

The Barriers of Innovation: Empirical research at MSMEs in the Special Region of Yogyakarta

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Abstract: This study aims to identify the implementation and innovation barriers faced by micro, small and medium enterprises (MSMEs). This research involves owners and employees to find out the innovation process that has been done. The population used in this study were all of MSMEs owners and employees in the Special Region of Yogyakarta. The sample consisted of 74 MSMEs involving 148 respondents. Samples were taken using a purposive sampling method. The collected data were analyzed using descriptive statistical analysis techniques. The results showed that the majority of MSMEs have innovation in the last five years. The owner is proven to have an objective perspective on innovation activities. The innovation made by most MSMEs is product innovation. The main barriers for MSMEs in innovation process are financial limitations, lack of knowledge, and employees' limited ability in the company.

1. Introduction

Micro, Small and Medium Enterprises (MSMEs) have an important role in the economic system for several developing countries. MSMEs are one of the business sectors that have a major contribution to economic growth, especially in Indonesia. The existence of MSMEs has great potential in absorbing labor and in the formation of Gross Domestic Product (GDP) [1]. MSMEs must be able to deal with the impact of changes due to technological advances especially in the era of the Industrial Revolution 4.0. The concept of the industrial revolution 4.0 is a form of new life in the modern economy where innovation and technological development have an important role in organizations [2], [3]. The industrial revolution 4.0 is an era of increasing digitization and automation in the manufacturing environment that can have a significant impact on changes to a product, production process, operational systems and services provided by companies [4], [5]. The presence of the 4.0 industrial revolution can be an opportunity for business people and can also be a challenge. Therefore, it is necessary to have readiness for MSMEs to be able to compete and win the competition [6].

Business capability in continuous improvement and innovation lead to goal's achievement [7], [8]. The ability of innovation and entrepreneurial knowledge in business improve competitive strategic to enhance company growth [9]. Innovation is an effort to create a competitive advantage in business going concern and development to face market competitor and technological trends [10]. Innovation requires business strategy to minimize the difficulty of the application of innovation [11]. The success of innovation can be achieved by developing an integrated company strategy, market position, internal management and an integrated of technology and human resource capabilities [12]. MSME owners have an important role in making strategic decisions to carry out experiments and collaborations to create innovations [12]. There are several things that must be considered in order to create an innovation in MSMEs, including the entrepreneurial ability of MSME owners, owners' perceptions of innovation and the decision to invest for Research and Development (R&D) purposes.

Owner of MSMEs with entrepreneurial ability are able to set company goals, achieving the milestone, taking risk to create competitive advantage in business [13], [14]. The study literature shows that product innovation is the most popular and dominant form among the concept of innovation. It

triggered by the perception of MSME owners that innovation is a product renewal [15]. Studies conducted on MSMEs in Ghana and in other developing countries show that innovation activities increment by focusing on product innovation. This is build by the perception of MSME owner that innovation is only in product itself [16]-[18]. But other previous studies revealed to state that innovation not only in the product itself but also in the term of services, process, technology and system, new plan or program [17],[19]. Piatier (1984) indicated that the preception of MSME owners towards innovation is one of the barrier of the implementation itself [20].

Business entity commitment in initiating innovation through investment for R&D decision. R&D is part of the business strategic decisions that able to enhance financial performance and as a source of competitive advantage by directing the innovation and application of new technology to create new products, process and services. MSME owner controlling over R&D decisions and taking part in every strategic decision making [21]-[23]. World Economic Forum conducted a survey in 2019 through the Global Competitiveness Report and the result showed that Indonesia was ranked 50th out of 141 countries in term of competitiveness [24]. The Ministry of Research, Technology and Higher Education (2018) said that Indonesia's innovation competitiveness still considered as in low level and unable to compete with other countries in ASEAN such as Malaysia and Singapore. This is build by the people's mindset that tends to perceive the presence of the industrial revolution 4.0 as a threat and less people respond positively to digital change. Daerah Istimewa Yogyakarta (DIY) is one of the regions with a large number of MSME. Disperindagkop data in 2018 showed that there were 18,922 MSME in DIY. The detail numbers of MSME in DIY are 5,745 business units in Bantul; 6,244 business units in Kulon Progo, 2,430 business units in Gunung Kidul; 340 business units in Yogyakarta and 4,163 business units in Sleman.

The Government of DIY (2019) revealed that MSMEs are one of the business sectors that have a major contribution to the economy in the region. However, MSMEs in DIY are difficult to expand. One contribution is due to the limited access to capital and financing [25]. Limited access to capital and financing will certainly make it difficult for MSMEs to create a better product or service. Many research put interested to evaluate the difficulty of implementing innovation in DIY. This research has a special significance context by considering that MSMEs are able to survive in the market if the business entity providing value added to products and services through innovation activities and continues to develop in a sustainable manner [10]. In addition, there are still limited empirical studies determining the perceptions of MSME owners on innovation activities, especially in DIY. This research conduct a qualitative research using an interpretive paradigm. Research paradigm is a concept, a way of thinking and judging based on logical assumptions in a framework to conduct a study [26]. The interpretive approach was chosen to seek clarity on social events based on the experiences and perspectives of the subject under study. In interpretative research, facts become an essence that is neutral and objective to study social meaning as a science that aims to reveal a reality as outlined in a description [27]. Researchers also involve employees' perceptions to find out the implementation and innovation barriers faced by MSMEs from the employee's point of view. Previous studies have shown inconsistent results and there are still few studies involving employee perceptions in studying the changes in organizations [15], [17], [28].

2. Literature review

2.1 Industrial revolution 4.0

IR 4.0 is an era where digitalization and automation are used in manufacturing environment to create significant changes in products, process, operational systems and services that provided by companies [3]-[5]. The presence of IR 4.0 is a new way of opportunity as well as a challenge among MSMEs. Internal management have to adapt in this new era with the government and related business associations concern. The willingness in facing MSME competitive market can be started with the right strategy, utilizing creativity, innovating in comprehensive aspect in the business (products, processes, marketing,

organizing) using technology, developing human resources and having global competitiveness [29]. In addition, the willingness of MSMEs to facing IR 4.0 can be carried out through synergy between the government, management itself and other stakeholders so they able to apply the technology for innovation [30].

2.2 Micro small and medium enterprises

MSME according to Undang-Undang Republik Indonesia Nomor 20 Tahun 2008 (the Law of Republic Indonesia) categorized as micro business if maximum net worth amounted to IDR 50 Million excluding land/properties and generates proceed sale annually amounted to IDR 300 Million. Small business stated by the Law with net worth more than IDR 50 Million but less than IDR 500 Million and proceed sale annually more than IDR 300 Million to IDR 2.5 Billion. Medium sized business have a net worth more than IDR 500 Million but less than IDR 10 Billion and generates proceed sale annually between IDR 2.5 Billion and amounted to IDR 50 Billion. The World Bank classifies Micro, Small and Medium Enterprises according to the number of employee; 5-9 person as Microenterprises; 10-49 person as small enterprises and 50-99 person as Medium enterprises.

2.3 Entrepreneurship

Drucker (1985) considered that innovation is a function of entrepreneurship and put it at the center of the process. Entrepreneurship take part in planning and designing of new products, services, management and chance for the enhancement of economic growth [17], [31]. Entrepreneur has ability to manage risk to organize business entity and how to deal with competitor [32] - [34].

2.4 Research and development activity

R&D is a method to initiate innovation and turned into a main factor toward competitive advantage [35] - [37]. R&D is part of strategic decisions that drive financial performance and as a source of competitive advantage by directing the innovation and application of new technology to create new products, processes and services. The costs allocated for R&D activities is the main thing that being considered by business entity, especially MSMEs toward innovation [38], [39].

2.5 Innovation

Innovation a set of process to reconcept, redesign product and services to comply with the customer satisfaction, the Government as a regulator and other parties [40]. Damanpour (1996) stated that innovation should well-integrated with the environment. It means that innovation have a positive impact for the environment [41]. It also defined as an exploitation of resources to create something new such as products, production and management methods, obtain new suppliers and the opportunity to gain new market opportunities [42]. Innovation is an important tools in business to create profit and competitive advantage by utilizing resources and knowledge science [43].

Talegata (2014) and Edwards-Schachter (2018) state that innovation consist of four types, including; (a) product innovation is the introduction a new product or service improvement comply with characteristics and function; (b) process innovation is applying the appropriate production method to create products and services; (c) marketing innovation is applying the current marketing method to improve product design and packaging, product design and packaging, substitution goods, promotion and costing strategy in the marketplace; (d) organizational innovation is applying new managerial method in business entity, workplace organization and relationship with the external parties [10],[44]. Fitjar and Rodriguez-Pose

(2013) classifies four levels of innovation; (a) incremental innovation; (b) radical innovation; (c) architectural innovation; and (d) modular innovation.

Talegeta (2014) and a survey conducted by CIS in 2010 found several barriers to innovation, including; (a) limited knowledge (information technology and market information); (b) limited partners to innovate; (c) financial limitations; (d) limited personnel expertise; (e) lack of recognition and appreciation for the innovations made; (f) market constraints; (g) organizational culture barriers; and (h) Government policy and regulatory ambiguity [10].

2.6 Owner's perception of innovation activities

One of the main problems for MSMEs is maintaining and increasing market share that can be achieved through innovation [46]. Business people agree that creativity is the most important factor to identify business opportunities. This strengthens the perception (point of view) that creativity and innovation are the main factors that exist in individuals to become entrepreneur to face business competition [47]. However, not all business owner have the same perception regarding innovation nevertheless they control over the decision to innovate. In this situation, the owner's perception of innovation becomes important. Piatier (1984) states that owner perceptions can influence innovation practice. Their perception of innovation is one of the barrier MSMEs from innovating [20].

2.7 Employees' perceptions of the implementation of innovations

The existence of an organizational culture enable entrepreneurial and innovation with high competitive advantages [48], [49]. A culture that has a strong influence on innovation underlying the assumptions and perceptions of employees. Innovative culture reflect in employees' attitudes and perceptions towards job satisfaction and their perceptions of organizational dynamics and company performance [49]. Employees have an important role in every innovation process within the company [28]. This research put the highlight in analyzing the innovation activities of MSMEs from perspective of employees, especially those who have worked for several period of time and gain knowledge of current and past business operation [17].

3. Research methods

This research using descriptive qualitative study and aims to give and comprehensive understanding of the implementation and innovation barriers faced by micro, small and medium enterprises in Yogyakarta. It use interpretative approach to explore social events based on the experiences and perspectives of respondent. This study describe the previously identified variables, including the owner's perception variable on the implementation of innovation and the employee's perception variable about the implementation of innovation in the workplace.

The population in this study setting in DIY involving all the MSMEs. It using purposive sampling technique with several criteria determined. The sample selected based on the criteria that mandated on the Law of Republic Indonesia (UURI No. 20 Tahun 2008) about category of micro, small and medium enterprises within five years operating and minimum number of employee are five person. Among 148 questionnaires circulated in the above-mentioned MSMEs, 120 were returned. This study adopted instrument Asiedu (2016) with a scale of agree and disagree for owner's perceptions of the activities and knowledge of innovation. The indicators used in the owner's perceptions are the implementation of innovation for the five past years. This study also adopted instrument from Bahaw (2017) for employee's perceptions of the implementation of MSME with several indicators; innovation experience, innovative

environment, the barrier levels based on five-point likert scale within strongly disagree and strongly agree. It also use a scale of agree and disagree.

4. Result and discussion

A total of 148 questionnaires from 74 MSMEs were distributed and 120 were returned from 60 MSMEs. 12 questionnaires from 6 MSMEs could not be processed due to incomplete filling and 16 left remaining from 8 MSMEs were not returned. Based on data concluded 36.7% are in the handicraft sector, 28.3% from trading sector, 16.7% from the culinary sector, 10% from the clothing sector and the remaining 8.3% from the service sector. The majority of MSMEs involved in this study have been established for relatively long period of time. The data conclude that 28.3% established between 1-5 years, 28.3% established between 6-10 years, 15% established between 11-15 years, 3.3% established between 16-20 years and 25% established for more than 20 years. This study also conclude the data about number of employees; 73.3% between 5-19 persons; 20% ranging from 20-49 persons; and 6.7% with number of employees between 50-99 persons.

The educational background of MSME owners based on the data dominated by high school degree. The data conclude that 53.3% were high school degree, 25% were diploma degree, 13.3% were undergraduate degree, 6.7% were elementary school degree and 1.7% remaining were postgraduate degree. Employee classified in four parts of the position within the business entity. The data conclude that 45% as the highest rank in the sales employees, 3.3% as an administration and as other in 11.7%. This study demonstrate that 28.3% employee worked within 5 years, 38.3% worked between 6-10 years, 15% worked for 11-15 years, 3.3% worked for 16-10 years and 25% remaining worked for more than 20 years. Another figure show us that 45% of employee agree with the main objective is creating profit, 33.3% agree with enhancing growth, 16.7% agree with survival with competition and 5% remaining agree with innovation. Another data conclude about 83.3% employee experienced with new things (products, services, process and policies) in the last five years, 11.7% experienced the new things between 6-10 years and the last remaining 5% of them experienced new things in past between 11-15 years.

The result shows more than 50% of owners updating business from various aspects, including product updates, new product marketing, changes in production processes, changes in management problems, changes in purchasing procedures, changes in sales strategic and previously owns new equipment. This figure emphasize that in the last five years more than 50% of the total MSME (60 business) already innovate. The point of view of innovation activities is one of the factors determining business owners in making innovation decisions.

The perspective innovation activities is one of the factors determine business owners in making decisions. Graph 2 shows that more than 50% of business owners agree that innovation is not only limited to product innovation, but also in production/manufacturing process innovation, using of new tools, purchasing procedures (process innovation), sales strategy (marketing innovation) and innovation related to management (organizational innovation). This means that the majority of business owners have a broad view of innovation activities. Innovation is not limited to product innovation only. It also considered process innovation, marketing innovation and organizational innovation. In this study, the employee's perception of the implementation of innovation is measured by learning innovation experience during the working hour, the environment, facilities provided by the company and the barriers to innovation that regularly faced by employees and the company.

Product innovation consists of six statements where most respondents agree with the all the above statements (44-58%). 58% of employees agree that product innovation is dominated by modifications to the company's products and services. Only a small proportion of employees who have opinions strongly

disagree with the six statements about the product innovation experience (1-7%). The remaining 13-38% employees who gave opinions strongly agreed with the six statements.

The result show that 55% of employees agree that the company has implemented a new system for the production process. This the most answers among other statements. In addition, 50% of employees also agree that the company has implemented a new system for the delivery process and there are changes to the company's daily operational processes.

The analysis sum up 57% of employees assume that the company targeted new (different) customers from marketing of products and services. Their opinion has the highest percentage compared to other statements on marketing innovation. In addition, 52% of employees also think that the company has introduced a new promotion technique. Overall, the majority of employees agreed on the five statements measuring marketing innovation.

The organizational innovation created by company based on graph 6 shows that employees tend to agree with the existence of innovative activities, practices and policies imposed by the company (57%), 50% of employees agree with the existence of a good communication system for employees, 50% of employees agree that companies have external access to foster innovation, 47% of employees constantly contribute to innovation, and 37% of employees think there is a change in the organizational structure. Some other employees have a neutral opinion for the seven statements (15-35%), and only about 22% strongly disagree with the highest regard for the new manager who was recruited externally. This means that employees are given the space to take part in conveying creative ideas that can encourage innovation. This situation is supported by several factors, one of which is the presence of brainstorming activities, where as many as 28% of employees stated that there are brainstorming activities in the workplace as a forum for creative ideas from employees and at the same time encouraging employees to always think creatively and innovatively.

Fitjar and Rodriguez-Pose (2013) state that incremental innovation is a change made by a company where the company only makes small changes to the production process [45]. The innovation activities that have been carried out by 60 MSMEs in the Special Region of Yogyakarta can be categorized as incremental level innovations. This is known from the forms of change that are dominated by product innovation where most companies only make modifications in creating products and services. Innovation can be implemented if the company is able to provide support in the form of facilities to encourage creativity and innovation. This facility can be in the form of an innovative environment that enable employees to think creatively so they can create new things that can be applied in the company. An innovative environment can be in the form of good communication for employees to share creative ideas through brainstorming activities, open communication between company levels and flexibility for employees in terms of time and work. This is important so that employees do not feel burdened by work and as a form of company loyalty to employees. In addition, the existence of training facilities, socialization on the importance of innovation and other facilities are also able to support the comfort and development of employee mindsets [10], [11].

The result show that 60% of employees agree that flexibility in terms of time and work is one of the benefit provided by the company and expected to be able to support innovative activities. Employees also agree it should be socialization program about the importance of innovation and creativity that get along with culture organization (48%). Data from the training facilities show that 42% of employees agree that the company has provided training to develop employee creativity. However, in terms of additional facilities in the form of a sports venue and library, the company has not been able to provide it (21-28%). Innovation is an activity that requires a lot of consideration and preparation starting from the ability of individuals in the company, financial preparation for research and development needs, market knowledge, the existence of innovation partners and an organizational culture that is able to support a change (innovation). The innovations that are carried out will later provide added value to the products and

services produced so as to increase the company's competitiveness in facing market competition. The capacity of MSMEs in preparing for the need for innovation certainly has its respective limitations. Not infrequently, inadequate preparation is one of the obstacles for MSMEs to start innovation.

The data obtained shows that as many as 72% of employees state that inadequate research and development is one of the factors that can hinder companies from innovating. This is supported by the presence of 57% of employees who also stated that the lack of information about technology and 42% of employees stated that the lack of market information was another factor that was unable to support research and development, resulting in an impact on innovation that was not implemented. As many as 53% of employees said the limitations of partners to innovate were not an obstacle for the company to innovate. This means that employees have a point of view that the company already has partners and relationships that are sufficient to encourage company innovation in the form of collaboration and other cooperation.

As many as 61-68% of employees think that for some companies, limited financing to encourage creativity and to carry out innovative projects is one of the most inhibiting obstacles for the company. Employees also think that doing innovation is the same as making a change that requires a large capital of 85%. As many as 64% of employees think that the limited ability and competence of individuals are factors that prevent companies from making changes. Limited abilities and competencies are not able to support individuals to think more creatively to their full potential. As many as 50% of employees also think that individuals in the company have insufficient competence to carry out innovative projects.

The result show that 77% of employees state that the company always appreciates and acknowledges new ideas or innovative projects carried out by employees. As many as 67% of employees agree that the company always encourages employees to retry if there are innovative projects that fail or are not optimal and never give penalties to employees if the project is not successful (92%). This means that the company always provides opportunities for employees to provide creative new ideas and develop them into innovative projects.

Sufficient preparation from internal companies cannot guarantee the company's sustainability in the market if the company is unable to properly manage external information. As many as 67% of employees think that customer uncertainty in choosing the product or service used is one barrier from external factors. If the company is unable to manage information needs in accordance with customer requirements, it means that the company is unable to manage this information as an opportunity to make changes (innovation). Some employees (52%) said that the threat of a competitor's reaction to the company's innovation is not an obstacle. The results of the researcher's visit to the business location, most business owners stated that the products produced were products that followed trends and were based on orders. That is, the development of trends is not a secret, all companies can manage the latest trend information and make it an equal opportunity.

The government as the issuer of regulations plays an important role for the sustainability of a business. Likewise, MSMEs are regulated in Law no. 20 of 2008 which contains all the rules governing the characteristics of the type of business. For some companies, strict rules from the Government do not become a barrier for companies to innovate. This is evidenced by the opinion of 65% of employees who state that the regulations made by the Government are not directly able to hinder companies from making changes (innovations). It's just that 53% of employees think the barrier from innovating is the lack of government support. Even though the Government has made efforts to facilitate MSMEs for micro financing program.

Organizational culture is an important part of the organization which includes rules and prohibitions with the aim of regulating the behavior of members in order to achieve company goals [51]. In this study, as many as 70% of employees said that the company did not prohibit employees from making changes in

the workplace. As many as 52% of employees also stated that there was sufficient support from management for employees to carry out innovative projects, it's just that management tends to avoid risks in taking steps in carrying out innovative projects (63%).

As many as 42% of employees place financial constraints as one of the highest obstacles faced by companies in making innovation. Then the second highest obstacle is occupied by limited knowledge based on 33% of employees' opinions. Barriers to limited ability of personnel ranked third (high) with 28% of employee opinions, fourth rank (rather high) was constraints of limited partners / relations based on 25% of employee opinions. The fifth rank barrier (rather low) is the market barrier with a percentage of 17% employee opinion, the sixth rank (low) is an organizational culture barrier with 20% employee opinion, the seventh rank is a legality barrier with a percentage of 28% and the last one is a lack of appreciation and recognition that occupies the lowest obstacle position, namely 17% of employee opinion.

In the face of increasingly fierce market competition in the era of industrial revolution 4.0, MSMEs must be able to adapt to technological advances so that MSMEs are able to survive in the market and win competition. It is necessary to have readiness in the form of competent resources, sufficient knowledge of technology and support and cooperation between MSMEs, the government and other related parties [29], [30]. Based on the results of data analysis, it was found that MSMEs in the Special Region of Yogyakarta still have limited knowledge of information technology. The limited ability of personnel also prevents the company from applying new technology. The existence of some of these limitations makes MSMEs not ready to face the presence of the industrial revolution era 4.0. This is reinforced by the lack of support from the Government to encourage companies to make innovations or other changes that involve the use of information technology.

5. Conclusions

Based on the results of the analysis and discussion, business owners have a broad perspective on innovation activities. The majority of business owners mentioned that innovation is not only limited to products, but there are also process innovations, marketing innovations and organizational innovations. The innovations that have been carried out by 60 MSMEs in the Special Region of Yogyakarta are dominated by product innovations. The innovations that have been made include the existence of new products or services produced, product modifications and the existence of plans to introduce new products and services. Based on the innovations that have been made, the innovation capabilities of MSMEs in the Special Region of Yogyakarta are included in the incremental level of innovation. At this level the company is able to make changes by modifying the product so that it is able to produce new products or services. In addition, it was found that the main obstacles that the company needs to consider before making innovation are financial limitations, limited knowledge, limited personnel capabilities, limitations partners, market barriers, organizational culture, legality barriers and the need for recognition and appreciation for employees' creative ideas and innovative projects undertaken.

Financial constraints are the main obstacle and are at the highest level that can hinder companies from innovating. This is followed by a lack of knowledge, resulting in insufficient research and development. A brief discussion of the readiness of MSMEs in facing the era of the industrial revolution 4.0 shows that the majority of MSMEs in the Special Region of Yogyakarta are not quite ready in terms of personnel capabilities, knowledge and Government support to face the digital era. This study only involved 60 MSMEs in the Special Region of Yogyakarta. The results will be even more objective and maximum if the sample used is more than 60 MSMEs. Data collection was carried out with the help of a questionnaire. The results may be different if the data collection is done by using the real-time interview method. Judging from the results and the research process carried out, it is suggested for further research to increase the number of samples so that the results of the research can be maximized and be able to provide

objective conclusions. It is recommended that if possible, use the interview method in data collection. This can be done considering the many instruments that must be answered, especially for questionnaires for employees.

6. References

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