International Journal of Sustainable Development and Planning
Vol. 17, No. 4, July, 2022, pp. 1117-1122
Journal homepage: http://iieta.org/journals/ijsdp

Technopreneurship-Based Competitiveness and Innovation at Small Business in Gorontalo City

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https://doi.org/10.18280/ijsdp.170408

Received: 28 February 2022
Accepted: 7 June 2022

Keywords:
business competitiveness, innovation, technopreneurship, small business

ABSTRACT

Business today has been globalized. This has made business even more competitive. Companies, regardless of their size, have to improve their competitiveness. Sustainable competitiveness is the core need for innovation. This study aims at exploring the correlation between IT-based innovation or technopreneurship and business competitiveness. This was a quantitative study with survey method. The respondents in this study were small business owners in handicraft and creative content production in Gorontalo city. The data were collected by online form and after three month collecting data, data were collected were 163 respondents. Product, process and organizational innovation and business competitiveness instruments use instruments from previous research. All instruments use a Likert scale with points 1 to 5 which indicate a scale of disagreement to agreement from the respondents. The data were analyzed using PLS-SEM. The Results show that information technology-based product innovation, IT based process innovation, and IT organizational innovation significantly and positively influence the growth of business competitiveness. Product innovation of business owners in Gorontalo city, Indonesia is actively producing new products. Also, innovation is not only limited to product innovation but also production process innovation, which uses information technology. Utilization of technopreneurship is significantly able to increase business competitiveness, especially for small businesses in Gorontalo city. Utilization of innovation in information technology assumed to strongly develop business competitiveness. The business competitiveness of small businesses in the high-tech field is influenced by products, processes and organizational innovation. SMEs must be able to create products, or product segments, and services that exceed the performance limitations of traditional products by utilizing everything possible through digital models.

1. INTRODUCTION

Today globalized business has created a highly competitive business environment. Companies, regardless of their sizes; small- or large-scale business, have to strengthen their competitiveness. Schumpeter writes that both large and small enterprises are demanded to have entrepreneurship spirit shown through companies' innovative activities [1]. Innovation is major effort to develop and maintain the sustainability of company's competitiveness [2, 3].

Global Competitiveness Index (GCI) in 2017 and 2018 records showed that Indonesia's competitiveness decreased from the 31st position within the period of 2016-2017 to the 45th position within the period of 2017-2018. This was far behind Singapore who sits in the first rank among ASEAN countries and the second position of the world, Malaysia who sits in the second rank among ASEAN countries and 25th rank in the world, as well as Thailand who sits in the 3rd rank among ASEAN countries and globally sits on the 38th rank. In other words, enhanced innovation capabilities in Indonesia should be top priority to catch up their aperture.

The concept of competitiveness is made of competitive advantage and comparative advantage, where these two concepts basically discuss the advantage competitiveness through business ability to shift the supply curve to gain efficient and competitive price [4]. Creating competitive good price, firm needs various strategies that correlates with production, consumption, market structure, and industrial condition concepts. Competitiveness can be developed by utilizing five components of cost, quality, flexibility, shipping, and innovation [5].

One of the most important components of those five components is innovation. Innovation could be the missing key due of through innovation it is assumed that company is able to develop fast adaptive business. Sustainable competitiveness is the core of the need for innovation [6]. Porter [7] links business competitiveness with human resource knowledge, skill, and ability. Further, he describes that competitiveness of a nation is no longer determined by its natural resources and cheap labor, rather by innovation ability from utilization of knowledge. Several researches in Indonesia have confirmed the statement. One of them were were describes that appropriate human resource through their knowledge, skill, ability and personality were fit with the need of organization, could create the culture of knowledge transfer, that culture could be very useful to increase business

innovation capabilities [8].

Innovation, among others is manifested through the ability to make business more innovative by employing appropriate information technology. In this knowledge-based economy era, entrepreneurship-based business development is the creation of ability to utilize appropriate technology to optimize business [9]. This concept is commonly known as technopreneurship. Technopreneurship is a collaboration between technology implementation an instrument and entrepreneurship as a need [4]. The technopreneurship involves two key elements, technology used by business owners to meet the customers' demand, target customers, and optimum economics, social, and environmental benefits [10].

Some of the results of previous research related to business competition, innovation, technopreneurship, small business, namely process, marketing and organisational innovations had positive significant effect on competitiveness, while product innovation had positive non-significant effect [11], Technology innovation acts as a catalysts for sustainable development [12], technology innovations influence employment creation in small businesses positively and act as a driving force for economic development [13], there are five inhibiting factors of SMEs' technology innovation: government support, quality of human resources, funding of technological innovation, economic conditions and business partners [14].

The research conducted on small business (employees below 20, based on Indonesia Central Statistic bureau criteria) on high technology cluster. Micro, small and medium enterprises according to the Law of the Republic of Indonesia number 20 of 2008 concerning micro, small and medium enterprises in Chapter I General Provisions, Article 1, namely: Micro Enterprises are productive businesses owned by individuals and/or individual business entities that meet the criteria for Micro Enterprises as regulated in this Law; Small Business is a productive economic business that stands alone, which is carried out by individuals or business entities that are not subsidiaries or not branches of companies that are owned, controlled, or become part either directly or indirectly of Medium Enterprises or Large Businesses that meet the Business criteria. Small as referred to in this Law; Medium Enterprises are productive economic businesses that stand alone, which are carried out by individuals or business entities that are not subsidiaries or branches of companies that are owned, controlled, or become a part either directly or indirectly with Small Businesses or Large Businesses with total net assets or annual sales proceeds as regulated in this Law. This approach was quite new, due of lack previous research discuss it. Majorities of previous research only involve large scale business and have adequate research and development department and strategic. Even though small business had limitedness on research and development approach, but they have high potency on national economic growth [8].

Small businesses are the majorities business at Indonesia, whose contribution to the national economy is enormous. To represent research object, the city of Gorontalo was chosen. Gorontalo City is one of emerging market in Indonesia, which is currently growing rapidly. This is evidenced by their economic growth of 6.4% in 2019 [15], higher than Indonesia's economic growth in 2019 which only reached 5.02% [15]. Mention from that official news small business in Gorontalo played an important role in supporting Gorontalo economic growth.

This study aims at exploring the correlation between IT-based innovation or technopreneurship and business competitiveness.

2. METHOD

This is a quantitative study with explanatory and survey method. In this study, the primary data were used by employing the research instrument used in pervious study with several adjustments. Instruments used in this study are validity through panel experts, which consists of academics and business owners, especially small and medium enterprises owners. The process is described as follow: instrument in English is translated into Bahasa Indonesia by competent translators. Following the translation process, the instrument is consulted to the expert panels. Upon their agreement from the expert panels, the questioner is distributed to the respondents.

Gorontalo City was chosen as the research location due of the economic development background of the city. Gorontalo City is located in Gorontalo Province, a province that is relatively new as a result of regional autonomy of its separation from North Sulawesi province. Thus, Gorontalo City is a relative new city in Indonesia. Even though it is relatively new, the economic growth rate is 6.4% above the Indonesia economic growth average which is only around 5.02% in 2019 [15]. This economic growth is supported, among other things, by the major role of SMEs creative enterprises as previously mentioned.

2.1 Population and sample

The respondent of this study is business owner of Small business. In practice, the owners of Small business play a dominant role. Hence, studying SME owners means studying the Small business themselves [16]. The specific respondents in this study are small business owners of handicrafts and creative contents (photo editing, video, and website production) in Gorontalo city, Indonesia which proportionally distributed to 500 respondents through online questionnaire (using Survey Monkey Application). The questionnaire link is sent through text message, WhatsApp, messenger, e-mail any other social media. There were 500 distributed questionnaire set, only 163 who returned the questionnaire completely filled for the period of three months (September, October, November 2019) data collection.

Table 1. Characteristic of respondent

Profile	(n = 163)	%
Sex		
Male	46	73.13
Female	17	26.86
Age Average	41,5	
Education		
Elementary school	4	5.97
Junior high school	15	23.38
Senior high school	21	33.33
Diploma	7	12.43
Bachelor	16	24.87
Positions		
Manager	15	23.38
Owner	31	49.75
Manager and owner	17	26.86

The number of samples analyzed were 163 respondents from 500 target respondents. This still meets the criteria if using the Slovin formula with a margin of error of 5%, the sample size is 222 respondents. Thus, the achievement of filling out the questionnaire is 73.43%.

Table 1 shows that for 163 respondents, the data shows that the dominance of men in business is very high. This is consistent with the basic nature of men as the backbone of the family economy. One hundred and Sixty-three (63) respondents who managed to collect data had an average age of 41.5 years or if rounded off to an average age of 42 years. Forty-two (42) years old can be considered as productive age and experienced. High school education or equivalent has the highest portion. That number shown us the possibility of a lack of innovation capabilities due to weakness in absorptive capacities [1, 17]. Then as many as 63 respondents, most of whom (49.75%) are business owners and the rest are managers who are also owners and managers / managers.

2.2 Measurement

The questionnaire was adopted from previous research, namely product, process and organizational innovation items [6] and business competitiveness [18]. All instruments use a Likert scale with points 1 to 5 which indicate a scale of disagreement to agreement from the respondents. All existing instruments are then adjusted to the object of research, which will be explained in the next section.

2.3 Face validity and content validity

In implementing face validity in this study, it applies 5 steps. The first step begins by adopting research instruments that already had been used by other researchers. Instruments preferably use original instruments or those from the original researcher that match the definition and indicators. The second step, namely translating English into Indonesian using back-to-back method, this step involves the professional language institute. This step is important because English words have many meanings and the translation must be adjusted to the context of the study so that the original meaning and meaning of the instrument is not misperceived by the respondent. The third step is to consult with academics regarding instruments that have been translated according to the research context and suitable for use by the object of research. Academics involved include academics from Gorontalo State University, Sam Ratulangi University and Manado State University which have adequate competences in the creative industry of Small business. An important result of the consultation was an agreement to change the words in the instrument "I" to "we", in order to reduce bias in answering statements. The word "we" is considered more suitable for identifying respondents to represent the organization than the word "I" which is more likely to answer based on personal feelings rather than organization.

2.4 Convergent validity and reliability tests

Even though the instrument has been tested by the panel experts for its appropriateness to collect the data, and using instrument from previous research, to convinced statistical validity and reliability test were still carried out. Convergent validity test of Average Variance Extracted (AVE) score higher than 0.5 is considered reasonable to measure validity [19]. Cronbach alpha score above 0.6 were acceptable even score higher than 0.7 is considered ideal number [20]. The result of the convergent validity and reliability test is presented in Table 2.

Information was showed on Table 2 explained that item statement x5 and y4 must be dropped due they only reach below 0.5 of factor loading and made AVE score on its constructs also lower than 0.5. After treatment on the problem, all the constructs reached acceptable score. In other word convergent validity as seen in Table 2 well acceptable. In Table 2 also showed that reliabilities the constructs were reach ideal number, which higher than 0.7. Thus, from Table 2 it can be concluded that statistic validity and reliability had qualify to be proceed to hypothesis test.

2.5 Data analysis

Data analysis technique PLS-SEM were used support that statement. Collected data were analyzed using PLS-SEM model of SmartPLS 2.0M3 software. This technique was employed as the research model is inter-dimensional. Thus, the PLS-SM was an appropriate approach to anticipate this. Further, with only 163 respondents, PLS-SEM was a wise option for data analysis. PLS-SEM is a data analysis technique to produce powerful statistical result regardless of the small size sample [19]. PLS-SEM, if appropriately applied, is indeed a “silver bullet” for estimating causal models in many theoretical models and empirical data situations [21].

Table 2. Convergent validity and reliability test

Dimension	Instrument	AVE Value	Cronbach alpha
IT Product Innovation	x1. Within the last three years we have created new products using relatively new technology	0.513	0.742
	x2. Within the last three years we have created new product design employing technology		
	X3. Our product components use new components		
IT Process Innovation	x4. Within the last three years our production has been carried out using new production method	0.529	0.762
	x5. Within the last three years, we have accepted new method of payment *		
IT Organizational Innovation	x6. Within the last three years we have used technology application to appraise employees’ performance.	0.551	0.771
Business competitiveness	y1. We are able to create products with affordable price	0.552	0.713
	y2. We are able to suppress our production cost efficiently		
	y3. We are able to create products that cannot be easily copied by our competitors		
	y4. We created products that are different from our competitors’ *		

*drop item

3. RESULTS & DISCUSSION

After the validity and reliability tests successfully executed. Following the validity and reliability tests, the analysis of the data is carried out using the SmartPLS 2.0 M3 application. The result is presented in Table 3 below.

Table 3 showed that information technology-based product innovation, IT based process innovation, and IT organizational innovation significantly and positively influence the growth of business competitiveness. This is empirical evident in all the T-stat values that are above 1.960 [19]. Therefore, it can be concluded that all of hypothesis accepted. That result means that utilization of technopreneurship is significantly able to increase business competitiveness, especially for small businesses in Gorontalo city. In other words, the hypothesis suggested before were proven and accepted.

This result backs up Jabeur and Karuranga [22] research who described that current business environment demands business owners to quickly adapt to the changes to use Information technology to remain competitive. Utilization of technology has impact on the increase of performance, including time efficiency and better decision-making [23]. Organizational innovation practices through utilization of information technology is closely related with improvement of productivity and rapid innovation [24].

Using the data of European Union countries Petrakis et al. [25] revealed that business competitiveness highly dependent on innovation culture as long-term strategic instrument. Dobrovic et al. (2018) were considered the same result, they convinced that innovation and business competitiveness were highly related and present the level of competitiveness on European [26].

Good policy has repeatedly encouraged competitiveness not just at the level of firm but also regional levels, as well as foster innovation and new product development [27, 28]. On the cluster of Small business, the level of innovation is indispensable to compete on high-tech and highly competition [29]. There were findings suggest a significant impact of entrepreneurial leadership on innovation work behavior and opportunity recognition of employees in the high-tech Small business [30]. From this information the lesson learned were innovation has high role in the competitiveness of Small business and network to enhancing the function of a high-technology Small business cluster [31]. In other words, innovation and business competitiveness could be footprint on Small business development and sustainability.

Product innovation of business owners in Gorontalo city, Indonesia is actively producing new products. Also, innovation is not only limited to product innovation but also production process innovation, which uses information technology. One of these innovations is by changing the product design to make it hard for the competitors to copy the product and create different products. The developed innovation process enables the business owners to gain new opportunities for their products to meet the fast-changing demand of the current trends and customers' demand. Therefore, the product meets the customers' satisfaction. Sylvana and Awaluddin [4] described that the innovative product is to meet the market demand, thus, the product is one of the things that can be used as competitive advantages of the company.

By utilizing information technology in the business field, it will have a major positive impact on the business nets that build. Advances in technology and information can help companies reduce production costs so, by reducing the company's operating costs allowing optimal profit. In other words, the role of information technology development today cannot be separated from the business activities, due of the development of information technology can provide various advantages and conveniences in carrying out business activities. IT-based organizational innovation enables employees' performance to be objectively measured. Sufficient reward for employees can be disbursed through measurable performance and similarly punishment can be made based on objective indicators. The comparison between the target and work result can be easily measured and considered more transparent as it uses information technology. For instance, through information technology enable employees to use digital attendance, this is highly beneficial for field workers, thus, their field works will be better monitored. The daily example of this is that online transportation can provide sense of security for the driver and passengers due to the GPS technology attached to these online transportation applications. Crimes report reported to the online transportation business can be easily tracked by the police to solve.

Small business need to develop their network and or collaborate with large scale business. Thus, it will increase opportunities the occurrence of transfer of technology. For instance, many Small business nowadays market their product on online marketplace such as Lazada, Shopee or even by Facebook marketplace etc. This network could enhance their possibility to have better sales, market and market share. Dyer and Nobeoka [32] on their qualitative research were revealed about Toyota and their knowledge sharing network between Small business partner to increased Toyota efficiency on production process, product and their financial benefit. The lesson from this statement is Small business the chance of high technology cluster to sustain will more possible.

Meanwhile Small business also cannot forget about their obtain network on other Small business. Even though in real business practices between Small business could act as competitor, however among Small business are not also considered as competitors but also can act as partner. For instance, cluster of Small business at Special Province of Yogyakarta made their consumer more satisfied due of the buyer order could 100 percent completed and minimize the risk of rejected order due of limited production capacities or other reasons. Among Small business could be built mutually beneficial cooperation and hand on hand operation to make customer needs. This corporation could fill the gap between underemployed or limitedness of production capacity.

Table 3. Hypothesis test

	Original Sample (O)	Deviation Standard	T-stat Value	Remarks
IT Product innovation à competitiveness	0.374	0.172	2.179	Significant
IT process innovation à competitiveness	0.752	0.099	7.67	Significant
IT organizational innovation à competitiveness	0.289	0.094	3.094	Significant

* Smart PLS-SEM Data Report, 2019.

3.1 Research limitation

Just like any other research, this research cannot be separated from the limitations of the study. The first limitation that could be made is research location were only concentrated in Gorontalo. This selection has a risk of generalizing the results of the study, perhaps the study could be generalized in Gorontalo, but not necessarily generalizable for other regions. Indonesia is an archipelago country that has a wide variety of cultures that are very likely to have an impact on differences in research results. Through further research it is expected to produce empirical evidence that is broader. Ideally, this research can be carried out in all provinces in Indonesia. The second limitation that can be conveyed were that the data collection time is only limited to one particular time, or it can be called the limitation of cross section. This approach has the disadvantage of capturing respondent perceptions in the post-data-collection period. Further research using longitudinal data collection is wisely can choose.

4. CONCLUSION

The conclusion is that the business competitiveness of small businesses in the high-tech field is influenced by products, processes and organizational innovation. In other words, it is strongly influenced by the uniqueness produced by small businesses, especially in Gorontalo City. The uniqueness is in the form of product results, production process and how to manage the business.

Based on that conclusion, small business must be able to create products, or product segments, and services that exceed the performance limitations of traditional products by utilizing everything possible through digital models. For instance, Small business can take advantage of the trace data that can be obtained from current consumer behavior. For example, whenever a potential customer changes the screen of a mobile device or uploads something on social media, they will leave an information trail related to their preferences and behavior. This allows business owners to understand consumer patterns and behavior beyond traditional boundaries, while knowing the facts of how their consumers interact with the online and offline world around them.

The next research can compare between Micro Enterprises, Small Businesses, and Large Businesses, and Ideally, this research can be carried out in all provinces in Indonesia.

ACKNOWLEDGMENT

Thank you to Faculty of Economics of the Universitas Negeri Gorontalo the Data Collection Team who were very cooperative and collaborated well so that this research could be carried out.

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