

Clustering of business strategies among Indonesian manufacturing firms

Esti Dwi Rinawiyanti^{a,1,*} Argo Hadi Kusumo^{a,2}

^a University of Surabaya, Jalan Raya Kalirungkut, Surabaya, 60293, Indonesia

¹ estidwi@staff.ubaya.ac.id; ² argohadi@staff.ubaya.ac.id

* corresponding author

ARTICLE INFO

Article history

Received 2022-07-08

Revised 2022-07-23

Accepted 2022-09-15

Keywords

Generic strategy

Cluster analysis

Cost leadership

Manufacturing industry

Emerging country

ABSTRACT

This study aims to to classify business strategies adopted by manufacturing firms. Data were acquired by sending questionnaires to Indonesian manufacturing firms in Java. Factor and cluster analysis were performed on 435 survey data. Using principal component analysis and varimax rotation, the factor analysis identified two distinct business strategies based on Porter's generic strategy: cost leadership and differentiation. Hierarchical and K-means clustering conducted sequentially enabled the identification of three clusters of business strategy: cost leadership, differentiation, and no strategy. According to the findings, the majority of Indonesian manufacturing firms utilize the differentiation strategy, followed by the cost leadership strategy. Only a small percentage of firms employ no strategy at all. The descriptive analysis of each cluster shows that the number of firms adopting the differentiation strategy is significantly higher than those pursuing the cost leadership strategy in a number of products, including food and beverage, computers, electronic, and optical products, as well as machinery and electrical equipment. For some products, such as automotive and furniture, the percentage of firms using cost leadership or differentiation strategies is comparable. Large firms dominate both clusters. Nevertheless, there are more large firms in the differentiation cluster than in the cost leadership cluster. The findings of this study enrich the body of knowledge in the domains of strategic management and manufacturing by classifying the business strategies that help firms achieve their business objectives, particularly in the context of emerging countries.

This is an open access article under the [CC-BY-SA](#) license.



1. Introduction

A strategy is a collection of plans and policies used by an organization to gain an advantage over its competitors [1]. Particularly, a business strategy refers to how a firm competes and positions itself successfully in the market [2]. Business strategy is developed, implemented, and assessed under the presumption of competition [3]. Reference Porter established a framework that illustrates how a firm might adopt a generic strategy [4], namely cost leadership, differentiation and focus strategies, to compete effectively [5], [6].

Reference Porter established a framework that illustrates how a firm might adopt a generic strategy, namely cost leadership [4], differentiation and focus strategies, to compete effectively [5], [6]. Porter's generic strategies are extensively used strategy dimensions in the literature [7],[8], robust and consistent [6]. Moreover, Porter's typology has driven the most theoretical refinement and empirical studies [9], and gained considerable empirical support over time [10],[12].

Firms describe their policy as advice for organizational activities at the lower level by starting with their competitive strategy. It is crucial to be shared across the organization so that everyone is aware of how to use it to accomplish the goals and how to measure its effectiveness. The purpose of communication generally contains the following Hafied: (1) Understanding what is communicated [13], (2) Understanding information or understanding of others, (3) Others may accept the ideas; and (4) Encourage others to take an action. Therefore, transparent and effective communication is needed to encourage the employees to implement the business strategy and to support the need for changes.

Prior research used Porter's framework to assess the impact of business strategy on firm performance, finding that firms that embrace one strategy perform better than those stuck in the middle [7],[14]. Although a majority of them claimed that a differentiation strategy is more beneficial to the firms [6], [12], [14] several studies revealed that firms with a cost leadership strategy perform better than those with a differentiation strategy [15], [16].

Nonetheless, in order to assess its impact on firm performance, the business strategy of the firm should be identified. Several prior studies conducted cluster analysis to categorize the ways that firms adopt business strategy. For example, [7] compared the performance among three clusters of industry based on Porter's generic strategy. Those three clusters were notably distinct from one another on the basis of their emphasis on the differentiation strategy and the focus strategy but not on the basis of the overall cost leadership strategy. According to their study, if a firm develops at least one of the three generic strategies, it will perform better than it would if it didn't (i.e., becomes stuck in the middle).

In the context of Indonesia, [17] carried out a cluster analysis at non-school educational institutions in the city of Malang. Six clusters have been created, which can be further separated into three groups: differentiation, differentiation and focus, and differentiation and cost. The result showed that the average performance of educational institutions utilizing Porter's generic strategy in combination is excellent and significantly better than the performance of those institutions using Porter's generic strategy in pure form. Moreover, [18] used Porter's general technique to categorize private universities in Kediri. This study resulted four clusters: differentiation, cost leadership, differentiation focus, and cost leadership focus.

Despite the fact that previous studies showed that business strategy has a significant effect on performance, there has been little research that classifies firms according to Porter's generic strategy, particularly in the manufacturing sector in developing countries like Indonesia. As a result, the purpose of this study is to explore the extent to which Indonesian manufacturing firms adopt business strategy to address these two research questions (RQ):

RQ1: What types of strategy are found among manufacturing firms?

RQ2: Are the characteristics of the business strategy clusters different from one another?

2. Theoretical Framework

The distinction between three levels of organizational strategy has become increasingly emphasized in business policy literature: (1) corporate strategy, (2) business strategy [19], and (3) functional strategy [20]. Corporate-level strategy describes what an organization does and how it interacts in order to achieve success [15]. Domain navigation, or how an organization competes successfully in an industry, is a part of business-level strategy [13], [15]. Functional-level strategy, on the other hand, outlines how functions will contribute to business strategy Weir et.al by increasing the productivity of resources within each function and is frequently developed in line with business strategy [14],[21].

These three levels of strategy form a hierarchy, implying a top-down approach to strategy formulation [21]. Nevertheless, in comparison to the other two strategies, business strategy is the subject of most of the strategy research [14]. More specifically, business strategy refers to how organizations position themselves in their competitive environment and/or create their strategic competencies to acquire a competitive advantage over their competitors [22].

Furthermore, Porter suggested how firms could adopt a generic strategy to compete effectively, namely cost leadership or differentiation strategies. The goal of the cost leadership strategy is to

provide the products at the lowest possible cost in the industry [22]. For this strategy, manufacturing cost reductions are critical to be implemented [22]. Because the cost leadership strategy focuses on producing standardized products at a low per-unit cost for price-sensitive customers [3], cost management is the highest priority [24]. Firms that adopt this strategy should keep costs under tight control and avoid overspending on innovation or marketing as well as cut prices when selling their products [4]. A differentiation strategy, conversely, requires the development of unique products that are unmatched by relying on the customer's brand loyalty. Firms can justify higher prices by providing superior value to customers such as higher quality, better performance, or unique features [4], [6], [20], [23].

Good firm performance can be achieved through those two strategies, cost leadership and differentiation [4]. They are incompatible, however, because they demand distinct resources and organizational structures, and only those organizations that can focus on one can achieve excellent performance [5], [7]. Accordingly, several studies have used Porter's typology to investigate the impact of business strategy on firm performance. For instance, Dess and Davis established a construct validity of Porter's typology [7]. They found that firms that employ one strategy outperform others that adopt a stuck-in-the-middle strategy. The connection between business strategy and performance was then studied by Robinson and Pearce using data from 97 manufacturing firms of 60 different industries [12]. They discovered considerable disparities in performance amongst the groups. Firms with product innovation-focused strategic orientations, as well as those that combine strategic behavior patterns of efficiency and differentiation were linked to significantly better performance than other groups.

Moreover, O'Farrell studied the impact of a defined strategy (low-cost leadership, differentiation, and focus differentiation) on firm performance using a sample of service firms in Scotland and England [6]. They found that firms committed to at least one of these three strategies outperformed those that failed to adopt a generic strategy (that is, stuck-in-the-middle). Based on data from the Australian manufacturing industry, Sharma discovered that firms adopting the cost leadership strategy have significantly higher labor productivity regarding sales per employee than those using the focus strategy or the combination of differentiation and focus strategies [16]. Then, [5] integrated strategies, capabilities, and performance using a sample of 148 Spanish manufacturers. Their findings revealed that in order to be effective, the cost leadership strategy must be linked to a cost-cutting manufacturing strategy and capabilities. Manufacturing strategy and capabilities focused on flexibility, on the other hand, are required for a successful differentiation strategy.

In addition, Nandakumar et.al investigated business strategies adopted by mechanical and electrical engineering firms in the United Kingdom [14]. According to their findings, firms that adopt one strategy, such as cost leadership or differentiation, outperform those that are stuck in the middle and lack a strong strategic orientation. Then, Banker et.al studied the relationship between a firm's strategic positioning and its long-term performance [25]. With 12,849 firm-year data from 1989 to 2003, they suggested that firms using a differentiation strategy are more likely to maintain their current success in the future than those following a strategy of cost leadership.

Regarding the Indonesian context, Omsa surveyed 305 small and medium enterprises (SMEs) of wooden furniture in Indonesia, particularly in East Java [26]. The findings of this study showed that both differentiation and focus strategies have a considerable impact on firm performance, whereas a cost leadership strategy has no meaningful impact. In addition, Ridjal and Muhammadin assessed the effect of business strategies on 101 banks' performance in Indonesia [15]. They found that low-cost and focus strategies have a substantial impact on organizational and financial performances.

Similarly, Purwantoro et.al analyzed the relationship between Porter's competitive strategy, firm resources, and performance [27]. Based on the investigation on six Indonesian automotive component firms, the findings suggested that firms with differentiation strategy show more optimal performance than those with cost leadership strategy.

The key findings of prior studies looking into the relationship between Porter's business strategy and firm performance are summarized in Table 1. In conclusion, several studies have found that business strategy has a considerable impact on firm performance. Despite their distinctive findings, many of them argued that differentiation strategy benefits firms more than those with other strategies.

Table 1. Results of Previous Studies of Porter's Generic Strategy

Author (s)	Findings
Reference [7]	Firms adopting one of the strategies have a better performance than those stuck in the middle.
Reference [12]	Strategic orientations emphasizing product innovation, as well as those that combine strategic behavior patterns of 'efficiency' and 'differentiation,' are linked to significantly higher performance than other groups.
Reference [6]	Service firms that adopt a differentiation strategy outperform those stuck in the middle.
Reference [8]	Firm profitability is heavily influenced by strategy and environment.
Reference [16]	Firms adopting the cost leadership strategy have much higher labor productivity regarding sales per employee than those pursuing the focus strategy or the combination of focus and differentiation strategies. Firms using the differentiation strategy have the largest firms in terms of employees and total annual sales. Besides, differentiators have the largest sales growth in the domestic market.
Reference [28]	Cost-leaders perform at the lowest level, and firms combining cost-leadership and differentiation strategies perform at the highest level.
Reference [5]	To be effective, a cost-leadership strategy must be coupled with a cost-cutting manufacturing strategy and capabilities. Conversely, a flexible manufacturing strategy and capabilities are required for a successful differentiation strategy.
Reference [14]	Regarding both objective and subjective performance measures, cost-leaders and differentiators outperform stuck-in-the-middle firms.
Reference [25]	A differentiation strategy, as opposed to a cost leadership strategy, enables a firm to maintain its current profitability to a greater extent.
Reference [26]	Both differentiation and focus strategies affect firm performance, while a cost leadership strategy has no significant impact on firm performance.
Reference [15]	Cost leadership strategy and focus strategy have a significant influence on financial and organizational performances.
Reference [27]	Firms that use a differentiation strategy perform better than those who use a cost leadership strategy.

Source: Adopted and modified from Nandakumar et.al [14].

3. Method

This study conducts quantitative research approach with a survey method to address the research questions proposed. The questionnaire consisted of ten questions related to business strategy and 11 questions related to demographics. In the questionnaire, closed-ended questions were provided as predefined multiple choices available for each question, so that respondents could simply click or circle the appropriate answer [28]. Since closed-ended questions indicate individual answers, they are likely to be more consistent over time and offer greater reliability [29]. To facilitate respondent understanding of the survey, the questionnaire developed was translated from English to Indonesian using a back-translation method [30].

3.1. Measurement Items of Business Strategy

This study follows the most widely used typology from Porter cost leadership and differentiation strategy [4], [22]. Porter's typology has received more research attention compared to other concepts [31]. The measurements of these strategies were adopted from prior studies, mainly Dess and Davis [7]. Other items of the cost leadership strategy were taken from Luo and Zhao [32], whereas other items of the differentiation strategy were borrowed from Robinson and Pearce [12]. Cost leadership and differentiation strategies are considered as two strategic positioning dimensions along which companies may score high or low O'Farrell rather than two opposite ends of a continuum [6]. In this study, therefore, the extent to which a company's strategy conforms to a particular strategic type was assessed using a five-point scale designed to measure each strategic type, ranging from 1='least important' to 5='most important' [7]. This approach allows hybrid or mixed (stuck-in-the-middle) strategies to be considered. The details of measurement items for business strategy and their codes are summarised in Table 2.

Table 2. Measurement Items of Business Strategy

	Strategy	Mean	Standard Deviation	Supporting Literature
Cost leadership				
BS01	Operating efficiency improvement	4.53	0.64	[7]
BS02	Product quality control	4.68	0.61	
BS03	Existing products refinement/development	4.29	0.71	

BS04	Manufacturing process innovation	4.26	0.71	
BS05	Emphasis on raw materials or components procurement efficiency	4.31	0.76	[32]
Differentiation				
BS06	Brand identification development	4.14	0.82	[7]
BS07	Having cooperative and supportive distribution channels	4.25	0.72	
BS08	New product development creation	4.00	0.87	
BS09	Providing customer service capabilities	4.54	0.71	[12]
BS10	Marketing techniques and methods innovation	4.25	0.72	[7]

3.2. Sample and Data Collection

The manufacturing or processing industry is an economic activity that carries out the activity of changing a basic item mechanically, chemically or by hand so that it becomes finished/semi-finished goods with higher value [33]. Indonesia's manufacturing industry is extremely diverse and represents a vast array of natural resources available to the region [34]. The Indonesian government expects the manufacturing sector to be Indonesia's next engine of economic growth, and will, therefore, focus on its development over the next five years [35], [36].

Based on the considerations, this study involved manufacturing firms in Java as the population because of two reasons: (1) 2.8 million Indonesian manufacturing firms (64.29%) are in Java and (2) Java is the most important contributor to the Indonesian manufacturing industry, accounting for more than 70% of the national Gross Domestic Product (GDP) [37].

This study employed purposive sampling in data collection which took place in five regions in Java, namely East Java, Central Java, Yogyakarta, West Java and Jakarta. Several cities in those regions were chosen for this study's sample based on the following two criteria: (1) having a high manufacturing industry density and (2) having industrial estates. Thus, East Java covered Surabaya, Sidoarjo, Gresik, Pasuruan and Mojokerto. Semarang represented Central Java, and Yogyakarta included the special region of Yogyakarta. West Java involved Tangerang, Bekasi, and Bandung, while Jakarta represented the Jakarta metropolitan area.

Because of cost savings, restricted resources and the vast sample area, the survey questionnaire was self-administered, which provides the best access and answer rates in anonymous surveys [29]. This study used the 2017 Manufacturing Industrial Directory Badan Pusat Statistik as the sampling framework and the organization as a unit of analysis [38]. From June to October 2018, the survey was conducted by mail, e-mail, and online, as well as a personal survey. The questionnaires were given to firm executives such as managers, directors, and chief executive officers (CEOs). They were considered qualified to fill them out because they have a thorough understanding of the firm's strategies and operations. A total of 1,055 questionnaires were sent out, with 514 being returned and 435 remaining in the dataset after data screening, for a response rate of 41.23% [39].

According to the results of the survey, the majority of respondents occupy top management position (23.4%), such as owner, CEO, or director, and managerial positions (57.8%). Team leaders and others make up the remaining respondents (18.8%). 62% of respondents had worked for more than five years, with 38.6% having done so for ten years or more and 23.4% for between six and ten. The remaining respondents (37.1%) had worked for a company for less than five years [39]. The results indicated that most respondents are in accordance with the desired criteria.

4. Results and Discussion

As shown in Table 2, items with the highest mean are: 'Product quality control' (BS02, 4.68) and 'Providing customer service capabilities' (BS09, 4.54). Overall, the standard deviations are smaller than one, indicating a reasonable dispersion of views on business strategy across the sample.

4.1. Factor Analysis of Business Strategy

The principal component analysis (PCA) was first run using SPSS 26, resulting in two factors with a total variance of 54.59%. Ten items of business strategy had loading more than 0.4. However, two cross-loading items, BS03 and BS09, were eliminated [40]. PCA was rerun and revealed KMO of 0.84 and Bartlett's Test of Sphericity of 883.35, significant at the 0.00 level. PCA resulted in two factors, yielding a cumulative total variance of 56.72%.

Table 3 exhibits the rotational factor loadings, communalities, and percentage of variance explained by each factor. The communalities ranged from 0.47 and 0.72, indicating that the two factors account for a reasonable amount of variance in each of eight items, and 56.72% of the total variance shows that there is not much more to explain. Even though one item (BS04) had a communality of 0.47, which was slightly less than 0.50, this item was retained because its loading exceeded 0.50 [40].

Next, the reliability of the scale of the items was checked to validate the questionnaire. Reliability indicates that a questionnaire consistently reflects the construct that is being measured [41]. The summated scales indicated by the two factors have alpha coefficients of 0.76 (Factor 1) and 0.70 (Factor 2), which were both higher than the required threshold of 0.70 [40]. These results showed that both factors were reliable enough for further investigation. The items in these two factors had loadings above 0.60, greater than 0.50 [40]. However, one item (BS04) had a loading of 0.59, slightly below 0.6. There was no cross-loadings item, and no factors with fewer than three items, suggesting the best fit to the data [42]. Accordingly, the two-factor solution was accepted. The first factor referred to the differentiation strategy, and the second factor related to the cost leadership strategy. Thus, the two factors were appropriate according to Porter's typology.

Table 3. Factor and Related Items of Business Strategy

Code	Item	Factor loading		Communalities
		Factor 1	Factor 2	
BS04	Manufacturing process innovation	0.59		0.47
BS06	Brand identification development	0.73		0.56
BS07	Having cooperative and supportive distribution channels	0.61		0.53
BS08		0.74		0.55
BS10	Marketing techniques and methods innovation	0.73		0.55
BS01	Operating efficiency improvement		0.84	0.72
BS02	Product quality control		0.76	0.62
BS05	Emphasis on raw materials or components procurement efficiency		0.70	0.53
	Mean	4.18	4.51	
	Standard deviation	0.77	0.67	
	Cronbach's alpha	0.76	0.70	
	Sum of squared loadings (eigenvalue)	3.41	1.13	Total 4.54
	% of variance	42.59	14.13	56.72

As Varimax (orthogonal) rotation was used and factor scores represent all items loading on the factor [40],[43], the scores obtained for each respondent were calculated against the two factors mentioned above and appropriate. These factor scores were used as a basis for the subsequent cluster analysis [41], [43].

4.2. Cluster Analysis of Business Strategy

Clusters analysis is a convenient way to classify homogeneous object groups known as clusters [43]. Before cluster analysis, it was confirmed that the various variables used for clustering have no substantial collinearity, which would bias the results [40]. The tolerance values of seven items were over 0.10, and their VIF values were below 3, which was much less than the recommended cut-off value of 10 [40], showing that collinearity was not present. Both methods were used in this study in order [40]. Hierarchical clustering was employed in the initial phase to select the best cluster solution and the suitable number of clusters. The first cluster subtypes were generated using an agglomerative hierarchical clustering method based on Ward's algorithm and a squared Euclidean distance measure. As a commonly used method in hierarchical clustering [43], Ward's method is more likely to generate clusters with an approximately equal number of responses [40], [43]. The agglomeration coefficient was used to determine the cluster number by examining incremental changes in the coefficient [44]. According to the results, a greater coefficient difference Hair et.al was found from two to three clusters (49.82%) than from one to two clusters (37.87%) [40].

In the next phase, the results from the hierarchical clustering were then used in a non-hierarchical clustering (K-means). Table 4 shows the results from K-means using three clusters. Two-factor scores had significant differences among the three clusters. Cluster one consists of 267 respondents

who scored slightly below average for cost leadership (Factor 2) and somewhat above average for differentiation (Factor 1). This implies the tendency for differentiation strategy. Cluster two involves 154 respondents with an above-average score for the cost leadership, but a well-below-average score for the differentiation; thus, it refers to the cost leadership strategy. Cluster three with 14 respondents has a below-average score for differentiation and a well-below-average score for cost leadership. Hence, it can be presumed to be no strategy firms; that is, firms that do not rely on cost leadership or differentiation strategies.

Table 4. K-means Clustering of Business Strategies with Three Clusters

Cluster	Number of cases	Regression Score	
		Factor 1	Factor 2
1	267	0.62	-0.02
2	154	-1.03	0.36
3	14	-0.53	-3.55
ANOVA	F	353.75	178.69

4.3. A Descriptive Analysis of Business Strategy Clustering

Table 5 presents the characteristics of respondents in each cluster of business strategies. Cluster one (differentiation) is the most popular among respondents and it dominates in most major products. In several products, such as food and beverage, machinery and electrical equipment, and computers, electronic and optical products, the number of firms adopting a differentiation strategy is significantly more than those pursuing a low-cost strategy. It indicates that they try to meet customers' needs and wants by offering unique or high-quality products [4], [45]. Firms should also innovate their manufacturing processes and marketing techniques as part of their differentiation strategy. It makes sense, given that a firm's success is directly related to its innovative strategy [46]. This result is consistent with previous studies. For example, Purwantoro et.al discovered that firms tend to adopt differentiation strategy [27]. Cluster two contains several respondents' firms that adopt a cost leadership strategy. For example, in the case of paper products, the number of firms pursuing a low-cost strategy is more than those following a differentiation strategy. Because most entail mass production, firms are more likely to utilize the cost leadership strategy that focuses on low-priced products [45]. Consequently, firms adopting the cost leadership strategy generally need a high relative market share and serve all major customer groups [47].

Surprisingly, for some products, the number of firms employing the cost leadership or differentiation strategy is roughly equal, particularly in paper, coke and refined petroleum products, fabricated metal products, automotive, and furniture. Because most involve mass production, the companies are more likely to apply cost leadership strategy since the purpose of this strategy is low-cost products [45]. Interestingly, some of respondents' firms implement differentiation strategy, implying that they make some effort to fulfil customers' needs by producing different or high-quality products [23],[45]. For instance, cluster one contains 12 automotive manufacturers, while cluster two consists of 11 automotive manufacturers. The automotive firm offers several types of cars to suit customer requests, such as convertible, coupe, hatchback, minivan, SUV, and MPV. Moreover, the increasing ability of the middle class to buy cars instead of two-wheeled vehicles has led to the emergence of low-cost green cars (LCGC) with various types and models. Despite making a wide variety of models and types of cars, they must create affordable cars. Likewise, furniture firms aim to create unique, different, and high-quality products while keeping costs down.

Large manufacturing firms make up the majority of the respondents' firms in clusters one and two, as seen in Table 5. Cluster one, however, contains a greater number of large firms than cluster two. This finding suggests that large firms only implement one strategy at a time. It differs from previous studies that showed manufacturing firms preferred combination methods [16], and that most large firms used both strategies simultaneously rather than one at a time [48]. Another study revealed that in order to succeed in e-business, cost leadership and differentiation strategies must both be integrated [49].

In addition, the majority of respondents (49%) have been operating from 21 to 50 years, with 132 firms in cluster one and 80 firms in cluster two. Private firms dominate the respondents both in cluster one (207 firms) and cluster two (125 firms). Most of the respondents' firms are located in East Java, with 190 firms in cluster one and 122 firms in cluster two. In cluster one, more than half

of respondents (146) are located inside the industrial area, and the rest (121) are outside the industrial estate. In cluster two, most respondents (86) are located within the industrial estate, and 68 respondents are outside the industrial estate. This result shows that it doesn't matter whether the firm is located in the industrial estate or not, most of them apply the differentiation strategy. Interestingly, the number of firms with no strategy is about equal among small, medium, and large firms; that is, 4, 6, and 4 firms, respectively. They have been in business for less than five years and between 11 and 20 years. Understandably, those firms seek out the ideal strategy to use at the start and during their operations. As time goes by, they can decide which strategy to apply.

Table 5. Characteristics of Respondents in Each Business Strategy Cluster

Variable	Cluster 1, n=267 (Differentiation)	Cluster 2, n=154 (Cost Leadership)	Cluster 3, n=14 (No Strategy)	Total
Main product				
food and beverage	71	38	6	115
tobacco	9	2	0	11
textile	17	11	1	29
leather and footwear	5	2	1	8
goods from wood, handicraft	4	1	0	5
paper	12	13	0	25
coke and refined petroleum products	2	2	0	4
chemicals and chemical products	32	15	1	48
pharmaceuticals and medicinal chemical	9	1	1	11
rubber and plastic products	20	15	0	35
non-metallic mineral products	14	7	0	21
basic metals	2	0	0	2
fabricated metal products, excepts machinery and equipment	22	20	0	42
computers, electronic and optical products	10	0	0	10
machinery and electrical equipment	13	5	2	20
automotive	12	11	1	24
furniture	8	8	1	17
other manufacturing	5	1	0	6
repair and installation of machinery and equipment	0	2	0	2
Number of employees				
small	29	11	4	44
medium	51	37	6	94
large	187	106	4	297
Company's age (years)				
< 5	16	10	4	30
5-10	37	15	1	53
11-20	45	36	5	86
21-50	132	80	2	214
> 50	37	13	2	52
Company's ownership				
state-ownership	4	7	2	13
private	207	125	12	344
multinational company	56	22	0	78
Company's location				
East Java	190	122	12	324
Centre Java & Yogyakarta	17	11	1	29
West Java & Jakarta	60	21	1	82
In industrial estate				
yes	146	86	4	236
no	121	68	10	199

5. Conclusion

The findings of this study revealed that most Indonesian manufacturing firms apply one of business strategies, either the cost leadership strategy or the differentiation strategy. The findings highlighted that most Indonesian manufacturing firms adopt the differentiation strategy, followed by the cost leadership strategy. The findings also showed that a small number of Indonesian

manufacturing firms use no strategy. It means that they do not focus on both the cost leadership and differentiation strategies.

The findings indicated that firms with the differentiation strategy are twice as much as those that apply the cost leadership strategy for several products, including food and beverage, chemicals and chemical products, and computers, electronic, and optical products. For some products like furniture and automotives, however, the number of firms using the differentiation strategy is almost equal to the number of firms using the cost leadership strategy. Although both clusters are dominated by large manufacturing firms, the differentiation cluster has more substantial firms than the cost leadership cluster. The majority of the manufacturing firms in both clusters have been in business for 21 to 50 years. The findings also showed that most firms, whether or not they are located in the industrial estate, use the differentiation strategy.

The findings of this study enrich strategic management and manufacturing literature by clustering the business strategies that help firms in achieving their business objectives. Particularly, by describing the characteristics of business strategy clustering, the findings of this study extend the business strategy literature, especially in the context of emerging countries. Furthermore, the findings of this study can be used to conduct further research, such as examining the impact of business strategy on firm performance as well as differences in firm performance among clusters of business strategy.

References

- [1] W. Skinner, "Manufacturing-missing link in corporate strategy," *Harv. Bus. Rev.*, vol. 47, no. 3, p. 136, 1969.
- [2] E. H. Bowman and C. E. Helfat, "Does Corporate Strategy Matter?," *Strateg. Manag. J.*, vol. 22, no. 1, pp. 1–23, 2001.
- [3] F. R. David and F. R. David, *Strategic management: concepts and cases-a competitive advantage approach*, 5th ed. Boston: Pearson, 2014.
- [4] M. E. Porter, *Competitive Strategy: Techniques for Analysing Industries and Competitors*. New York: The Free Press, 1980.
- [5] J. González-Benito and I. Suárez-González, "A study of the role played by manufacturing strategic objectives and capabilities in understanding the relationship between porter's generic strategies and business performance," *Br. J. Manag.*, vol. 21, no. 4, pp. 1027–1043, 2010, doi: 10.1111/j.1467-8551.2008.00626.x.
- [6] P. O'Farrell, D. Hitchens, and L. Moffat, "Does strategy matter? An analysis of generic strategies and performance in business service firms," *Bus. Strateg. Rev.*, vol. 3, no. 1, p. 71, 1992.
- [7] G. G. Dess and P. S. Davis, "Porter's (1980) Generic Strategies as Determinants of Strategic Group Membership and Organizational Performance," *Acad. Manag. J.*, vol. 27, no. 3, pp. 467–488, 1984, doi: 10.5465/256040.
- [8] S. Kotha and B. L. Vadlamani, "Assessing Generic Strategies: An Empirical Investigation of Two Competing Typologies in Discrete Manufacturing Industries," *Strateg. Manag. J.*, vol. 16, no. 1, pp. 75–83, 1995.
- [9] G. G. Dess, A. Gupta, J.-F. Hennart, and C. W. Hill, "Conducting and Integrating Strategy Research at the International, Corporate, and Business Levels: Issues and Directions," *J. Manag.*, vol. 21, no. 3, pp. 357–393, 1995.
- [10] C. Campbell-Hunt, "What Have We Learned about Generic Competitive Strategy? A Meta-Analysis," *Strateg. Manag. J.*, vol. 21, no. 2, pp. 127–154, 2000.
- [11] M. Danny and H. F. Peter, "Porter's (1980) Generic Strategies and Performance: An Empirical Examination with American Data: Part I: Testing Porter," *Organ. Stud.*, vol. 7, no. 1, pp. 37–55, 1986.
- [12] R. B. Robinson and J. A. Pearce, "Planned Patterns of Strategic Behavior and Their Relationship to Business- Unit Performance," *Strateg. Manag. J.*, vol. 9, no. 1, pp. 43–60, 1988.
- [13] C. Hafied, *Perancangan & Strategi Komunikasi*, Edisi Revi., vol. Cetakan Ke. Jakarta: PT. Raja Graffindo Persada, 2017.

- [14] M. K. Nandakumar, A. Ghobadian, and N. O'Regan, "Generic strategies and performance - evidence from manufacturing firms," *Int. J. Product. Perform. Manag.*, vol. 60, no. 3, pp. 222–251, 2011, doi: 10.1108/17410401111111970.
- [15] S. Ridjal and A. Muhammadin, "Analysis of Influencing Factors Social Environment and Generic Strategies toward Performance of the Banking Sector in Indonesia," *J. Phys. Conf. Ser.*, vol. 1028, no. 1, 2018, doi: 10.1088/1742-6596/1028/1/012191.
- [16] B. Sharma, "Porter's (1980) Generic Strategies, Contextual Factors and Performance: An Empirical Examination of Their Relationship," *Metamorph. A J. Manag. Res.*, vol. 1, no. 1, pp. 52–68, 2002, doi: 10.1177/0972622520020104.
- [17] I. Septiyorini, M. Fatchi, and D. Zain, "Analisis Penggunaan Strategi Generik Terhadap Kinerja pada Lembaga Pendidikan Luar di Kota Malang," *WACANA*, vol. 12, no. 3, pp. 555–578, 2009.
- [18] A. Yani, "Analisis Hubungan Penggunaan Strategi Bersaing dan Kinerja Organisasi pada Perguruan Tinggi Swasta di Kediri," *J. Ilmu Manaj. Revital.*, vol. 3, no. 4, pp. 33–50, 2014.
- [19] D. W. Beard and G. G. Dess, "Corporate-Level Strategy, Business-Level Strategy, and Firm Performance," *Acad. Manag. J.*, vol. 24, no. 4, p. 663, 1981.
- [20] A. C. Hax and N. S. Majluf, "The Corporate Strategic Planning Process," *Interfaces (Providence)*, vol. 14, no. 1, pp. 47–60, 1984.
- [21] K. A. Weir, A. K. Kochhar, S. A. LeBeau, and D. G. Edgeley, "An Empirical Study of the Alignment Between Manufacturing and Marketing Strategies," *Long Range Plann.*, vol. 33, no. 6, pp. 831–848, 2000.
- [22] M. E. Porter, "Michael Porter on Competitive Strategy Reflections and Round Table Discussion," *Eur. Manag. J.*, vol. 6, no. 1, pp. 2–9, 1987.
- [23] M. E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press, 1985.
- [24] Y. Liu, W. Li, and Y. Li, "Ambidexterity between low cost strategy and CSR strategy: contingencies of competition and regulation," *Asia Pacific J. Manag.*, vol. 37, no. 3, pp. 633–660, 2019.
- [25] R. D. Banker, R. Mashruwala, and A. Tripathy, "Does a differentiation strategy lead to more sustainable financial performance than a cost leadership strategy?," *Manag. Decis.*, vol. 52, no. 5, pp. 872–896, 2014.
- [26] S. Omsa, "Five Competitive Forces Model and the Implementation of Porter's Generic Strategies to Gain Firm Performances," *Sci. J. Bus. Manag.*, vol. 5, no. 1, p. 9, 2017, doi: 10.11648/j.sjbm.20170501.12.
- [27] P. Purwanto, H. K. Daryanto, and S. Djohar, "Strategi Bersaing Dan Pengukuran Kinerja Dengan Pendekatan Resources Base View Perusahaan Komponen Otomotif Indonesia," *J. Apl. Bisnis Dan Manaj.*, vol. 4, no. 2, pp. 220–231, 2018.
- [28] F. J. Fowler, *Survey Research Methods*. Los Angeles: SAGE, 2014.
- [29] E. E. Ruel, W. E. Wagner, and B. J. Gillespie, *The Practice of Survey Research: Theory and Applications*, W.E. Wagne. Thousand Oaks, CA: Sage Publications Inc, 2016.
- [30] M. Saunders, P. Lewis, and A. Thornhill, *Research Methods for Business Students*. Prentice Hall, 2009.
- [31] L. Kim and Y. Lim, "Environment, Generic Strategies, and Performance in a Rapidly Developing Country: A Taxonomic Approach," *Acad. Manag. J.*, vol. 31, no. 4, pp. 802–827, 1988, doi: 10.5465/256339.
- [32] Y. Luo and H. Zhao, "Corporate link and competitive strategy in multinational enterprises: a perspective from subsidiaries seeking host market penetration," *J. Int. Manag.*, vol. 10, no. 1, pp. 77–105, 2004.
- [33] Badan Pusat Statistik, "Industri Besar dan Sedang," 2020. <https://www.bps.go.id/subject/9/industri-besar-dan-sedang.html> (accessed Apr. 07, 2021).

- [34] G. B. Guide, "Overview of the Manufacturing Sector," 2011. http://www.gbgindonesia.com/en/manufacturing/article/2011/overview_of_the_manufacturing_sector.php (accessed May 01, 2020).
- [35] M. I. Gorbiano, "Manufacturing sector to drive Indonesia's economy," *The Jakarta Post*, 2019. <https://www.thejakartapost.com/news/2019/02/11/manufacturing-sector-to-drive-indonesias-economy-bappenas.html> (accessed Feb. 11, 2019).
- [36] Kemenperin, "Kemenperin Bidik Industri Tumbuh 5,3 Persen Tahun 2020," 2020. <https://kemenperin.go.id/artikel/21346/Kemenperin-Bidik-Industri-Tumbuh-5,3-Persen-Tahun-2020> (accessed Apr. 07, 2020).
- [37] Badan Pusat Statistik, *Analisis Hasil Listing: Aglomerasi Industri Manufaktur Di Indonesia*. Jakarta: Badan Pusat Statistik, 2017.
- [38] Badan Pusat Statistik, *Direktori Industri Manufaktur 2017*. Jakarta: Badan Pusat Statistik, 2017.
- [39] E. D. Rinawiyanti, X. Huang, and S. As-Saber, "Adopting management control systems through CSR strategic integration and investigating its impact on company performance: evidence from Indonesia," *Corp. Gov.*, vol. 21, no. 3, pp. 463–478, 2020, doi: 10.1108/CG-04-2020-0150.
- [40] J. Hair, W. Black, B. Babin, and R. Anderson, *Multivariate Data Analysis: A Global Perspective*, 7th ed. Upper Saddle River, New Jersey: Pearson, 2010.
- [41] A. P. Field, *Discovering Statistics Using SPSS: (and Sex, Drugs and Rock "n" Roll)*, 3rd ed. London: SAGE Publications Ltd, 2009.
- [42] A. B. Costello and J. W. Osborne, "Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis," *Pract. Assessment, Res. Eval.*, vol. 10, no. 7, 2005.
- [43] M. Sarstedt and E. Mooi, *A Concise Guide to Market Research: The Process, Data, and Methods Using IBM SPSS Statistics*, 2nd ed. Berlin: Springer, 2014.
- [44] D. J. Ketchen and C. L. Shook, "The application of cluster analysis in strategic mangament research," *Strateg. Manag. J.*, vol. 17, no. 6, pp. 441–458, 1996.
- [45] H. Valipour, H. Birjandi, and S. Honarbakhsh, "(PDF) The Effects of Cost Leadership Strategy and Product Differentiation Strategy on the Performance of Firms | Journal of Asian Business Strategy - Academia.edu," *J. Asian Bus. Strateg.*, vol. 2, no. 1, pp. 14–23, 2012, [Online]. Available: https://www.academia.edu/4068365/The_Effects_of_Cost_Leadership_Strategy_and_Product_Differentiation_Strategy_on_the_Performance_of_Firms.
- [46] N. F. Binti Mohd Haizar, D. M. H. Kee, L. M. Chong, and J. H. Chong, "The Impact of Innovation Strategy on Organizational Success: A Study of Samsung," *Asia Pacific J. Manag. Educ.*, vol. 3, no. 2, pp. 93–104, 2020, doi: 10.32535/apjme.v3i2.849.
- [47] L.-Y. Sun and W. Pan, "Differentiation strategy, high-performance human resource practices, and firm performance: moderation by employee commitment," *Int. J. Hum. Resour. Manag.*, vol. 22, no. 15, pp. 3068–3079, 2011.
- [48] M. Bambang Baroto, M. M. Bin Abdullah, and H. L. Wan, "Hybrid Strategy: A New Strategy for Competitive Advantage," *Int. J. Bus. Manag.*, vol. 7, no. 20, pp. 120–133, 2012, doi: 10.5539/ijbm.v7n20p120.
- [49] E. Kim, D. Nam, and J. L. Stimpert, "Testing The Applicability of Porter's Generic Strategies In The Digital Age: A Study of Korean Cyber Malls," *J. Bus. Strateg.*, vol. 21, no. 1, pp. 19–46, 1970, doi: 10.54155/jbs.21.1.19-46.