

The Influence of Information Technology and Co-Creation on Handicraft SME Business Performance

Nizar Alam Hamdani, Asri Solihat, Galih Abdul Fatah Maulani

Abstract: *The development of information technology has influence on consumer purchase intention. Co-creation is a collaboration between costumers and producers in developing products so as the developed products meet the expectation of the costumers. Today's market is getting more and more horizontal thanks to the advancement of Internet technology. At the same time, Internet facilitates the process of co-creation through its capability of providing platforms for collaboration between producers and customers. The purpose of this study was to analyze the influence of information technology and co-creation on SME business performance. The samples were 45 handicraft SMEs selected using a nonprobability sampling technique. Data analysis was performed using SEM-PLS. The results revealed that information technology encourages business performance and that co-creation practices improve the performance of handicraft SMEs as co-creation enables producers and customers to jointly produce a mutually valued and customized products.*

Index Terms: *Keyword: Information Technology, Co-Creation, Business Performance.*

I. INTRODUCTION

Business performance has been a strategic issue in the development of SMEs. Previous studies show that the business performance of SMEs has an impact on strengthening the economy (e.g., Lingesiya, 2012; Pratt & Virani, 2015; Utami & Lantu, 2013). SMEs are also said to play a strategic role in the competitiveness improvement (Hamdani, 2018; Hamdani & Susilawati, 2018).

The key resources in the creative economy is creativity, which refers to the ability to produce something unique, solutional, and out of the box (Bekraf, 2017; Bogavac-Cvetković & Miličković, 2014). The creative economy is reported to contribute to the national economic growth as much 852 trillion rupiahs or 7.38 percent of national GDP in 2015. This sector also has absorbed 15.9 million workers (13.90%) and contributed an export value of 19.4 billion US dollars (12.88%) so that Badan Ekonomi Kreatif (Bekraf, Indonesia Agency for Creative Economy) estimated the GDP in this sector to reach 6.25% in 2018. With such growth, the employment absorption rate could reach 16.7 million workers (6). However, developing the creative economy requires government supports, consumer

behavior studies, and network expansion (8). The creative economy is expected to be able to be a leader in the international market. To this end, an appropriate business model and the triple helix of academia-industry-government are required (Pfeifer, Peterka, & Stanić, 2017; Bueren & Goh, 2012).

The creative industry is an industrial sector built upon individual creative talent and innovation and the exploitation of intellectual property (11). The creative industry is industrialization of cultural and creative economy.

Handicraft is an applied art which combines traditional and contemporary arts and designs to produce functional products and decorative objects. At the 2018 International Handicraft Trade Fair (Inacraft), it was recorded that the number of retail transactions reached IDR 110.96 billion, the number of trade contracts for exports was USD 10.62 million, and the number of visitors was 135,000 people with the number of 716 buyers from 46 countries (12).

The development of SME business performance in the sector of creative industry requires information technology (Faggian & Jewell, 2015; Wiradinata, Antonio, & Tanamal, 2015; Tallud, 2014; Ashrafi & Murtaza, 2008). The use of information technology can encourage high SME consumer involvement and participation in the marketing and co-creation process (17) by integrating the consumers in the following stages: (1) ideation, (2) design, (3) testing, (4) support, and (5) marketing (18).

II. LITERATURE REVIEW

Information technology changes the way we do things and offers new opportunities and challenges in business (Azyabi, 2017; Maghanga, 2017). Today, information technology is one of the main pillars of human development. Information technology should be able to provide added value for the community and is very important for non-IT companies (21). Information technologies helps us with information processing (22). It facilitates use to create, manage and exchange information (23).

Public information provides information needed by the community to improve their knowledge, economy and standard of living, facilitate community social groups to develop creativity and exhibit their products, and provide a place for tenants to transform their creative ideas into innovative, competitive, and excellent IT products (24). The use of information technology provides a positive value for

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management strategies related to aspects of communication, information access, decision making, data management and knowledge management (Laperche & Liu, 2013; Sarosa & Zowghi, 2003).

The present study measured the use of information technology by SMEs in terms of purpose of IT use, cost of IT use, organizational leadership in IT use, and IT literacy (Chumba, 2016; Tagliavini, Pigni, Ravarini, & Buonanno, 2001; Apulu, 2011). Information technology also enables co-creation by various features, and hence promotes consumer involvement (Skaržauskaitė, 2013; Fadil, 2015).

Co-creation is an economic strategy that involves consumers in the innovation process. In-depth knowledge about product end-users is badly needed to provide desirable services or products. Co-creation is a concrete partnership between a company and its customers in innovating new products or services (31). Co-creation enables the customers to contribute the product development by sharing their unique experience. That is the key to the new competitive advantage (32). The co-creation process is established upon consumer-company dialogue, consumer access to manufacturing data, risk assessment, and transparency (33).

The above definition implies at least three major themes. The first is involvement. By analyzing different transactional and collaborative needs of various target audiences, marketing communication can be used to involve various kinds of audiences by using one-way, two-way communication, interactive, and dialogic communication. The second theme is audience (Kotler, Philip & Keller, 2012). Traditionally, marketing communication is used to convey product related information to a customer-based audience. The third theme is response. This refers to the result of communication process and can be used as a benchmark to measure the success of communication process. Basically, responses to communication process can be divided into cognitive and emotional responses.

Co-creation is like a rung. The higher the level of co-creation, the more valuable the results of co-creation. The first rung is consumer involvement in rating, reviewing, and discussing the products. The next rung rungs are ideation, advertising, branding, and production. Production is the highest rung (35). Co-creation can be measured using the following indicators: customer learning, customer relationship experience, exchange practice, supplier relationship experiences, organizational learning, and collaborative practice (36)..

III. RESEARCH METHOD

The relationship between the studied variables were analyzed using a quantitative approach. The samples were 45 handicraft SMEs in Indonesia. Data analysis was performed using Partial Least Squares (PLS), which is a multivariate statistical technique of comparing multiple dependent variables and multiple independent variables. As earlier mentioned, the use of information technology by SMEs was measured by purpose of IT use, cost of IT use, organizational leadership in IT use, and IT literacy; co-creation was measured using customer learning, customer relationship experience, exchange practice, supplier relationship

experiences, organizational learning, and collaborative practice; and business performance was measured using market performance, supplier performance, process performance, people performance, and customer relationship performance.

IV. RESULTS AND DISCUSSION

Data analysis was performed by means of SmartPLS. Data normal distribution testing was not performed due to the bootstrapping method. The SmartPLS analysis resulted in the following modeling:

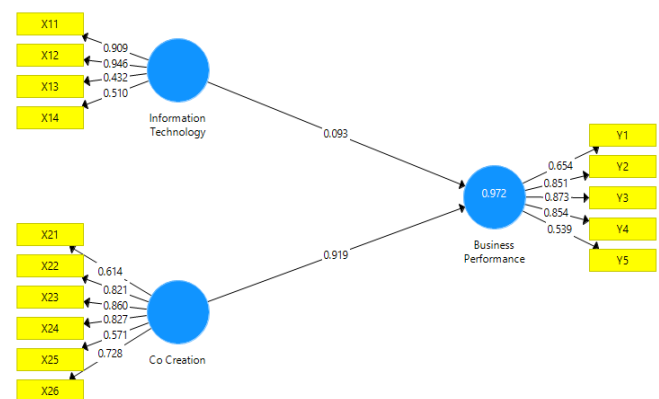


Fig. 1. PLS Modeling

Fig. 1 shows that the path coefficient from information technology use (X1) to the latent variable business performance (Y) was 0.093, meaning that X1 had influence on Y as much as 0.093, and that the loading factor values of the indicators purpose of IT use (X11), cost of IT use (X12), organizational leadership in IT use (X13), and IT literacy (X14) were 0.909, 0.946, 0.432, and 0.510 respectively.

Fig. 1 also shows that that the path coefficient from co-creation (X2) to the latent variable business performance (Y) as much as 0.919, meaning that X2 had influence on Y as much as 0.919, and that the loading factor values of the indicators customer learning (X21), customer relationship experience (X22) exchange practice (X23), supplier relationship experience (X24), organizational learning (X25), and collaborative practice (X26) were 0.614, 0.821, 0.860, 0.827, 0.571, and 0.728 respectively.

The loading factor value of the SME business performance indicators market performance (Y1) was 0.654, of supplier performance (Y2) was 0.851, of process performance (Y3) was 0.873, people performance (Y4) was 0.854, and customer relationship performance (Y5) was 0.539.

The suggested value for the reliability coefficient of each indicator of every variable is 0.5. Any indicator with the reliability coefficient lower than that, should be removed. Table I presents the loading factor value of each indicator of all variables.

Table I. Outer Loading

Outer Loadings Matrix

	Information Technology	Co-Creation	SME Business Performance
X11	0.929		
X12	0.953		
X13	0.432		
X14	0.510		
X21		0.614	
X22		0.821	
X23		0.860	
X24		0.827	
X25		0.571	
X26		0.728	
Y1			0.654
Y2			0.851
Y3			0.873
Y4			0.854
Y5			0.539

Table I shows the loading factor value of the indicator organizational leadership in IT use (X13) was lower than 0.5; therefore, this indicator was not reliable and removed.

SmartPLS analysis also resulted in the following construct reliability and validity:

Construct Reliability and Validity

Matrix	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Business Performance	0.814	0.844	0.873	0.587
Co Creation	0.835	0.862	0.880	0.555
Information Technology	0.733	0.875	0.850	0.669

Fig. 2. Construct Reliability and Validity

The discriminant validity is determined by the average variance extracted (AVE) value. The suggested AVE value is above 0.50. Fig. 2 shows that the variables information technology, co-creation, and business performance were valid since their AVE values were higher than 0.50.

The variable reliabilities can also be measured using composite reliability and Cronbach's alpha. The suggested value is above 0.70. Fig. 2 shows that all variables were reliable because their composite reliability and Cronbach's alpha values were higher than 0.70.

The next is Goodness-fit model testing, which is a stage in the PLS inner model testing. The result is as follows:

R Square

Matrix	R Square	R Square Adjusted
Business Performance	0.971	0.969

Fig.3. R-Square Value

Fig. 3 shows that the R-Square value was 0.971, meaning that information technology and co-creation had influence on

SME business performance as much as 97.1%, the rest were influence by factors other than the studied variables.

The hypothesis testing in SEM PLS was done by outer model testing using the bootstrapping method. The result is as follows:

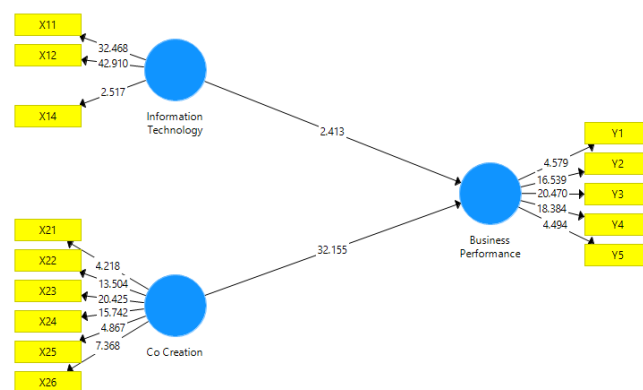


Fig. 4. Result of Bootstrapping PLS

The bootstrapping also resulted in the following matrix

Path Coefficients

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
Co Creation -> Business Performance	0.929	0.926	0.029	32.155	0.000
Information Technology -> Business Performance	0.077	0.080	0.032	2.413	0.016

Fig. 5. Path Coefficients

Fig. 5 shows that information technology had significant positive influence on business performance since the T Statistics was 2.413 (>1.66) and the original sample estimate value was positive. This finding is in line with some previous studies (Eatock & Paul, 1997; Jean, Sinkovics, & Kim, 2008; Fong, 2011; Ghobakhloo, Hong, Sabouri, & Zulkifli, 2012). Likewise, co-creation also had significant positive influence on business performance because the T Statistics value was 32.155 (>1.66) and the original sample estimate value was also positive. This finding is in agreement with the finding of Nuryakin, Aryanto, and Setiawan (2018). It also supports Farida's (2017) conclusion that co-creation has influence on marketing performance, which is a part of business performance.

V. CONCLUSION

The results of this study show that information technology and co-creation had significant influence on business performance. Information technology is used by SMEs to promote their products. In addition, SMEs also uses information technology for business management despite the fact that information technology was not optimally implemented due to financial limitation. Most handicraft SMEs establish relationships with customers, listen to them, and expand networks with various parties. However, information technology implementation in SMEs needs full supports of the government.



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