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The Essence of Entrepreneurial Orientation Dimensions in SMEs Sector: Utilizing the Analytical Hierarchy Process

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Abstract

Three dimensions of entrepreneurial orientation in the context of small medium enterprises (SMEs) become an important issue for managers because of limited resources and capabilities to handle the rapid changing of customer preferences. Additionally, prior studies are still lacking to explore these dimensions using operation management tools. Therefore, the present study attemptsto determine the topmost priority of entrepreneurial orientation dimensions namely, innovative, proactive, and risk-taking. The authors collected data from managers or owners-managers of SMEs operating in Padang-Indonesia and Analytical Hieratical Process (AHP) was used to determine the priority scale of criteria and sub-criteria of entrepreneurial orientation aspects. Empirical findings reveal that innovation is as the topmost criteria, which is more important rather than proactive and risk-taking in doing the business operation.Also,"research and development of the new products"is as the topmost sub-criteria from the element of innovations. These findings also suggest that innovation is one the most important to be entrepreneurial firms. In line with these findings, the managers or owners-managers have become innovation as the first option to execute a business operation strategy, especially in the contexts of SMEs in a developing economy country like Indonesia.

Keywords: entrepreneurial orientation, analytic hierarchy process, innovation, proactive, risk-taking

Introduction

Small and medium-sized enterprises (SMEs) have contributed to Indonesia's economic success. Following the Central Agency for Statistic (BPS) report in 2015, SMEs has propped significantly into national industrial (99.9%), gross domestic product (55.56%), and nationwide employment (97.22%). Although SMEs give the large contribution, it has not shown well performance in the regional market rivalry. In aggregate, the Indonesian SMEs is still lower performance than other developing economy countries such as Thailand, Vietnam, and Malaysia (ASEAN Investment Report, 2016). This phenomenon may be related to entrepreneurial orientation index of Indonesia, where below other countries in Southeastern Asia (Acs, 2017). Theoretically, entrepreneurial orientation is one of the prominent factors to heighten performance (e.g., Covin & Miller, 2014; Gupta & Dutta, 2018; Wardi et al., 2018). By this reasoning, managers should learn how to become real of the entrepreneurial firm in the condition of limited available resources and capabilities.

Entrepreneurial orientation encompasses three reflective dimensions, namely innovative, proactive, and risk-taking as introduced by Covin and Slevin (1989) and Miller (1983). According to Miller (2011), these aspects have the difference of priory scale in each business

sectors, for example, firms in high-tech setting need to be more innovative than proactive or risk-taking only. Based on this argument, how to know what topmost priority in an industry, the assessment of entrepreneurial orientation dimensions is essential to be explored in the present study, thus adding new insight in entrepreneurial orientation literature. To the best our knowledge, prior studies focused to test direct effect of these dimensions to firm performance than determining of what the priority scale based on managers' view (e.g., Raugh et al., 2009; Gupta & Duta, 2018). This shows that less explored entrepreneurial orientation dimensions in prior studies, thus it has offered an important research gap for future research. Therefore, the present study focuses to explore these dimensions using operation management tool i.e., Analytical Hierarchy Process (AHP) as multi-criterion for decision-making. By using this approach, this study shows how firm in an industry to allocate their resources and capability effectively.

This study is to analyze what the priority scale of entrepreneurial orientation dimensions will be selected by managers in business decision-making in context manufacturing SMEs. This study contributes to entrepreneurial orientation and AHP literature. There are several reasons why Padang-Indonesia was selected for this study. First, Padang-Indonesia is one of central of manufacturing SMEs in Indonesia (Bank Indonesia, 2012). Second, 80% household income from SMEs, thus it has become the key driver of the economy this region (Bank Indonesia, 2012). Final, most SMEs in this area produced a local leading product, thus this is interesting to be more explored to understand how the local managers in determinants of entrepreneurial orientation dimensions. This paper consists of presenting the issue and the theoretical part of the introduction section. Section 2 present methods is used in this study. Section 3 focuses to discuss research finding. Section 4 conclusion and suggestion for future research.This article formulates research questions as follows: "what are the criteria and sub-criteria that are the most important for entrepreneurial firms according to the managers of SMEs in Padang-city?."

In general, definition of SME emphasizes the company run and owned independently by certain criteria. In particular, the SME criteria according to Law No. 20 of 2008, measured by the net worth of the company or sales per year. SMEs have a net worth of more than USD 50 million - USD 500 million (excluding land and buildings) or have sales revenue of more than USD 300 million to USD 2.5 billion per year. In practice, this definition has been adopted by Bank Indonesia and other institutions. However, these criteria can be changed with the development of a country's economy and government regulations. The importance of this study, SMEs is defined as companies that are run and owned independently, has a net worth of more than USD 50 million to USD 500 million (excluding buildings and land) or annual sales of more than sales of 300 million to 2.5 billion per year.

Entrepreneurial Orientation

Developments in the field of strategic management focus on entrepreneurial firm, which is a process, method, practice of decision-making based on entrepreneurial activities (Lumpkin & Dess, 1996). As noted by Stevenson and Jarillo (1990), entrepreneurial orientation leads to the organizational style that acts entrepreneurially. Also, the success of corporate entrepreneurship based on the level of the entrepreneurial-oriented firm (Dess and Lumpkin, 2005) and it reflects the firm behavior (e.g., Covin and Slevin, 1989, 1991; Miller, 1983). In practice, Miller (1983)

introduced some specific dimensions of the entrepreneurial firm consists of innovativeness, pro-activeness, and risk-taking behavior.First, innovativeness is a willingness to introduce a new style (newness) and something new (novelty) through a process of experimentation and creativity devoted to the development of new products and services and new processes (Dess and Lumpkin, 2005). Second, pro-activenessis forward-looking perspective characteristics who have the foresight to look for opportunities in anticipation of future demand (Dess and Lumpkin, 2005). Lastly, the courage to risk a company's willingness to decide and act without exact knowledge of the possibility of income and possible speculation in the risk of personal, financial and business services (Dess and Lumpkin, 2005).Lumpkin and Dess, (1996, 2005) adds two other dimensions of autonomy wide in decision-making and have the aggressiveness of the company in the pursuit of its distinguished position in the business competition. However, most research in the context of SMEs are predominantly using three dimensions of the entrepreneurial orientation (innovativeness, pro-activenessand risk-taking) to measure a firm behavior (e.g.,Covin & Slevin, 1989; Ginsberg, 1985; Kreiser et al., 2002; Wiklund& Shepherd, 2003).

In this study, the authors adopted the concept and measurement of entrepreneurial orientation (i.e., raised by Miller, 1983; Covin and Slevin, 1989; Kreiser et al., 2002, Naman & Slevin, 1993), since it is most relevant for this study, which is conducted in SMEssetting. More specifically, entrepreneurial orientation can be said that the entrepreneurial-oriented firm if their willingness to make the innovation process, is able to be more proactive in seeking new opportunity and have the courage to take business risks in the long term.

Analytical Hierarchy Process

Analytical Hierarchy Process (AHP) is a structured technique for organizing and analyzing complex decisions based on mathematical and psychological approach popularized by Thomas L. Saaty in 1970 (see Saaty, 2008). Simply put, the AHP is often interpreted as a weighting (prioritization) on a series of issues faced, both criteria and alternatives. AHP can be used to solve complex problems. By creating a systematic decision structure and a series of accounting procedures, it can be produced on a priority or weight of each alternative proposed decision (Noer, 2010: 9). AHP is designed to solve the problems of multi-criteria decision is complex. AHP is needed by decision-makers to make judgments about the criteria and then determine the preference for each alternative decision by using each of the criteria. The results of the AHP are the priority ranking of alternative decisions based on the overall preferences of decision makers (Nugroho, 2012: 261). According to Noer (2010), the AHP method has several advantages including being able to combine objective and subjective elements of a problem. In addition, the AHP method also has a hierarchical structure because of the selected criteria up to the deepest sub-criteria, taking into account the validity to the tolerance limit of the concentration of various criteria and alternatives chosen by decision makers. Finally, considering the durability or durability of output sensitivity analysis of decision making. For a more detailed, how to apply AHP method in this study, it can be seen in Figure 1.

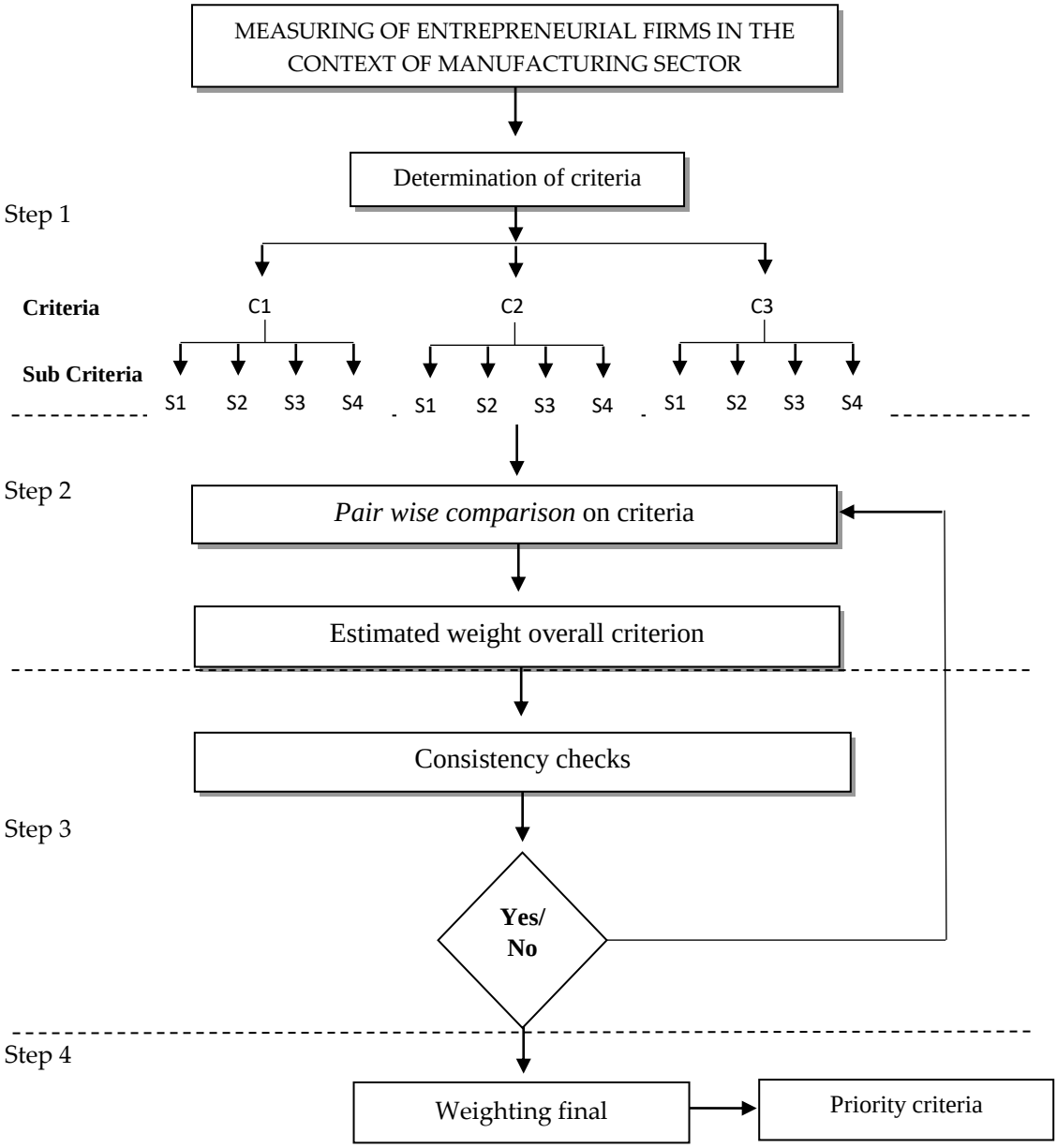

Figure 1 Conceptual framework

Methods

This study is categorized as survey research using questionnaires. For data collection,this study uses the closed-ended question to identify the criteria and sub-criteria of entrepreneurial orientation on SMEs in Padang City-Indonesia. As suggested by Cooper and Schindler (2014), all the manufacturing firms in this city that fulfill research criteria, which is mentioned as a population. For representation of a research population, this study uses a purposive sampling method. The criteria of the sample followed Bank Indonesia report (i.e., leading sectors of products/services in West-Sumatera province), especiallyfor the industry sector. For analysis purpose, we analyzed data from 115 manufacturing SMEs after data screening (Wesarat, et al

2018). The sample size in this study has fulfilled the adequacy of the sample statistically as suggested by Hair et al. (2014).

Result and discussion

Phase 1 for weight of criteria

Phase 1 for the weight of all the business groups in Padang-city includes food and similar businesses as well as furniture and handicraft businesses. In determining the weight of criteria at stage 1 based on the scores of the three dimensions of entrepreneurial orientation is innovativeness, pro-activeness and risk-taking. Based on the analysis using AHP obtained scores for each dimension of the entrepreneurial firm as shown in Table 1 below.

Table 1 Weight of criteria based on entrepreneurial orientation dimensions

Criteria	Innovation	proactive	Risk	geometric mean	Weight	appraisal	Score
Innovation	1	1.79	2.46	1.64	0.51	λ max	3.02
proactive	0.56	1	1.07	0.84	0.26	CI	0.01
Risk	0.42	0.94	1	0.73	0.23	CR	0.02
total	**1.98**	**3.73**	**4.54**	**3.22**	**1**		

Based on Table 5 above need to be seen the value of the consistency of the answers. To determine the consistency of the answers given respondent required a consistency test by using the following calculation:

$CI = \frac{\lambda\, maks - n}{n-1}$

λ max = (1980 × 0509) + (3727 × 0262) + (4539 × 0228) = 3,022

n =3

CI = (3.022-3) / (3-1) = 0.0110

Information:

CI= consistency index

λ max= maximum Eigenvalue

n= Order matrix

$CR = \frac{CI}{RI}$

Random Index

Order Matrix	1	2	3	4	5	6	7	8	9	10
RI	0:00	0:00	0:58	0.90	1:12	1:24	1:32	1:41	1:45	1:49

RI = 0:58

CR = 0.0110 / 0.58 = 0.0189

Based on the analysis of the data in Table 1 in mind that the answers given by SMEs in Padang are consistent. With a consistency index value, CI = 0.0110 and the ratio of the index, IR

= 0.58 then obtained values consistency ratio CR = 0.0189 which is the value of CR <0.1. This indicates that the inconsistencies the answers given by the respondents are 1.89 percentof the limit of tolerance are 0.1 or 10 percent.

Table 2 Weights for each criterion entrepreneurial orientation

Criteria	Weight
innovativeness	**0.51**
Pro-activeness	**0.26**
Risk Taking	**0.23**

Based on Table 2 can be explained that the criteria innovativeness has the highest weight value. This indicates that the SME business operators in Padang City innovativeness priority in running the business. Innovativeness has been being a priority by the entrepreneurial firm in this research sample.Next, the weights obtained shows the level of interest innovativeness of 0.51 in entrepreneurial orientation, followed by proactiveness with 0.26 weight value. Lastly, risk-taking with the smallest weight is at 0.23. It can be concluded that the weight of the criteria at the sector level in a sequence that is innovativeness, proactiveness and risk-taking.

Phase 2 for local weight

The next stage is to calculate the local weight of each sub-criterion. Weighting for each sub-criterion includes innovativeness, pro-activeness and risk-taking. Sub-criteria of innovativeness consisted of (1) the discovery and development of new products (PP), the rapid change of product line (PL), a technological advantage (KT), and multiple product lines (BL).

Based on data analysis using AHP to the sub-criteria of each dimension includes innovativeness, pro-activeness and courage to take risks is presented in Table 3and Table 8. The results are presented sequentially processing each dimension starting from innovativeness, pro-activeness and courage to take risks.

Based on Table 3 in mind that the answers given by the respondents in the sub-criteria innovativeness show consistency with the value of the consistency index (CI) of -0,01dan index ratio (IR) of 0.90 are obtained values consistency ratio (CR) of 0.01. Thus, it can be said that the value of CR <0.1. This indicates that the inconsistencies the answers given by the respondents is the tolerable limit of 0.01 of the AHP are 0.1 or 10 percent.

Table 3 Sub-criteria of innovativeness on entrepreneurial orientation

Sub-criteria ofinnovation	PP	KT	BL	PL	geometric mean	Weight	Local weights	appraisal	Score
PP	1	3.26	1.28	2.50	1.80	0.40	0.21	λ max	3.97
KT	0.31	1	0.40	0.64	0.53	0.12	0.06	CI	-0.01
BL	0.79	2.41	1	1.86	1.37	0.31	0.16	CR	-0.01
PL	0.40	1.49	0.52	1	0.74	0.17	0.09		
total	**2,49**	**8.16**	**3.20**	**6.00**	**4.44**	**1**	**0.51**		

Based on Table 4 earned innovativeness sub-criteria greatest weight is the discovery and development of products with a score of 0.21. The weights obtained through the normalization of weight sub-criteria against global weight on innovativeness criteria. Followed by a great

many product lines with weights 0.16 into the second priority for the SMEs in doing innovativeness. Changes in the product line are rapidly becoming the third priority in the innovationwith a huge weight of 0.09 for the SMEs. Finally, the technological advantages into last priority in doing innovativeness on SMEs in Padang-city with a large weight are 0.06.

Table 4 Summary for each sub-criterion of innovativeness

Sub-criteria of innovativeness	**Weight**
Research and development of products (PP)	0.21
Technological superiority (KT)	0.06
Many product lines (BL)	0.16
Rapid changes in product lines (PL)	0.09

Furthermore, the weighting for the sub-criteria of innovativeness. Sub criteria of innovativeness consisted of (1) fast to respond to competitors (CT), (2) introducing the product, technology and new ways (MP), and (3) very competitive against competitors (SK). The complete results of the processing sub-criteria can be seen in Table 5 below.

Table 5 Sub-criteria pro-activeness on entrepreneurial orientation

Sub-criteria of proactiveness	**CT**	**MP**	**SK**	**geometric mean**	**Weight**	**Local weights**	**appraisal**	**Score**
CT	1	0.84	2.17	1.22	0.38	0.10	λ max	3.03
MP	1.23	1	1.86	1.32	0.42	0.11	CI	0.02
SK	0.50	0.51	1	0.64	0.20	0.05	CR	0.03
total	**2,73**	**2.35**	**5.04**	**3.17**	**1**	**0.26**		

Based on in Table 5 is known that the answers given by the respondents in the sub-criteria of pro-activenessare consistent. With a consistency index value, CI = 0.02 and the ratio of the index, IR = 0.58 The then obtained values consistency ratio CR = 0.03 which value CR <0.1. This indicates that the inconsistencies the answers given by the respondents are 2.94 percent of the limit allowed by Saatyare 0.1 or 10 percent.

Table 6 Summary for each sub-criterion of pro-activeness

Sub Criteria Pro-activeness	**Weight**
Responsive to competitors (CT)	0.10
Introducing the products, technology, new ways (MP)	0.11
Very competitive against competitors (SK)	0.05

Calculations give priority to sub-criteria of pro-activeness shows the results of sub-criteria introduced products, technology, new ways (MP) is a major priority for SMEs Padang in pro-activeness behave. Furthermore, sub-criteria responsive to competitors (CT) are second in pro-activeness with 0.11 weight value. Lastly, the lowest weight is very competitive against the competition (SK) with a 0.05 weight value.

Furthermore, the weighting for the sub-criteria of courage to take risks. Sub-criteria courage to take risks consist of (1) Like high risk (SR), (2) the courage to act in many ways (BB), and (3) dare to seek potential business opportunities (BM). The complete results of the processing sub-criteria can be seen in Table 7 below.

Table 7 Weight for each sub-criterion of courage to take risks

Sub-criteriaof Risk-taking	SR	BB	BM	geometric mean	Weight	Local weights	appraisal	Score
SR	1	0.29	0.46	0.51	0.15	0.03	λ max	2.99
BB	3.38	1	2,22	1.96	0.57	0.13	CI	-0.01
BM	2.10	0.45	1	0.98	0.28	0.06	CR	-0.01
total	**6.48**	**1.74**	**3.67**	**3.45**	**1**	**0.23**		

Based on Table 7 note that the answers given by the respondents in the sub-criteria risk taking are consistent. With a consistency index value, CI = -0.01 and the ratio of the index, IR = 0.58 then obtained values consistency ratio CR = -0.01 which value CR <0.1. This indicates that the inconsistencies the answers given by the respondents are 0.3 percent of the limit allowed by Saaty is 0.1 or 10 percent.

Table 8 in mind that the most important risk-taking is a brave act in many ways (BB) which has a large weight in the conditions of uncertainty 0.13 dare to act in many ways become a top priority for SMEs in Padang. Further, bold look for potential business opportunities (BM) with a 12:06 weight and likes high risk (SR). Thus, it can be said that the sub-criteria courage to take risks that most priorities by SMEs Padang are a brave act in many ways.

Table 8 Summary for each sub-criterion of risk taking

Sub-criteria of risk-taking	Weight
Like high risk (SR)	0.03
The courage to act in many ways (BB)	0.13
Dare to look for potential business opportunities (BM)	0.06

Based on the results showed that small and medium businesses (SMBs) in the city of Padang in aspects of entrepreneurial orientation includes innovativeness, pro-activeness, and the courage to take the risk of having the priority level of entrepreneurial orientation. Based on the criteria found that SMEs make innovativeness as a priority in the operations compared with pro-activeness nor the courage to take risks. The results are consistent with Terziovski(2010) that innovation is the main driving factor (key drivers) to maintain business continuity. Other than that, a relatively high awareness of managers about the importance of innovation as the basis to gain a competitive position among current company manager (Staniewskiet al, 2016), In other words, make innovation as priorities in running effort by the SMEs is the right choice in the face of an increasingly competitive market dynamics.

Furthermore, based on the results of the study also showed that sub innovativeness is the most important criteria by the managers of SMEs in Padang especially the discovery and

development of products. This means that SMEs in Padang have realized that the efforts undertaken will not survive if it does not give priority to the discovery and development of products.This finding is consistent with the sub-criteria that are innovativeness by SMEs is the number of product lines. When linked the results show a high level of consistency, in which the discovery and development of products and the number of product lines to be a priority in innovativeness for SMEs in the city of Padang. In general, this finding is in line with findings of previous studies(Wardi, et al., 2017; 2018; Susanto, 2009) that innovation as the key driver of firm performance. It can be concluded that SMEs in Padang-city have applied the main concepts in innovation is the discovery and development of new products.

Conclusion and Suggestion

Based on the discussion above, we can conclude that the priority criteria entrepreneurial orientation in the context of SMEs in Padang-city is innovativeness as topmost priority. This indicates that SMEs consider innovativeness is the most important aspect to enhance firm performance compared with pro-activeness or risk-taking. Also, sub-criteria of innovativeness have considered as the most important sub-criteria is "research and development of new products". It shows that managers or owner-managers of SMEs in Padang-citymore priority "research and development of new products"rather than other aspects such as, "rapid change of product lines, technological superiority, and multiple product lines."

In sum, the topmost priority in entrepreneurial orientation dimensions is innovativeness with research and development of new productsas sub-criteria. The managerial implication of the study, for policymakers or university that wants to enhance of SMEs'performance from entrepreneurial orientation aspects, they need to improve quality in terms of innovation, especially in the discovery and development of new products. Suggestion for future research is to examine entrepreneurial orientation dimensions based on business categories in the industrial sector because each business has different characteristics.

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