



**SMALL AND MEDIUM MICRO ENTREPRISES INNOVATION STRATEGIES
IN EFFORTS TO FACE THE INDUSTRY REVOLUTION 4.0**

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ABSTRACT

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Micro, small and medium enterprises still rely on conventional ways of doing business. On the other hand, rapid digitalization is integrated with the economy and trade, giving birth to the industrial revolution 4.0. If micro, small and medium enterprises do not want to innovate, they will be disrupted. The research objectives are to describe the innovation strategies of micro, small and medium enterprises in increasing competitiveness in facing the industrial revolution 4.0; and also identify factors that hinder the innovation of micro, small and medium enterprises in increasing competitiveness in facing the industrial revolution 4.0. The method used in this research is qualitative. The research location is in the area of micro, small and medium enterprises in Gresik Regency and Sidoarjo Regency. The conclusion of this research is (a) innovation strategies for micro, small and medium enterprises in increasing competitiveness in facing the industrial revolution 4.0 through marketing with *e-commerce* marketing through social networking media. One of the strategies is product innovation. (b) Furthermore, the factors that hinder innovation are human resources, capital to innovate, a narrow owner's mindset, and the use of technology that is still simple. lack of strategic partners for innovation, management micro small and Medium Enterprises who are kinship and less professional, and lack of permits micro small and Medium Enterprises.

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INTRODUCTION

The industrial revolution 4.0 has emerged since 2011. This is the era of industrial digitization. To enter the industrial revolution 4.0, the Indonesian government launched the 'Making Indonesia 4.0' initiative in 2018. It is a little late for the government's response to the rapid changes in the digital economy. This is a challenge as well as an opportunity for micro small and Medium Enterprises to be able to take advantage of technology in its business processes and be able to reach a wider market

Increasing competitiveness micro small and Medium Enterprises must be agile in innovating in the era of disruption. The speed digitalization integrated with the economy and trade has given birth to the industrial revolution 4.0. Through innovation strategies for micro, small and medium enterprises can increase competitiveness towards industry 4.0. Information and communication technology has changed the pattern and behavior of human life in business. With technology and the internet that are very easily accessible, on the other hand, it is also a boomerang if business actors, in this case the micro, small and medium industries, are unable to keep up with the flow and innovate, it will be eroded in the era of digital disruption. Digital media products and products related to technology have quickly spread widely in almost all industries (Nuseir, 2018). The following is the data for the number of units micro small and Medium Enterprises 2017-2018 in Indonesia.

Table 1. Number of Business Units Micro, Small and Medium 2017-2018 in Indonesia

NO	INDIKATOR	SATUAN	TAHUN 2017 ⁽¹⁾		TAHUN 2018 ⁽²⁾		PERKEMBANGAN TAHUN 2017-2018	
			JUMLAH	PANGSA (%)	JUMLAH	PANGSA (%)	JUMLAH	%
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
1	UNIT USAHA (A+B)	(Unit)	62.928.077		64.199.606		1.271.529	2,02
	A. Usaha Mikro, Kecil dan Menengah (UMKM)	(Unit)	62.922.617	99,99	64.194.057	99,99	1.271.440	2,02
	- Usaha Mikro (UM)	(Unit)	62.106.900	98,70	63.350.222	98,68	1.243.322	2,00
	- Usaha Kecil (UK)	(Unit)	757.090	1,20	783.132	1,22	26.043	3,44
	- Usaha Menengah (UM)	(Unit)	58.627	0,09	60.702	0,09	2.075	3,54
	B. Usaha Besar (UB)	(Unit)	5.460	0,01	5.550	0,01	90	1,64

Data source: Ministry of Cooperatives and Small and Medium Enterprises RI, 2019.

Based on the table above, the problem is that there are as many as 64 million micro, small and medium enterprises (2018) in Indonesia, but digital use by micro, small and medium enterprises is only 17.1%. They have not innovated and tend to run their business conventionally.

Based on the above problems, research on innovation strategies for micro, small and medium enterprises in increasing competitiveness towards

industry 4.0 was carried out. The location was chosen in Sidoarjo and Gresik Regencies because it is one of the local governments that is capable of driving it micro small and Medium Enterprises so as to be able to penetrate the export market. Sidoarjo Regency has 41 industrial centers micro small and Medium Enterprises featured consists of more than 15,000 small and medium enterprises the perpetrator micro small and Medium Enterprises (http://pisata.sidoarjokab.go.id/produk_Advantage.php). Micro small and Medium Enterprises in Sidoarjo Regency spread over 18 sub-districts and also includes districts that have small and medium enterprises the most in the country of Indonesia.

Research is important because through this research we can identify innovation strategies micro small and Medium Enterprises in increasing competitiveness in facing the industrial revolution 4.0. The virtues of this research include that it can be used as a policy suggestion for the development of an innovation strategy micro, small and Medium Enterprises in increasing competitiveness towards industry 4.0. From the above background, the objectives of this study are (a) describe the innovations of micro, small and medium enterprises in increasing competitiveness in facing the industrial revolution 4.0; (b) identify the factors that hinder the innovation of micro, small and medium enterprises in increasing competitiveness facing the industrial revolution 4.0.

LITERATURE REVIEW Trade Liberalization

As a country that adheres to the Pancasila economy, which in its application tends to be an open economy to the domestic market in Indonesia, it cannot be separated from market liberalization because Indonesia participates in cooperation in regional and global trade.

Micro, small, and medium enterprises is a pillar of the economy sector that has successfully proven its resilience to face the 1997 economic crisis which has changed many aspects of the Indonesian economy. The ASEAN Economic Community is an opportunity and a challenge. This opportunity is a wider market, on the other hand the challenges in the ASEAN Economic Community are increasing exports and imports, the negative effects of free capital flows, inflation, the existence of the same product, competition for human resources, competitiveness in the priority

integration sector, the existence of interests. national scale, the existence of a rate of economic growth, as well as state sovereignty. The control of resources is a component that supports competitiveness, thus encouraging unfair competition. With this in mind, there is a view of the importance of innovation strategymicro small and Medium Enterprisesin increasing competitiveness in facing the industrial revolution 4.0. This argument is the basis for the importance of this research.

Innovation Micro, small, and Medium Enterprises in Increasing Competitiveness

Innovation is closely related to creativity. Someone who has the ability to be creative, of course, can make an innovation for something so that it has different values and more use value. In the business world, a new product creativity has indicators of novelty and meaning (Chang et al, 2010). That way, the novelty of a product is expected to provide value to the product.

Meanwhile, Hurley and Hult (1998) revealed that innovation is the application of newer gas, products or processes that can adapt to dynamic environments. In other words, the results of these innovations are flexible so that they can be accepted by society. There are three kinds of innovation concepts including organizational innovation, level of innovation, and ability to innovate. However, what is no less important than an innovation is how the results of the innovation can be implemented and accepted by society.

The aim of improving the innovation strategy micro, small, and medium Enterprisesis an increase in competitiveness. Competitiveness is the ability to compete by prioritizing existing advantages. According to Porter (1994), competitive advantage is based on the values that a company has created, so that consumers want to buy the product. In this case, management strategy is also an important part. Hopkins and Hopkins (1997) stated that a strategic plan can provide a benefit to the company.

In strategic planning, expertise in the form of knowledge and expertise for the application of strategic planning plays an important role. In addition, Dhewanto et al. (2015) also revealed another important point, namely that product innovation, service innovation, and process innovation can increase company competitiveness. One of the current market challenges is the number

of competitors. Therefore, if a business actor continues to run his business conventionally, it will be easily disrupted.

Micro, Small and Medium Enterprises Entering the Industrial Revolution 4.0

The conceptualization of "Industry 4.0" was raised again at the Hannover Fair 2011. Within Industry 4.0 there are four design principles including (a) Interoperability; (b) Transparency of information; (c) Technical assistance; (d) Independent decisions. Some of the potential for industry 4.0 are described as follows.

Penulis	Potensi Manfaat
Lasi dkk (2014)	Pengembangan produk menjadi lebih cepat, mewujudkan permintaan yang bersifat individual (kustomisasi produk), produksi yang bersifat fleksibel dan cepat dalam menanggapi masalah serta efisiensi sumber daya.
Rüßmann dkk (2015)	Perbaikan produktivitas, mendorong pertumbuhan pendapatan, peningkatan kebutuhan tenaga kerja terampil, peningkatan investasi.
Schmidt dkk (2015)	Terwujudnya kustomisasi masal dari produk, pemanfaatan data <i>idle</i> dan perbaikan waktu produksi.
Kagermann dkk (2013)	Mampu memenuhi kebutuhan pelanggan secara individu, proses rekayasa dan bisnis menjadi dinamis, pengambilan keputusan menjadi lebih optimal, melahirkan model bisnis baru dan cara baru dalam mengkreasi nilai tambah.
Neugebauer dkk (2016)	Mewujudkan proses manufaktur yang efisien, cerdas dan <i>on-demand</i> (dapat dikustomisasi) dengan biaya yang layak.

It should be noted that the aspects of information and communication technology play an important role in the realization of the concept of Industry 4.0. Furthermore, the outer part of the company's transformation due to the implementation of Industry 4.0 includes business, management, and human resources. The following is a picture of the structure of the industrial 4.0 layer model fraunhofer.

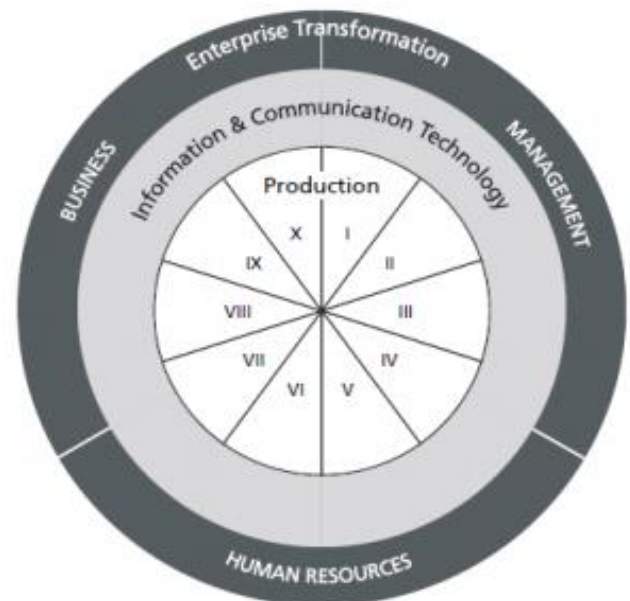


Figure 1.Fraunhofer Industrie 4.0 Layer Model Structure (Neugebauer et al., 2016)

The culprit micro small and Medium Enterprises when entering industry 4.0 the things that need to be fulfilled are as in the following table.

Table 2. Industrial Aspects 4.0

No	Aspek	Deskripsi
1	Standardisasi	Meliputi segala usaha menyusun standar dan referensi dalam implementasi Industri 4.0
2	Pemodelan	Meliputi usaha untuk memodelkan sistem yang kompleks di industri
3	Jaringan komunikasi	Ketersediaan teknologi perangkat keras atau lunak untuk pertukaran informasi dan data yang cepat dan <i>real time</i> .
4	Safety and security	Segala hal terkait keamanan sistem pengolahan data dan keamanan penggunaan teknologi bagi manusia.
5	Sumber daya manusia	Meliputi usaha untuk mentransformasi sumber daya manusia agar siap menghadapi perubahan akibat Industri 4.0.
6	Hukum	Meliputi usaha untuk menyusun kerangka hukum dalam implementasi Industri 4.0 (kontrak, perjanjian, aturan, dsb).
7	Efisiensi sumber daya	Meliputi segala usaha untuk melakukan efisiensi sumber daya (energi, biaya, dsb) akibat implementasi teknologi Industri 4.0
8	Teknologi CPS	Segala usaha terkait pengembangan teknologi CPS, IoT, virtualisasi, yang menjadi kunci teknologi Industri 4.0.
9	Smart Factory	Meliputi pengembangan sistem manufaktur/produksi yang otomatis, cerdas, modular dan adaptif.
10	Bisnis	Meliputi penemuan model bisnis baru atau perubahan proses bisnis akibat penerapan Industri 4.0.
11	Desain kerja	Meliputi pengembangan dan penelitian terkait perubahan sistem kerja yang akan dihadapi oleh pekerja.
12	Services	Meliputi segala usaha dalam mengolah <i>big data</i> dan membuat aplikasi pemanfaatannya.
13	Manajemen dan Organisasi	Terkait perubahan dan pengembangan model manajemen dan organisasi karena penerapan Industri 4.0.
14	Rekayasa produk end to end	Terkait rekayasa produk atau layanan yang terdigitalisasi selama siklus hidupnya (<i>smart product</i>).

Based on the table above, there are fourteen aspects that play a role in Industry 4.0. these aspects are useful as a guide in implementing Industry 4.0. things that need to be emphasized again are that micro, small and medium enterprises must innovate and not rely on conventional methods of running their business, given high competitors and also to have high competitiveness so that they are not disrupted.

METHOD

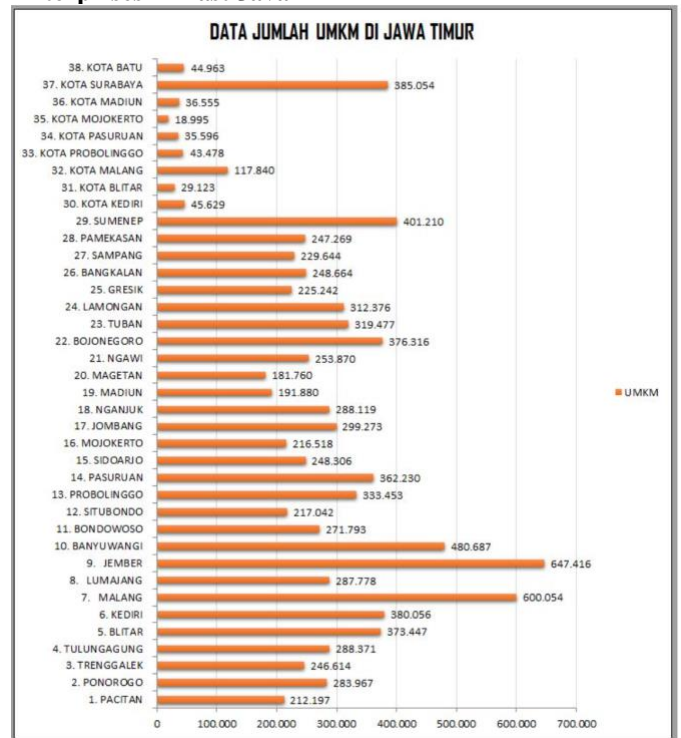
This study uses a qualitative research approach because it is considered appropriate to be used in research on innovation strategies for micro, small and medium enterprises in increasing competitiveness in facing the industrial revolution 4.0. The research location was chosen by Sidoarjo and Gresik Regencies. The location selection is based on existing conditions where Sidoarjo Gresik Regency is able to drive the economy in its area through development, micro small and Medium Enterprises which export oriented. Sidoarjo Regency has forty one (41) micro, small, and Medium Enterprises centers which are scattered in the area, then the researchers chose five as research locations, namely: (1) Bag and Luggage Industry center is located in Kedensari Village, Tanggulangin District; (2) the embroidery industry center is located in Kludan village, Tanggulangin sub-district; (3) Metal Industry Centers (electrical components, telephones, agricultural tools, bicycles, etc.) are located in Ngingas village, Waru sub-district; (4) The silver handicraft industry center is located in the village of Kedung Bendo,

Tanggulangin sub-district; (5) The Batik Tulis Industry Center is located in the village of Sidokl stack, Jetis Lemahputro, Sidoarjo district. The location selection was based on the focus on the development of the creative industry and the potential for export to face the Asean Economic Community. This research focuses on the embroidery industry center located in the village of Kludan, Tanggulangin sub-district. Micro, small and medium Enterprises Gresik Regency is focused on location for songkok Gresik.

RESULT AND DISCUSSION

These micro and small enterprises are an important part of the East Java economy. In addition, the growth of the small business sector is increasingly absorbing labor and further strengthening innovations in its development. The following are the numbers of micro small and Medium Enterprises in East Java.

Table 3. Data Amount Micro small and Medium Enterprises in East Java



Data source: 2016 Economic Census and 2018 SUTAS in <http://diskopukm.jatimprov.go.id/info/data-ukm>. Access 19 September 2020.

Based on the 2016 Economic Census data and the 2018 SUTAS above, the numbers are shown micro small and Medium Enterprisesin Gresik 225,242 and Sidoarjo 248,306. The Micro, Small and Medium Enterprises sector will continue to be the

spearhead of the government in boosting the Indonesian economy. The reason is every year the sector micro small and Medium Enterprises it continues to experience growth. Data per sector 2018 micro small and Medium Enterprises contributed Rp8,400 trillion to the Gross Domestic Product. This figure is equivalent to 60% of the 14,000 trillion rupiah in Indonesia's Gross Domestic Product in 2018. Another contribution micro small and Medium Enterprises to the Indonesian economy is the absorption of its workforce. For the workforce, micro small and Medium Enterprises managed to absorb 121 million workers. This figure is around 96% of the absorption of Indonesian workers in 2018 which amounted to 170 million rupiah. Based on this reality micro small and Medium Enterprises needs to be developed with innovation in entering global marketing.

Innovation Strategy Micro small and Medium Enterprises

The superiority of a country's economy does not only come from technology, let alone natural resources. The latest sources of competitive advantage are innovation and creativity. Micro small and Medium Enterprises is the largest business group in Indonesia and contributes to Indonesia's economic growth by 60%. Besides, business micro small and Medium Enterprises it is stronger in the face of the global crisis. To be able to face the global market is not easy because of the product micro small and Medium Enterprises will compete with other countries' products.

Existence micro small and Medium Enterprises creativity-based in several countries have different positions as a driver of the economy. Micro, Small and Medium Enterprises are quite potential in boosting economic growth. Position in developed countries micro small and Medium Enterprises based on creativity as the main driver of economic growth, but in some developing countries there is micro small and Medium Enterprises creativity-based has a relatively low role in economic growth compared to other sectors

Innovation is needed by micro, small and medium enterprises to grow and survive in the midst of increasingly competitive business competition. Micro, Small and Medium Enterprises as part of the economy must also further improve competitiveness by making innovations. The competitive advantage based on innovation and

creativity must be prioritized because it has a long durability and a longer period of time

Usaha micro, small, and medium in Sidoarjo conducted research on (1) The center for bag and luggage industry is located in Kedensari village, Tanggulangin sub-district; (2). The Embroidery Industry Center is located in Kludan village, Tanggulangin sub-district; (3). The Metal Industry Center (electrical components, telephones, agricultural tools, bicycles and others) is located in Ngingas village, Waru sub-district; (4) The center of the silver handicraft industry is located in the village of Kedung Bendo, Tanggulangin sub-district; (5). Batik Tulis Industry Center is located in the village of Sidoklumpang, Jetis Lemahputro, Sidoarjo district. Usaha micro, small, and medium in Gresik focused on actors (a) micro small and Medium Enterprises songkok or kopyah Bungah Village. Usaha micro, small, and medium songkok or kopyah in Gresik City is well known locally and nationally and even at the ASEAN level. (b) micro small and Medium Enterprises ATBM weaving (c) Bungah Village tambourine handicraft; and (d) micro small and Medium Enterprises snacks at Morowudi Village.

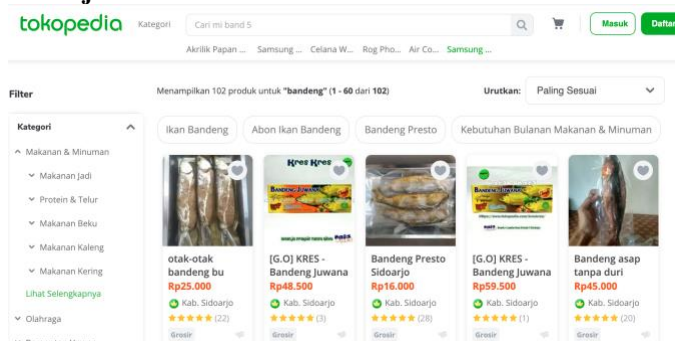
Based on the data findings, problems can be identified micro small and Medium Enterprises for innovation (a) limited human resources in terms of both quantity and quality. Limited human resources in aspects of innovation and product development, entrepreneurship, management, production techniques, quality control, accounting management, mastery of new production-related machines, organizational management that tends to be familial - far from professional, data processing tends to be manual, conventional marketing techniques, and no market research. All these skills are indispensable for innovation to maintain or improve product quality, increase efficiency and productivity in production, expand market share and penetrate new markets; (b) capital aspect. Average micro small and Medium Enterprises is a family business that has been passed down from generation to generation with limited capital, small and medium enterprises Sidoarjo regency has two main problems in the financial aspect, namely capital (both initial capital and working capital) and long-term finance for investment which is indispensable for long-term output growth. (c) mastery of technology problems. Average perpetrator micro small and Medium Enterprises limited capacity for innovation and trying new

technologies. Generally, they still use traditional technology in the form of old machines or manual production tools.

Digital marketing innovation "e-commerce"

Innovation strategy undertaken micro small and Medium Enterprises in Sidoarjo and Gresik entered the industrial revolution 4.0, namely some actors micro small and Medium Enterprises market its products through electronic commerce (electronic commerce or e-commerce). The definition of e-commerce) is the distribution, buying, selling, marketing of goods and services through electronic systems such as the internet. The results of research interviews and subsequent observations on digital media obtained the following data:

Figure 2 Electronic marketing of presto Bandeng in Sidoarjo.



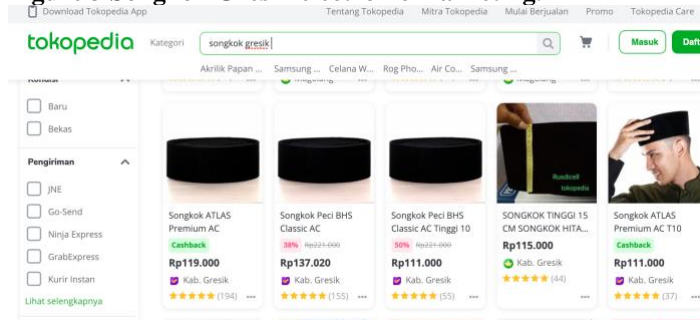
Data source:

<https://www.tokopedia.com/find/bandeng/c/sidoarjo>

Access 15 September 2020

This is in line with what the perpetrators did micro small and Medium Enterprises songkok in Gresik Regency where some of them have also sold their products in electronic commerce as the observation results are as follows:

Figure 3 Songkok Gresik electronic marketing.



Data source:

<https://www.tokopedia.com/search?st=product&q=songkok%20gresik%20> Access 15 September 2020

Websites that are often used in electronic commerce include Tokopedia, shopee, Bukalapak, Lazada and others.

Marketing and promotion innovation through social media

Social media is often used for marketing or promotion. Currently, there are many social media that can be used for marketing or promotion of a product or service. These social media include Facebook, Instagram and Twitter. Through this media the company or brand can carry out a structured and targeted promotion. Marketing with social media is not always directly related to buying and selling. In this marketing, you can market content in the form of posts on the web, images or videos. The content marketed through social media is related to the product to be sold.

The innovation strategy is the main driver of the performance of micro, small and medium enterprises by implementing a strategic and structured innovation culture. To improve performance small and medium enterprises through enhancing culture and innovation strategies that are aligned with and closely related to the innovation process (Salim and Sulaiman, 2011). Bodlaj (2010) explains that innovation performance refers to new product sales, new product market share, timely new product launches, and the percentage of new product sales in total sales. The new product must provide value to the customer so market orientation is an important factor in successful new product development. Innovation can be a potential solution for small and medium enterprises in developing countries in the world (Hafeez et al., 2012). Companies that have the resources to improve innovation capabilities can significantly increase production and market performance, so that companies need to further increase their innovation activities (Gunday et al., 2009).

Innovation has an effect on performance small and medium enterprises manufacture. This suggests that company innovation can directly affect performance. The application of company innovation is measured by technological innovation, managerial innovation, marketing innovation, and product innovation. Company innovation is carried out in an effort to make continuous (continuous) improvements to company performance, so that superior performance is achieved.

Factors Hindering Innovation Micro small and Medium Enterprises

The factors inhibiting innovation on micro small and Medium Enterprises In essence, it is a factor of things (circumstances, events) that contribute to (influence) the occurrence of something, whereas inhibitors mean obstacles, obstacles, constraints or problems. To carry out an innovation of actors micro small and Medium Enterprises requires several aspects including willingness, insight, capital, focus and so on.

Based on the results of the interview, the main factors that hinder innovation are human resources where knowledge and breadth of insight are limited. Most of the effort micro, small, and medium limited to meeting the basic needs of the owner so there is very little innovation. In addition, the inhibiting factors for innovation are the budget (capital) to innovate, the owner's narrow mindset "this is how it sells". The use of technology is still simple due to limited capital, lack of strategic partners for innovation, management micro small and Medium Enterprises who tend to be kinship and less professional. Besides that micro small and Medium Enterprises also do not have complete permits.

Although it has a lot of considerable potential, micro small and Medium Enterprises still unable to fully innovate in anticipating the challenges of a very dynamic business. Through broad market opportunities in the era of the industrial revolution 4.0, in essence micro small and Medium Enterprises has a large enough and has the possibility to be developed into micro small and Medium Enterprises the big one.

Business men micro small and Medium Enterprises prioritizing efforts to survive rather than developing their business.

CONCLUSION

Based on the data exposure and analysis above, it is concluded as follows: (a) innovation strategies for micro, small and medium enterprises in increasing competitiveness in facing the industrial revolution 4.0 through marketing with *e-commerce* existing in Indonesia, including Tokopedia, shopee, Bukalapak, Lazada and others. In addition, marketing is carried out through social networking media which functions either marketing or promotion. use of social media including

Facebook, Instagram, and Twitter and so on. To increase the competitiveness of several actors of micro small and Medium Enterprises do product innovation. One of the product innovations is Bandeng steak. (b) factors that hinder innovation, namely human resources where knowledge and breadth of insight are limited, most of the effort micro small and Medium Enterprises limited to meeting the basic needs of the owner so there is very little innovation. In addition, the inhibiting factors for innovation are capital to innovate, the owner's mindset is narrow, the use of technology that is still simple due to limited capital, lack of strategic partners to innovate, management micro small and Medium Enterprises who are kinship and less professional, and the lack of permits micro small and Medium Enterprises. Based on the conclusion, it is suggested that the strategic role of the government through the cooperative and micro small and Medium Enterprises to play a more active role in nurturing and encouraging micro small and Medium Enterprises innovate.

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