# Improving The Competence Of Human Resources For The Development Of Micro, Small, And Medium Enterprises (Msmes) In Medan City Which Is Mediated By The Use Of Information Technology

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#### Abstract.

The research is purposed to test and analyzed whether human resources affect UKMK development in Medan city by using information technology as an intervening variable, the kind of research is using the associative approach. The population of the research is an MSME user in Medan city divided into kinds of business, fashion, furniture, education, agriculture, fishery, healthy and automotive. There is the determination of the amount of the sample to use with the census method based on Stratify Random Sampling definition and the sample obtainable is 100. This research consists of the independent variable being the competency of human resources, the dependent variable being UMKM development, and an intervening variable being the user of information technology, the analysis of this research is using descriptive method. Structural Equation Modeling Analyzed based on variance (Partial Least Square). The result of the research are: (1) there are effects between human resource competency and UMKM development. (2) there are effects between information technology users and MSME development. (3) there are effects between human resource competency and information technology users. (4) there are effects between human resource competency and MSME development with mediated information technology users.

**Keywords:** Human Resources, SMEs, Information technology and MSMEs.

#### I. INTRODUCTION

In growing the economic growth of the community, MSMEs have a great contribution, especially in developing countries. The positive impact can move the wheels of the nation's economy and reduce the number of unemployed. In general, the definition of MSME is a trading business managed by individuals or business entities and by the criteria for small or micro businesses. According to (Kwartono, 2007), the definition of MSME is the economic activity of the people who have a maximum net worth of Rp. 200,000,000,- where land and buildings for business premises are not taken into account. Or those who have an annual sales turnover of at most IDR 1,000,000,000 and belong to Indonesian citizens. The growth of MSMEs in the current era has increased from year to year in various regions in all cities in Indonesia. One of them is Medan City which also has an important role in economic growth in North Sumatra. However, apart from the growth of MSMEs, there is a low development of MSMEs. There are many MSMEs scattered in the Medan City area that fail to market their products in local and national markets. According to information from the Medan City Government, as many as 200 MSME players have joined the digital market. In the latest data from the Medan City Cooperatives and SMEs Office, the number of MSME actors includes 1,480 micro-enterprises, 112 small-scale businesses, and 11 medium-sized businesses with a total of 1,603 units. Of the total number of MSME actors, it is known that only 12% of MSME actors utilize information technology in the form of using digital markets for business development (MSMEs). Then field observations made to 30 micro business actors in Medan City provided information about the business developments experienced by business actors in the last three years.

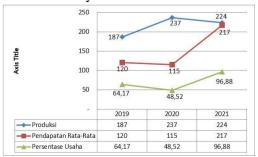


Fig 1. Graph of Micro Business Development in Medan City

The graph of the development of micro-enterprises in Medan City shows that there is an unbalanced comparison between the level of production and sales of micro-enterprises. This imbalance causes business actors to be unable to carry out business development. In the Medan City area, various micro-enterprises have great potential to be developed. However, the low competence of human resources from MSME actors is also an obstacle. As a result, sales turnover also fell and even tended to be sluggish. The majority of entrepreneurs still carry out the same business rules from time to time, based on hereditary experience, even though these rules are no longer to current market conditions along with the times and consumer needs. An entrepreneur is required to have the competence to be able to delegate, manage business operations, manage/create customers, manage funding sources, and practice interpersonal relationship skills are equally important to encourage entrepreneurs to succeed or develop a business. Development is an effort made by individuals to assume different or higher responsibilities in companies, organizations, institutions, or development agencies that tend to be more formal in nature, concerning the anticipation of individual abilities and expertise that must be prepared for future interests (Larasati, 2018). According to (Buchari, 2011) that the right opportunity in business must be in harmony with entrepreneurial abilities. In other words, business actors must be able to create opportunities that are not only momentum but also must be able to create continuous business opportunities. Then according to (Suryana & Bayu, 2011), human resources is a very important factor that can not even be separated from an organization, both institutions, and companies. Human resources are also the key that determines the development of business activities.

Quality human resources are increasingly needed by every company to achieve company goals, because the better the quality of human resources in a company, the better the company's competitiveness will be. Someone who performs well and not well can be measured by the criteria or standards used, discrepancies in competence that can distinguish a superior from a limited achiever. Limited competence and special competence for a particular job are patterns or guidelines in employee selection (personal selection), task transfer planning (succession planning), job appraisal (performance appraisal), and development (development). In the current era of the global economy, the use of adequate information technology is also a supporting factor in implementing and determining the development of a business unit. Information technology has the power to develop industry and transform how it will directly or indirectly affect the pricing strategy of a product or service (Putranta, 2004). A technology used to process data, including processing, obtaining, compiling, storing, and manipulating data in various ways to produce quality information, namely information that is relevant, accurate, and timely, which is used for personal, business, and government purposes and is information strategic for decision makers (Sutabri, 2012). In the business world, technology is very influential, the trend among large and small entrepreneurs is due to the current market demands which are always changing with the times. A person must be able and can adapt to technological changes to be one important aspect because it has influence and importance in the business of a large and small entrepreneur to develop and maintain his business. One of the most trending technologies and almost all aspects of using it today is Information Technology (Siregar & Nasution, 2020).

## II. METHODS

The research method used in this study is quantitative. This research also includes correlational quantitative research. The population in this research is all units of Micro, Small, and Medium Enterprises that are under the guidance of the Medan City Cooperatives Office, totaling 1,603 MSME business units . . In this study, considering a large number of research populations, the determination of the number of samples used by the author is the Stratify Random Sampling method. Stratify Random Sampling is a sampling technique that is drawn by separating population elements in non-overlapping groups called strata (Rusiadi, Subiantoro, & Hidayat, 2014). The number of samples in this study was 5% of the total population, which was 80.15 units or (n=80). The data used in this study is primary data, namely data obtained directly by researchers from the object of research through the distribution of questionnaires. The measurement scale used to measure the length of the short interval in the measuring instrument is the Likert scale. The data analysis technique used in this study is a quantitative data analysis technique using statistical methods. The statistical method used is Partial Least Square (PLS). Partial Least Square is a powerful

analytical method because it is not based on many assumptions (Juliandi, 2018). As a data analysis technique, PLS uses the SmartPLS version 2.0.M3 software.

#### III. RESULTS AND DISCUSSION

The analysis of the measurement model aims to evaluate the construct variables studied, the validity (accuracy), and the reliability (reliability) of a variable. *Discriminant validity* is the degree to which a construct is completely different from another construct (a construct is unique). To measure discriminant validity, it can be seen from the *Fornell-LarckerCirteiron*, *Cross Loadings*, and *Heretroit-Monotrait Ratio* (HTMT). However, on the SmartPLS *website*, the best recent measurement is to look at the *Detroit-Monotrait Ratio* (HTM) value. If the value of HTMT < 0,90 then a construct has good discriminant validity (Christian, Ringle, & Sardted, 2015).

 Table 1. Discriminant Validity (Heroic-Monotrait Ratio / HTMT)

		Human Resources	Information	Business
		Competence	Technology	development
	HR Competence			
	Information Technology	0.272		
	Business development	0.275	0.547	

(Source SmartPls V-2.0)

Based on the figure in the table above, the results show that all construct variables of Human Resources Competence, Information Technology, and Business Development have a *Heroic-Monotrait Ratio* (HTMT) value of < 0.90. Thus, all construct variable values are valid. *Construct Validity and Reliability* is a test to measure the reliability of a construct. The reliability score of the construct should be high enough. The reliability and validity criteria can be seen from ( *Cronbach Alpha* > 0.7), ( *Rho\_A* > 0.7), ( *Composite Reliability* > 0.6), ( *Average Variance Extracted* (AVE) > 0.5) (Juliandi, 2018).

**Table 2.** Construct Validity and Reliability

	Cronbach's Alpha	rho_A	Composite Reliability	Average Extracted Variance (AVE)
HR Competence	0.969	0.917	0.974	0.824
Information Technology	0.939	0.942	0.952	0.767
Business development	0.959	0.966	0.965	0.774

(Source SmartPls V-2.0)

Construct Validity and Reliability test in the table shows that the Competency of Human Resources, Information Technology, and Business Development variables have Cronbach Alpha and Rho\_A values > 0.7, Composite Reliability values > 0.6, and Average Variance Extracted (AVE) values> 0, 5. Then all variables have to construct Validity and Reliability the good. Structural model analysis or (inner model) aims to test the research hypothesis. The part that needs to be analyzed in the structural model is the coefficient of determination (r-square) and hypothesis testing. The coefficient of determination (R-Square) aims to evaluate the prediction accuracy of a model. In other words, to evaluate how the variation in the value of the dependent variable is affected by the variation in the value of the independent variable in a path model. If the value of  $R^2 = 0.75$  then the model is substantial (strong), if  $R^2 = 0.50$  then the model is moderate, if  $R^2 = 0.25$  then the model is weak (Juliandi, 2018).

**Table 3.** Coefficient of Determination ( *R-Square* )

	R-Square	Adjust R-Square
Business Development	0.301	0.287
Information Technology	0.068	0.058

(Source SmartPls V-2.0)

The result of the R-Square variable of the Information Technology variable is 0.068 or 6.8 %. So the ability of the Human Resources Competency variable in influencing the Information Technology variable in the construct of this research is small. Then the value of R-Square Business Development is 0.307. This

indicates the accuracy of the Competency of Human Resources and Information Technology variables in explaining the Business Development variable is 30.1 %,

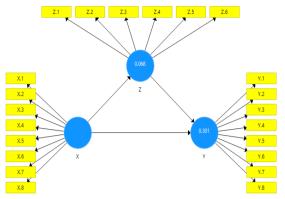


Fig 1. R-Square

F-Square is a measure used to assess the relative impact of an influencing variable (exogenous) on the affected variable (endogenous). Changes in the F-Square value when certain exogenous variables are omitted from the model can be used to evaluate whether the omitted variables have a substantive impact on the endogenous construct. The criteria if  $f^2 = 0.02$  indicates a small effect of exogenous variables on endogenous variables if  $f^2 = 0.15$  indicates a moderate effect of exogenous variables on endogenous variables (Juliandi, 2018).

Table 4. F-Square

			Business development
HR Competence		0.073	0.030
Information Technology			0.320
Business development			

(Source SmartPls V-2.0)

Based on the table above, it can be seen that the f-square effect of the exogenous HR Competency variable on Information Technology is 0.073 which is included in the category of small influence. This means that if the HR Competency variable is removed from the measurement model, a less substantial impact will be obtained on the Information Technology variable of 7.3 %. Then, the effect of the exogenous variable f-square of HR Competence on Business Development is 0.030 which is included in the category of small influence. This means that if the variable is omitted from the measurement model, a less substantial impact will be obtained on the business development variable of 3.0 %. The results of the tests carried out also show that the f-square effect of the exogenous Information Technology variable on Business Development (Y) is 0.320 which is included in the category of Medium influence. This means that if the variable is omitted from the measurement model, a substantive impact will be obtained on the business development variable of 3.2 %. The influence of each endogenous variable in influencing the exogenous variable can also be seen in the following figure:

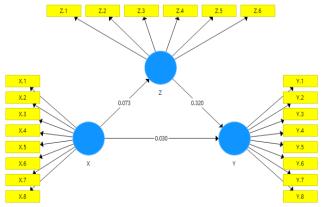


Fig 2.F-Square

Direct effect analysis is useful for testing the hypothesis of the direct effect of a variable that affects (exogenous) on the variable that is influenced (endogenous). The direct influence measurement criteria can use the value of the path coefficient ( Path Coefficient ). If the path coefficient value is positive, then the value of one variable to other variables is in the same direction so that if the value of an exogenous variable increase, then the value of the endogenous variable will increase. If the path coefficient value is negative, then the effect of one variable on other variables is the opposite, so if the value of the exogenous variable increases, the value of the endogenous variable will decrease. (Juliandi, 2018).

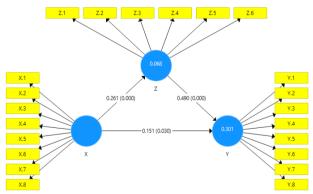
Table 5. Direct Influence

	Path Coefficient	Sample mean	Standard Deviation	t Statistics	P Values
HR Competence $\rightarrow$	0.261	0.267	0.076	3,447	0.000
Information Technology					
HR Competence → Business	0.151	0.156	0.069	2.183	0.030
Development					
Information Technology →	0.490	0.429	0.084	5,809	0.000
Business Development					

(Source SmartPls V-2.0)

Based on the table above, the direct influence of Human Resource Competence on Information Technology has a path coefficient of 0.261 (positive), then the increase in value or decrease in the value of Human Resource Competence will be followed by a unidirectional change in the value of Information Technology of 26.1%. The influence of Human Resource Competence on Information Technology has a P-Values (0.000) < (0.05), so human resource competencies can significantly affect information technology. The direct influence of Human Resource Competence on Business Development has a path coefficient of 0.151 (positive), then the increase in value or decrease in the value of Human Resource Competence will be followed by a unidirectional change in the value of Business Development of 15.1%. The influence of Human Resource Competence on Business Development has a P-Values (0.030) < (0.05), so human resource competencies can significantly affect the business development. The direct influence of Information Technology on Business Development has a path coefficient of 0.490 (positive), then the increase in value or decrease in the value of Information Technology Competence will be followed by a unidirectional change in the value of Business Development of 49.0%. The influence of Information Technology on Business Development has a P-Values (0.000) < (0.05), so Information Technology can affect the variables of Business Development significantly.

Test results The direct influence between variables on the research construct is also described in the following figure:



Figu 3. Direct Effect

Indirect Effect Analysis is useful for testing the hypothesis of the indirect effect of a variable that affects (exogenous) on a variable that is influenced (endogenous) mediated by an intervening variable (mediator). The direct influence measurement criteria can be seen through the P-value. If the P-value < 0.05, it is significant, meaning that the mediator variable mediates the effect of an exogenous variable on an endogenous variable, in other words, the effect is indirect. If the P-value > 0.05, it is not significant, meaning

that the mediator variable cannot mediate the effect of the exogenous variables on the endogenous variables, in other words, the effect is direct (Juliandi, 2018).

**Table 6.** Indirect Effect

	Sample Ordinal	Sample Mean	Standard Deviation	T-Stats	P Values
$X1 \rightarrow Z \rightarrow Y$	0.128	0.133	0.046	2.801	0.005

(Source SmartPls V-2.0)

Testing the indirect effect of the variable human resource competence on business development mediated by information technology obtained *a P-Value* of 0.005 < from 0.05 which indicates that the Information Technology variable can mediate the influence of human resource competence on business development. The indirect effect of human resource competence on business development mediated by information technology has a path coefficient ( *Ordinal Sample* ) of 0.128 (positive), thus the indirect effect of human resource competence on business development mediated by information technology is 12.8 %

The total effect is the total of Direct Effect with Indirect Effect. (Juliandi, 2018). The total effect of direct effect and indirect effect can be seen from the largest value of the influence of the independent variable (X) and the largest value of the P-value. Total Effect (Total Effect) will be described in the following table:

**Table 7.** Total Effect

	ordinal Sample	Sample mean	Standard Deviation	T Statistics	P Values
$X \to Z \to Y$	0.128	0.133	0.046	2,801	0.005

(Source SmartPls V-2.0)

In the table, it has been explained that the total effect or the total effect of the Human Resource Competence variable on the Business Development variable is 0.128 with a P-value of 0.005 < 0.05. Thus, Variable X has a significant influence either directly or indirectly on variable Y.

#### **Discussion**

Small and Medium Enterprises (SMEs) is a term that refers to small-scale businesses that have a maximum net worth of around IDR 200,000,000, not including land and buildings. UKM is one example of a sole proprietorship which is established and owned by one person only. According to the Decree of the President of the Republic of Indonesia No. 99 of 1998, SMEs are small-scale people's economic activities where the type of business field is heterogeneous as well as needs protected by the government to prevent competition unhealthily. Research that focuses on the development of MSMEs carried out in the Medan City area as described in the background of the research explains that the growth of MSMEs in the era now it has increased from year to year but not many MSME business actors can develop their business. The development of a business is the responsibility of every entrepreneur or entrepreneur who requires foresight, motivation, and creativity. If this can be done by every entrepreneur, then there is great hope to be able to turn a small business into a medium scale and even become a big business. The development of a business can be seen from several aspects, including profit gain, industrial image, increasing industrial output, increasing employee professionalism, and developing financial ratios. Entrepreneurs can analyze business success by knowing the performance of an industry which can be formulated through a comparison of the value produced by the company with the expected value by utilizing the resources owned. In addition, the business growth rate is measured by looking at the increase in income, the increase in the workforce, and the increase in the number of consumers who use their products (Soleh, 2008).

Then (Hadjimanolis, 2000)also mentions several indicators to see and measure the growth rate of a business, especially small businesses, namely increasing employees, profits, and return on assets. Descriptive testing of business development carried out on MSME actors in the Medan City area obtained data with a value of 31% of MSME actors aged less than 20 years. Then 50% of MSME actors are in the range of 21 years to 30 years and the remaining 19% are aged 31 to 40 years. Based on the level of education, 72% of

MSME actors in the Medan city area are undergraduate graduates and the remaining 28% are high school graduates or equivalent. Then based on the length of time, the MSME actors in the city of Medan have carried out business activities with a span of less than one year by 22%, then a period of one year to five years, and a span of 5 years to 10 years by 33%. The types of MSME businesses that are run by MSME Business Actors in Medan City vary, which are divided into 25% culinary businesses, 23% fashion businesses, 9% furniture businesses, 16% education, 10% fisheries, and 7% automotive. Thus, the MSME business which is common and in demand by the Medan city community is currently in the Fashion type business. Then the descriptive results of the measurement of MSME development in the city of Medan which was measured based on aspects of increasing income, increasing productivity, and competitiveness as well as employee growth, obtained the results of an interval of 3.42 which was in the scale range from 3.41 to 4.20 with a good category and the percentage of achievement of 68%.

This shows that there are still obstacles experienced by MSME actors in developing their businesses. In carrying out business activities several important factors must be considered by every business actor. Based on the opinion (Suryana & Bayu, 2011) human resources is one of the most important factors that can not even be separated from an organization, both institutions, and companies. Then in the current era of the global economy, the use of adequate information technology is also a supporting factor in the implementation and determining development of a business unit. The results of testing the direct influence hypothesis related to the influence of Human Resources on MSME Business Development in the city of Medan obtained a P-Value value of 0.000 which is smaller than 0.030 which indicates that Human Resource Competence has a significant effect on Business Development. The magnitude of the influence or contribution of human resource competence to business development is based on the acquisition of the Path Coefficient value of 0.151. This means that the magnitude of the influence of Human Resource Competence on business development is 15.1 %.Descriptive testing conducted to measure the competence of human resources of MSME actors obtained a scale of 3.88 which is in the range of 3.41 to 4.20 which is included in the good category with a percentage of HR competence of 78%. The smallest scale obtained from the HR Competence of MSME actors is in the aspect of understanding with an acquisition of a scale of 3.74 or a percentage of 74.8%.

This is in line with the acquisition of the factor loading value in the outer loading test with the smallest value obtained in the understanding aspect of 0.889. Competence as an underlying characteristic of a person is related to the effectiveness of individual performance in his work or basic characteristics of individuals that have a causal or causal relationship with criteria that are used as a reference, effective or excellent or superior performance at work or in certain situations. Quality human resources are increasingly needed by every company to achieve company goals, because the better the quality of human resources in a company, the more competitive the company will be, getting better. Based on this, human resources can affect the business development. In other words, all potential human resources can be used to achieve the development of a business. Therefore, the role of human resources in a company is very necessary as an element of business development. The results of this study are in line with research conducted by (Widjaja, Alamsyah, Rohaeni, & Sukajie, 2018) that the competence of human resources (HR) turns out to be one of the most important factors in the MSME industry. Increasing competence of human resources through increasing knowledge and skills then is the key to improving the performance of MSMEs. As well as research conducted by (Ardiana, Brahmayanti, & Subaedi, 2010)the competence of SME HR has a significant relationship to the performance of SMEs. The results of testing the direct influence hypothesis related to the influence of Information Technology on MSME Business Development in the city of Medan obtained a P-Value value of 0.000 which is smaller than 0.05 and indicates that Information Technology has a significant effect on Business Development. The amount of influence or contribution of Information Technology to business development is based on the *Path Coefficient value* of 0.490.

This means that the magnitude of the influence of Information Technology on business development is 49.0 %.Descriptive testing conducted to measure Information Technology obtained a scale result of 3.07 which is in the range of 2.60 to 3.40 which is classified in the fairly good category with a percentage of 61%. The smallest scale gain from the use of Information Technology for MSME actors is in the aspect of the

effectiveness of using technology with an acquisition scale of 3.03 or a percentage of 60.6%. This is in line with the acquisition of the factor loading value in the outer loading test with the smallest value obtained in the understanding aspect of 0.853. will directly or indirectly affect the pricing strategy of a product or service (Putranta, 2004). To support the running of business activity at this time can not be separated from the use of information technology. The purpose of information technology is. to solve problems, unlock creativity, and increase effectiveness and efficiency in doing work. Information technology has a function to state detailed records of activities, for example receiving input from keyboards, scanners, mics, and so on. Processing or processing the input data received to become information, processing or processing data can be in the form of conversion (converting data to other forms), analysis (condition analysis), the calculation (calculation), synthesis (merging) all forms of data and information. In the business world, technology is very influential, the trend among large and small entrepreneurs is due to the current market demands which are always changing with the times.

A person must be able and can adapt to technological changes to be one important aspect because it has influence and importance in the business of a large and small entrepreneur to develop and maintain his business. One of the most trending technologies and almost all aspects of using it today is Information TechnologyThe results of this study are in line with research conducted by (Akhmad & Purnomo, 2021)that the use of good information technology in a business that aims to generate profit has an impact on increasing the number of product orders received, increasing the amount of production, increasing income, and adding new customers. The results of testing the direct influence hypothesis related to the influence of Human Resources on the use of Information technology in MSMEs in the city of Medan obtained a P-Value value of 0.000 which is smaller than 0.05 which indicates that Human Resource Competence has a significant effect on the use of Information technology in MSMEs. The magnitude of the influence or contribution of human resource competence on the use of information technology in MSMEs is based on the acquisition of the Path Coefficient value of 0.261. This means that the magnitude of the influence of Human Resource Competence on business development is 26.1 %. In the current era of the global economy, the role of human resources in the importance of the ability to use technology is a must. The rapid development of the era has changed various concepts of operational systems, both individuals and organizations. Information technology, which is a medium, becomes the main facilitator for business activities, contributing greatly to fundamental changes in organizational structure, operations, and management.

However, the use of information technology will not be effective and efficient without the support of competent human resources. According to (Sunayanto, 2005)the use of information technology can not be separated from the operator of the technology user or the User. Thus the existence of competent human resources is a supporting factor for the implementation of effective and efficient use of information technology. Effect test Human Resource Competence on MSME Business Development mediated by the use of Information Technology is carried out using indirect influence hypothesis testing. The test results show that the *P-value* of 0.005 is smaller than 0.05. This shows the effect of The competence of Human Resources toward MSME Business Development mediated by the use of Information Technology is significant. The magnitude of the indirect influence of Human Resource Competence on MSME Business Development mediated by the use of Information Technology based on the acquisition of the Path Coefficient value is 0.128. This shows that the ability of Information Technology in mediating the influence of Human Resource Competence on Business Development is 12.8% Business development is the responsibility of every entrepreneur or institution that produces products or services that are needed by the community which requires foresight, motivation, and creativity to make their business bigger. In conducting better business development in the future in the current e-global era, the use of good information technology is part of an important factor that aims to support the achievement of business effectiveness and efficiency.

In other words, the use of appropriate information technology in running a business will help business actors to achieve their goals. However, apart from good use of information technology in running a business, it is also necessary to apply adequate human resource competencies. Competence of adequate human resources in running a business consists of aspects of understanding, and attitude. This understanding is meant that business people or businesses understand and know clearly what they are doing, what they

need, and how to find ideas and solutions. While the attitude reflects a person's consistency in running his business. Someone who has a good attitude in running a business tends to have a good commitment which illustrates that someone will continue to seek, ideas, ideas, and solutions in carrying out business activities. The existence of good human resource competence is also an important factor in the use of technology. Where previously we have known that the use of technology has an impact on business development today. However, it is undeniable that the ability to use information technology in running a business also depends on the presence of one's competence. A person who has good competence will know how to do something well, and what he needs to be able to maintain and develop his business.

#### IV. CONCLUSION AND SUGGESTION

#### Conclusion

Based on the results of the research conducted, the researchers conclude the results of the study as follows:

- 1. Human resource competence has a significant effect on the development of MSME businesses in Medan City.
- 2. The use of information technology has a significant effect on the development of MSME businesses in the city of Medan.
- 3. Human resource competence has a significant effect on the use of information technology.
- 4. The competence of human resources has a significant effect on the development of MSME businesses in the city of Medan, mediated by the use of information technology.

# **Suggestion**

Based on the results of the research conducted, several weaknesses in business development by MSME business actors in the city of Medan were obtained. The weak development of MSMEs is due to a lack of understanding from the actors and the use of technology that is still not effective in supporting business operations. For this reason, the MSME actors, researchers suggest that they train competencies that are in line with the interests and talents of MSME actors and are active in participating in entrepreneurship training organized by the government and private parties.

### V. ACKNOWLEDGMENTS

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