many MSMEs found not doing the practice. Some obstacles are that there are still many MSMEs that do not care about e-commerce issues. Lack of talent in e-commerce as well as low salary levels in MSMEs encourages low interest in e-commerce experts in the environment of MSMEs themselves (Chen and Zhang, 2015).

2.3 E-Commerce Readiness from MSMEs

The technological and information era makes business transactions happen quickly, without having to have a face-to-face contact between the seller and the buyer. This makes business happen anywhere and anytime. The Pew Research Center Survey (in Subramanya, 2018) shows that 79% of the population of the United States is online shoppers, in which 51% of them make transactions via telephone calls. E-commerce plays an important role in accelerating business transactions and providing convenience for companies and customers.

Subramanya (2018) stated that readiness in an effective e-commerce adaptations includes four aspect, the inventory management, internet based technologies, consumer behaviour, and business personalization. Mastering these aspects will lead to a better e-commerce adaptation.

2.3.1 Inventory Management

Mastery of inventory management is the main thing in the readiness to implement e-commerce. E-commerce itself allows access to information and rapid interaction between sellers and buyers. Information accuracy is needed in ensuring customer satisfaction for purchases made. For example, errors in inventory management will give consumers false information. The seller initially states that goods with specifications requested by consumers are available, but due to management errors, the item has been sold and the seller must be responsible for the misinformation.

2.3.2 Internet-based Technology

Information technology and information systems are important factors in the realization of e-commerce. The momentum of truth from e-commerce occurs with the existence of internet-based technology. Mastery of this technology includes access to online stores, website management, affiliation with suppliers and consumers only through gadgets. All information bases needed in business management are easily obtained through existing technology.

2.3.3 Analysis of Consumer Behavior

Success in the application of e-commerce is also related to the analysis of consumer behavior. E-commerce makes it easy for businesses to analyze consumer behavior based on available sales data. This data can be the basis for making price discount policies, loyalty rewards, or product suggestions to buyers. Therefore, there needs to be fundamental knowledge about consumer behavior so that e-commerce that will be implemented can be used optimally by business peoples.

2.3.4 Business Personalization

This element invites businesses not to be rigid in their business activities. Business personalization can be done on each consumer based on the data flow that is owned in the e-commerce process. This personalization will attract attention, interest, and generate customer satisfaction. These four main elements will be the focus of mapping studies conducted on MSMEs in the North Sumatra tourism area. These four elements are keys to the readiness of MSMEs in carrying out e-commerce activities.

3 RESEARCH METHOD

3.1 Research Time and Characteristics

The study was classified as longitudinal study based on the previous year of the study. The current study focused on evaluating the improvement made by MSMEs after six month of training and advocacy. This study started from Januari through July 2019. The data were collected in July 2019 to measure their improvement.

3.2 Participant

Our participants were the exact same of MSMEs from our recent study. It was designed to evaluate the before and after effect of our treatments. It is common that many of MSMEs in North Sumatera were unregistered and there is no a central registry for many of MSMEs. This condition suggested a use of non-probability sampling. A number of 50 MSMEs around each of tourism area in North Sumatera were taken as sample by using stratified-cluster sampling method. Thus, in total there were 200 MSMEs participated in this study. Each of area were taken in 50 MSMEs, lake area proxied by Toba Lake, coastal area proxied by Perbaungan, mountain area proxied by Berastagi, and city tour area, proxied by the capital, Medan.

3.3 Data Collection Method

Self-administered questionnaires were employed during our research. It is the questionnaires based n previous study. Thus, there is no need for another validity and reliability test to collect the improvement data data to their e-commerce readiness. The questionnaires were taken from literature review and adopted to suit the situation of our sample.

3.4 Data Analysis Method

The data were analyzed and compared to the previous year of study. A paired sample t-test were used to evaluate whether the change, either their improvement or their setback toward the e-commerce readiness.

4 RESULT AND DISCUSSION

4.1 Participants' Characteristics

The general description of our participants can be used as a reflection of the general characteristics of MSMEs in North Sumatra. In general, business operators in North Sumatra are male (65.38%) and the remaining 34.62% are female. MSMEs have the latest education level at the elementary level (11.4%), junior high (32.86%) or high school (36.07%). As many as 14.3% of business operators had undergraduate or higher levels of education and the remaining 5.4% did not complete their primary school education. The majority of respondents are

categorized into Micro business groups (86.75%) and the rest are small businesses (13.25%). In Indonesia, the majority of the community still understands the separation of household tasks, where men are the heads of families who make a living and women (wives) are tasked with taking care of household tasks. This supports the characteristics of businesses in which the majority of the business are men. In addition, many of the the business are high school graduates or below. The difficulty of getting decent employment from these circles pushed them to try to become entrepreneurs. Micro-business is a form of business that many people live in, given the low capital in building the business.

4.2 Evaluation of the Adaptation Progress of e-Commerce

In this research, the core elements of e-commerce readiness for application are acting as a whole, not as separate elements from one another. This confirms that the assessment of readiness aspects cannot be applied by assessing the condition in general (overall aspect), but looking at each aspect separately. For example, if the aspect of technological readiness of the business is seen to be still not qualified (eg score 2.51) and aspects of consumer behavior assessment is very good (eg score 5.00); does not apply to the average operation which states that in general the business is ready to implement e-commerce.

In an effort to assess the changes that occur in the business from the aspect of e-commerce application readiness to support their digital marketing activities, paired-sample t-test is used in this study. Participants in this study were the same the business who were evaluated for their readiness in the mapping study that had previously been conducted. At first the team considered that this evaluation was too early to be carried out considering that only six months had passed since the treatment was carried out to the business. The results of evaluating the progress of the business are summarized in Table 1.

Table 1 generally shows that the overall evaluation showed that from every aspect of the assessment of e-commerce readiness, all partner conditions had improved from the previous year. Reference points are the condition of last year. A negative average difference indicates that this year there was an increase in average in 2019 when compared to 2018. The progress achieved by the business in each aspect was classified as significant ($\text{sig} < 0.05$). However, this data does not specifically

Table 1. Overall Participant Evaluation

Paired Samples Test		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Mean	Error95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Inventory management-0 - Inventory management-1	-,87000	,52815	,03735	-,94364	-,79636	-23,296	199	,000
Pair 2	Technology adaptation-0 - Technology adaptation-1	-,92000	,53701	,03797	-,99488	-,84512	-24,228	199	,000
Pair 3	Consumer behaviour-0 - Consumer behaviour-1	-,49167	,39952	,02825	-,54738	-,43596	-17,404	199	,000
Pair 4	Personalization-0 - Personalization-1	-,44333	,38409	,02716	-,49689	-,38978	-16,323	199	,000

Table 2. Average Statistics Score for Paired Sample

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Inventory management 0	3,0167	200	,73346	,05186
	Inventory management 1	3,8867	200	,60006	,04243
Pair 2	Technology adaptation 0	2,8567	200	,83510	,05905
	Technology adaptation 1	3,7767	200	,69865	,04940
Pair 3	Consumer behaviour 0	3,8667	200	,52837	,03736
	Consumer behaviour 1	4,3583	200	,44826	,03170
Pair 4	Personalization 0	4,0383	200	,47280	,03343
	Personalization 1	4,4817	200	,42230	,02986

Table 3. Evaluation on City Tourism Area

Paired Samples Test		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Mean	Error95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Inventory management-0 - Inventory management-1	-,68667	,48753	,06895	-,82522	-,54811	-9,959	49	,000
Pair 2	Technology adaptation-0 - Technology adaptation-1	-,64000	,41426	,05858	-,75773	-,52227	-10,924	49	,000
Pair 3	Consumer behaviour-0 - Consumer behaviour-1	-,41333	,37228	,05265	-,51913	-,30753	-7,851	49	,000
Pair 4	Personalization-0 - Personalization-1	-,42667	,36291	,05132	-,52980	-,32353	-8,313	49	,000

explain the level of progress. The average comparison is summarized in Table 2. Year 0 in Table 1 and Table 2 shows 2018 and 2019 respectively as a reference for comparison of changes in the business. From Table 4 it can be seen that every aspect evaluated has progressed compared to the previous year.

MSMEs in North Sumatra already have provisions in implementing e-commerce in the aspect of personalizing consumer needs and analyzing consumer behavior. In the implementation of business operations, e-commerce practices carried out by the business are still relatively minimal, but businesses have been able to analyze consumer behavior, even willing to provide discounts to

consumers to attract the attention of these consumers. Adaptation of this business behavior will be better achieved in 2019. The business, based on the experience they have, make strategic decisions that can be used to stimulate buying intentions from potential customers. This condition is found in many street vendors. Bargaining activity is one of the efforts in adjusting the price level to the price that can be accepted by prospective buyers without directing the seller to the point of loss. Even so, the other two elements still cannot be mastered by MSMEs in North Sumatra in general. The ability of inventory management and technology mastery has increasingly been implemented by the business.

Previous interviews indicate that there is no clear record of the supply of supplies from the business and this behavior has improved in 2019. The business can be more confident in stating that the goods are available to consumers after seeing the inventory records owned. The accuracy of information and the speed of response to consumer demand will encourage shopping satisfaction that creates competitiveness for these businesses. Another core element that has not been implemented well by the business is the use of technology. The internet and social media are common in today's society. The constraint on the business is the inability to operate the equipment owned optimally (Tamizharasi & Panchanatham, 2010). Table 3 showed that e-commerce activities in the city of Medan are already quite actively carried out by the business. The presence of an online taxi provides many conveniences for businesses in carrying out e-commerce activities. Inventory management is regulated in the application so that it is more easily implemented by the business. In addition, many of the the business are end-users in a partnership relationship with the online taxi system so that it does not require high ability in mastering applications and compiling their own websites. At present e-commerce activities are dominated by the utilization of the partnership relationship. Of the fifty business operators that were sampled in this study, 60% of participants stated that they have their own online shop by utilizing social media. There is no the business that has a personal website as a business manager.

In terms of the increase in e-commerce adaptation that is happening, the increase in adaptation felt is relatively lower compared to other regions. This does not indicate that the application is not effective; but in the previous year e-commerce adaptation has also been relatively better compared to other regions. The increase occurred statistically significant which

indicates the effectiveness of the application in increasing e-commerce adaptation that occurred.

Table 4 shows that in the 2018 evaluation, the mountainous region was still not fully implemented considering the technological aspects and inventory management that were still low. The obstacles that occur, based on the results of the interview, are sourced from inadequate network infrastructure. Many of the business operators stated that the internet network in their area was quite expensive. In addition, there is not much access to online motorcycle taxi that reaches the area. Inventory management is almost never carried out by the business. Goods in and out are not controlled as long as they can generate business income. Progress in 2019 shows a very interesting number. The mean for inventory management and technology utilization increased to more than 0.8 points, indicating rapid growth. Aside from being supported by the dissemination of research results, technological developments such as internet access which are becoming more stable and comprehensive have become one of the driving forces. Inventory management has been increasingly carried out by the business so as to be able to provide precise and fast information to buyers (Hassan & Craft, 2012).

Table 5 shows that the results of the evaluation in 2018 showed that the level of e-commerce readiness in the surrounding coastal areas indicated a fairly low level of readiness. Of the four core aspects of e-commerce, the ability to personalize business people is slightly better than the criteria. The main problem in this area is the rigidity of the seller's attitude towards the price of the goods offered. For example, the price level of cottages on the beach is very difficult for negotiations by visitors. They assume that many requests from visitors so the price offered is already quite reasonable. In addition, constraints in the use of technology and inventory management are still very less than the business.

Table 4. Evaluation on Mountain Tourism Area

Paired Samples Test		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Mean	Error95% Confidence Interval of the Difference Lower Upper				
Pair 1	Inventory management-0 - Inventory management-1	-,93333	,47140	,06667	-1,06731	-,79936	-14,000	49	,000
Pair 2	Technology adaptation-0 - Technology adaptation-1	-1,10000	,53980	,07634	-1,25341	-,94659	-14,409	49	,000
Pair 3	Consumer behaviour-0 - Consumer behaviour-1	-,38667	,32549	,04603	-,47917	-,29416	-8,400	49	,000
Pair 4	Personalization-0 - Personalization-1	-,46000	,37429	,05293	-,56637	-,35363	-8,690	49	,000

Table 5. Evaluation on Coastal Tourism Area

Paired Samples Test		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference	Lower			
Pair 1	Inventory management-0 - Inventory management-1	-1,12000	,63088	,08922	-1,29929	-,94071	-12,553	49	,000
Pair 2	Technology adaptation-0 - Technology adaptation-1	-1,12000	,59385	,08398	-1,28877	-,95123	-13,336	49	,000
Pair 3	Consumer behaviour-0 - Consumer behaviour-1	-,70667	,43975	,06219	-,83164	-,58169	-11,363	49	,000
Pair 4	Personalization-0 - Personalization-1	-,49333	,46286	,06546	-,62488	-,36179	-7,537	49	,000

Table 6. Evaluation on Lake Tourism Area

Paired Samples Test		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference	Lower			
Pair 1	Inventory management-0 - Inventory management-1	-,74000	,39435	,05577	-,85207	-,62793	-13,269	49	,000
Pair 2	Technology adaptation-0 - Technology adaptation-1	-,82000	,43753	,06188	-,94434	-,69566	-13,252	49	,000
Pair 3	Consumer behaviour-0 - Consumer behaviour-1	-,46000	,38030	,05378	-,56808	-,35192	-8,553	49	,000
Pair 4	Personalization-0 - Personalization-1	-,39333	,32778	,04635	-,48649	-,30018	-8,485	49	,000

An evaluation in 2019 showed very satisfying results. The business are increasingly consistent in encouraging the use of their more effective and efficient coastal areas and are willing to adjust and pay attention to consumer behavior. The orientation of the community develops from just a brief profit into a relatively sustainable business. This development strongly supports the sustainability of business activities and business competitiveness (Karakaya, Badur, & Aytakin, 2012; Tobing, Fathorazz, & Wulandari, 2018).

Table 6 showed that the level of e-commerce readiness in the Lake Toba area in 2018 still cannot be fully implemented given the low technological aspects and inventory management. The business in the region have been running their business long enough so that they are used to analyzing consumer behavior and adjusting it to the offer given to these consumers. Technological gaps occur in this region. Many of the the business are quite familiar with technology, familiarizing themselves with utilizing existing technology; but many are not able to implement the technology. The business in the lodging business category have utilized Google Maps

and Traveloka access or similar applications; but other forms of business do not follow the development of these technologies.

An evaluation in 2019 showed an increase in various aspects of e-commerce of the business. The development of infrastructure and access to information are additional notes in the progress made by these the business.

5 CONCLUSIONS AND RECOMMENDATIONS

Our previous study conclude that MSMEs were generally have experience in assessing consumer behavior and making adjustments in an effort to drive the level of sales as part of the basic elements of e-commerce, but overall they were lack of others aspects of e-commerce adaptation the study suggested that MSMEs have to more active in learning and adopting technology and learning how to conduct inventory management.

Our current study showed that it is better to train the MSMEs rather than waiting to ask them to pro-

active upgrading themselves. This study concluded that our module was a great success as the level of each aspect and each area were significantly improved. Thus it is suggested that academics and governments helped MSMEs to train and develop them which will boost overall growth of MSMEs.

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