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DEVELOPMENT OF A STRATEGIC MANUFACTURING PLAN FROM A RESOURCE-BASED PERSPECTIVE

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ABSTRACT

A strategic plan is an essential part of the manufacturing process and can be considered from different perspectives, such as a market-based view or a resource-based view. This study investigates strategic planning in manufacturing from the resource-based perspective, which uses functional capabilities as determinants for manufacturing strategy. Automotive component manufacture is adopted for the case study. This includes both automobile and motorcycle component manufacture. Multiple regression analysis is used to describe statistically the relationship between the manufacturing strategies and the functional capabilities. The major finding of this paper is that capability in production or operations significantly influences all aspects of manufacturing strategy. The study also shows that functional capabilities carry extensive influence in strategic manufacturing planning as leverage points to help a company achieve its goals.

Keywords: Cost reduction strategy; Flexibility strategy; Functional capabilities; Manufacturing strategy; Product delivery strategy; Quality strategy

1. INTRODUCTION

Increased competitiveness can be achieved by increasing capabilities and implementing appropriate strategies (Kocoglu et al., 2012; Yang, 2013). A manufacturing strategy can be a powerful weapon for achieving business objectives (Swamidass & Newell, 1987) and for creating corporate excellence in relation to business competitors (Amoako-Gyampah, 2003). The idea of a manufacturing strategy originated with Skinner in 1969, while the term "manufacturing strategy" was introduced by Wheelwright in 1978 (Nurcahyo & Maemunsyah, 2013). A manufacturing strategy is a structured pattern followed in the decision-making process in order to align it with a company's business strategy (Hayes & Wheelwright, 1984). The manufacturing strategy has been described as the content or the "what" and the process as the "how" (Papke-Shields et al., 2006). The content of a manufacturing strategy includes the manufacturing tasks, the competitive priorities, the order winners, and the qualifiers for production competence (Swink & Hegarty, 1998).

The ability of a company to make decisions is closely associated to its approach to its strategic manufacturing content, also known as its decision categories, which comprise both its structural and infrastructural categories (Hayes & Wheelwright, 1984). Having a strategic manufacturing

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process is dependent on the formulation of strategies (Hayes & Wheelwright, 1984; Voss, 1990; Marucheck et al., 1990), the implementation of those strategies (Hayes &Wheelwright, 1984; Voss, 1990; Marucheck et al., 1990; Hallgren & Olhager, 2006), and on improvements (Hallgren & Olhager, 2006). Manufacturing strategy planning is an activity that is related to the formulation of strategies for the manufacturing process. The ability of a company to implement its improvements will be driven by actions in the company's decision categories, which in turn, will have a positive impact on the company's manufacturing capability and enable it to achieve its objectives (Hallgren & Olhager, 2006).

1.1. Strategic Manufacturing Plan

Having a strategic manufacturing plan is a vital part of the manufacturing process. The manufacturing process can be considered from two conflicting viewpoints, the market-based view (MBV) and the resource-based view (RBV) (Nurcahyo & Maemunsyah, 2013). Many studies have investigated strategic manufacturing planning from the MBV perspective (Amoako-Gyampah, 2003; Gerwin, 1993; Marucheck et al., 1990; Nurcahyo & Wibowo, 2015), while the RBV approach has not been widely used in strategic manufacturing planning (Nurcahyo & Maemunsyah, 2013). The MBV approach is broadly used to synchronize strategic design with the potential target market with the aim of capturing the market efficiently. However, if the design does not also consider the role of its internal resources, the resulting design will not work effectively (Thun, 2008). The RBV approach should be used in a complementary way if the potential support from internal resources is to be included in the design of strategic manufacturing planning. It is therefore important to research the RBV approach in order to provide a holistic understanding to support the design of an effective strategic manufacturing plan.

The market-based view uses an external perspective, which states that the manufacturing strategy is derived from the business strategy, and in determining manufacturing strategy, attention is focused on the needs of the market (Thun, 2008). In contrast, the resource-based view uses an internal perspective where resources and capabilities are considered as the primary determinants of the manufacturing strategy (Thun, 2008). Voss (1990) suggests that there are three paradigms in manufacturing strategy: competing through manufacturing capabilities, competing through strategic choices, and competing through best practices and world class manufacturing. The competing through manufacturing capabilities paradigm was first introduced by Skinner. This was further developed by Robert Hayes and Steven Wheelwright (Junttila, 2000). This paradigm takes the view (Prahalad & Hammel, 1990) that competence is the source of competitive advantage. This perspective is in line with the RBV that states that manufacturing strategy is developed from capability.

A wide range of research has explored the formulation of manufacturing strategy, either focusing on design or on planning (Kim & Arnold, 1996). Many case studies have been used to investigate the learning process in strategic planning for manufacture (Papke-Shields et al., 2006). Various dimensions of manufacturing strategy have been developed (Spring & Dalrymple, 2000), but these are all consistent with four variables first described by Skinner. This study focuses on Skinner's description of manufacturing strategy (1969), which considers the four factors of cost, quality, delivery, and flexibility. These four factors are at the core of manufacturing strategy. The manufacturing strategy of the automobile industry was developed around the quality approach (Lindstrom & Winroth, 2010). All steps in the formulation of strategy must be validated; thus the desired-direction of the firm must be supported by robustness and reliability in its manufacturing process. These are all key factors in the development of manufacturing strategies that work in parallel with improvements in manufacturing capabilities.

1.2. Functional Capabilities

The capability of an organisation is its set of integrated resources that achieve a particular task or activity. Determining the capability of an enterprise is usually based on one of two approaches, the functional approach or the value chain approach (Thompson & Strickland, 1998). Many different types of capability have been explored by the experts, including both manufacturing capabilities and functional capabilities. Hitt and Ireland (1985) describe types of capability in terms of their functionality. They can also be understood as latent variables: general administration, production/operations, engineering and research and development (R&D), marketing, finance, personnel/human resources, public and governmental relations. Many researchers have assessed the impact that manufacturing strategy has on manufacturing capability in terms of achieving a company's objectives. In this research, the relationship between manufacturing strategies and functional capabilities will be examined. This will be interpreted as the construction of a framework for strategic manufacturing planning. The aim of this study is to investigate the effect of functional capabilities on the preparation of a strategic manufacturing plan. The uniqueness of this study is its use of the resource-based perspective in developing a strategic manufacturing plan, as most recent research has focused on the market-based perspective. The initial hypothesis is that the functional capabilities are strongly influential in the development of a strategic manufacturing plan.

2. METHODS

Statistical analysis was used in this study. In this research, the term capabilities refers to the functional capabilities of a company, such as its production/operation, finance, engineering and R&D, public and government relationships, and general administration. The relationship between the factors of the manufacturing strategy and the functional capabilities will be assessed in depth by using multiple regression analysis (MRA). MRA is widely used to explain the impact of independent variables on dependent variables (Srikanth & Mehar, 2017; Janani & Santhi, 2018). This approach can model the influences among the variables. MRA is also easily understood with little danger of misinterpretation. Finally, the results of the regression equation will be presented in a mathematical model.

The automotive industry was selected for the case study for this research. Manufacturing plays an important role in Indonesia; it is believed to have been in the vanguard, driving the growth of manufacturing in the country. In other words, the growth of the automotive industry has been largely responsible for promoting the growth of the Indonesian economy (Nurcahyo & Wibowo, 2015). The most important topic in the automotive industry is the manufacture of components, and nearly 70% of the components needed in its automotive industry are supplied by Indonesia (Perez & Sanchez, 2002; Sambharya & Banerji, 2006). The primary data were collected directly from the respondents who were either a supervisor or a person of higher rank from the automotive component manufacturers around Jakarta. The data were collected from 122 respondents from 31 companies manufacturing automobile parts and from 119 respondents from 30 companies manufacturing motorcycle parts.

The dimensions of manufacturing strategy as described by Hayes and Wheelwright (1984) are: capacity, facilities, technology, vertical integration, workforce, quality, production planning / materials control, and organization. In contrast, Cagliano et al., (2005) say that manufacturing strategy comprises: manufacturing innovators, caretakers, technology exploiters, cost minimizers, high performance producers, and marketers. Skinner (1969) describes the dimensions of manufacturing strategy as: (a) low cost; (b) quality (Flynn et al., 1994); (c) shipping of products; and (d) flexibility (Gerwin, 1993). Skinner's categories, namely low cost, quality, delivery, and flexibility, will be used in this research because these four types of strategy are at the core of manufacturing strategy as experienced by all manufacturing companies. The functional capabilities, as the independent variables, consist of seven variables described by 26 attributes or statements in a questionnaire. The attributes of the functional capability variables are shown in Table 1. Manufacturing strategy, as the dependent variable, consists of four variables described by 15 attributes or statements. The attributes of the manufacturing strategy variables are shown in Table 2.

Table 1 The attributes of the functional capabilities

Variable	Attribute Code	Description
General Administration	GA1	Ability to control the company's performance
	GA2	Ability to analyze business opportunities and threats
	GA3	Ability to combine opinions, improvements in coordination and collaboration
	GA4	Ability in strategic planning design
Productions / Operations	PRO1	Ability to upgrade the technology on the plant
	PRO2	Ability to improve the facilities' layout, work line, and work environment
	PRO3	Ability in maintenance and replacement of machines and tools in order to improve effectiveness
	PRO4	Ability to improve the process, production, and stock control
Engineering – Research & Development	ENG1	Ability to create a new product and improve existing products
	ENG2	Ability to improve the process
	ENG3	Ability to increase and control productivity
	ENG4	Ability to coordinate production and marketing in an effective framework
Marketing	MARK1	Ability to increase market research and information system
	MARK2	Ability to enlarge customer base through market penetration and intensive market development
	MARK3	Ability to use the price gap
	MARK4	Ability to network development
	MARK5	Ability to maintain long-term contracts
Finance	FIN1	Ability to reduce capital expenditure and long-term loans
	FIN2	Ability to control inflation risks and money exchange risks
	FIN3	Ability to implement ROI technique extensively and to monitor profitability
	FIN4	Ability to conduct internal audits
Personnel / Human capital	HRD1	Ability to implement policies of recruitment, training, promotion, and employee services
	HRD2	Ability to optimize employee turnover
	HRD3	Ability to stimulate creativity of employees and implement a reward system
Public and governmental relations	PUB1	Ability to maintain a relationship with the government
	PUB2	Ability to improve company image

Table 2 Attributes of manufacturing strategy

Variable	Attribute Code	Description
Flexibility	FLEX1	An assessment of the reduction in the production lead time
	FLEX2	An assessment of reduction in the production set-up time
	FLEX 3	An assessment of change job scheduling in production activity
	FLEX4	An assessment of machinery utility in production activity
Delivery	DEL1	An assessment of product fast delivery
	DEL2	An assessment of product delivery on time
Quality	QUA1	An assessment of reduction in the defect rate and reject rate
	QUA2	An assessment of quality control system implementation
	QUA3	An assessment of periodic machinery upgrades
	QUA4	An assessment of process development for new product development
	QUA5	An assessment of process development for existing products
Cost	COST1	An assessment of inventory reduction
	COST2	An assessment capacity-utilization improvement
	COST3	An assessment of using cheaper raw material
	COST4	An assessment of production cost reduction

Data will primarily be tested for reliability, validity, and multicollinearity. An assumption test and a regression test will be conducted. The final regression will be related to the construction of a strategic manufacturing plan.

3. RESULTS AND DISCUSSION

3.1. Reliability and Validity Test

As a research instrument, a questionnaire needs to go through a phase of reliability testing to determine the reliability of the attributes of variables or items in the questionnaire statements. The parameter for reliability is the Cronbach's alpha, where a measuring device is said to be reliable if the Cronbach's alpha > 0.6 (Sunyoto, 2009). In addition, validity is a measure that shows the level of an instrument's legitimacy—that it really does measure what it says it measures. A valid instrument will reveal appropriately the data about the variables being investigated. The level of validity can be measured by performing a correlation between the item score and the total score for a question, namely by comparing the value of the r-r-table count. If the r-count for each of the questions is positive and greater than the r-table, then the questions are said to be valid (Sunyoto, 2009). The summary of the results from the validity and reliability tests are shown in Table 3 and Table 4, respectively.

Table 3 Summary of the validity test

	Automobile Parts Manufacturer		Motorcycle Parts Manufacturer	
Attribute variable	*Corrected item-Total Correlation*	*Requirement > 0.202*	*Corrected item-Total Correlation*	*Requirement > 0.195*
FLEX1	0.608	Valid	0.778	Valid
FLEX2	0.651	Valid	0.769	Valid
FLEX3	0.544	Valid	0.705	Valid
FLEX4	0.298	Valid	0.512	Valid
Attribute variables	*Corrected item-Total Correlation*	*Requirement > 0.195*	*Corrected item-Total Correlation*	*Requirement > 0.195*
DEL1	0.814	Valid	0.733	Valid
DEL2	0.814	Valid	0.733	Valid
Attribute variables	*Corrected item-Total Correlation*	*Requirement > 0.207*	*Corrected item-Total Correlation*	*Requirement > 0.195*
QUA1	0.629	Valid	0.587	Valid
QUA2	0.654	Valid	0.627	Valid
QUA3	0.616	Valid	0.614	Valid
QUA4	0.647	Valid	0.615	Valid
QUA5	0.524	Valid	0.532	Valid
Attribute variables	*Corrected item-Total Correlation*	*Requirement > 0.202*	*Corrected item-Total Correlation*	*Requirement > 0.195*
COST1	0.676	Valid	0.675	Valid
COST2	0.665	Valid	0.670	Valid
COST3	0.649	Valid	0.652	Valid
COST4	0.661	Valid	0.657	Valid
Attribute variables	*Corrected item-Total Correlation*	*Requirement > 0.195*	*Corrected item-Total Correlation*	*Requirement > 0.195*
GA1	0.441	Valid	0.570	Valid
GA2	0.563	Valid	0.662	Valid
GA3	0.67	Valid	0.637	Valid
GA4	0.591	Valid	0.658	Valid
PRO1	0.59	Valid	0.629	Valid
PRO2	0.63	Valid	0.659	Valid
PRO3	0.595	Valid	0.675	Valid
PRO4	0.499	Valid	0.592	Valid
ENG1	0.546	Valid	0.607	Valid
ENG2	0.737	Valid	0.698	Valid
ENG3	0.697	Valid	0.698	Valid
ENG4	0.591	Valid	0.549	Valid
MARK1	0.645	Valid	0.690	Valid
MARK2	0.713	Valid	0.709	Valid
MARK3	0.682	Valid	0.731	Valid

	Automobile Parts Manufacturer		Motorcycle Parts Manufacturer	
Attribute variables	*Corrected item-Total Correlation*	*Requirement > 0.195*	*Corrected item-Total Correlation*	*Requirement > 0.195*
MARK4	0.658	Valid	0.727	Valid
MARK5	0.513	Valid	0.439	Valid
FIN1	0.551	Valid	0.631	Valid
FIN2	0.681	Valid	0.613	Valid
FIN3	0.654	Valid	0.655	Valid
FIN4	0.378	Valid	0.425	Valid
HRD1	0.673	Valid	0.660	Valid
HRD2	0.707	Valid	0.690	Valid
HRD3	0.581	Valid	0.541	Valid
PUB1	0.519	Valid	0.653	Valid
PUB2	0.519	Valid	0.653	Valid

Table 4 Summary of Reliability Test

Variables	Automobile Part Manufacturer		Automobile Part Manufacturer	
	Value of Cronbach Alpha	Remarks	Value of Cronbach Alpha	Remarks
General administration	0.765	Reliable	0.812	Reliable
Productions / Operations	0.773	Reliable	0.817	Reliable
Engineering – Research & Development	0.817	Reliable	0.814	Reliable
Marketing	0.838	Reliable	0.849	Reliable
Finance	0.744	Reliable	0.767	Reliable
Personnel / Human Capital	0.800	Reliable	0.777	Reliable
Public & Government relations	0.682	Reliable	0.790	Reliable
Flexibility strategy	0.725	Reliable	0.849	Reliable
Delivery strategy	0.897	Reliable	0.845	Reliable
Quality strategy	0.820	Reliable	0.806	Reliable
Cost strategy	0.833	Reliable	0.833	Reliable

3.2. Multicollinearity Test and Assumptions Test

In multiple regression analysis, there are several assumptions that must be confirmed so that the regression equation can be used to predict a relationship between variables. These assumptions are normality, linearity, homoscedasticity, and autocorrelation. In addition, the equation must pass through stages of multicollinearity testing, which measure the level of association (closeness) of the relationship among the independent variables through the magnitude of correlation (r).

3.3. Regression Equation Test

Multiple regression analysis was performed twice in testing the equation. First, a test was conducted to discover which independent variables significantly affected the dependent variable. Second, a test was conducted to get a final result for the regression equation by including only those independent variables that had been shown to have a significant influence in the first test. In this study, we were looking for four final equations. These are the regression equation for each manufacturing strategy, namely the strategy of flexibility, of product delivery, of quality, and of cost reduction.

3.3.1. Flexibility strategy

From the results of the automobile parts manufacturers' statistical analysis, an R-value of 0.753 was obtained with an R square value of 0.567. This indicates that the functional capability of the variables production/operations, finance, public relations and government have strong positive relationships to strategic flexibility, and these three variables can explain 56.7% of change in the flexibility strategy. The value of the F-count after the final test was 44.580 with a significance of 0.000 or 0000%. It can be concluded that there is a strong positive and significant relationship between the functional capabilities of production/operations, finance, and public and government relations and the strategy of flexibility. The value of the coefficient correlation was 0.633 and that of the determinant coefficient was 0.40. These values also indicate a strong relationship between the flexibility strategy and the functional capabilities of production/operation, marketing, finance, and public and governmental relations.

The final model for Flexibility Strategy for the automobile parts manufacturers is:

$$Y_{flexibility} = 0853 + 0.355X_2 + 0.209X_5 + 0187\ X_7 \quad (1)$$

The final model of Flexibility Strategy for motorcycle parts manufacturers is:

$$Y_{flexibility} = 1.253 + 0.343\ X_2 – 0.382\ X_4 + 0.319\ X_5 + 0.349\ X_7 \quad (2)$$

where Y is the flexibility strategy; X_2 is the functional capability of production/operations; X_4 is the functional capability of marketing; X_5 is the functional capability of finance; X_7 is the functional capability of public and governmental relations.

Flexibility strategy describes the activities undertaken by the company under certain conditions that suddenly occur. These activities include renewal processes, renewal of production lines, and updates of equipment and machinery. These occur especially at the commencement of new projects or when there are new agreements with customers to produce new products. In other words, flexibility strategy relates to the adjustments the company makes under certain conditions associated with production activities. It may also refer to changes in the number of orders received by the company, to changes that must be made on the production floor, or in connection with innovations and improvements the company adopts. The production/operations department relates directly to changes on the production floor. The readiness of production to function as a business unit within the production process means that it faces the changes that occur as there are increasing or changing demands from customers. It is strategic for it to do this. If production cannot adapt its old production process to run with a new process, resulting from changes due to improved product variants or to changes in basic materials of products, the consumers will be dissatisfied and will look for another company to become their supplier. Requests for changes in a product for the motor components industry occur simultaneously with the emergence of a new type of motor, and also with the new models that are normally produced every two years. Every company should be ready to accept challenges from its customers to produce new products that differ from previous products. Production/operations is therefore strongly influential in achieving the successful implementation of a flexibility strategy. The finance department will also affect the flexibility strategy significantly, as this department must consider the level of gain on investment when they accept a project or tender. In addition, the functional capability of the public and governmental relations also affects the flexibility strategy because when a company wants to make a change, whether it is a change in the product or in the process, the company must also consider relevant government regulations.

3.3.2. Product delivery strategy

The results from the statistical analysis of the automobile parts manufacturers show that the R-value is 0.446 and the value of R square is 0.199. This indicates that the functional capability of the production/operations department has a weak positive relationship with the product delivery strategy, and these variables can explain only 19.9% of the rate of change of the delivery strategy. When the regression coefficients were tested, the functional capability of production/operations proved to be the independent variable that significantly influenced the product delivery strategy. The results from the motorcycle parts manufacturers' statistical analysis shows the value of the coefficient correlation to be 0.399. This also indicates a weak relationship between flexibility strategy and functional capabilities. The only aspect that had a good relationship with the delivery strategy was production/operations.

The final model for delivery strategy for the automobile parts manufacturers is:

$$Y_{delivery} = 0.512 + 0.512X_2 \quad (3)$$

The final model for delivery strategy for motorcycle parts manufacturers is:

$$Y_{delivery} = 2.276 + 0.428\, X_2 \quad (4)$$

where $Y_{delivery}$ is the delivery strategy; X_2 is the functional capability of production/operations.

Product delivery activities are essential for any company engaged in manufacturing because the ability to deliver goods is a reflection of the performance of the company. The one functional capability that significantly affects the delivery strategy is production/operations because of the need for readiness and skills on the production floor if it is to produce goods according to the customer's desired timing. In the other words, the delivery strategy involves tasks that enable the company to ship their products fast and meet the customer's demand specifications. The production system must be running well if it is to ship the products accurately and on schedule. Errors in the production process impact the products, which are then not delivered according to the customer's preferences. Delays in the production process can also cause delays in delivery. Therefore, the capabilities of production/operations strongly influence the development of a delivery strategy in a company.

3.3.3. Quality strategy

Statistical analysis of the results from the automobile parts manufacturers gave an R-value of 0.846 and an R square value of 0.716. This indicates that the functional capability of the variables production/operations, engineering and R&D, and human resources all have strong positive relationships with the quality strategy. These three variables can explain 71.6% of the quality strategy change. After the final test, the value of the F-count was 81.493 and the significance was 0.000 or 0000%. It can be concluded that there is a strongly positive and significant relationship between the functional capabilities of production/operations, engineering and R&D, and human resources with quality strategy. The results from the statistical analysis of the results from the motorcycle parts manufacturers gave a determinant coefficient of 0.533 and a coefficient correlation of 0.720. This indicates that the functional capability of productions/operations and finance both influenced the quality strategy.

The final model for the quality strategy for automobile parts manufacturers is:

$$Y_{quality} = 0.408 + 0.578X_2 + 0.142X_3 + 0.192\, X_6 \quad (5)$$

The final model for quality strategy for motorcycle parts manufacturers is:

$$Y_{quality} = 0.661 + 0.495\, X_2 + 0.331\, X_5 \quad (6)$$

where $Y_{quality}$ is the quality strategy; X_2 is the functional capability of production/operations; X_3 is the functional capability of engineering and R&D; X_5 is the functional capability of finance; X_6 is the functional capability of human resources. Some indicators that serve as benchmarks in rating the quality are the level of product defects and also the implementation of ISO standards. As a manufacturing company, high quality is reflected in the quality of its products and also in its production processes. The capabilities of departments are related to their production activities, such as the departments of production/operations and engineering and R&D. In addition, human resources, as the executor of activities, is another essential factor in the effort to control and improve quality. Human resources in a company are controlled by the department of human resources, so this also has a significant influence on the quality strategy. Among the motorcycle part manufacturers, only productions/operations and finance impacted on the quality strategy. This means that finance should be given more influence in making improvements in the quality of product development.

3.3.4. Cost reduction strategy

The statistical analysis of the results from the automobile part manufacturers gave an R-value of 0.701 and R square value of 0.491. This indicates that the functional capabilities of general administration, production/operations, engineering and R&D, and marketing all have a simultaneous strong positive influence on cost reduction strategy. These four variables can explain 49.1% of change in the cost reduction strategy. It can be concluded that there is a strongly positive and significant relationship between the functional capabilities of general administration, production/operations, engineering and R&D, and marketing and a cost reduction strategy. The statistical analysis of the results from the motorcycle parts manufacturers gives a determinant coefficient of 0.406 and a correlation coefficient of 0.624. This indicates that the capability of productions/operations, engineering and R&D, and general administration significantly influence the cost reduction strategy.

The final model for cost reduction strategy for the automobile parts manufacturers is:

$$Y_{cost} = 1.019 + 0.344X_1 + 0.338X_2 + 0.290X_3 - 0.268\,X_4 \tag{7}$$

The final model for cost reduction strategy for the motorcycle parts manufacturers is:

$$Y_{cost} = 1.060 + 0.300\,X_1 + 0.361\,X_2 + 0.352\,X_3 - 0.314\,X_4 \tag{8}$$

where Y_{cost} is the cost reduction strategy; X_1 is the functional capability of general administration; X_2 is the functional capability of production/operations; X_3 is the functional capability of engineering and R&D; X_4 is the functional capability of marketing. In order for the cost reduction strategy to perform well, the capabilities of some related departments are required. Production/operations and the engineering and R&D department, whose activities are related to improvements in both products and processes and also in increasing productivity, will contribute to the implementation of cost reduction strategies. In addition, the department of general administration also influences cost reduction strategy significantly. The functions of the general administration department include the provision of safety training and the setting of ISO standards for quality management. Both the safety standards and the ISO standards are directly related to cost reduction efforts because a safe and standardized working environment will prevent unnecessary costs (such as labor costs in the case of the accident). However, there was one department that significantly influenced the cost reduction strategy, but its effect was negative (inverse), and this was the marketing department (X_4). This happens because of differences in opinion between the marketing department and the development of a cost reduction strategy. Here, there is a necessary trade-off between cost reduction and marketing. Marketing departments need larger costs to create market growth. However, a cost reduction strategy aims to decrease the budget for the entire company, including the marketing department. Therefore, if a cost reduction strategy is enforced, the potential for market growth may be hampered. By way of compromise, budgetary efficiency must be balanced against the need to support market growth.

4. CONCLUSION

Functional capability significantly influences the development of a strategy aimed at achieving manufacturing objectives for both automobile parts manufacturers and motorcycle parts manufacturers. The most important capability when developing a manufacturing strategy is the production/operations dimension. In each strategic area, including flexibility, product delivery, quality, and cost reduction, production/operations impact strongly on strategy development. In addition, other capabilities have a middle level impact on strategy development. This paper has shown that functional capabilities could be a leverage point for accelerating the achievement of a company's goals through the development of its manufacturing strategy. In terms of a flexibility strategy, the order of priorities should be production/operations, finance, and then public and government relations. The top priority for the development of a delivery strategy is the functional capability of production/operations. However, if the company is using a quality strategy approach, the order of priorities for its functional capabilities will be production/operations, human resources, and then engineering and R&D. Finally, the order of priorities for functional capabilities in developing a cost reduction strategy will be general administration, production/operations, and then engineering and R&D. Although marketing has a significant relationship with the development of a cost reduction strategy, the relationship is negative. Therefore, this variable is not considered as a priority in the development of a cost reduction strategy.

This paper is limited to the automotive industry and it is possible that other strategic industries would show significant differences. Our study has implications for future research such as an investigation into the RBV approach with other strategic industries. A combination of MBV and RBV would improve the model and the future use of hybrid methods to present a more dynamic mathematical model could have a major impact on industrial activity.

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