

# The effects of ICT adoption on marketing capabilities and business performance of Indonesian SMEs in the fashion industry

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## Keywords

ICT, small to medium-sized enterprises, marketing capabilities, business performance, fashion industry, Indonesia.

## Abstract

*The purpose of this paper is to investigate factors influencing the adoption of ICT among SMEs, to examine the influence of ICT adoption on marketing capabilities, and to analyze the influence of marketing capabilities on business performance among Indonesian SMEs in the fashion industry. A questionnaire-based survey was employed to collect data from 204 SME owners/managers. The results suggest that complexity, trialability, and observability are among the technological factors that have a significant influence on ICT adoption. Research advantage and compatibility do not influence ICT adoption. Meanwhile, organizational factors such as owner/manager knowledge and innovativeness significantly influence ICT adoption among SMEs. Environmental factors such as competitive pressure, institutional intervention (excepting market turbulence) contribute significantly to the adoption. Moreover, data analysis reveals that ICT adoption has a positive influence toward SMEs' marketing capabilities. Finally marketing capabilities significantly influence a firm's business performance. The findings contain valuable insights that could educate owners/managers of SMEs about the potential gains they will get by adopting the cost-effective capabilities of Internet adoption for their businesses. This study also provides justification and recommendations for government and lawmakers to foster the growth of SMEs in Indonesia by building more IT-related infrastructure and developing necessary skills to enhance SME business performance.*

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## 1. Introduction

### 1.1. Background

Information and Communication Technology (ICT) is widely used in many organizations. ICT has provided new ways for organizations to store, process, distribute and exchange information with their stakeholders as well as within the organization (Kollberg and Dreyer, 2006). Previous studies demonstrate the positive implication of ICT adoption for the

operation, structure and strategy of organization (Burhalis, 2003), the adoption not only leads to cost cutting and efficiency enhancement, but also customer service improvement (Ashrafi and Murtaza, 2008).

The development of core competences to enhance competitiveness and performance of firms (Wernerfelt, 1984; Prahalad and Hamel, 1990) has gained interest in academic literature. According to the resource-based view (RBV), sustainable competitive advantages are driven from an organization's distinct capabilities (Amit & Schoemaker, 1993; Grant, 1991, 1996). There has been a growing interest in marketing capability studies and the consequences of marketing capabilities on organizational performance has emerged. Previous studies revealed the links between business capabilities and organizational performance, jointly measured using financial (profits, and returns) and market-related (sales and market share) indicators.

It has been stated that ICT adoption has positive implications on organizational performance. However, the context of the studies was mainly focused on larger organizations. Meanwhile, most of the studies of technological roles in SMEs emphasize merely the factors contributed to ICT adoptions such as the Internet or e-commerce adoption barriers, as well as cross-country Internet adoptions. Hence, there is a literature gap on comprehensive research that links factors influencing ICT adoption and how it contributes to the development of marketing capabilities and the consequences towards business performance in the SMEs context.

## 1.2. SMEs and ICT Adoption

The definition of SMEs varies from one country to another. However, the most common measurement used to classify different size of business establishment is based on total assets, annual sales, and number of workers employed by the business.

Meanwhile, it has been acknowledged that not all SMEs need to adopt ICT at the same level of sophistication; different sectors use the Internet differently and therefore will adopt it at a different pace (Kotelnikow, 2007). Previous research conducted by Tan K.S., Chong, C.S., Lin, B., Eze, U.C.,(2010) noted that micro-sized manufacturing and service firms have the least to benefit from ICT adoption. These SMEs face a dilemma when it comes to the adoption decision. While they realize the many benefits to be brought to the firms, high costs, security concerns, and limited knowledge of ICT have hindered them. The findings are in line with the earlier argument that the majority of SMEs have not adopted, or are slow in adopting, ICT (Kotelnikow, 2007) and that the adoption intention is not affected by the number of employees or annual sales turnover, implying that Internet adoption is not a matter of choice across different firm sizes but rather a necessary tool for business success.

While there has been an increasing number of studies on the use of information and technology and its impact on organizational capabilities, the context of the studies were mainly focused on larger organizations. Only a few researchers have explored and examined factors contributing to ICT adoption among SMEs and the consequences of the adoption on marketing capabilities and business performance.

In this study, the authors aim to address the literature gap by examining SMEs operating in the fashion industry in Indonesia. The Ministry of Trade Republic of Indonesia (2008) defines fashion subsector as all creative activities related to the creation of clothing design, footwear, other fashion accessories, fashion apparel and accessories production, and the distribution of fashion products. It is divided into fashion companies, fashion and distribution channels, and most of the companies follow mass production, distro, ready to wear and haute couture type of business models. The fashion industry is considered an important sub-sector in Indonesia's creative industry. In 2010-2013, total number of firms in this industry reached 3.8 million firms. In addition, in the period between 2010 and 2013, fashion industry contributed to IDR 182

trillion (or equal to USD 13 billions) of Gross Value Added (GVA) with the growth rate of 6.44% (The Ministry of Tourism and Creative Industry of the Republic of Indonesia, 2014). As a result of the above discussion, this study is conducted to answer the following objectives: 1) to analyze factors influencing the adoption of ICT among SMEs, 2) examine the influence of ICT adoption on marketing capabilities, and 3) examine the influence of marketing capabilities on business performance.

## 2. Literature Review and Hypotheses Development

### 2.1. ICT Adoption

Several studies have addressed ICT adoption and provided theories and models that examine this adoption. Korpelainen (2011) identified the four most influential theories and models used in ICT adoption. The Technological Acceptance Model (TAM) by Davis (1986), is the most cited theory in examining ICT adoption at the individual level. The second most cited was the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980), which provides links between beliefs, attitudes, norms, intentions, and behaviors of individuals. Another theory that focuses on ICT adoption at an individual level is the theory of Planned Behavior (Ajzen, 1991), which focuses on cognitive self-regulation. The diffusion of innovation (DOI) model by Rogers (2003) focuses on an organizational or a social system. Finally, the Technology, Organization, Environment (TOE) framework was adopted in some ICT studies in an organizational context. This framework is consistent with DOI and has a solid theoretical basis and consistent empirical support, and it provides potential applications across different contexts (Oliveira and Martins, 2011).

In examining factors influencing ICT adoption, this study employs the Technology, Organization, Environment (TOE) framework (Tonatzky and Fleischer, 1990). Ghobakhloo, Aranda, and Arando (2011) found that e-commerce adoption within SMEs in Iran is affected by perceived relative advantage, perceived compatibility, CEOs innovativeness, information intensity, buyer/supplier pressure, support from technology vendors, and competition. Research conducted by Kendal et al. (2001) suggested that among Indonesian SMEs, relative advantage serves as a strong predictor to the adoption of e-commerce. Other empirical evidences reveal that compatibility of new and old systems significantly predicts innovation adoption, and SMEs owners/managers are likely to adopt new ICT only if the technology is compatible with their current businesses (Kendall et al., 2001; Thong 1999; Lee, 2004).

Thus, the following hypotheses are formulated:

H1a: The relative advantage of ICT positively influences ICT adoption.

H1b: The compatibility of ICT positively influences ICT adoption.

H1c: The complexity of ICT positively influences ICT adoption.

H1d: The trialability of ICT positively influences ICT adoption.

H1e: The observability of ICT positively influences ICT adoption.

In an organizational context, empirical findings have demonstrated owner-managers are involved in making decisions that affect both current and future activities (Fuller-Love, 2006; Smith, 2007; Thong, 1999). In addition, owner-managers' understanding of IT and innovation skills contributes substantially to the likelihood of IT adoption (Bassellier et al., 2003; Fuller and Lewis, 2002; Thong, 1999; Thong and Yap, 1995). Literature reviews also reveal that SME owner-managers viewed as "more entrepreneurial, risk-takers, innovative and creative" are seen to be important to the firm readiness for ICT adoption (Zappala and Gray, 2006; Beckinsale and Ramn, 2006). Moreover, CEOs or owner-manager innovativeness is considered as one of the important characteristics in e-commerce adoption (Lee, 2004). In the context of SMEs, Fink (1998)

found out that movement toward IS adoption in SMEs with innovator owner-manager have a higher likelihood to succeed in adoption. Empirical studies concluded that ICT adoption is positively affected by owner-managers innovativeness (Al-Qirim, 2007; Ghobakhloo, Arias-Aranda, and Benitez-Amado, 2011). Therefore, the following hypotheses are stated:

H2a: owner manager IT knowledge positively influences ICT adoption.

H2b: Owner/manager innovativeness positively influences ICT adoption.

The environmental context, according to the TOE framework, is an arena in which a firm conducts its business. It includes the industry where a firm is operating, competitors, and government (Tornatzky and Fleischer, 1990). Empirical studies have shown that competitive pressure impacts adoption and diffusion of ICT. However, there is a variation in the findings of the relationship between competitive pressure and ICT adoption (Tong, 1999). Moreover, past research has recognized that market turbulence impacts organizational capability and the way firms adopt its strategies (Gatignon and Xuereb, 1997) Thus, innovation can represent an effective means to deal with environment turbulence. According to institutional theory, institutional environments are essential in determining firm structure and actions (Scott, 2007). As stated earlier ICT adoption among SMEs are hindered by limited resources. Hence, government support through financial aids, regulations, infrastructure, and ICT knowledge building can facilitate ICT adoption among SMEs. Finally, based on the above discussion, these following hypotheses are stated:

H3a: Competitive pressure positively influences ICT adoption.

H3b: Market turbulence is positively related to ICT adoption.

H3c: Institutional intervention positively influences ICT adoption

## 2.2. Marketing Capabilities

The literature on capabilities has recognized various capabilities that firms can use to gain a competitive advantage (Prahalad and Hamel, 1990; Barney, 1991; Day, 1994). These capabilities can be developed through the integration of knowledge and skills of employees and functional capabilities can be integrated across functional lines and are deployed across multiple product markets to deliver competitive advantage (Grant, 1991, 1996). Marketing capabilities are one of the functional capabilities that were developed so that employees can solve firms' marketing problems (Day, 1994; Grant, 1991, 1996). Antuahene-Gima (1993) conceptualized marketing capabilities and identified eight processes to reach target customers such as customer service, promotional activities, sales people quality, distribution networks, advertising resources, marketing research, product differentiation, and speed of product introduction. In addition, Vorheis (2005) investigated six marketing areas for evidence of marketing capabilities: marketing research, pricing, product development, distribution channels, promotion, and marketing management.

Empirical evidence reveals ICT as an endogenous element of the firm, and it performs as a key element of management and marketing practices (Brady et al., 2002). Furthermore, Vilaseca-Requena, Torrent-Sellens, and Jimenez-Zarco (2007) provide two ideas that stand out from ICT use in the marketing area. Intensive ICT use in marketing enhances firms' innovativeness, reduces barriers to innovate and accelerates the innovation process. Also, ICT use in marketing encourages collaboration and integration of the business environment in the development of the innovation process, thus improving the degree of adaptation of the new product to market demands. Furthermore, intensive ICT use in marketing results companies products more innovative as it can reduce technological, strategic and marketing risk associated with new product development (Vilaseca-Requena, Torrent-Sellens, and Jimenez-Zarco, 2007). A study on information technology and marketing conducted by Trainor et al. (2008) shows that

technology adoption leads to e-marketing capability and positively influences firm performance by improving customer retention and satisfaction. A firm's competence in using the Internet and other information technologies facilitates rich interaction with its customers. These interactions provide customers with access to firm resources and information and simultaneously providing firm with customer information (Brodie et al., 2007). Based on the literature review:

H4: ICT adoption positively influences and marketing capabilities.

### 2.3. Business Performance

The synergic relationships between different market-based capabilities from Dutta et al. (1999) shows marketing capabilities enhance innovative technologies across a range of industries. The general strategic management and marketing literatures suggest that firm capabilities in a number of functional areas can lead to positive performance (Hunt and Morgan, 1996), and the concept of capability development and its impact on performance has been an important focus within marketing studies (Vorheis et al., 1999).

Many empirical studies in marketing depict the relationship between marketing capabilities and firm performance as direct and positive (Moorman and Slotegraaf, 1999). Moore and Fairhurst (2003) in their studies found that the most effective marketing capabilities in fashion retailing for firm performance are promotional capability and image differentiation. In a study on marketing capabilities in entrepreneurial firms, Qureishi and Mian (2010) found that marketing capabilities (marketing research, pricing, product development, channels, promotion and marketing management) were significantly related to firm performance and suggest that firms should develop marketing programs by developing marketing capabilities. Therefore,

H5: Marketing capabilities positively influence business performance.

Based upon the literature review and rationale stated earlier, the framework of this study can be seen in the following figure:

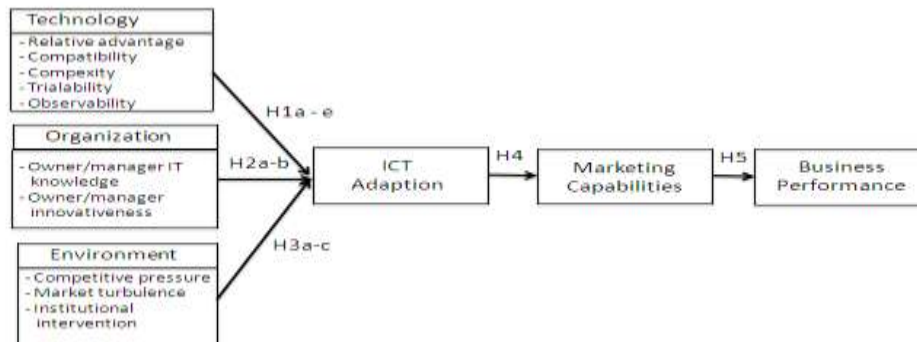


Figure 1 - Research framework

## 2.4. Methodology

### 2.4.1. Research Procedures

This study employed descriptive quantitative data analysis, to investigate factors that contributed to ICT adoption, and the consequences of the adoption to a firm's marketing capabilities and business performance in the context of SMEs in the fashion sub-sector in Indonesia. Hypotheses were developed from theoretical reviews and empirical studies. Subsequently it followed a confirmatory strategy of research in which a process of confirming or disconfirming hypotheses is employed to answer previously identified research questions. Moreover, according to Martin and Martya (2001) ICT adoption in SMEs was limited to emails and website adoption given the characteristics of SMEs. Therefore, the context of ICT adoption

in this study was limited only to the adoption of email and other web-based applications (websites, blogs, and social media such as Facebook and Twitter).

#### **2.4.2. Sampling Procedure**

In this study, a non-probability sampling was employed, and the sampling method used was convenience sampling. The selection of research sample will be based on: 1) The sample consists of SMEs with reference to the size of establishments according to the Government Decree No. 20, 2008 which will be based on total assets, annual sales and number of workers employed. According to UNCTAD and Ministry of Trade Republic of Indonesia, fashion industry is classified into haute couture and ready to wear products, handbags, accessories (tie, shawl, scarf, glove, hat, hairpin), sunglasses, headgear, leather-based products, and perfume. However, this study will focus on owners/managers who are involved along the fashion industry with focus on the production, commercialization and distribution of ready-to-wear fashion products, and who had clothing kiosks in Thamrin City, one of the largest fashion centers in Jakarta, Indonesia. Jakarta is the capital and the largest city in Indonesia with a population of 10, 075,300 in 2014 (Indonesia's Central Bureau of Statistics, 2015), 2) Given the characteristics of SMEs, the level of ICT adoption of this study will be limited to the lower levels of ICT adoption based on Martin and Matya (2001)'s framework; email and website adoption.

A survey method was employed to collect data. The survey method used a standardized questionnaire to collect desired information from respondents. In anticipation of a low response rate, the personal survey interviews were conducted between September and October 2014. Prior to conducting a full-scale survey, a pilot-test to 30 respondents was executed to solicit feedback in terms of understanding of the survey wording and evaluate the measurement reliability and validity.

#### **2.4.3. Measurement**

All data was generated from questioners and was designed, based and modified on previous studies. The measurement scales used to collect the data were also derived from technological variables which consisted of relative advantage (4 items), compatibility (4 items), complexity (5 items), trialability (3 items), and observability (3 items). The organizational variables consist of owner/manager IT knowledge (3 items), owner/manager innovativeness (4 items). The environmental variables consist of competitive pressure (5 items), market turbulence (4 items), and institutional intervention (5 items). All the items were adopted from Tornantzky and Fleischer (1990) and Rogers, 2003). Moreover, ICT adoption was measured by using 6 items adopted from Bassellier, Benbasat, Reich (2003); Teo and Benbasat (2003); Rogers (2003); and Kilangi (2012). Next, marketing capabilities consisted of planning flexibility (6 items), marketing implementation (4 items), product development (4 items), pricing (3 items) and communication (3 items). The variables and items were adopted from Morgan et al. (2003); Fahyet al., (2000); Tsa and Shih (2004); and Vorheis and Morgan (2005). Business performance was measured by using 3 items related to perceived growth on revenue, profit, and number of employees. All questions were measured with a five-point Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. Finally, to obtain respondent profiles, the questionnaires also included several questions such as age, gender, and education, as well as questions on firm profiles such as firm age, number of employees, and number of stores.

#### **2.5. Analysis and Results**

Using the survey data from the pilot test, the statistics procedures in SPSS 22 were utilized for validating the outcome of the questionnaire. Cronbach's alpha was used to validate the consistency of measurements in the questionnaire. Based on the reliability test all variables

are reliable with Cronbach's alpha value greater than 0.6 ( $\alpha > 0.6$ ). It indicates satisfactory internal-consistency reliability among all of the variables used in this study. Furthermore, a validity test on the pilot-test sample was employed by using a Pearson Product-Moment Correlation Coefficient to measure the strength of a linear association between the variables. The result shows that all the measurements are valid with  $r > 3$  and t-value of 0.000. The results of both the reliability and validity tests on the pilot-test sample indicate that the variables and indicators can be used for full-scale data collection.

To gain a better insight of respondent and firm profiles, distribution frequency was used and the results are shown in table 1.

Owner/Manager Profile				Firm Profile			
		Count	Percentage		Count	Percentage	
Age	20-25	43	21.0%	Year of Start-up	< 1	13	6.4%
	26-30	46	22.5%		1-3	86	42.3%
	31-35	31	15.2%		4-6	85	41.7%
	36-40	21	10.3%		7-9	13	6.4%
	41-45	25	12.3%		10-12	6	2.9%
	46-50	21	10.3%		>12	1	0.5%
	51-55	9	4.4%		None	26	12.7%
Gender	56-60	8	3.9%	Number of employees	1-10	162	79.4%
	Male	94	46%		11-25	12	5.9%
Female	110	54%	26-50		3	1.8%	
Education	Elementary	3	1.8%		51-99	1	0.5%
	Middle School	32	16.3%	Number of stores in Thamrin City	1	103	50.1%
	High School	101	49.5%		2	57	27.9%
	Diploma	21	10.3%		3	24	11.8%
	Bachelor	43	21.1%		4	11	5.8%
	Master	3	1.5%		5	5	2.5%
Doctoral	1	0.5%	>5		4	2%	

Table 1- Respondent and Firm Profiles

The conceptual structural equation model was tested using LISREL 8.30, as shown in above table, the chi-square ( $\chi^2$ ) is equal to 2957 with the degree of freedom (df) equal to 1341, so that the  $\chi^2/df$  (chi-square to freedom ratio) is 2.25 which is less than the cutoff good fit  $< 3.0$ , this indicates a good fit between the model and the collected data (Kline, 2004). Moreover, the model shows a good fit between the conceptual model and the data with RMR = 0.096, RMSE = 0.079, GFI = 0.93, AGFI = 0.92, CFI = 1.00, NFI = 1.00 (Designed cutoffs: RMR  $\leq 0.05$  or  $\leq 0.1$ , RMSE RMSEA  $\leq 0.08$ , GFI  $\geq 0.90$ , AGFI  $\geq 0.90$ , CFI  $\geq 0.90$ , and NFI  $\geq 0.95$ , Hair et al., (2010)). As shown in Table 2, eight out of twelve hypotheses received significant support (H1c, H1d, H1e, H2a, H2b, H3a, H3c, H4, and H5), while three hypotheses were rejected (H1a, H1b, and H3b).

Construct and Items	Standardized Loading	Error	t-value	CR	VE
<i>Relative Advantage</i>					
In general, email and web-based applications are useful for my business.	0.84	0.30	13.87	0.869	0.628
Email and web-based applications will allow me to better communicate with customers, suppliers and trade partners.	0.78	0.39	13.55		
Email and web-based applications enable me to reach new markets.	0.88	0.22	14.08		
Email and web-based applications provide fast access to information.	0.86	0.58	12.30		
<i>Compatibility</i>					
Email and web-based applications fit well with the way we do our businesses.	0.90	0.20	16.61	0.920	0.744
Email and web-based applications fit well with our culture and values.	0.91	0.18	16.55		

Email and web-based applications fit well with firm's existing distribution channel.	0.87	0.25	16.32		
Email and web-based applications fit well with our customers.	0.77	0.40	15.59		
<i>Complexity</i>					
Using email and web-based applications is easy to learn for our employees.	0.92	0.15	18.23	0.898	0.652
Using email and web-based applications is easy to understand for our employees.	0.96	0.07	18.43		
Using email and web-based applications is easy to use for our employees.	0.95	0.10	18.09		
Using email and web-based applications is easy to use for my customers.	0.53	0.72	11.66		
Using email and web-based applications is easy to use for my business partners.	0.55	0.70	12.03		
<i>Trialability</i>					
I have had a great deal of opportunities to try various internet applications such as email and web-based applications.	0.98	0.05	10.87	0.889	0.734
In my daily life I use various internet applications such as email and we-based applications.	0.93	0.14	10.87		
Before deciding whether to use email, or web-based applications, I was able to properly try them out.	0.63	0.61	10.87		
<i>Observability</i>					
I believe I could benefit from the use of email and web-based applications.	0.90	0.19	13.32	0.930	0.817
The results of using email and web-based applications are apparent to me.	0.95	0.10	13.35		
People can see the benefits I got from using email and the benefits of using email and web-based applications.	0.86	0.26	13.35		
<i>Owner/manager knowledge</i>					
I would rate my own understanding of ICT as very good compared to other business owners.	0.83	0.30	10.45	0.841	0.639
Regarding my understanding of IT, I know the effects of adopting/using the Internet on my business.	0.82	0.33	10.45		
I have adequate experience in using email and web-based applications.	0.74	0.45	10.45		
<i>Owner/manager innovativeness</i>					
I have original ideas.	0.78	0.40	12.36	0.836	0.560
I would sooner create something new than improve something existing.	0.77	0.41	12.24		
I often risk doing things differently.	0.69	0.52	14.10		
I often have fresh perspective on old problems.	0.59	0.43	12.41		
<i>Competitive pressure</i>					



My customers demand email and web-based applications services offered to them.	0.69	0.52	14.10	0.871	0.579
My suppliers demand email and web-based applications opportunities offered to them.	0.58	0.67	12.41		
I am very alert that using e-mail and web-based applications can increase my business's competitive advantage.	0.87	0.25	16.13		
Using email and web technologies are important to keep up with competition in the market	0.86	0.26	16.0		
I respond quickly to other competitor actions in using email and web-based applications.	0.55	0.41	12.03		
<i>Market turbulence</i>					
I am faced with very intense competition	0.69	0.52	7.52	0.805	0.515
In our industry the customer preferences are changing frequently.	0.87	0.70	7.18		
I have to deal with price competition.	0.89	0.62	7.21		
My competitors can easily offer my products.	0.83	0.82	5.86		
<i>Institutional intervention</i>					
The government offers grants and loans for adoption email and web-based applications.	0.90	0.20	21.17	0.954	0.806
There are current government regulations related to information technology.	0.83	0.31	20.23		
The government provides knowledge-building capacity for email and web technology adoption.	0.94	0.11	21.82		
The government provides information infrastructure for adoption of email and we-based applications.	0.93	0.14	21.62		
The government promotes the adoption of email and web-based applications among SMEs.	0.89	0.21	21.05		
<i>ICT Adoption</i>					
I regularly use email and web-based applications for displaying company information and products offered.	0.93	0.14	25.25	0.967	0.830
I regularly use email and web-based applications to communicate with my suppliers.	0.89	0.22	24.46		
I regularly use email and web-based applications to communicate with my employees.	0.78	0.39	22.24		
I regularly use email and web-based applications to communicate with my customers (where customers can submit	0.95	0.10	25.57		

various enquiries).					
I regularly use email and web-based applications to sell my product online.	0.97	0.06	25.91		
I regularly use email and web-based applications to sell my product and receive payments.	0.94	0.11	25.45		
<i>Planning Flexibility</i>					
I can easily change the company's strategic plan if a new competitor enters the market.	0.85	0.27	22.23	0.947	0.743
If a shift in customer needs and preferences occurs, we can easily change the strategic plan.	0.88	0.22	22.60		
I can easily change my strategic plan if new technology emerges.	0.82	0.32	21.62		
If a shift in economic conditions occurs, I can easily change my strategic plan.	0.89	0.22	22.61		
If new opportunities emerge, I can easily change my strategic plan.	0.87	0.24	22.49		
If an unexpected threat arises, I can easily change my strategic plan.	0.86	0.27	22.19		
<i>Marketing Implementation</i>					
I can allocate marketing resources effectively.	0.65	0.58	12.90	0.887	0.665
I can translate marketing strategies into action.	0.87	0.24	14.82		
I can execute marketing strategies quickly.	0.89	0.21	14.99		
I can monitor marketing performance.	0.83	0.31	14.70		
<i>Product development</i>					
In terms of quality and price, my products are better than my competitors' products.	0.64	0.59	11.82	0.849	0.589
I have an ability to develop new products/ services adapted to customer needs.	0.78	0.38	12.96		
I am successfully launching new products/services.	0.72	0.48	12.61		
I have an ability to develop better products than competitors.	0.96	0.19	5.80		
<i>Pricing</i>					
When setting up product price, I consider the profit margin carefully.	0.48	0.77	5.80	0.759	0.534
I have knowledge of competitors' pricing tactics and strategies.	0.93	0.13	5.80		
My firm regularly monitors competitors pricing and pricing changes.	0.54	0.71	5.80		
<i>Communication</i>					
I acquire ability to communicate my products to customers.	0.30	0.91	5.02	0.741	0.531
I provide the salespeople the training	0.93	0.50	9.56		

they need to be effective.					
I provide effective sales support to the sales force.	1.00	0.00	21.04		

Table 2 - Confirmatory Factor Analysis

Hypotheses	Coefficient	t-value	Hypothesis Testing
H1a: Relative advantage → ICT adoption	-0.01	-0.46	Rejected
H1b: Compatibility → ICT adoption	0.04	1.53	Rejected
H1c: Complexity → ICT adoption	0.21	8.47	Supported
H1d: Trialability → ICT adoption	0.47	17.62	Supported
H1e: Observability → ICT adoption	0.15	3.13	Supported
H2a: Owner/manager knowledge → ICT adoption	0.44	23.45	Supported
H2b: Owner/manager innovativeness → ICT adoption	0.20	6.80	Supported
H3a: Competitive pressure → ICT adoption	0.16	4.26	Supported
H3b: Market turbulence → ICT adoption	0.03	0.93	Rejected
H3c: Institutional Intervention → ICT adoption	-0.09	-3.01	Supported
H4: ICT adoption → Marketing capabilities	0.80	14.06	Supported
H5: Marketing capabilities → Business performance	0.49	16.45	Supported

Table 3 - Results and model tests using the structural equation modeling approach

### 3. Discussion and Conclusion

This study reveals several theoretical and managerial implications relating to ICT adoption among fashion industry SMEs in Indonesia. The industry is considered as an important sub-section in Indonesia's creative industry. The findings of this research prove that ICT adoption has important implications on firms' marketing capabilities and business performance.

In terms of theoretical implications, it can be considered that the major novelty in this research is that it attempts to explore ICT adoption comprehensively. This study extends the current literature in three areas. Firstly, this research used a modified version of the TOE framework (Tonatzky and Fleischer, 1990) and the findings confirmed that technological, organizational, and environmental factors play essential roles in the adoption of ICT among SMEs operating in the fashion industry. In regards to technological factors, complexity, trialability, and observability are three factors that influence the adoption positively, where trialability was found to score the highest mean among other technological factors. These findings confirmed prior empirical studies conducted by several researchers (Tan et al., 2009; Thong, 1999, and Kendal et al. (2001). However, compatibility and relative advantage were found to be insignificant technological factors in ICT adoption. This finding contradicted previous studies, where relative advantage was an important factor in adoption (Tan et al., 2009; Thong, 1999, and Kendal et al., 2001). The results of an in-depth interview conducted with five SME owners/managers reveals that they did not consider ICT as the only medium to communicate with their customers, suppliers and trading partners as they tended to communicate with them using phone calls, text messages, or talk to them directly.

Moreover, both owner/manager knowledge and owner/manager innovativeness were two organizational factors that contributed to ICT adoption. This finding is in line with previous literature, as owner/manager knowledge on technology was considered an important characteristic affecting technology adoption and contributes substantially to the likelihood of adoption (Fink, 1998; Bassellier et al., 2003; Fuller & Lewis, 2002; Thong, 1999; Thong & Yap, 1995). Also, innovativeness is seen as an important owner/manager characteristic in e-commerce and ICT adoptions (Zappala and Gray, 2006; Beckinsalen and Ram, 2006; Al-Qirim, 2007; Ghobakhloo et al., 2011).

Finally, the result shows that competitive pressure and institutional intervention were important environmental factors influencing ICT adoption among SMEs. Surprisingly, the findings further indicate that institutional intervention negatively influences adoption. Most empirical studies concluded that institutional intervention fosters SMEs growth by providing financial aids, regulations, infrastructure, and ICT knowledge building. However, with respect to this current study, it seems that the government does not provide enough support to SMEs in the fashion industry. Furthermore, the results from in-depth interview reveals that SMEs tended to have skeptical attitudes toward support provided by the government. Also, This finding supports a study conducted by Setyorini, C.T., Pinasti, M., Rokhayati, H. (2013) which highlighted lack of coordination and unsynchronized programs government agencies in assisting in all batik SMEs in central Java, Indonesia. Moreover, market turbulence was found to be an environmental factor which had an insignificant influence toward ICT adoption.

Secondly, this study reveals a significant relationship between ICT adoption and marketing capabilities. This finding strengthens empirical studies on the importance of ICT adoption to endow marketing function with capabilities to target specific customers by employing communication and other parts of the marketing mix to customer segments (Pine et al., 1995; Prasad et al., 2001). Also, ICT adoption performs a key element in enhancing the new product development process and improving the degree of adaptation of new products to market demands (Vilaseca-Requena, Torrent-Sellens, and Jimenez-Zarco (2007); Brady et al., 2002).

Thirdly, the findings confirm the vast body of literature that suggests firm capabilities in functional areas lead to firm performance (Hunt and Morgan, 1996). The studies of firm performance in SMEs reveals that marketing capabilities were significantly related to firm performance, where firms with more advanced marketing capabilities showed better financial performance (Qureshi and Mian, 2010).

The findings of this study further suggest several managerial implications to owner/managers of SMEs operating in the fashion industry. It is clear that the adoption of ICT leads to better business performance of SMEs. ICT has given the opportunity for SMEs to reach more customers and provides a low cost infrastructure to grow their businesses. The opportunity of owners/managers to easily try various Internet applications such as email and other web-based applications (such as social media platforms: Facebook, Twitter, blogs, and websites) is an important driver to ICT adoption for SMEs since most of the owners/managers are quite familiar and use those web-based applications on a regular basis. Also, this study further reveals that there is a lack of government support for SMEs in the fashion industry. SME players seem to have skeptical attitude toward government intervention.

#### **4. Research Limitations and Direction for Further Research**

This study employs a non-probability sample of SMEs in the fashion industry. The decision to use convenience sampling was chosen due to the difficulties in contacting the owners/managers of SMEs since most of them lived in different cities and the employees did most of the store operational activities. This method may limit the generalization of the results of this study. Further research with a broader sampling frame should be further examined to see the impact of ICT adoption on marketing capabilities and business performance. Since this study only examines ready-to-wear products, future research that includes different fashion products will enhance our understanding in this industry. Finally, future research in different sub-sectors within the creative industry will broaden our perspectives on the importance of ICT adoption, thus could give us better insights of how ICT adoption could have an impact across different industries. Also, further study on how owner/manager characteristics and firm characteristics

determine the adoption on ICT would bring more detailed insights of ICT adoption among SMEs in Indonesia.

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