

Influence of the Quality of Human Resources, Communication Information Technology, and Product Mounting Requirements on Product Performance



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Abstract

Improving community welfare is one of the main objectives of a development process in all countries, including Indonesia. Small and Medium Industries (IKM) have contributed significantly to the development of the Indonesian economy through the export, trade, and supporting employment growth sectors. The purpose of this study is to determine the effect of the quality of human resources, information and communication technology and mounting product requirements on product performance (a study of SMEs in the City of Denpasar). This research method uses a quantitative approach that is analyzed using structural equation analysis (SEM) PLS with a sample of 126 business operators in the city of Denpasar. The results of this study are the quality of human resources, information and communication technology and mounting product requirements have a positive and significant effect on product performance. Product performance of 55.5 percent is influenced by variables in the study. Suggestions for further research are that researchers can then add other variables related to product quality outside of this study such as money, markets, and more specific materials, this is because there is still 44.5 percent of other factors outside this research that affect product performance.

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1 Introduction

Small and Medium Industries (IKM) have contributed significantly to the development of the Indonesian economy through the export, trade, and supporting employment growth sectors. IKM can also flexibly adapt to the tides and the direction of market demand. In connection with the outbreak of the ASEAN Economic Community (AEC) in 2015, the efforts of SMEs must also adapt to current developments. Through the AEC, there will be free trade and the loss of trade tariffs between ASEAN countries and the flow of labor between ASEAN countries. IKM must be able to improve the quality of products produced to deal with foreign products that will enter the Indonesian market. On the other hand, MEA also opens access for SMEs to more easily market local products to countries in Southeast Asia. With the MEA agreement being held, ASEAN member countries will compete to become producers to strengthen the country's economy. The cooperative and IKM sectors that are important to be developed in facing MEA are creative and innovative industries, handicrafts, home industries, and information technology.

The shift from the agricultural era to the era of industrialization, then followed by the information age, which was accompanied by many discoveries in the field of communication information technology, has led human civilization into a new arena of social relations that had never been imagined (Toffler & Alvin, 1980). The world is now flat due to globalization and the development of technology, information, and communication (Friedman 2006; Tapscott, 2008). Moreover, the world of global trade is entering a new phase which causes no more barriers between countries in carrying out international trade. In the 1990s a new economic era began which emphasized the importance of information and creativity, known as the Creative Economy era. This creative economic activity is a series of activities in the production and distribution of goods and services that develop through mastery in the fields of information, knowledge, and creativity. The creative economy becomes a new model of economic management that relies on its activities in the process of value creation and transactions. This economic era not only emphasizes the process of creation and transactions, but also utilizes the synergy of mindset to produce an output that has good quality, high selling value, and unique aesthetic value. The creative economy is then driven by the industrial sector called the Creative Industry.

The Government of Indonesia continues to encourage efforts to develop creative industries (Introduction and Direction of Development of Indonesia's Creative Economy 2025, Ministry of Trade of the Republic of Indonesia). The government views this industry as being able to improve the people's economy and the performance of products produced and to develop future industries. With the contribution of this creative industry, the Government, specifically the Ministry of Cooperatives and Small and Medium Enterprises (SMEs), facilitates efforts to increase the contribution of creative industries to the national economy as a whole through empowering and strengthening Small and Medium Industries (SMEs). Bali is one of the provinces in Indonesia which has a relatively small growth in the SME sector. IKM production in Bali in the third quarter of 2017 only rose 1.10 percent compared to the previous year whereas to achieve the ideal growth rate it should be above 7 percent (Kadin Bali, 2017). Efforts to improve the performance of SMIs in Bali, especially in the city of Denpasar, still face obstacles in providing market opportunities (Kaminski *et al.*, 2008; Gunasekaran *et al.*, 1999; Man *et al.*, 2002; Fink, 1998; Morgan *et al.*, 2003). In addition to capital, which is still the main obstacle, there are other things, such as the use of technology and promotion constraints in marketing their products.

Denpasar City is the Capital of the Province of Bali. The vision of the city of Denpasar is "Creative Denpasar with Cultural Insights in Balance towards Harmony". While its mission is to strengthen the identity of the people of Denpasar based on Balinese culture, empowering the people of Denpasar City based on local wisdom through creative culture, realizing good governance through law enforcement for law, improving public services towards public welfare (Welfare Society), accelerate growth and strengthen the economic resilience of the community through a system of Economic Democracy (Economic Stability). Regarding Denpasar City as a trade center and industrial center, pre-observations have been made to the Denpasar City Cooperative and UMKM Office and the Province of Bali, Denpasar City Industry and Trade Office and to know the general picture and realization of exports in Denpasar City. The realization of exports from SMEs is one measure to assess the potential of an area (Lopez-Acevedo & Robertson, 2016). Following Denpasar City Industry and Trade Office's report on the realization of Denpasar City's exports from 2014 to 2018, it was stated that there were an increase and development of Denpasar City's exports to all export destination countries. 5 types of important commodities contribute to exports in Denpasar, namely handicraft products, industrial products, agricultural products, plantation products, and other commodity products. It was also stated that handicrafts always contribute to the highest export income, as can be seen in the following Table 1.

Table 1
Denpasar City IKM Export Value per Commodity in 2014-2018, in thousands of USD

No	Commodity	2014 Value	2015 Value	2016 Value	2017 Value	2018 Value	Total Per Commodity
1	Handicraft	173.661	154.959	156.677	177.589	166.113	1.143.140
2	Industrial Products	112.805	110.098	108.708	92.706	107.243	745.990
3	Agricultural product	108.222	111.338	71.626	152.674	219.875	874.073
4	Plantation Products	881	427	455	667	298	3.135
5	Etc	1.050	1.513	1.850	3.093	2.055	16.549
	Total	396.619	378.335	339.317	426.730	495.585	2.782.887

Sources: Denpasar City Industry and Trade Office, processed, 2019

There are seventeen handicraft commodities owned by Denpasar City, namely: Musical Instrument Crafts, Weaving Crafts, Bamboo Crafts, Padstone Crafts, Furniture Crafts, Wood Crafts, Ceramic Crafts, Shell Crafts, Leather Crafts, Other Crafts (Spa Products and Cosmetics), Candle Crafts, Metal Crafts, Painting Crafts, Silver Crafts, Rattan Crafts, Terracotta Crafts, and Bone Crafts. The biggest contribution based on the export value from 2012 to 2016 is from wood, furniture, silver, solid stone, and metal crafts as can be seen in Table 2 attached below.

Table 2
2014-2018 Denpasar City IKM handicraft commodity results in thousands of USD

No	Handicraft	2014	2015	2016	2017	2018	Dominant Export Destination Country
1	Musical Instrument Crafts	486	425	1.108	220	95	Australia, China, USA
2	Woven Crafts	2.328	1.598	1.317	2.341	3.811	Japan, Australia, Malaysia, etc
3	Bamboo Crafts	11.007	5.728	6.734	3.982	3.652	Spain, Mexico, USA, Canada
4	Padas Stone Crafts	13.512	11.616	11.848	8.158	8.003	Thailand, USA, Japan, Australia
5	Furniture Crafts	28.541	29.641	20.597	31.430	23.118	USA, Australia, Maldives, France, etc
6	Woodcraft	54.417	46.910	56.602	58.460	62.988	Maldives, USA, Spain, England
7	Ceramic Crafts	1.388	1.036	1.773	765	1.393	India, USA, Australia, Germany
8	Seashell Craft	2.076	980	1.190	1.555	1.229	Japan, USA, Brazilia, France
9	LeatherCraft	8.471	9.236	9.141	4.836	4.117	Japan, Australia, USA, Netherland
10	Other Crafts	10.029	4.848	7.147	13.152	15.041	USA, Australia, Netherland, France
11	Candle Craft	443	553	271	159	128	USA, Australia, Germany, etc
12	Metal Crafts	12.782	11.862	12.162	18.200	10.226	USA, Japan, Hongkong, Australia
13	Craft Painting	2.090	1.774	1.216	1.036	1.512	Australia, Japan, USA, Thailand
14	Silver Craft	19.661	25.240	26.235	28.642	23.177	USA, Australia, England, Germany

15	Rattan Crafts	3.959	1.674	1.681	1.729	5.045	Germany, Dubai, Australia, Maldives
16	Terracotta Crafts	2.212	1.449	1.450	2.272	1.838	Australia, USA, Maldives, etc
17	Bone Crafts	258	387	394	652	742	USA, France, Netherland, New Zealand

Source: Denpasar City Industry and Trade Office, processed, 2019

Several other previous studies on factors that influence the ability of SMEs also become a review material, namely [Nicolescu \(2009\)](#), showing the ability of SMEs / SMEs to be able to survive and grow depending on internal factors that affect company productivity and innovation as well as external factors, [Wignaraja \(2012\)](#), generally shows that SMEs' participation in the Global Value Chain (GVC) is still low due to limited resources such as finance, information, management capacity and technology and access to market information ([Wignaraja, 2012](#)). [Harvie et al. \(2010\)](#), stated that what can increase participation in GVC is the scale and maturity of the business, foreign linkage, productivity, innovation and access to finance. The problem that is still faced by SMEs is low productivity ([Sri Susilo, 2005](#)). This relates to: (i) the low quality of human resources in micro-scale businesses, and (ii) the low competency of micro-scale business entrepreneurship. IKM also faces factors that are still obstacles in improving the performance of SMIs. These factors are ([Susilo & Maat, 2007](#)): (i) limited access to capital 2, (ii) limited access to markets, and (iii) limited access to information about resources and technology. Creative industries have formed a competitive business competition where everyone can take part in the developing economy. SMEs that are currently developing in Denpasar City still experience several obstacles that constrain their performance processes, such as lack of knowledge access to niche industries and problems in Denpasar City, such as limited access to capital, limited access to wider markets, limited technology and information owned by SMEs in the City of Denpasar. Based on the theoretical study, the results of previous research, as well as the theoretical framework, the hypothesis was developed in this research is "Quality of Human Resources (HR), Information and Communication Technology (ICT), and Mounting Product Requirements (MPR) have a positive effect on Product Performance (KP) IKM in Denpasar City".

2 Materials and Methods

This study uses a quantitative approach (positivism) to determine the associative level of variables with one another while testing the hypotheses that have been prepared. Denpasar City was chosen as the location of the study because it was based on preliminary observations in the field. The time required is six months. The type of data used in this study is qualitative and quantitative data. In this study, the population of all SMIs in the city of Denpasar, the total population per the year 2018 according to data from the Office of Industry and Trade of Bali Province and the Office of Industry and Trade of Denpasar City amounted to 126 units, so that the number of samples was the same as the population. This research uses structural equation analysis (SEM) with alternative Partial Least Square PLS (component-based SEM). The indicators in the research variables used are as follows, namely, in the variable quality of human resources (X1), the indicators used are educated HR, skilled and expert HR, trained HR, and competent HR. In the information and communication technology variable (X2) the indicators used are technology utilization, a technology that increases the value added, and technology that has fast access. In the mounting product requirements variable (X3) indicators used are procedural, quality control, safety, and reliability ([Apsari & Purnomo, 2020](#)). In the product performance variable (Y), the indicators used are performance, conformance to specifications, aesthetics, and perceived quality ([Zhou, 2006](#); [Cooper, 1998](#); [Soh, 2003](#); [Djurdjanovic et al., 2003](#); [Bayus, 1997](#)).

3 Results and Discussions

Table 3
R² Research Model

	R Square	R Square Adjusted
Y	0,555	0,541

Source: Processed data, 2019

Based on an R square value of 0.555, it means that 55.5 percent of product quality is explained by the quality of human resources, information technology, and mounting product requirements, while the remaining 44.5 percent is explained by other factors outside the model. Based on the results of bootstrapping, the following results are obtained:

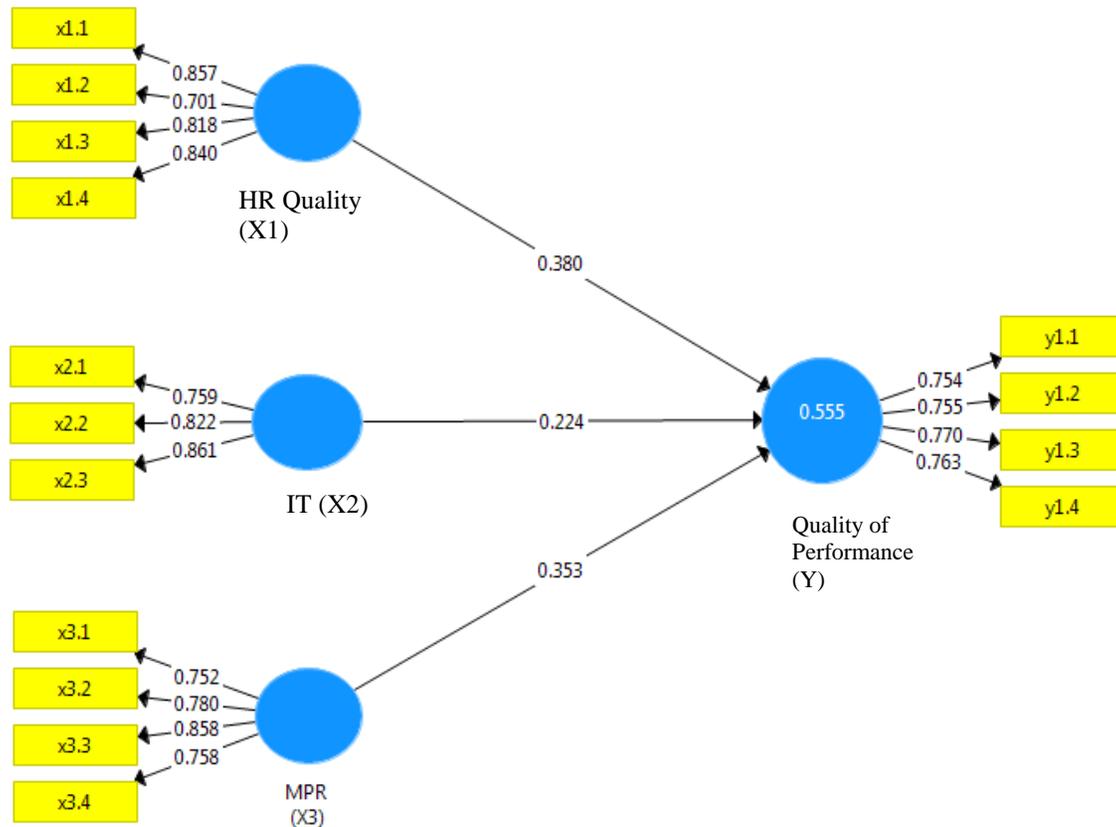


Figure 1. Bootstrapping result

Table 4
Path Coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
X1 -> Y	0,380	0,383	0,093	4,074	0,000
X2 -> Y	0,224	0,232	0,091	2,473	0,007
X3 -> Y	0,353	0,356	0,087	4,039	0,000

Source: Data processed, 2019

Discussion

The influence of the quality of human resources on product performance

The influence of the quality of human resources on product performance amounted to 0.380 with a significance level of 0,000 ($\alpha = 0.05$) then the hypothesis was tested positively and significantly. This means that the better the quality of human resources, the product performance will increase by 0.380. The quality of human resources has a positive and significant impact on product performance, this is because the skilled, trained, competent and educated KSDM plays an important role in improving product performance. This is supported by research from Santoso *et al.* (2015),

Jaya, P. E. J., Utama, M. S., Yasa, I. G. M., & Yuliarmi, N. N. (2020). Influence of the quality of human resources, communication information technology, and product mounting requirements on product performance. *International Research Journal of Management, IT and Social Sciences*, 7(3), 29-37. <https://doi.org/10.21744/irjmis.v7n3.883>

which states that human resources have a positive and significant effect on the performance of Agroindustry MSMEs in Malang, Indonesia. Another study by [Karendra \(2014\)](#), stated that the quality of human resources affected the business development of KPRI Pertagama in Madiun City. This means that if the human resources owned by SMEs in Denpasar have superior quality, they will improve the performance of the products produced. Research Strategies to Improve Umkm's Competitiveness in Dealing with the Implementation of Cafta and Mea by Y. Sri Susilo 2010 using the literature review method to obtain the results of CAFTA implementation has been carried out since January 2010 and the implementation of the MEA will be realized in 2015. With the implementation of CAFTA and MEA in Indonesia MSMEs in Indonesia will face challenges and at the same time obtain opportunities. To be able to survive and be able to take advantage of opportunities, MSMEs must improve the competitiveness of companies and the competitiveness of their products. With a conducive business climate created by the government, it will make it easier for MSMEs to increase competitiveness, both the competitiveness of companies and the competitiveness of products produced. Other stakeholders must improve the partnership that has been established with MSMEs, because the support of stakeholders in the form of education/training/counseling, promotion, and other facilitation has been proven to be able to encourage efforts to significantly enhance MSME competitiveness.

The effect of information and communication technology on product performance

The effect of information and communication technology on product performance is 0.224 with a significance level of 0.007 ($\alpha = 0.05$), the hypothesis is tested positively and significantly. This means that the better the information and communication technology of a business, the product performance will increase by 0.224. The term Information and Communication Technology (ICT) or Information and Communication Technologies (ICT) became popular in the late 70s. In the past, the term information technology was commonly called computer technology or electronic data processing. ICT is defined as a technology for processing and disseminating data using hardware and software, computers, communications, and digital electronics. ICT is a technology used to process data, including processing, obtaining, compiling, storing, manipulating data in various ways to produce quality information, namely information that is relevant, accurate and timely, which is used for personal, business, and government purposes and is strategic information for decision making. This technology uses a set of computers to process data, a network system to connect one computer to another as needed, and telecommunications technology is used so that data can be disseminated and accessed globally. One example of the massive technology used in the development of SMIs is in the process of marketing products through various online platforms. Thus, ICT, in general, can be interpreted as a broad subject regarding technology and other aspects of how to manage and process data into information. This communication information technology is a subsystem of the information system (information system). Especially in a review from the standpoint of technology. Improving the quality of life increasingly requires humans to carry out various activities that are needed by optimizing their resources. Unknowingly, some of the activities carried out by humans have been supported by Information and Communication Technology. Information and Communication Technology both, directly and indirectly, have a role in changing the way we live, the way we learn, the way we work and the way we play. Some applications of Information and Communication Technology including in the fields of business, education, and health and government. The application of ICT in the business sector, for example, ICT has been widely used to support business processes that occur in companies, both in the economic and banking fields. Based on research by [Razleena et al. \(2018\)](#), it was stated that SMIs are one of the important economic wheels in Malaysia. IKM in Malaysia influences urbanization, employment, distribution of income and welfare per capita and will ultimately affect the quality of life and welfare of the people. One way to improve the performance of local IKM products in the era of globalization is to take advantage of science and technology and the internet, namely by doing IKM business online. This will cut costs and increase the productivity of SMIs, as well as a means to reach networking throughout the world.

The effect of mounting product requirements on product performance

The effect of mounting product requirements on product performance is 0.353 with a significance level of 0.000 ($\alpha = 0.05$) then the hypothesis is tested positively and significantly. This means that the increasing requirements of the production process of a product, the product performance will increase by 0.353. MPR which can improve product performance with the highest indicator value based on this research is safety. The product development process that prioritizes safety in its manufacture and its use later by consumers will improve product performance. The importance of product safety to meet the demands of product performance is increasingly high, demanding more stringent control of the production process so that the product is carried out more diligently for this it requires careful supervision during

the production process to meet the expected quality of the product (Feigenbaum, 1994). Increasing global product performance will ultimately also improve the welfare of the country and society through financial outcomes (Dima *et al.*, 2018).

4 Conclusion

Based on the discussion, the conclusions that can be given are the quality of human resources, information and communication technology and mounting product requirements have a positive and significant effect on product performance. Product performance of 55.5 percent is influenced by the variables in this study, namely the quality of human resources, information and communication technology, and mounting product requirements. Suggestions that can be given to SMEs in Denpasar, namely the SMEs can pay more attention to the quality of human resources, the technology used and the improvement of the process requirements for product production because this will encourage an increase in the quality of these products which will indirectly increase customer satisfaction. Suggestions for further research are that researchers can then add other variables related to product quality outside of this study such as money, markets, and more specific materials, this is because there is still 44.5 percent of other factors outside this research that affect product performance.

Conflict of interest statement

The authors declared that they have no competing interests.

Statement of authorship

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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