

**Adoption of Information and Communication  
Technology on Enhancing Business  
Performance: Study on Creative Industry SMEs  
in Bandung City, Indonesia**

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**ABSTRACT**

Information and communication technology (ICT) is a major contributor to the creative industry and has dominated in producing creative works. Ten out of 14 creative industry groups are closely related to information technology. The industry includes advertising, architecture, design, video, film and photography industries, interactive games (games), music, publishing and printing, computer services and software, television and radio, and research and development. This study aims to analyse the adoption of ICT and its influence on company performance in creative industries in the city of Bandung. SME owners who utilise ICT are the subject of this research. Quantitative method is used in this study. Data collection is conducted through field surveys in the form of questionnaires sent to creative industry SME owners. Data were analysed by using statistical analysis with structural equation modelling. Results indicate that ICT adoption is influenced by *perceived ease of use and perceived usefulness*. The use of ICT positively influences business performance. This study recommends training and education on the use of ICT in the creative industry and other business fields based on its positive influence on business performance.

Keywords: information technology adoption, creative industry, performance, Bandung

1. **INTRODUCTION**

At present, the success of a company is inseparable from the important role of its implemented information and communication technology (ICT) (Behera, et al., 2016). The use of ICT in large companies is not new. ICT has become a means to communicate data and valuable information that the company uses for decision-making, thereby making ICT an important aspect of overall economic growth and development (Behera & Narayan, 2014). Companies use ICT to collaborate on their business processes. Studies show that the presence of IT can improve business processes (Acar et al., 2006; Burca et al., 2005; Levy et al., 2001). Furthermore, the use of IT has many benefits to companies, such as efficiency of production costs and workers, additional value to products and services and increased competitive advantage (Corso et al., 2003;

Levy et al., 2001; Nguyen et al. 2007; Premkumar, 2003). Behera et al. (2015a) state that the main objective of ICT adoption is to increase profits for all stakeholders and further ensure organisational growth and security in the future. In addition, ICT adoption improves performance through staff revitalisation, resource mobilisation, process restructuring and development of existing opportunities to serve consumers better than their competitors (Behera et al., 2015b). The benefits of ICT adoption apply not only to large companies but also to small and medium-sized enterprises (SMEs), and such benefits are increasingly being recognised as important contributors that help SMEs improve their performance (Sanduli et al., 2012).

However, several other studies provide different opinions. One finding indicates that the benefits of IT adoption apply only to large companies and not to SMEs (Premkumar, 2003; Bruque & Moryano, 2007). Carayannis et al. (2006) report that SMEs are generally slow in adopting new technologies. The inability of SMEs to adopt new technology as fast as large companies do hinders ICT adoption (Chatzoglou et al., 2010). The basic problems for SMEs in ICT adoption include the computer technology equipment owned by the company, inadequate software quality, limitations in operations and failure to link technological investments issued with business value (Riemenschneider et al., 2003). Many studies indicate that most SMEs are unsuccessful in implementing ICT when they become part of the business, and their adoption numbers are low (Acar et al., 2005; Mole et al., 2004; Shin, 2006; Southern & Tiley, 2000; Proudlock et al., 1999). This failure can occur because SMEs misunderstand the role of IT in their business (Macpherson et al., 2003).

Many contradictions in ICT adoption are observed by SMEs because not all businesses can be equated. The emergence of various opinions enables researchers to observe the factors that influence ICT adoption in SMEs (Morgan et al., 2006; Premkumar, 2003). This case includes intangible factors, such as organisational behaviour, internal and external resources and the employment of professional consultants (Bassellier et al., 2003; Currie, 2004, Claessen, 2005; Bruque & Moyano, 2007). Nguyen (2009), who conducted research on ICT adoption in SMEs, states that no evidence proves that management in various industries will have different impacts on the company during ICT adoption. In addition, SMEs face a main problem in adopting ICT, namely, their financial resources. Many considerations from the company owner are taken into account during decision making because the source of capital comes from the owner when ICT investment is needed (Nguyen, 2009; Bruque & Moyano; 2007). Moreover, internal and external support for ICT adoption will greatly affect SMEs (Chatzoglou, et al., 2010).

Various opinions regarding ICT adoption in SMEs, especially in the creative industry of Bandung City, whose business growth is currently increasing, are interesting subjects for further research. The role of ICT in creative industries is important in producing high-value products or services. Investigating the use of ICTs in business is interesting because of its potential to improve business performance to achieve competitive advantage.

## **2. LITERATURE REVIEW**

### **2.1 ICT Adoption in SMEs**

The increase in performance ratio using ICTs has given new insights into various business areas, including SMEs. A survey found that 90% of SMEs used ICT to

perform tasks (Ta-Tao et al., 2009). However, SMEs face various challenges during ICT adoption, ranging from internal to external problems (Andries & Debackere, 2006; Corso et al., 2003; Morel & Ramanujam, 1999; Southern & Tiley, 2000; Winter, 2003).

Proudlock et al. (2009) found that small organisations gained few benefits from ICT adoption because of the small amount of data and information that can be processed in small-sized companies. They identified several obstacles for SMEs during IT adoption, namely, lack of managerial time, IT knowledge and financial resources. Ta-Tao et al. (2009) explained that the adoption of ICT in SMEs is greatly influenced by the decisions of business owners because the business capital comes from that the owner, who therefore influences the decision to invest in ICT.

IT adoption in various types of businesses requires extensive knowledge about its benefits and business needs to achieve desired goals (Ta-Tao et al., 2009). Even so, small companies can greatly benefit from other studies on ICT implementation (Yetton et al., 1994; Sanctosus, 1995).

According to Roger (1995), five general characteristics of innovation, namely, relative advantages, compatibility, complexity, observability and trialability, affect the speed of diffusion, as indicated by the results of a meta-analysis of thousands of studies on innovation adoption. Firstly, relative advantages show the extent to which innovation is superior to previous ones. This benefit can be measured by economic size, prestige, comfort and satisfaction.

Secondly, compatibility refers to the match between innovation and existing values, past experiences and needs. The compatibility of innovation with previous ideas will accelerate adoption. Conversely, an unpleasant innovation experience hinders adoption. Thirdly, complexity is the third characteristic used to measure difficulties or investigate and utilise innovation. The ease of use of an innovation corresponds to a fast speed of adoption. Fourthly, observability is a characteristic that measures the clarity of innovation. If the result of an innovation is easily seen and communicated, then the diffusion will be faster. If an innovation can be tried before adoption, then doing so will accelerate its diffusion. The latter, which is trialability, is the fifth innovation characteristic.

Ray and Ray (2006) stated that SMEs that use ICT are innovative and provide strategic benefits to their businesses. This statement is supported by Kuo et al. (2006), who stated that ICTs can facilitate the implementation of business strategies, synchronise supply chain operations and improve the performance of SMEs. Technology is also very important in SMEs on the creative industry sectors. However, technology also becomes similar to a double-edged sword for the creative industry. Tetty Herawaty and Samun J.R. (2018) found that one of the main obstacles to the creative industry is piracy.

ICT adoption by SMEs in Indonesia is fairly low and has not reached the strategic level of business (Fathul, 2007). On the basis of the scenario presented by Knol and Stroeken (2001), the majority of SMEs in Indonesia are still at level 1, that is, the use of ICT for internal-oriented functional integration.

## 2.2 Technology Acceptance Model (TAM)

TAM comes from the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975). TAM is the first and most traditional adoption theory in IT (Benbasat & Barki, 2007; Awa et al., 2011). TRA itself is rooted in social psychology and seeks to explain why individuals consciously carry out intentional behaviour. In TRA, behaviour is

traced through behavioural intention (BI), subjective norms and beliefs (Pinho & Soares, 2011). TRA is widely known and used in various areas, and TAM is known in the area of information systems (Davis, 1986). TRA adaptation is conducted to observe the adoption and behaviour that originate from computer technology. The emergence of TAM introduced by Davis (1986) has elicited attention in information systems because it can predict and explain the purpose and behaviour of using ICT (Yu et al., 2005; Premkumar & Bhattacharjee, 2008).

In TAM, user motivation for adopting new technology can be explained in two main constructs, namely, perceived ease of use and perceived usefulness. Perceived usefulness is derived by a potential user who uses a particular system that will change his actions, and perceived ease of use is the expectation of users about the difficulty or ease of using the target system (Davis, 1989). Expectations about the system is influenced by other factors or as external variables, according to TAM.

Davis (1989) found six constructs, namely, external variables, perceived ease of use, perceived usefulness, attitude in using (attitude towards use), intention to use (intentions to use) and real usage (actual usage). The TAM model has been used in various studies and explains how IT adoption behaviour in various information systems is different (Ma & Liu, 2004; Yousafzai et al., 2007). The TAM model has also been shown to have strong conceptualisation (Agarwal & Karahanna, 1998).

### **2.3 Performance of SMEs**

A company's performance can be measured in various ways, such as sales, labour, assets, shares and profits (Shepherd & Wiklund, 2009; Akinboade, 2015). Performance measurement in SME businesses does not have a standard yet. Researchers can select which performance measurements provide the best indicators for their research (Isaga, 2017). The performance measurement of a business is an important indicator of economic development; hence, many researchers conducted research based on historical data (Bharadwaj, 2000; Sanders & Premus, 2005) or subjectively based on respondents' perceptions related to expectations and business objectives or through a comparison with competitors' efforts (Powell & Dent-Micallef, 1997; Ravichandran & Lertwongsatien, 2005). The measurement and the system should also be focused on SMEs and the implementation of subjective measures, since most SME managers do prefer and willing to provide the performance data subjectively for the sake of confidentiality (Siti Nur 'Atikah Zulkiffli, 2014).

Achtenhagen et al. (2010) found that sales performance indicators are well-known indicators for measuring SME performance along with other indicators, such as employment, assets and profits. Azam (2005) measured the performance of SMEs by using several dimensions related to ICT adoption, such as profit growth, market share, productivity growth, improved performance and firm's competitiveness.

## **3. RESEARCH METHODS**

This study uses quantitative research methods and focuses on finding and measuring patterns of interrelationships between variables. Specifically, this study uses quantitative description analysis with explanatory research (Kuncoro, 2007). According to Singarimbun and Effendi (2013), explanatory research explains the relationship between research variables and previously formulated testing hypotheses. Data collection techniques are used in the survey and involve distributing questionnaires or

interviews to determine who the respondents are and what they think and feel or the tendency of their action. Singarimbun and Effendi (1995: 5) described the survey method as a method that takes data from one population and uses questionnaires as a basic data collection tool to determine the opinions of respondents and the data to be obtained from sampling the population to be studied.

Primary and secondary data are used. According to Sumarsono (2004), primary data include all data and information obtained directly from the research object. Secondary data are supporting data related to the theme of research whose sources are obtained indirectly from online and offline research objects, such as reports, journals, literature books and regulations. The population in this study are creative industry players in the city of Bandung, whose numbers are still unknown. The sample size is 586 respondents, who were obtained using cluster sampling, in which the population is divided into several groups (Jogianto, 2016). Structural equation modelling (SEM) is used as the data analysis technique. SEM is characterised by two basic components: structural and measurement models. The structural model is a path model that connects independent variables to dependent variables. The measurement model allows researchers to use several variables (indicators) for one dependent or independent variable.

#### 4. RESULTS AND DISCUSSION

This section presents and discusses the description of variables and correlation analysis on the exogenous variables of ICT adoption, which consists of sub-variables of ease of use of technology and the benefits of using technology on endogenous variables, that is, the performance of SME-scale creative industries in Bandung

##### 4.1 Ease of Use of Information Technology

Technology in business development must be user-friendly; otherwise, it will slowly be abandoned. In this study, the ease of use of information technology variables is important. The calculation results based on a questionnaire distributed among the 586 respondents obtained the following responses, which are shown in the table below.

Table 1 Easy to Use

Answer	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Average
Strongly disagree	0	0	0	0	0	0	0	0	0	0	0
Disagree	0.9	1.7	1.7	0.9	2.4	1.7	3.1	4.8	3.9	3.9	2.5
Neutral	6.7	5.8	16.4	18.9	16.4	9.9	12.6	19.8	21.5	20.3	14.83
Agree	33.1	47.1	54.9	54.3	47.1	36.7	63.7	50.9	52.6	54.4	49.8
Strongly Agree	59.4	45.4	27.0	25.9	34.1	57.7	20.6	24.6	22	21.3	33.2
Total	100	100	100	100	100	100	100	100	100	100	100

The table shows that the majority of respondents agreed (49.48%) and strongly agreed (33.2%) with the ease of use of ICT variable. This finding is also supported by the recognition of users about the ease of use of information technology because ICT is designed to be user-friendly and for instructions on its use to be obtained easily and in a low-cost manner through websites or YouTube. The number of respondents who stated

the difficulty in using ICT increased because the old system was replaced with a new system, and they still had a low need to use the latest ICT system.

#### 4.2 Benefits of Using Information Technology

The ease of use of ICT in the SME-scale creative industry needs to be balanced with the level of usefulness of information technology to the development of their business. The calculation results of the responses to the statements of benefits of using ICT are presented in the table below.

Table 2. Usefulness

Answer	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Average
Strongly disagree	0	0	0	0	0	0	0	0	0	0	0	0
Disagree	6	9.2	4.3	42.8	21	48.6	39.8	41.5	59.7	65.7	66.6	36.8
Neutral	9	14.5	8.5	16.7	14.8	21.5	23.5	20.3	14.5	11.6	7.2	14.7
Agree	27.8	32.4	33.8	26.8	32.9	17.6	28.3	28.5	17.7	13.1	11.9	24.6
Strongly Agree	57.2	43.9	53/4	10.6	26.5	10.6	7.5	8	5.5	5.6	10.4	21.7
Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 2 shows that the majority of respondents stated that the use of ICTs provides extensive benefits in their creative industries. This finding is supported by other findings based on interviews that show that many SME-scale creative industries in Bandung have used ICT for marketing, communication, ordering and information design search purposes. However, the majority have not utilised ICT for financial reporting, recruitment, remuneration and employee attendance.

#### 4.3 SMEs Creative Industry Performance

The development of a company can be measured based on its performance. The description of the performance level of SME-scale creative industries in the Bandung is an important material for the preparation of strategies and other steps to improve business performance. The results of the company performance variables are shown in the table below.

Table 3 Performance

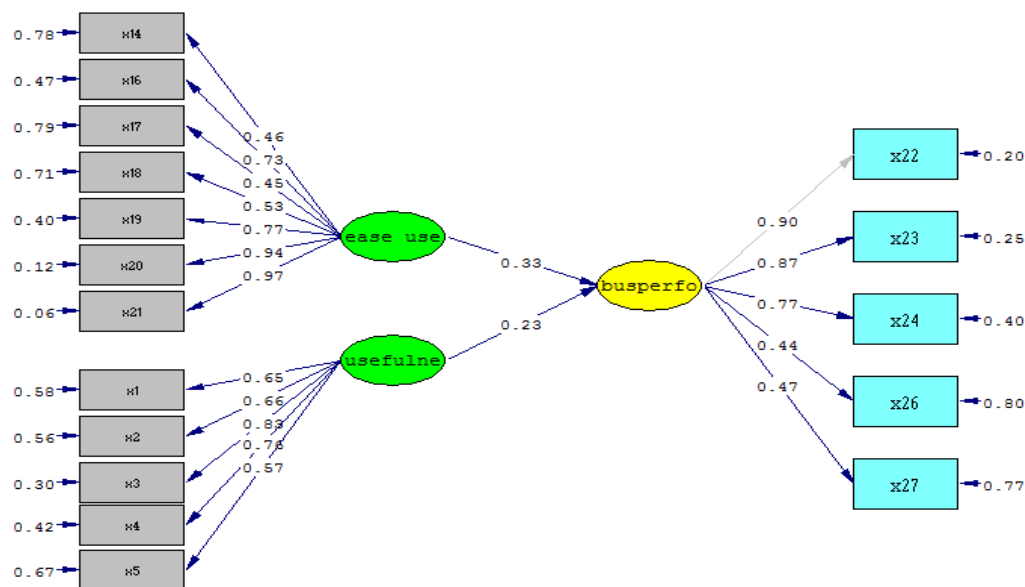
Answer	Q1	Q2	Q3	Q4	Q5	Q6	Average
Strongly disagree	0	0	0	0	0	0	0
Disagree	6.1	8.7	6.1	2.6	0.9	20.6	7.5
Neutral	19.6	23.2	28.8	25.9	25.8	38.7	27.0
Agree	38.2	37.2	48.8	48.5	37.5	33.3	40.6
Strongly Agree	36	30.9	16.2	23	35.8	7.3	24.9
Total	100	100	100	100	100	100	100

Table 3 shows that the majority of respondents stated that ICTs had an impact on their industrial performance. This result shows that the ease of use and benefits of using ICTs can improve company performance. In other words, SME creative industries have adopted ICT in their business.

#### 4.4 Effects of IT Adoption on the Performance of Creative Industries

The effect of ICT adoption on the business performance of SME-scale creative industries in Bandung was measured using the SEM method, as described in the following model stages:

Figure 1. Parameter estimation model of IT adoption of business performance



Chi-Square=2304.62, df=116, P-value=0.00000, RMSEA=0.178

Structural Equations:  
 $busperfo = 0.33 * ease\ use + 0.23 * usefulne$   
 Errorvar= 0.86, R<sup>2</sup> = 0.14

The calculation results (Figure 1) show that business performance is influenced by perceived ease of use with a value of 0.33 (10.89%), and 0.23 (5.29%) is influenced by perceived usefulness. Perceived ease of use and perceived usefulness affect the magnitude of business performance by 14%. The remaining 86% corresponds to the influence of other variables, which is not discussed in this study.

#### 5. CONCLUSION AND RECOMMENDATIONS

The findings can be summarised as follows: Firstly, the majority of businesses are able to use ICT. This finding is in line with that of Sanduli et al. (2012), who stated that the benefits of ICT adoption apply not only to large companies, but also to SME-scale companies.

Secondly, ICT adoption in creative industry SMEs is limited to certain fields, such as communication, transactions and marketing. ICT is not yet used for other operational functions. This finding is in line with previous research that stated that benefits from ICT adoption apply only to large companies and not to SMEs (Premkumar, 2003; Bruque & Moryano, 2007).

Thirdly, specific findings for Bandung's creative industry research show that ICT is not used in other operational fields because they are not included in the core operations of business. This finding is reinforced by the fact that users are accustomed to the old methods, which they find convenient, and because new applications of ICT require adaptation, time, cost and effort.

This research offers the following recommendations: Firstly, training for business people is needed to increase the perceived ease of use, thereby eventually encouraging ICT adoption. Secondly, given the benefits of ICT in improving the performance of creative industries, socialising the benefits of ICT adoption in other fields of SMEs other than the creative industry is necessary. This approach is important because the ICT adoption of SMEs in Indonesia is fairly low and has not reached the strategic level of its business. ICT adoption is still at level 1, which means that it is limited to internal-oriented functional integration. Thirdly, further research is needed on SME adoption in other fields to prove the hypotheses of Premkumar, Bruque and Moryano that ICT adoption does not apply to SMEs.

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