The Impact of Technology toward the Small Medium Enterprises (SMEs) Sustainability and Development

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Abstract
One of potential industry sectors in Indonesia is a leather industry. It has been expanding rapidly in recent years. Indonesia has a potential market due to its large population. Moreover, leather goods from Indonesia are competitive among similar products from other countries. Despite the high growth, leather industries have a very few number. It is necessary to develop the sector. The number of entrepreneurs is one of the indicators represent a development of a country. Most leather industries in Indonesia are Small Medium Enterprises (SMEs). SMEs have an essential role in economic development of a country. The study aims to investigate technological aspects applied in leather SMEs. Quantitative and PLS approach were implemented in this study. Data are obtained from respondents who are entrepreneurs in leather goods. The questionnaire consists of three parts which are company description, employee description, and employer perception to technology application in running the business. Results indicate that technology application influences SMEs in term of their sustainability and development.

Keywords: technology; entrepreneurship; SMEs; development

1. INTRODUCTION
Background
Indonesia has many kinds of business fields, one of which is leather industry. From the data released by Statistics Indonesia (BPS) as an official institution authorized to release statistics in Indonesia, in the past five years the leather industry has always increased (1), (2), (3), (4), (5). It is illustrated in the graphic, Fig.1 about The Growth of Micro and Small Manufacturing Production. As we can see in the graphic, starting from 2011 to 2015, the leather industry sector has increased. The highest growth percentage occurred in 2012 and 2013. In the next two years, the growth percentage decreased. However, it does not indicate the decreasing growth. It is still considered growing as long as the growth percentage number is positive.

Fig. 1: Production Growth Over the Last Five Years
Fig. 2 is more detailed in describing the growth percentage from a quarter to another in the past three years, from 2012 to 2015. There are two kinds of data presented; those are q-to-q and y-on-y. The data q-to-q indicate the comparison of a quarter and the previous quarter, for example quarter IV-2015 and quarter III-2015. Whereas, the data y-on-y indicate the comparison of a certain quarter period and another quarter with the same period in the previous year, for example quarter IV-2015 and quarter IV-2014.

Based on the result of Interccenal Population Survey in 2015 conducted by Statistics Indonesia, the number of Indonesian population is around 255 million. Its large population is potential market. Indonesian cowhide; one of materials in leather industry; has advantage in term of the strength and unique texture. It makes leather goods from Indonesia are competitive (6). The above data revealed that the leather industry in Indonesia is a potential sector.

Although there is always growth in it, the leather industries are still very few in number. In micro scale there are about 32 thousand industry unit, while in small scale there are about 12 thousands leather industry. Comparing with Indonesian large population the number is small. It is necessary to develop entrepreneurship because the sector plays essential role of national wealth (7).

In Indonesia, enterprise is categorized into four kinds. Those are Micro Enterprise, Small Enterprise, Medium Enterprise, and Large Enterprise which are doing economic activities in Indonesia and reside in Indonesia (8). The leather industries in Indonesia are mostly Small Medium Enterprises (SMEs). Micro, Small, and Medium Enterprise has an important role in the National Economic growth, which are to strengthen the National Economy and to help developing the regional economic in terms of the work-field creation, economic growth, and raising people up out of poverty (8).

Micro Enterprise is defined as a productive enterprise belonging to an individual or a company which meets the criteria of Micro Enterprise regulated in this act. The criteria of Micro Enterprise is when it has the wealth cost at the most fifty millions rupiahs, not including the cost of the sites of the company land and building, or when it has annual sale at the most three hundred millions rupiahs. While Small Enterprise is an economic productive enterprise standing by itself, established by individual person or a company who are not any parts or branches, directly or indirectly, owned by the Medium or Large Enterprise, which meets the criteria of Small Enterprise as defined in this act. The criteria of Small Enterprise is when it has the wealth cost more than fifty millions rupiahs to the most five hundred millions rupiahs, not including the cost of the sites of the company land and building, or when it has annual sale more than three hundred millions rupiahs to the most two and half billions rupiahs. The criteria mentioned earlier, the nominal of which can change in accordance to the economic development regulated by the President Act (8).

This study aims to observe some technological aspects applied in leather SMEs in Indonesia. Leather products and footwear manufactures are included in leather industry cluster.
This research belongs to a preliminary investigation of a more complex study about leather industry. There are three hypotheses in this study as follows:

H1: Technological capability positively influences the development and sustainability of leather SMEs

H2: Product positively influences the development and sustainability of leather SMEs

H3: Employee capability positively influences the development and sustainability of leather SMEs

2. THEORETICAL AND EXPERIMENTAL METHODS

Literature Review

There are several technological aspects influence business in companies e.g. top management support for technology (TMS), technological skills, technological competencies, technological infrastructure, technology leadership position, and technology investment (9). In their research Rodrigo et.al. discussed about technological variables have critical role on competitiveness. Furthermore it is said that one of important factors on getting optimal advantage from technologies is employee’s skills (9).

In his study, Hakala investigated about strategic orientations of business and their interaction. According to him, there are four kinds strategic orientations of business i.e. market, technology, entrepreneurial, and learning. Parameters on market orientation consists of customer, competitor, and marketing. While product, production, and innovation orientation are parameters on technology orientation. Many studies show that those parameters have impact to the business (10).

The other aspect in a business which is important to consider is about marketing. In micro and small industries marketing capability has direct impact both on the business development and its sustainability. A study conducted on household footwear industries showed this (11). Nowadays the Information and Technology (ICT) is applied in most of human life. The development of ICT makes it easy for people in daily activities. They use the technology in social and economic activities, and also commercial activities. Companies use ICT in their marketing. There are a variety of platforms that can be used to support marketing, including the use of social media to promote a product. ICT development is supported by a large number of users, as well as in Indonesia. The survey shows that in the particular period last year the Populations of 10 Years of Age and Over who Access to the Internet in Indonesia is about 163 million. A study of small, medium, and micro enterprises (SMMEs) and ICT in the Asia-Pacific showed that one of the advantages of using ICT are greater opportunities in the global market. A further benefit by utilizing ICT entrepreneurs in the micro to medium scale will be able to develop and achieve sustainability that ultimately affect the country's economy (12).

Research Methodology

The steps in this research consists of data collection, data processing, and data analysis. Data are obtained from questionnaire distributed to the respondents. Respondents fill in the questionnaires consisting of three parts. In the first part, respondents write down the information about the business they are running. The second part is about the personal data of the employees working in their companies. The third part is about the use of technology and its impact to the business enterprise the respondents have. In this part, the business owners give their opinions on how far the technology applications give impacts to the employees’ behavior, production result, marketing, competing ability with the competitors, and to the problems faced. The problems meant here are not related to financial problems.

Data Collection

Population and Sample Research

Sampling technique used in this study is non-probability purposive sampling. The purposive sampling is taking sample with roles (13). The population are entrepreneurs in leather goods which are categorized as SMEs. And as the samples, respondents participated in this study are alumni of Polytechnic ATK Yogyakarta who have business in leather products and footwear.
Operational Definitions
This study analyzes the relationship of three constructs which are exogeneous latent variables, namely the technology capability, product, and employee, and one endogeneous latent variable namely development and sustainability. Technology capability is measured by the following indicators: the use of internet on marketing, the use of machine on production, and abilities in the application of new technologies in terms of tools, methods, and materials. The products are measured by the following indicators: the use of machines to increase production capacity, employee skill, and product quality. While employee has three indicators as follows: the employees’ education, the employees’ skill, and training provided by the company to improve employees’ skills.

Data Collection Techniques
Data are collecting from questionnaires consists of 25 questions. From 35 questionnaires distributed to the respondents there are 30 questionnaires which are completely filled in so that the respond read value is 85.71%.

Data Processing

Questionnaire Scale and Validity Test
The questionnaire is scaled using a Likert scale which has five range of answers from 1 to 5 as seen on Table 1. The middle value 3 commonly representing neutral value (N) is eliminated to avoid people’s tendency to choose it.

<table>
<thead>
<tr>
<th>Choice Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>5</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
</tr>
</tbody>
</table>

The validity test is conducted by examining the convergent validity via loading factor, discriminant validity via cross loading, and significance.

Data Analysis
Data on the value scale were analyzed using descriptive statistical analysis to get description of variable distribution and PLS approach which is one technique of SEM. This multiple techniques were used in a study held on the development of footwear industries on household and small industries level (11). According to Ghozali (14) PLS is a powerful analytical method due to these following reasons. PLS does not need many assumptions. PLS is capable to test the hypothesis or theory, and it can be used to explain a relationship between the latent variables or construct. The other advantage of PLS is the size of sample used. It does not need large sample. It is appropriate to use the method in accordance with the number of alumni of the Politeknik ATK choosing to be entrepreneurs in the field of leather products and footwear. In this study, there are three latent variables namely: technology capability, product and employee. SEM PLS technique consists of outer model analysis and inner model analysis. Outer model analysis shows the relationship between indicators and latent constructs, while the inner model analysis demonstrates an association between latent constructs. The points identified from the model are the impact of technology capability, product, and employee on the development and sustainability of the business.

3. RESULTS AND DISCUSSION
Character and Profile of the Respondents
All of the respondents participated are alumni of Politeknik ATK. Most of them are male aged 30 years above. They have on the average five to ten years experiences working in the leather business. 90% respondents market their products in the country, while the 10% respondents...
market their products in both domestic and overseas. Online marketing has been implemented by 56.67% of entrepreneurs. All of the respondents use machine in their production. To operate the machines, they have to make sure that their employees have capability. So most of the firm provide training for the employees, which is categorized as follows: 33.33% of the firm provide technical training, 43.33% provide non technical training, and 23.33% provide both technical and non technical training. The smallest number of employees of the company is three people, while the largest number of employees of the company is 160 people.

**PLS Model Analysis**

There are four latent variables which are T (technology capability), P (product), E (employee), and DS (development and sustainability). The initial model shown in Fig. 1, each variables consists of three indicators. Latent variable T has T1 (internet use), T2 (machine use), and T3 (ability on technology application) as its indicators. Latent variable P is reflected by these indicators: P1 (the influence of employee skill on product), P2 (the influence of machine on the production capacity), and P3 (product quality control). Employee is measured by E1 (education), E2 (skill), and E3 (training). The company’s ability to survive is represented by the abilities on business development (DS1), compete with the competitors (DS2), and marketing (DS3).

![Fig. 3: Initial Model](image)

The direction of arrows from constructs toward indicators show that this study using reflective indicators to measure perceptions. While the hypothesis is represented by arrows between constructs. Arrows of latent construct to indicator defines that indicators are variant reflective from latent variable (15).

![Fig. 4: Final Model](image)
Outer Model Analysis
There are three parameters analyzed which are loading factor, cross loading, and significance value. Model on Fig. 3 represents results of convergent validity test of the variables used. Indicators T1, P1, P2, and E3 are not valid because they do not meet the minimum loading factor ($\alpha$)$\geq$0.6. The next step is examined discriminant validity via cross loading. Data is valid if cross loading value to its construct variable is greater than to other construct. Significance test is conducted by comparing t statistic value with value on t table. The result of validity test is listed in Table 2.

Table 2: Validity Test Result

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Convergent Validity</th>
<th>Discriminant Validity</th>
<th>Significance Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1</td>
<td>Valid</td>
<td>Valid</td>
<td>Significant</td>
</tr>
<tr>
<td>DS2</td>
<td>Valid</td>
<td>Valid</td>
<td>Significant</td>
</tr>
<tr>
<td>DS3</td>
<td>Valid</td>
<td>Valid</td>
<td>Significant</td>
</tr>
<tr>
<td>E1</td>
<td>Valid</td>
<td>Valid</td>
<td>Significant</td>
</tr>
<tr>
<td>E2</td>
<td>Valid</td>
<td>Valid</td>
<td>Significant</td>
</tr>
<tr>
<td>E3</td>
<td>Not Valid</td>
<td>Not Valid</td>
<td>Not Significant</td>
</tr>
<tr>
<td>P1</td>
<td>Not Valid</td>
<td>Not Valid</td>
<td>Not Significant</td>
</tr>
<tr>
<td>P2</td>
<td>Not Valid</td>
<td>Not Valid</td>
<td>Not Significant</td>
</tr>
<tr>
<td>P3</td>
<td>Valid</td>
<td>Valid</td>
<td>Significant</td>
</tr>
<tr>
<td>T1</td>
<td>Not Valid</td>
<td>Not Valid</td>
<td>Not Significant</td>
</tr>
<tr>
<td>T2</td>
<td>Not Valid</td>
<td>Valid</td>
<td>Significant</td>
</tr>
<tr>
<td>T3</td>
<td>Valid</td>
<td>Valid</td>
<td>Significant</td>
</tr>
</tbody>
</table>

The table presents that indicators E3, P1, P2, and T1 are not eligible for all the three parameters examined. Convergent validity value of T2 is not valid, but the indicator has a valid value of discriminant validity and significant value of significance test. With these considerations, the variable T2 is remained. While indicators of a construct that does not qualify the validity will be removed from the model. Thus measurement results with a reflective indicator will change as shown in Fig. 4. Diagram on Fig. 2 is the final model of PLS. In the diagram, all indicators of the constructs T, P, and E are qualified as their values meet the requirements of the test validity.

Inner Model Analysis
Once the models analyzed and met the criteria of outer model, the next step is inner model testing. This is done to examine the hypothesis and their significance. It can be seen on Fig. 3 that the $R^2$ value for DS is 0.418 or 41.8% that is in moderate range (16). The value means that the three variables construct (T, P, and E) affects DS by 41.8%. Fig. 3 illustrated the significance of the hypothesis. There are three values examined: from T to DS (3.377), from P to DS (1.779), and from E to DS (0.107). Those values are compared with certain value on t table which is 1.697. It is significant if the t statistic value is greater than t table value.

Fig. 5: The Bootstrapping
Based on Fig. 5, there are two relationships that are significant. The first is relationship between T and DS which has T statistic value 3.377. It reveals that hypothesis H1 in this study is accepted. The second relationship is between P and DS. Having T statistic value 1.779 (>1.697), it means that hypothesis H2 is accepted. Those indicate that technology capability and product (product quality control) influence the development and sustainability of SMEs. While the other hypothesis is not accepted because their value is less than t table value.

4. CONCLUSIONS

Results indicate that technology capability and product quality control influence SMEs in term of their sustainability and development. For future study, it is suggested to vary the business fields as the research objects and to add the variables in order to get more detailed observation result.

REFERENCES