Analysis of the Relationship between Productivity and Technology Content in MSMEs in Indonesia

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Analysis of the Relationship between Productivity and Technology Content in MSMEs in Indonesia

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Keywords: Technology Innovation, Human Resources, Leadership, Information Technology, Technology Content, Productivity.

Abstract: Entering the era of globalization, Indonesian MSMEs have experienced growth from years. With the development of MSMEs, the use of information technology should not be just making financial reports. Information technology can be used to increase business transformation in MSMEs, through speed, accuracy, and efficiency of the exchange of information produced. This matter which caused the utilization of MSME's technology, was still in a low level. Samples in this research are MSMEs in Indonesia. The results of this study are technological innovation, human resources, leadership does not affect technological content, while information technology affects technological content, and technological content affects productivity.

1. INTRODUCTION

Based on data from the Central Statistics Agency (BPS), the development of MSMEs in Indonesia entering the industrial era 4.0 continues to develop. The estimated number of micro, small and medium enterprises in Indonesia in 2018 is 58.97 million business units, consisting of 58.91 million units of small businesses, 59,260 units of micro businesses, and 4,987 medium enterprises. With the development of MSMEs, the use of information technology should not be just making financial reports. Information technology can be used to increase business transformation in MSMEs, through speed, accuracy, and efficiency of the exchange of information produced. This matter which caused the utilization of MSME's technology, was still at low level. According to Smith (2007), the use of technology can be done through four components, namely: technoware, humanware, infoware, organware. Where the four terms of the component are technology content.

2. LITERATURE REVIEW

Technology Innovation

In the development of technology, innovation must be supported in order to meet the needs of the community, so that an evaluation is needed at the level of technological innovation used in a business. There are five indicators of evaluation capabilities in technology innovation: research and development capabilities, innovation capabilities in decision making, marketing capabilities, production capabilities, and capital capabilities (Wang et al., 2008).

Human Resources

Management of resources as technology operators can optimize the use of existing technology. Strategies that need to be done in managing human resources affect all lines of business of the company. Research on human resource management. The measurement of competency from human resources consists of knowledge, skill, ability (Ardiana et al, 2010).

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Leadership

Facing increased dynamic and growing business competition, an effective and efficient management system is needed so that the organization can be viewed as an open system that can be responded to and accommodated by external changes quickly and efficiently. One of the important things in this regard is leadership. Leadership is a process where a person becomes a leader through continuous activities, so that he can influence those who are led in order to achieve the goals of an organization (Brahmasari, 2008).

The most significant factors that influence leadership are bearers of change, communication, leadership in work, networking, development of others (Woworuntu, 2003).

Information Technology

The use of information technology is a user of computer technology that deals with processing data into information, and the limit of the process of distributing data/information within a specific time limit (Hamdani Harfan, 2012).

Information technology users support the company's operational activities which are the primary needs as one of the competitive strategies. The use of information technology requires the wearer to use the system to be able to achieve company goals by utilizing information technology. Apart from being computer technology to process and store information, information technology also functions as a communication technology for information dissemination.

Information technology resources are an element that is highly highlighted by Objective for Information and Related Technology (COBIT) Control, including fulfilling business needs for effectiveness, efficiency, confidentiality, integration, availability, policy compliance, and information reliability (Anggraini, 2009).

Technology Content

Technology is a method or method and process that results from the application and use of various scientific disciplines that produce value for meeting the needs, continuity, and improvement of quality of life (Khalil, 2000).

Measurements from technology content are using indicators, as follows: technoware, humanware, infoware, orgaware (smith, 2007).

Productivity

Productivity is a comparison of the size of prices for inputs and results, it is also the difference between the aggregate amount of expenditure and the input expressed in units (Sinungan, 2005).
Total productivity can be measured based on profit, capital, energy, and raw materials so that it can provide an overview of the development of actual organizational productivity conditions (Hannula, 2002).

3. RESEARCH METHODOLOGY

In accordance with specific sample characteristics, required MSMEs in Indonesia, this technique is selected to ensure that only the samples have certain elements. If the sample can be retrieved from data, it can also be called convenience sampling (Sugiyono, 201 6: 85). The sample is part of the population used to infer or describe the population. The sample in this research is a food and beverage entrepreneur or kind of Café or Restaurant in Indonesia as many as 70 MSMEs.

Researchers used the PLS method to analyze this multivariate model. The models consist of four exogenous latent variables, namely accounting knowledge, comprehension accounting, owner of education, owner experience, and application of financial statements. The models proposed by the researcher are analyzed using SmartPLS 3.2.1 application.

4. RESEARCH RESULT

The results of the tabulation of questionnaires that have been inputted using Microsoft software are exported to Smart PLS 3.2.1 application to be further analyzed. The data used is the complete data. Out of a total of 70 respondents. This 70 respondents data are used for measurement models and structural model analysis.

The measurement model for validity and reliability tests, the model and path coefficient for model equation coefficient of determination, can be seen in the picture below:

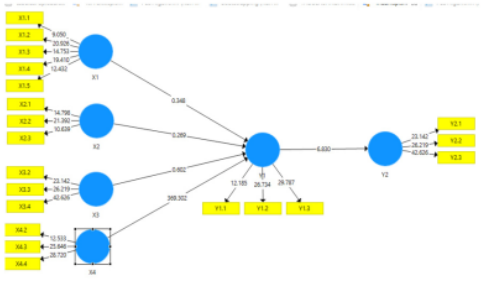

Figure 1. Result Display Picture of PLS Algorithm

Reliability Test

Data outer loading shows some indicators that have values above 0.70, so the results are considered to meet the standards and do not need iteration.

If traditional research uses Cronbach's alpha value as a reference, then in PLS- use different sizes to determine reliability. Composite reliability values are used instead (Bagozzi & Yi, 1988). Hair (2014) requires that the composite reliability value should be above 0.70 or 0.60 if the study is exploratory.

Table 1. Reliability

Construct Reliability and Validity

Matrix	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
	Cronbach's Al...	rho_A	Composite Rel...	Average Varian...
X1	0.858	0.863	0.898	0.638
X2	0.757	0.757	0.862	0.676
X3_	0.872	0.887	0.921	0.795
X4_	0.821	0.827	0.894	0.738
Y1	0.821	0.831	0.894	0.738
Y2	0.872	0.887	0.921	0.795

The structural model in the PLS is evaluated by the dependent variable and the path coefficient, which is then assessed, whose significance is based on the statistics of each path.

Hypothesis Testing

In testing the structural model, it can be seen from the statistical values of the dependent variable in The Path Coefficient table in the Smart PLS Output below:

Table 2. Path Coefficients

Path Coefficients

Mean, STDEV, T-Values, P-Values	Confidence Intervals	Confidence Intervals Bias Corrected	Samples

	Original Sampl...	Sample Mean (...	Standard Devia...	T Statistics (|O...	P Values
X1 -> Y1	-0.001	-0.001	0.003	0.348	0.728
X2 -> Y1	0.001	0.001	0.002	0.269	0.788
X3_ -> Y1	0.002	0.004	0.004	0.602	0.547
X4_ -> Y1	0.999	0.998	0.003	369.302	0.000
Y1 -> Y2	0.578	0.585	0.085	6.830	0.000

T (2-tailed) test results with a 5% significance level shown in the table above shows that:

1. Testing the first hypothesis

From the table above, the final sample estimate LS is -0.001 with significance above 5% indicated by the value of t statistics 0.348 bigger than the t-table value of 2,0017. The original value of the sample estimate positively indicates that technology innovation has a negative effect on technology content. Based on the results of the regression can be concluded that the first hypothesis is rejected.

2. The second hypothesis test.

From the table above, the can be seen from the original sample estimate LS is 0.001 with a significance above 5% indicated by the value of t statistics of 0.269 greater than the t-table value of 2.0017. The original value of the sample estimate positively indicates that human resources have a negative effect on c technology content. Based on the results of the regression can be concluded that the second hypothesis rejected.

3. The third hypothesis test

From the table above that can be seen from the original sample estimate LS is 0.002 with a significant above 5%, indicated by the value statistics 0.602 more significant than the t-table value of 2.0017. The original value of the sample estimate positively indicates that leadership has a negative effect on technology content. Based on the results of the regression can be concluded that the second hypothesis rejected.

4. Testing the fourth hypothesis

From the table above that can be seen from the original sample estimate LS is 0.999 with a significant below 5%, indicate by the value statistics 369.302 higher than the t-table value of 2.0017. The original value of the sample estimate positively indicates that technology information has a positive effect on technology content. Based on the results of the regression can be concluded that the fourth hypothesis accepted.

5. Testing the fifth hypothesis

From the table above that can be seen from the original sample estimate, LS is 0.578 with a

significant below 5%, indicated by the value statistics 6.830 more significant than the t-table value of 2.0017. The original value of the sample estimate positively indicates that technology content has a positive effect on productivity. Based on the results of the regression can be concluded that the fifth hypothesis accepted.

Total Effects

Table 3. Total Effects

Total Effects

	Original Sampl...	Sample Mean (...	Standard Devia...	T Statistics (|O...	P Values
X1 -> Y1	-0.001	-0.001	0.003	0.348	0.728
X1 -> Y2	-0.001	-0.001	0.002	0.337	0.736
X2 -> Y1	0.001	0.001	0.002	0.269	0.788
X2 -> Y2	0.000	0.001	0.001	0.263	0.793
X3_ -> Y1	0.002	0.004	0.004	0.602	0.547
X3_ -> Y2	0.001	0.002	0.002	0.581	0.561
X4_ -> Y1	0.999	0.998	0.003	369.302	0.000
X4_ -> Y2	0.577	0.584	0.084	6.848	0.000
Y1 -> Y2	0.578	0.585	0.085	6.830	0.000

Based on the table above, the relationship between variables is as follows:

1. Relationship of technology innovation with technology content with a significant value of 0.728, then product innovation does not have a direct relationship with technology content.
2. Relationship of technological innovation with productivity with a significant value of 0.736, then product innovation does not have a direct relationship with productivity.
3. Relationship between human resources and technological content with a significant value of 0.788, then human resources do not have a direct relationship with technology content.
4. Relationship between human resources and productivity with a significant value of 0.793, then human resources do not have a direct relationship with productivity.
5. Relationship between leadership and technology content with a significant value of 0.547, information technology does not have a direct relationship with technology content.
6. The leadership relationship with productivity with a significant value of 0.561, then human resources do not have a direct relationship with productivity.
7. Relationship to technology information with technology content with a significant value of 0,000, information technology does not have a direct relationship with technology content.
8. Relationship between technology information leadership and productivity with a significant value of 0.000, human resources do not have a direct relationship with productivity.
9. Relationship between technology content productivity with a significant value of 0.000, so human resources do not have a direct relationship with productivity.

5. CONCLUSION

Based on the results of this study, the following conclusions are obtained:

1. Variable technology innovation does not affect on technology content.
2. Variable human resources do not affect on technology content.
3. Variable leadership does not affect on technology content.
4. Variable information technology positively effects on technology content.
5. Variable technology content positively effects on productivity.

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