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Article

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Verslas: Teorija ir praktika / Business: Theory and Practice

Provided in Cooperation with:

Vilnius Gediminas Technical University

Suggested Citation: Kaukab, M. Elfan; Adawiyah, Wiwiek Rabiatal; Setyanto, Refius Pradipta; Suroso, Agus (2020) : Accelerating small firms' production process improvement through international market knowledge and valuable, rare, inimitable, and organized resources and capabilities, Verslas: Teorija ir praktika / Business: Theory and Practice, ISSN 1822-4202, Vilnius Gediminas Technical University, Vilnius, Vol. 21, Iss. 1, pp. 322-328, <https://doi.org/10.3846/btp.2020.11652>

This Version is available at:

<https://hdl.handle.net/10419/248032>

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ACCELERATING SMALL FIRMS' PRODUCTION PROCESS IMPROVEMENT THROUGH INTERNATIONAL MARKET KNOWLEDGE AND VALUABLE, RARE, INIMITABLE, AND ORGANIZED RESOURCES AND CAPABILITIES

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Received 28 November 2019; accepted 24 January 2020

Abstract. This article aims to explore the factors influencing MSMEs – Micro, Small, and Medium Enterprises production process improvement using variables of VRIO (Value Rarity, Inimitability, and Organization) resources and capabilities, foreign market knowledge, and internationalization. This research is conducted in 150 exporting-MSMEs samples in Central Java, Indonesia. The main analysis applied in this research is multiple regressions. The result shows that VRIO resources and capability, foreign market knowledge, and internationalization, significantly influenced production process improvement. It emphasizes that degree of internationalization only weakly influencing process improvement. The more important factors are internal factors like knowledge, resources, and capability. The result obtained can be used as the basis to develop the strategy of capability improvement for MSMEs in designing internationalization strategy. The strategy will closely relate to MSMEs' process improvement to compete in international market. This research provides two contributions. First, the internationalization of handicraft MSMEs does not strongly define MSMEs production process improvement. Second, process improvement can be accelerated by gaining market knowledge and exploiting valuable, rare, inimitable, and organized resources and capabilities.

Keywords: handicraft MSME, process improvement, foreign market knowledge, VRIO resources, and capability, MSMEs internationalization.

JEL Classification: F23, L26, M31.

Introduction

MSMEs – Micro, Small, and Medium Enterprises selling products and services online take up around 75% of the economic impact provided by the internet (Manyika & Roxburgh, 2011). The presence of internet allows MSMEs to gain access to local and international markets. Internet penetration continues to grow in emerging markets, creating opportunity for the large potential market to be explored and exploited. MSMEs gain benefits over the movement in the form access for internationalization, through export, which requires the deployment of the right strategy.

Besides working as a feasible strategy to conquer the market, process improvement can act like a program that assists MSMEs in yielding executable internationalization roadmap (Zagloel, Dachyar, & Arfiyanto, 2009). Process improvement is defined as a “situation in which business

processes are adjusted or modified to intensify works by incremental and continuous change in a process where modification is slower but sustainable and periodical” (Hollatz, Lund, & Tanahara, 2013; McKibben & Pacatte, 2003). Improving business proves is the prerequisite of fixing a system that enables small businesses to produce the expected outcome. Research on process improvement has generally been focusing on information systems (Berente & Vandenbosch, 2004), knowledge management (Serrat, 2017) and service sector (Dahanayake & Thalheim, 2015). More studies are required to understand the implementation of process improvement in MSMEs management. A better process leads to efficiency which enables MSMEs to offer their products at a more competitive price, hence increasing their competitiveness in the market. Moreover, a better process provides wider exploration space to increase the variety of products offered to consumers.

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Previous research examining the determinants of process improvement revealed that factors such as expertise, consultation, allocation of resources, and skilled human resources are critical (Khan et al., 2019). These factors are relevant to the Resources Based View which prioritizes the importance of resources and capabilities as capital for a strategic move. Other studies identify complex consumer demand as a determinant of process improvement (Chen et al., 2016). Boutros and Cardella (2016) argued that the determinants of process improvement may vary depending on the company. The determinants can be classified into organizational factors, management factors, employee factors, consumer factors, suppliers and partners, product and service factors, process factors, and technological factors. Both external and internal factors play a role in encouraging process improvement (Fröhner & Zabel, 2007; Plotnikova, Romero, & Marti, 2016).

Internationalization is one of the internal factors that influence process improvements. Internationalization is state boundaries crossing in a business's growth process (Child & Rodrigues, 2005). The majority of studies on the relationship between internationalization and process improvement are conducted in large scale manufacturing (see for examples Chang et al. (2019) and Prim, Amal, & Carvalho, 2016). Meanwhile, internationalization is also a crucial issue for MSMEs' future development. For MSMEs that carry out internationalization, process improvement can drive profits in two markets at once. In the local market, internationalization improves processes efficiency while in the international market, process improvement helps to gain price advantage while serving overseas consumers. This research proposes process improvement variable as a consequence of MSMEs' internationalization. Process improvement is one of programmed intervention forms to attain the aim of improvement which could be supplemented by demand in international market. Pett and Wolff (2009) research was carried out in which export influences process improvement. Other research also shows that internationalization is a factor that triggers innovation, as a form of process improvement (Chang et al., 2019; Genc, Dayan, & Faruk, 2019). Therefore, research should put process improvement as a consequence of internationalization.

Theoretically, the internationalization factor is a factor connected to organizational learning theory (Genc et al., 2019). MSMEs learn about various international consumer needs and immediately use their resources and capabilities to meet the needs. Then, MSMEs use the information for process improvement. In addition the resource-based view theory states that these resources and capabilities must have VRIO characteristics: valuable, rare, inimitable, and organized (Barney & Wright, 1998). However, to date there is no research that tries to apply both theories at the same time to predict process improvement.

The attempt to fill in the empirical gap in process improvement literature is urgent for developing countries like Indonesia. There is a drastic increase in the number of MSMEs from 1.56% in 2014 to 3.1% of the total

population by the end of 2016. The government predicted that the figure reaches 5% by the end of 2019 (Liputan6, 2018). Furthermore, around 70% of the MSMEs produced their own goods and 7.2 million MSMEs trade in social media. (Setyowati, 2018). Overall, MSMEs in Indonesia have employed more than 107.6 million people, which equals to 83% of the workforce and contributes 60% to Indonesia PDB, dominating around 99% of business activities in Indonesia (Nurfadilah, 2018).

A large number of MSMEs in Indonesia along with their high productivity demands for high market development. The comprehension of the factors influencing MSMEs' process improvement should aid the government and stakeholders in setting policies and training programs to support MSMEs' internationalization in Indonesia. Awareness towards process improvement determinants implies the importance of developing those determinants for MSMEs practitioners. Thus, this research is theoretically and practically beneficial for internationalization scholars and MSMEs practitioners together with the government managing it, especially in Indonesia.

Considering the theoretical as well as practical urgency related to factors influencing MSMEs' production process development, this research aims to test the effect of foreign market knowledge, resource and capabilities, and MSMEs internationalization to process improvement in Indonesian MSME.

1. Theoretical framework

Resources and capability are two important elements in resources-based theory (Barney, 1991, 2001). This theory holds that the source of a company's competitive advantage lies in the resource characteristics and capability possessed (Barney, 1991; Wernerfelt, 1984). There are four important characteristics guaranteeing sustainable competitive advantage of a company, abbreviated as VRIO. This means that in order to achieve a sustainable competitive advantage, an organization's signature capability and resources should be valuable, rare, inimitable, and organizationally attached, or in other words, it can be exploited inside the organization.

Capability is first seen as a form of resource. However, advances in dynamic capability theory emphasize that capability is a different form of resource. Capability is regarded as a means to manage other resources in a company (Teece, Pisano, & Shuen, 1997). Capability is organizational processes of developing, combining, and altering resources into marketable values (Amit & Schoemaker, 1993; Day, 1994; Morgan, Kaleka, & Katsikeas, 2004). Resources and capabilities then dictate company performance (Teece et al., 1997).

Some research on MSMEs' innovation has investigated the impact of resources and capabilities to process innovation (Pham & Matsunaga, 2019; Prange & Pinho, 2017). The findings indicate that resources and capabilities fulfilling the VRIO characteristics are important to the company (Callaway, 2004; Zahra & George, 2002). Resources and

capabilities, together with an observation from environment necessary to transform the resources into products using production process (Mickevičienė & Žitkus, 2011). Therefore, the following hypothesis is proposed:

Hypothesis 1: VRIO resources and capabilities will give a positive impact on process improvement.

Foreign market knowledge is important in determining strategic moves. Market knowledge is known as a source of capability development and real innovation measures, as well as work accomplishment of marketed products (Ozkaya, 2011). It also supports the overall organization performance. This means that market knowledge is a necessity in dictating the right move of process improvement. The knowledge could deliver directly from experience or from partner (Dias & Lopes, 2014).

Because market knowledge is highly important, MSMEs should learn more about the market to bring products with the highest efficiency possible. Therefore, they will be able to make strategic moves in winning the business competition in the intended country. This is in line with organizational learning theory (Genc et al., 2019) which states that firms learning from their environment, including market, to better performed in serving that environment. As a consequence, we hypothesize that:

Hypothesis 2: Foreign market knowledge will give a positive effect on MSMEs' process improvement.

The relationship between internationalization and process improvement is ambiguous. Pett and Wolff (2009) found that export influences process improvement. Meanwhile, another research found that it is process innovation, a more radical form of process improvement, which determines export performance (Alegre, et al., 2012; Camisón & Villar-lópez, 2011; Prange & Pinho, 2017). However, it is more logical to put internationalization as a determinant of process improvement, since process improvement directed to more general objectives such as firm performance and competitive advantage. Prim, Amal, and

Carvalho (2016) also didn't find that innovation leads to export performance. Meanwhile, Urban and Shree (2012) states that internationalization generates innovation and creativity, two forms of improvement either for product or production process. Other research also shows that internationalization triggers innovation (Chang et al., 2019; Genc et al., 2019). The exposition promotes the following hypothesis:

Hypothesis 3: Degree of MSMEs internationalization will give a positive effect on MSMEs' process improvement.

The above-mentioned concepts are the foundation of the research model becoming MSMEs process improvement determinant, in which the three variables affect MSMEs process improvement (Figure 1). The process improvement factor, stepping from quality management theory, becomes the dependent variable. The resources-based theory covers resources and capability fulfilling VRIO criteria to determine process improvement. A market knowledge factor, viewed from foreign institution knowledge, foreign business knowledge, and internationalization knowledge becomes individual cognitive basis in internationalization. At the same time, internationalization also becomes the determinant of process improvement.

2. Methods

This research is conducted in 2019 and involves 150 MSMEs in Central Java, Indonesia. All the selected MSMEs are those which have exported their products for at least two years, in order to enable comparing the first year and this year's performance. Demographic data collected include age (under 35 years old; between 35–55; more than 55 years old); the number of foreign partner (1–10; 11–20; 21–30; 31–40; more than 40); education (elementary school, junior high school, high/vocational school, diploma, undergraduate, postgraduate); educational field

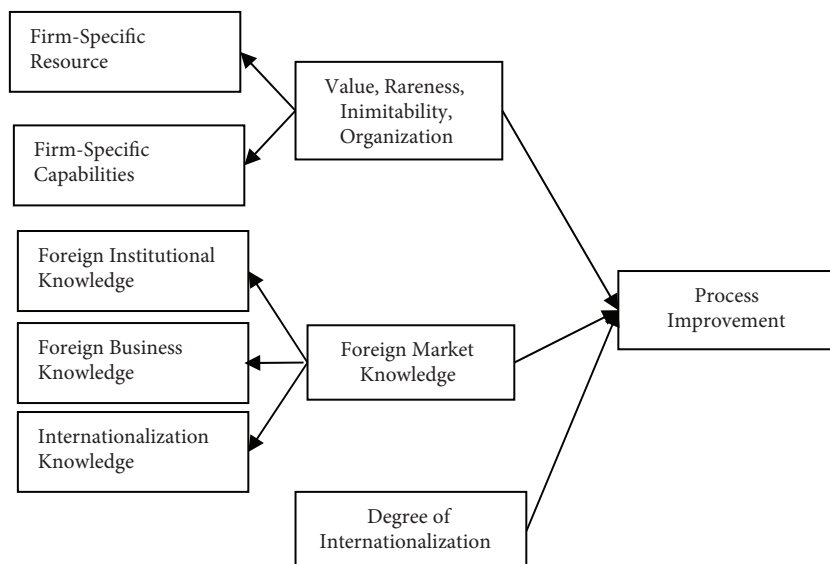


Figure 1. Research model

(economics, others); and experience in international business (1–3 years, 4–7 years, 8–10 years, more than 10 years).

In accordance with Štefan and Richard (2014), we measure VRIO resources and capability through 19 items (in a five-item scale) focusing on how a number of organizational resources and capabilities meet VRIO characteristics. Ten items measure VRIO resources while nine items measure VRIO capabilities.

We employ the scale of foreign market knowledge to operate market knowledge construct. There are eleven items adapted from previous research (Autio, Sapienza, & Almeida, 2000; Eriksson, et al., 2015; Hadley & Wilson, 2003; Zhou, Barnes, & Lu, 2010) to measure MSMEs market knowledge in three dimensions: foreign institutional knowledge, foreign business knowledge, and internationalization knowledge. Each item is scored on a five-item scale in which 1 = “very bad” and 5 = “very good”.

The internationalization instruments contain a single item identified by Asugman, Johnson, and Mccullough (1997) as indicators to assess internationalization: foreign market sales ratio to total sales. We use this single-item as internationalization measure to fit with MSME setting. The answer in percentage from 1–20%, 21–40%, 41–60%, 61–80%, and 81–100%.

Employing a five-item Likert scale, we measure process improvement through rating in MSMEs practitioners on five statements about how extensive process improvement affects various organizational aspects (Bader, 2016). One item describes the effect of process improvement towards business objective achievement; one item outlines the effect of productivity; the other reflects the effect on quality, business speed, and cost reduction.

A number of MSMEs’ partners and experience in internationalization are used as control variables. The surveyed data are analyzed by employing ANOVA and double regression model. ANOVA is conducted to identify the difference between groups based on MSMEs’ products and locations. Regression analysis is used to reveal the connection among the research variables.

3. Result

Authors performed an exploratory factor analysis, for all variables under study, by utilizing the principal components

method to find out the common method variance bias. The analysis indicated that the first factor only explains 13.84% of the variance of the data so that it is far below the 50% threshold, which indicates a common method bias. Therefore, it could be concluded that there was no common method bias in the data. Furthermore, each variable went through an exploratory factor analysis process further to determine the data structure with the Varimax rotation method. Exploration of the VRIO variable produced three items that did not have a loading factor value greater than 0.5. These three items were excluded from further analysis. The internal consistency of the variable was calculated using $\alpha = 0.848$, therefore, those items with scored below it were considered unreliable and expelled from the scale. The market knowledge variables load into two factors with all items loading factors above 0.5 explaining 62.6% of the variance. Because authors did not have a priori expectations that each dimension will have a different impact on internationalization, all items are combined into one average value. The items were then analyzed for their reliability. All items were categorized as reliable with an internal consistency scale of 0.897. Meanwhile, the internationalization variable did not go through a factor analysis process because it is a single item. For the process improvement variable, the variance was explained to reach 66.1% with one factor. $\alpha = 0.869$ in the whole items.

Table 1 presents the mean and standard deviation of the measurement of a number of foreign partners, foreign market knowledge, VRIO, percentage of sales from the international market, length of time in international business, and process improvement.

Table 1. Mean and standard deviation

	m	SD
Number of Foreign Partner	1.07	0.25
Value, Rareness, Inimitability, Organization	3.98	0.17
Foreign Market Knowledge	3.34	0.45
Percentage of sales from international market	1.87	0.46
Length of time in international business	2.44	1.01
Process Improvement	3.99	0.21

The correlation among the measurements is displayed in Table 2. This analysis reveals a significant association

Table 2. Correlation among research variables

	Variables	1	2	3	4	5	6
1	Number of Foreign Partner	–	0.07	–0.10	0.02	0.04	0.02
2	Value, Rareness, Inimitability, Organization	0.07	–	0.23**	0.13	–0.06	0.43**
3	Foreign Market Knowledge	–0.10	0.23**	–	–0.14	0.22**	0.28**
4	Percentage of sales from international market	0.02	0.13	–0.14	–	0.13	0.13
5	Length of time in international business	0.04	–0.06	0.22**	0.13	–	–0.04
6	Process Improvement	0.02	0.43**	0.28**	0.13	–0.04	–

* $p < .05$, ** $p < .01$.

among process improvement with the foreign market knowledge and VRIO. The correlation between length of time in international business with foreign market knowledge can also be examined. Meanwhile, knowledge of foreign markets positively correlates with VRIO. None of the correlation passed the 0,50 threshold, hence provided no evidence for multicollinearity.

Sample difference based on product type and location

We use one-way ANOVA for the study variables with product type and location. There are nine MSMEs types of products in this research namely traditional hat (0.7%), masks (0.7%), laminated wood (12.7%), bamboo craft (2.7%), woodcraft (54.0%), batik craft (19.3%), eyelash craft (4.7%), ceramic craft (4.7%), and rattan craft (0.7%). As many as 76% MSMEs are located in rural areas while 24% are in urban areas.

The result of analysis fails to show a significant difference in process improvement, foreign market knowledge, and VRIO based on product type factor. Meanwhile, there is significant effect of product difference in the number of foreign partners $F(8,141) = 341, p < .001$ and sales from international market $F(8,141) = 3.54, p < .001$. Ceramic craft and eyelash craft MSMEs have a higher number of foreign partners compare to other MSMEs. Masks and rattan craft MSMEs possess a higher international degree compare to other MSMEs. On the other hand, ANOVA using MSMEs in different locations does not yield significant effect on all the tested variables.

Multiple regression analysis

Next, we will discuss the regression analysis, as can be seen in Table 3, to predict process improvement. The analysis employs 150 samples MSMEs. We control the number of MSMEs partners and experience in internationalization.

Table 3. Multiple regression analysis results

Predictors	β
Number of Foreign Partner	0.02
Value, Rareness, Inimitability, Organization	0.34***
Foreign Market Knowledge	0.24**
Percentage of sales from international market	0.13†
Length of time in international business	-0.09
R ²	0.24***

N = 150. Significant level is indicated in *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.10$.

The above regression analysis shows that the number of foreign partners and international business experience does not affect the MSMEs process improvement level. However, VRIO does influence MSMEs process improvement level and therefore accepts Hypothesis 1. Likewise, foreign market knowledge and percentage of sales from the international market affect MSMEs process improvement level and therefore accept Hypothesis 2 and Hypothesis 3.

4. Discussion

This cross-sectional research extends the previous research by involving internationalization as a determinant of process improvement. Market knowledge and MSMEs internationalization variable, together with resources and capabilities, influence process improvement. The research consistent with the previous research's finding that the VRIO approach can create a typical function and promote process improvement (Pham & Matsunaga, 2019; Prange & Pinho, 2017). Thus, VRIO is employed from RBV framework clarify process improvement of MSME.

The MSME's tendency to obtain foreign market knowledge in order to improve the process in their business is confirmed in this research. The previous studies also confirm that foreign market knowledge significantly influences process improvement (Ozkaya, 2011) "mendeley"; {"formatt edCitation": "(Ozkaya, 2011). Therefore, it is important that MSMEs get useful information on foreign markets so that they can improve processes to deliver products efficiently.

However, the percentage of sales from international market just weakly significant in influencing process improvement. A possible explanation for this finding was that the MSMEs in this study still did not have a wide reach in the international market. MSMEs were still focused on serving the local market. The mean value of the percentage of sales from international markets was 1.87, which means the percentage of sales coming from foreign markets only ranges from 1–20% of total sales.

MSMEs that do not engage in process improvement will fall behind those that significantly involve in process improvement since this is the strongest-associated variable to MSMEs internationalization in this research. Process improvement is an organization-specific resource preferred in achieving competitive advantage (Lee, Leem, & Bae, 2018). Process improvement enables better-qualified product which is liked by the international market (Bhatti & Ahsan, 2016).

5. Limitation

There are two limitations specifically faced by this research. One, our ability in examining causal relationships among internationalization, process improvement, foreign market knowledge, and VRIO is restricted by the characteristic of the data which is cross-sectional in nature. The interactional relationship or in a reversed direction might take place in the research but cannot be examined since the study is conducted only at one time. Two, VRIO variable could not fit MSME since the measure traditionally applied to larger businesses. It is crucial that the next research elucidates the measurement and empirically investigates the real difference between the original VRIO measure and adapted measure for MSME context.

This research is conducted in Central Java, Indonesia, where the exporting MSMEs are dominated by those producing crafts of wood, ceramic, rattan, or batik. Consequently, the yield of the products limited because manual

procedures prevent mass production. In handicraft industry, internationalization activities depend on collective efforts of several people (Tiwari & Korneliusen, 2018). In this industry, the role of the government in encouraging export is also very strong (Ferrucci, Gigliotti, & Runfola, 2018). More than that, the connection to tourism sector is also high because product introduction to foreign market is developed via foreign tourists visit (Bakas, Duxbury, & Castro, 2018; Pret & Cogan, 2018; Teixeira & Ferreira, 2018). Consequently, there might be a chance that the findings of this research are limited solely in the context of MSMEs producing handicrafts. Research in manufacturing MSMEs shows that process improvement is also an important factor in MSMEs' survival and related to their ability to do internationalization (Onkelinx, Manolova, & Edelman, 2016; Saad, Kumar, & Bradford, 2017).

Conclusions

The finding showing that VRIO, foreign market knowledge, and percentage of international market sales significantly influence MSMEs process improvement proves that RBV theoretical framework is still highly relevant in MSME context in developing countries. Ceramic crafts and eyelashes firms possess higher numbers of international partners than other types of crafts. Whereas the products most sought after by foreign consumers are traditional mask crafts and rattan crafts. The next research particularly should explore the mechanism of process improvement in MSME and what are the effects on international and its spillover in the local market. Research exploring these mechanisms is essential to reveal how MSMEs, especially those in handicraft industry, gain efficiencies and performance from process improvement.

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