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INFLUENCE OF SMI'S COMPETENCE TO IT ADOPTION THROUGH THE READINESS OF SMI IN ENTERING INTO INDUSTRIAL REVOLUTION 4.0

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ABSTRAK

Tujuan dari peneian ini adalah untuk Untuk menjelaskan dan menganalisis Pengaruh Kompetensi Pelaku Industri kecil dan menengah terhadap Adopsi TI Melalui Kesiapan Industri kecil dan menengah dalam Memasuki Revolusi Industri 4.0. Penelitian ini mengunakan pendekatan kuantitatf dengan menggunakan explanatory research. Populasi penelitian ini adalah pelaku Industri Kecil dan Menengah sektor makanan dan minuman di Kota Blitar yang berjumlah 2896 pelaku IKM. Untuk menentukan sampel dari populasi, peneliti menggunakan rumus Yamane sehingga memperoleh jumlah responden sebanyak 97 orang. Teknik sampling penelitian ini adalah teknik random sampling dengan jumlah sampel diambil secara proporsional mengikuti jumlah pelaku IKM di Kota Blitar. Metode pengumpulan data menggunakan kuesioner yang disebar kepada responden dan dihitung dengan skala likert. Data dianalisis dengan menggunakan analisis jalur menggunakan SPSS. Metode analisis data terdiri dari Uji instrumen, analisis statistik deskriptif, analisis statistik inferensial, dan uji hipotesis dengan path analysis. Hasil penelitian ini menunjukkan bahwa Kompetensi pelaku IKM, Kesiapan IKM memiliki pengaruh positif dan signifikan terhadap Adopsi TI.

Keywords: Competence of SMI actors, SMI Readiness, IT Adoption

ABSTRACT

The purpose of this edifying is to explain and analyze the influence of the competence of small and medium industry actors to the adoption of IT through the readiness of small and medium industries in entering the Industrial revolution of 4.0. This research uses a quantitative approach using explanatory research. The population of this research is the small and medium industry of the food and beverage sector in Blitar city totaling 2896 SMI actors. To determine the sample of the population, researchers used the formula of Yamane to obtain a total number of respondents 97 people. The sampling technique of this research is a random sampling technique with the number of samples taken proportionally following the number of SMI actors in Blitar City. The method of collecting data using questionnaires is distributed to respondents and is calculated on a Likert scale. Data is analyzed using the path analysis using SPSS. Data analysis methods consist of instrument tests, descriptive statistical analysis, inferential statistical analysis, and hypothesis testing with path analysis. The results of this study showed that the competency of SMI practitioners, SMI readiness has a positive and significant influence on IT adoption.

INTRODUCTION

Small and medium industries (SMI) have a very important and strategic role to realize the strong economic area in support of the national economy. The regional economy will develop if the small and medium industries in the village are capable of having good competence. Competence is the ability to be owned by small and medium industries. Mitrani based competence in(Ardiana & Brahmayanti, 2010)is as a fundamental trait of a person who itself relates to the implementation of a work effectively or successfully. The inequality in this competence distinguishes a superior performer from an average performance behavior. This is in line with the opinion of(Ardiana & Brahmayanti, 2010), which provides that the competence of SME's human resources has a significant relationship to SMEs performance.

Indonesia is currently entering the era of the 4.0 Industrial Revolution. The world's fourth industrial revolution where things become infinite and unrestricted due to the development of the Internet and digitalization technology. The main characteristic of the 4.0 Industrial Revolution is the diminishing physical role of human beings in various daily and production activities. The impact on industry in Indonesia prompted the government to implement the 4.0 industry by leveraging opportunities in the era of the fourth Industrial Revolution. Therefore, there is a new approach and ability to build an innovative and sustainable production system (Ministry of Industry of the Republic of Indonesia, 2018).

Rapidly expanding information technology has a breakthrough in the field of technology. A survey conducted by the(OECD, 1993)found that the adoption of IT by SMEs was still low compared to large corporations. There are many reasons for the low end of IT adoption by SMEs. One of them is still low-knowledge of the potential IT is advancing business. The study, conducted by(Lefebvre Henri, 1991), found that four factors determine the adoption of new technology by SMEs, namely: Characteristics of SMEs; UKM competition strategy and management; Influence of internal and external parties in the process of adoption decision; and new technological characteristics to be adopted.

Also, the development of small and medium industries in the 4.0 industries, required a readiness of small and medium industries. E-Readiness is one of the tools to evaluate the readiness of a country or business in an integrated way to adopt, use and utilize information technology, and efficiently manage resources. In the economic sphere, the largely influenced aspect is the business aspect. "Overall, four main effects are facing the fourth industrial Revolution on business customers' expectations, product improvement, collaborative innovation, and Organizational Form"(Schwab, 2018). The emergence of the global platform and other new business models, ultimately, means that talent, culture, and organizational form must be rethought. A recent literature review of Industry 4.0 with a special emphasis on SMEs found that there is a lack of empirical founded research on the application of Industry 4.0 technologies(Moeuf et al., 2018).

Small industrial characteristics include micro-scale, spread throughout Indonesia, in the form of labor-intensive, relatively small investments by generating high value-added, using technology that is still simple to the same, and not Need high skills, can create a source of new entrepreneurial creation, has a high level of flexibility in anticipation of the dynamics of market change and is resistant to the turmoil of the economic crisis (Director General of SMI, 2006). According to (Irianto, 2017)Industry Challenge 4.0 is; (1) readiness of industry; (2) Trusted workforce; (3) The ease of socio-

cultural arrangement; and (4) diversification and creation of employment and industry opportunities 4.0 is; (1) Ecosystem innovations; (2) Competitive industrial base; (3) Investments in technology; and (4) integration of small-medium enterprises (SMEs) and entrepreneurship. According to the deputy coordination of creative economy, entrepreneurship, and the competitiveness of cooperatives, SMEs that in the face of Industrial Revolution 4.0 need a superior and reliable human resources according to the needs of the business and industry. To adapt to the changes in the revolution of the 4.0 industry, there are many things to be prepared for small and medium industries, namely the ability to adapt information technology in the work. Technology has become the basis of human life. Everything becomes infinite and unlimited due to the development of the Internet and digital technology. The use of information technology is a failure, it will be financially detrimental and will affect the continuity of the operation of the business itself(Sani et al., 2018).

The Making Indonesia 4.0 strategy launched by the ministry of industry as a road map on Indonesia's strategy in entering the Industrial Revolution 4.0 so that Indonesia can compete with other countries. One of the priority strategies for Making Indonesia in the 4.0 Industrial Revolution is the empowerment of Micro, Small and Medium Enterprises. Small and Medium Industries are the drivers of economic sector development in each country, especially developing countries,(Issa et al., 2017) (Fathian et al., 2008). From the background displayed, the purpose of this research is to explain and analyze the direct influence of the competence of small and medium industries to the readiness of small and medium industries. To explain and analyze the immediate influence of the readiness of small and medium industries to the adoption of information technology. To explain and analyze the direct influence of the competence of small and medium industries to the adoption of information technology.

KAJIAN TEORI

TRA (Theory of Reasoned Action)

The Theory of Reasoned Action (TRA) is an individual performance of a predetermined behavior that will be determined by the intent of the action to be performed with the purpose of the collectively defined behavior by individual attitudes and subjective norms(Hill et al., 1975). The Theory of Reasoned Action is a model that is used to predict the intention to perform a behavior based on a person's attitudinal and normative beliefs(Southey, 2011). This theory relates to conviction (belief), attitude, will (intention) and behavior. An important concept in this theory is the focus of attention (salience), which is to consider something that is considered important. The Will (Intention) is determined by subjective attitudes and norms(Jogiyanto, 2007).

According to (Hill et al., 1975)who said the attitude Affect behavior through a process of careful and reasoned decision making and its impact is limited to three things; First, the behavior is not determined by the general attitude but by a specific attitude toward something. Secondly, behavior is influenced not only by attitude but also by the objective norms (subjective norms) of our beliefs in what others want us to do. Thirdly, the attitude towards a common behavior of subjective norms forms a certain intention or intent.

Competence

Richard(Sudarmanto, 2009)says competence are characteristics related to superior performance and or effective in the work. According to Armstrong(Sudarmanto, 2009) says competence is what people bring to a job in the form of different types and levels of behavior. (Spencer, L. M, & Spencer, 1993)argued that the competence showed underlying behavioral characteristics that describe motives, personal characteristics, self-concepts, values, knowledge or expertise that brought a person who performs superior in the workplace. According to(Suryana, 2009) reviewed from an entrepreneurial corner the core competence of an entrepreneurial is the skill, knowledge, and ability to create a special competitiveness to occur at a strong bargain position in the competition.

Competencies can be divided into 2 (two) categories, namely "threshold competencies" and "differentiating competencies"(Spencer, L. M, & Spencer, 1993). (1) Threshold competencies are the main characteristics that must be possessed by someone to carry out their work. But not to distinguish a high-performing and average person. (2) Differentiating compliance are factors that distinguish individuals who work high and low.(Man et al., 2002) Business competence is sufficient knowledge, skill, and ability to meet the needs, such as the effective performance of a job.

Readiness of Small And Medium Industries

According to (Parasuraman, 2000)The potential development of technology that quickly benefited the consumer, and in line with that there is also concern about the frustration of consumers with the technology system. Technological developments Force users to learn more in the technology devices used, from simple to complex. Users are treated to a relatively easy technological advancement in the efficiency and effectiveness of the process in its organization. According to (Lai, J.Y. and Ong, 2010), the meaning of readiness is a concept of change that is a concept of development and movement. Readiness can be distinguished from maturity in the sense that readiness is assessed before engaging in maturing processes whereas maturity is assessed from the actual implementation and forward (Schumacher et al., 2016). Therefore, the research objective is in the form of the development model to identify competency factors and the readiness of SMIs towards the industrial revolution 4.0 (Nugroho, 2015).

Adoption of Information Technology

According to (Bambang, 2008) Information technology is the means and infrastructure (hardware, software, users) systems and methods to acquire, transmit, process, interpret, store, organize, and use data meaningfully. (Adeosun & Ganiyu, 2012) argues that the use of IT provides positive values for management strategies related to communication aspects, information access, decision making, data management, and knowledge management in an organization. The concept of readiness has been developed to rationalize actions, increase competitiveness, and manage resources efficiently (Aboelmaged, 2014). In the scenario of IT adoption by SMEs introduced the most SMEs in Indonesia are still in the stage of level 1, is using IT for internal-oriented functional integration (Kusumaningtyas & Suwarto, 2015).

Industrial Revolution 4.0

The 4.0 industry is a product of the current digitization in which everything along the chain of value creation is connected to the network as well as all relevant information can be independently and directly exchanged. The term Industry 4.0 was the first time in 2011 in Germany marked by a digital revolution. The digital revolution was adopted from the development of computer technology that continues to evolve the Ministry of Industry (2019) stated that Indonesia's strategy entered the 4.0 industry by conducting five existing manufacturing sectors. Namely: Food and beverage industry, industrial industry, electronics industry, chemical industry, and textile industry. Furthermore, Industry 4.0 technologies are under rapid development and consequently the theoretical and conceptual understanding (Zhu et al., 2006). Nine technologies have been proposed to unfold the Industry 4.0 umbrella: 1) big data and analytics, 2) autonomous robots, 3) simulation, 4) horizontal and vertical system integration, 5) internet of things (IoT) (including sensors), 6) cyber-security, 7) the cloud, 8) additive manufacturing and 9) augmented reality (Zhu et al., 2006). 10) artificial intelligence, 11) mobile technologies and 12) RFID and RTLS technologies (Stentoft et al., 2019); thus, the total number of technologies to be studied counts 12.

Effect of Competency of Small and Medium Industry Players on Small and Medium Industry Readiness

(Sutrisno, 2011) which suggests that competence consists of many key behaviors needed to carry out certain roles to produce satisfying achievements or performance. According to (Catarina, 2019) that individual competence plays a role in innovation, especially for SMEs. Research conducted by (Catarina Cori Pradnya Paramita, 2019), (Ardiana & Brahmayanti, 2010) shows that competence is needed in micro, small and medium businesses.

H1: Competence of IKM Players has a positive and significant effect on the readiness of IKM.

The Influence of Small and Medium Industry Entitlements on IT Adoption

(Parasuraman, 2000) The potential for rapid technological development benefits consumers, and in line with that, there are also concerns about the frustration of consumers with the technology system. According to research (Faith, et al, 2017) MSME readiness carried out in Surakarta from 100 MSMEs as respondents there are three Variables namely business credibility, social media, and e-banking accessibility. Research conducted by (Parasuraman, 2000), (Sani et al., 2018), and (Iman et al., 2017) that IT adoption has a positive influence on the readiness of SMEs.

H2: IKM Readiness has a positive and significant effect on IT Adoption

Effect of Competency of Small and Medium Industry Players on IT Adoption

From an entrepreneurial point of view, the core competencies of an entrepreneur are the skills, knowledge, and abilities in creating special competitiveness to create a strong bargaining position in competition. In these competencies still need to utilize information technology. From the results of the study (Fathul Wahid, 2007) In general IT adoption among SMEs in Indonesia is still very low. The use of IT by SMEs has not yet touched the strategic level. In the scenario of IT adoption by SMEs introduced by (Knol & Stroeken, 2001), most SMEs in Indonesia are still in level 1 stage, using IT for internal-oriented functional integration.

H3: Competency of IKM Players has a positive and significant effect on IT Adoption.

METODE PENELITIAN

Research Design

Based on the object and purpose of the research conducted The research used was Explanatory Research. According to(Sugiyono, 2013) Explanatory research is research that aims to explain the position of the variables studied and the relationship between one variable and another.

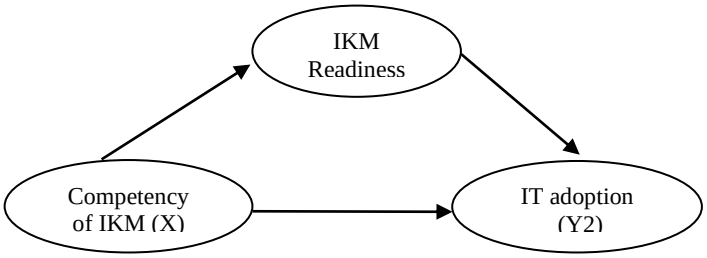

Figure 1. Research Design

Population

The population used in this study is small and medium industries in the city of Blitar. Based on this, this research is a probability sampling study with a random sampling technique, with criteria attached to the sample.

Sample

The sample taken in this study from the population of small and medium industries in the city of Blitar is the Food and Beverage Industry. The number of samples taken in this study was 97 respondents. To determine the size of the sample using the Yamane formula.

Research Instruments

The data collection method in this study uses tools in the form of research instruments. The instrument used by researchers used a questionnaire or questionnaire. For the results of the answers to the questionnaire will be tested for validity and reliability first. The measurement scale used is 5 Likert scale ranging from strongly disagree (1) to strongly agree (5).

Data analysis technique

The data analysis technique in this study used the Path analysis technique with the help of the SPSS v 23. application program. This analysis was used to test 3 variables which were one variable as mediating variables in the research model.

PEMBAHASAN

The validity test results show that all the item statements in this study have a greater number of r counts than the R table of 0.1680. Likewise with the results of the reliability test that indicated that the value of the reliability coefficient> 0.6. It can, therefore, be concluded that the questionnaire used in this study was valid and reliable.

The classic assumption test results of this study can be noted that based on the Kolmogorov-Smirnov test its significance value of 0.2 which is greater than 0.1 it can be concluded that the data is distributed normally. Next, when viewed from the interference linearity test the value of the second correlation is free, and the one bound variable all shows a greater value greater than 0.1. Thus it can be concluded that the data in this research is linear. The image below shows the result of the analysis path using regression.

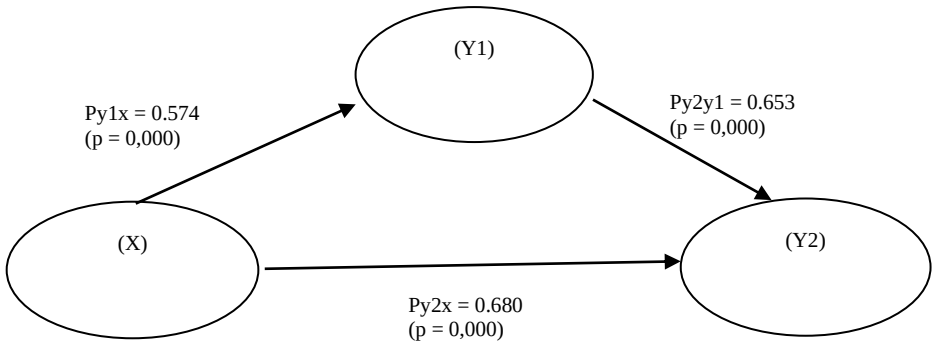

Figure 2. Research Model

From the results of the variable competency of SMI actors have a positive and significant influence on the readiness of SMI at the fault level of 0.1 (α = 10%). This can be seen from the size of the path coefficient of 0.574 with a value of sig 0.000 (0.000 <0.10) so that the competency variable SMI (X) is a significant effect on the readiness of SMI (Y1)

From the result of the analysis of the variable readiness, SMI has a positive and significant influence on IT adoption at a fault rate of 0.1 (α = 10%). This can be seen from the size of the path coefficient of 0.653 with a sig value of 0.000 (0.000 <0.10) Hence the SMI readiness variable (Y1) significant effect on IT adoption (Y2).

The results of the competency variables of SMI actors have a positive and significant influence on IT adoption at an error rate of 0.1 (α = 10%). This can be seen from the size of the path coefficient of 0.680 with a sig value of 0.000 (0.000 <0.10) Hence the competency variables of the SMI (X) are a significant effect on IT adoption (Y2).

First hypothesis

The hypothesized test results have proven that the SMI competency variables have a significant influence on SMI readiness. The result of partial calculation of SMI competency has a positive and significant influence on SMI readiness at a 10% error rate. This can be proven by the coefficient of the path of 0.574 with a probability t of 0.000 (0.000 <0.1). The competency variables of the SMI as a whole have an average

respondent answer of 3.99. So that it can be concluded that the average respondent's answer to the competence of the people of SMI is good or high, which means the competence of SMI perpetrators is considered by the people of the food and beverage sector of Blitar.

Based on the analysis of the pathway known that the competencies of SMI perpetrators significantly affect SMI readiness. Therefore, the higher competence of the SMI principals is owned by the people of SMI the food and beverage sector of Blitar, the higher the readiness of SMI to enter the Industrial revolution of 4.0. The results of this study, according to (Sutrisno, 2011), have found that competence consists of some key behaviors needed to carry out certain roles to produce satisfactory achievement or performance. This research is also supported by research conducted (Catarina Cori Pradnya Paramita, 2019), (Ardiana & Brahmayanti, 2010) shows that competence is indispensable in micro, small and medium enterprises.

Second hypothesis

The hypothesized test results have proven that the SMI readiness variable has a significant influence on IT adoption. From partial calculation results, SMI readiness has a positive and significant influence on IT adoption at a 10% error rate. This can be proven by the coefficient of the path of 0.653 with a probability t of 0.000 (0.000 <0.1). The overall SMI variable readiness has an average respondent answer of 3.95. So that it can be concluded that the average respondent's response to the readiness of good or high is SMI, which means the readiness of SMI is considered by the people of the food and beverage sector, Blitar.

Based on the analysis of the known pathway that SMI readiness has a significant effect on IT adoption. Hence the higher readiness of the SMI food and beverage sector of Blitar the city will be the higher its adoption to enter the Industrial revolution of 4.0. The results of this research under the theory are expressed by(Parasuraman, 2000)Potential development of technology that quickly benefits consumers, and in line with it is also a concern for the frustration of consumers with technology systems. Also, this research is supported by research conducted by (Parasuraman, 2000), (Sani et al., 2018), and (Sari & Santoso, 2019) that the readiness of SMI has a positive influence on IT adoption.

Third hypothesis

The hypothesized test results have proven that the SMI competency variables have a significant influence on IT adoption. From partial calculation results, SMI Competence has a positive and significant influence on IT adoption at a 10% error rate. This can be proven by the coefficient of the path of 0.680 with a probability t of 0.000 (0.000 <0.1). The competency variables of the SMI as a whole have an average respondent answer of 3.99. So that it can be concluded that the average respondent's answer to the competence of the people of SMI is good or high, which means the competence of SMI perpetrators is considered by the people of the food and beverage sector of Blitar.

Based on the analysis of the pathway known that the competencies of SMI perpetrators significantly affect IT adoption. Therefore the higher competence of SMI actors is owned by the people of SMI the food and beverage sector of Blitar, the higher IT will be adopted to enter the Industrial revolution of 4.0.

The results of this study under the theory stated by (Suryana, 2009)reviewed from an entrepreneurial corner the core competence of an entrepreneurial is the skills, knowledge, and abilities to create a special competitiveness to occur in a strong bargain position in the competition. Also, this research was supported by the research conducted by (Fathul Wahid, 2007) and (Knol & Stroeken, 2001).

CONCLUSION

Based on the results of the research and the discussion on this research can be taken as a conclusion that the competency variables of small and medium industries are positive and significant to the readiness of small and medium industries. The variable readiness of small and medium industries is positive and significant towards IT adoption. The competency variable of small and medium industrial actors is positive and significant towards IT adoption.

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