

THE INFLUENCE OF INNOVATION MANAGEMENT AND COMPETITIVE STRATEGY TOWARDS BUSINESS PERFORMANCE OF ORGANIC FERTILIZER INDUSTRIES IN INDONESIA

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Abstract

Indonesia has a large scale of land on agriculture and plantation, and using fertilizers is an obligation in order to obtain good harvest. And, due to raising concerns over chemical fertilizers, organic fertilizers are fast grabbing the market. In spite of the increasing demand for organic fertilizer, the business performance of the organic fertilizer industries remain unperformed even some industries close down the business. This may be due to misformulation and misimplemation of competitive strategy and the incapable of applying innovation management. The purpose of this study is to analyze based on 53 industries of organic fertilizer producer registered in the Minister of Agriculture around Indonesia. The primary data is based on questionnaire and interview with the management of the company as well as observation on the industries, where the verificative analysis is based on Partial Least Square (PLS) model. The

research conclude that innovation management and competitive strategy has affected the business performance, as partially the competitive strategy has more dominant effect than innovation management towards the business performance of organic fertilizer industries in Indonesia.

Keywords: Innovation, Strategy, Competitive advantage, Business Performance

INTRODUCTION

Fertilizer is an indispensable material of natural or synthetic origin that is applied to the soils or to plant tissues to supply one or more plant nutrients to the growth of plants. Currently in Indonesia, the fertilizer market is controlled by synthetic or chemical fertilizer which was produced in high-scaled by PT. Pupuk Indonesia. This state-owned enterprise was merged from several state-owned enterprises (SOEs) such as PT. Petrokimia Gresik, PT. Pupuk Kujang, PT. Pupuk Kalimantan Timur, PT. Pupuk Iskandan Muda, PT. Sriwijaya, PT. Rekayasa Industri, and PT. Mega Eltra. In 2013, the production line can deliver up to 9 million tonnes of fertilizer annually. Nevertheless, based on market research, the demand for synthetic fertilizer is around 10 million tonnes per year, the data is as of 2012. Therefore, the capacity production of synthetic fertilizer from PT. Pupuk Indonesia is still under the demand quantity of fertilizer in the market.

Table 1. The Demand of Fertilizer Nationally

Data Konsumsi Pupuk					
Tahun	UREA	SP-36	ZA	NPK	Total konsumsi
2010	5,717,512	634,883	739,198	1,804,413	8,896,006
2011	5,744,731	723,177	969,344	2,124,474	9,561,726
2012	5,546,892	858,719	1,051,281	2,478,399	9,935,291

Source: Indonesian Fertilizer Producer Association, December 2013

The main reason of this shortage of fertilizer production is due to the supply of main resources for synthetic fertilizer production, this main resources are natural gas and other substances imported from several countries.

Despite of this, many countries has started to promote natural or organic fertilizer to replace synthetic fertilizer and ban the usage of chemical fertilizer and support the organic agriculture by providing incentives to develop organic products.

Table 2. Countries that implement Organic Agriculture

No.	Countries	Description	Regulation
1.	European	In 1989, Government of European Countries has issued prohibition of using chemical fertilizer and pesticide and starting to implement organic fertilizer.	1989 EU extensification scheme (Introduction to EU organic policy - Focus-Balkans.org) 1994 Council regulation (ECC) No. 2078/92
2.	Canada	In 2000, The Government of Canadian issue the policy of Organic Agriculture, to replace the chemical fertilizer with organic fertilizer. This policy include the technical and monetary support.	<i>Pesticides – Making the Right Choice for the Protection of Health and the Environment</i> , the House of Commons Standing Committee on Environment and Sustainable Development
3.	India	In 2000, Agriculture Minister of India annouced the Government support on 'National Project on Organic'	2004 continuing in XIth Five year plan with an allocation of Rs.150 cro re. (CMA Publication No – 239, 2010)
4.	Philippines	In 2010, Philippines government has declared to implement Organic Agriculture in Philippines to protect the soil and production.	R.A. No. 10068 – which known as the "Organic Agriculture Act of 2010". (p.9 Manila Bulletin - June 18, 2010)
5.	Saudi Arabia	In 2011, Agriculture Minister of Saudi Arabia issues the policy of Government support on Organik Agriculture to produce healty food and avoid environment disaster.	The Ministry of Agriculture delegated the development of the Organic Agricultural Policy to GIZ, as a key activity of its Organic Farming project.

Source : Compiled from several resources (2015)

The requirement of organic fertilizer tends to increase from year to year due to the conversion of synthetic/chemical to organic fertilizer in 2010 with 10% portion of conversion, in 2020 up to 60% and 80% in 2025.

This organic fertilizer market tend to increase and expand due to the above conversion and widely use in the organic agriculture. Apparently, this surprising opportunities have not been able to be translated into a sustainable business performance in the organic fertilizer industries. It appears that many of this organic fertilizer industries are classified under Small and Medium Enterprises (SMEs) due to the management of capital resources, raw materials and strategic management of the industries.

The market share of organic fertilizer which is mainly produced by the SMEs industries continue to struggle but some fail to survive. Based on market researched these industries is unable to continue the business with the reason of raw material and unable to expand the business market share.

No optimal achievement of business performance in the organic fertilizer industries because of the unappropriated strategic management implemented. According to Wheelen and Hunger (2015:36) that strategic management is a set of decisions and actions which determine the business performance of the long run of the corporation. These action are Environmental Scanning (*Gathering Information*), Strategy Formulation (*Developing Long Run Plans*), Strategic Implementation (*Putting Strategy into Action*), and Evaluation and Control (*Monitoring Performance*).

After a long market review and research on these organic fertilizer industries, it was noticed that most of the products produced are almost the same with similar process of production and the price of products is relatively of no difference. In this circumstances, it was obvious that no emergence of innovation in the products nor do they aware of the strategy to anticipate in the market that they will compete. So as a trigger for the organic fertilizer industries to create a variety of product innovation and the benefits of organic fertilizer products, new execution has to be taken into account. Grant, Robert R. (2011:298) stated that “*Innovation is the initial commercialization of invention by producing and marketing a new good or service or by using a new method of production*”.

The organic fertilizer industries also seem not to have a high understanding of the need for speed-based strategies or strategies to anticipate the movement of speed in the market demands for local, national, and international. The lack of awareness in this circumstances might caused the failure to exist in the market and consumer lack to consume organic products. Meanwhile, Pearce and Robinson (2013:238) expressed that competitive strategy is an effort to create a sustainable competitive advantage through Low Cost Strategies, Differentiation strategies, and Speed Based Strategies.

According to Ortt and van der Duin (2008, p.523) “*Innovation processes describe the activities that are performed at each stage of the development of an innovation. Innovation management is the governance and organization of these innovation processes*”. Moghaddam et al (2013) found a positive relationship between innovation, market orientation, Knowledge Management, and financial performance.

Based on the observations, it shows that the organic fertilizer industries have no effort of using or implementing strategic management in their industries, such as no intention to develop innovative products and innovative process overtime. The product and production process are

relatively the same with all other organic fertilizer industries. These industries also lack the awareness of the speed movement of market requirement for this products.

By looking at the phenomenon described above, the intention of this paper is to examine and find out the influence of Innovation Management and Competitive Strategy on the Business Performance of organic fertilizer industries in Indonesia.

LITERATURE REVIEW

Busse and Wallenburg (2011:189) *"From the perspective of single organizations, two groups of innovation management tasks exist: (1) The management of innovation processes; and (2) The management of innovation systems.*

Ortt and van der Duin (2008:523) stated *"Innovation processes describe the activities that are performed at each stage of the development of an innovation. Innovation management is the governance and organization of these innovation processes.* Moghaddam *et al* (2013) found a positive relationship between innovation, market orientation, Knowledge Management, and financial performance.

Ireland *et al* (2013:98) explained that many companies prefer to use five competitive strategies to build and maintain a company's strategic position against competitors, which consisted of: *Cost Leadership, Differentiation, Focused Cost Leadership, Focused Differentiation, dan Integrated Cost Leadership/Differentiation*

Below table is the comparison of several dimension of Competitive Strategies collected from various sources:

Table 3. Dimension of Competitive Strategy

No.	Ireland, Hoskisson dan Hitt (2013:98)	Wheelen and Hunger (Porter)(2012:186)	Pearce dan Robinson (2013:164)
1.	<i>Cost Leadership Strategy</i>	<i>Cost Leadership</i>	<i>Low Cost Strategies</i>
2.	<i>Differentiation Strategy</i>	<i>Differentiation</i>	<i>Differentiation Strategies</i>
3.	<i>Focused Cost Leadership Strategy</i>	<i>Cost Focus</i>	<i>Speed Based Strategies</i>
4.	<i>Focused Differentiation Strategy</i>	<i>Differentiation Focus</i>	
5.	<i>Integrated Cost Leadership/Differentiation</i>		

Source: Adapted from several book reference

The measurement of a company performance will not be objective based on financial calculation such as Sales, Revenues, Net Profit, Return on Sales, Assets as a percentage of Sales, and Return On Assets that may not be reliable based on the calculation of internal financial performance, because the above calculation does not provide external performance

and outlook based on the market. The calculation must also take External benchmarks of market growth, Competitive Pricing, Relative Products and Service Quality, and the Ability to satisfy and retain customers. (Best, 2013:64)

Table 4. The Business Performance Measurement Model

<i>Internal Financial measure of Performance</i>	<i>External/Market-based view of performance</i>
1. Sales Revenue	1. External benchmarks of market growth
2. Net Profit	2. Competitive Pricing
3. Return on Sales	3. Relative Product and Service Quality
4. Assets as a percentage of Sales	4. Ability to satisfy and retain customers
5. Return on Assets	

Source: Best (2013:64)

According to several measurements of business performance including: ROE, Sales Growth, Profit Margin (Hubbard and Beamish, 2011); Revenues, Profits, Return on Investment (David, 2015) Sales Growth, Market Share, Profitability (Wheelen dan Hunger, 2015).

RESEARCH OBJECTIVE

The basic aim of this study is to analyze the influence of Innovation Management and Competitive Strategy either simultaneously or partially on Business Performance of organic fertilizer industries in Indonesia.

METHODOLOGY

The research designed in this study is to test the effect and relationship of the related variables described earlier. This research use both descriptive and verificative with causality type of investigation to analyze the effect and influence of both exogenous and endogenous variables. The analysis unit in this study is the industries producer of organic fertilizer in Indonesia and the observation unit is the management of the company. The design of analysis used in this study is *Partial Least Square* (PLS) which is an alternative method of variance analysis from *Structural Equation Modelling* (SEM) the reason of choosing this design method is because of the target population defined. There are two types of organic fertilizer industries in Indonesia, there are organic fertilizer with bulk raw materials and organic fertilizer with liquid raw materials. This study is limited to the organic fertilizer industry with bulk raw materials with the amount of 53 companies (population) registered in the Ministry of Agriculture. Since the number of population size that is quite small so this research will conduct a census analysis, by taking up all the elements of the population.

ANALYSIS AND RESULTS

Evaluation of Goodness of Fit

Goodness of Fit model is measured by using R^2 of the dependent latent variable with the same interpretation to regression. Q2 predictive relevance for the structural model will measures how good the observed values generated by the model and estimation parameters. According to Chin (1998), the value of R square for 0.67 (strong), 0.33 (moderate) and 0.19 (weak). Prediction value relevance (Q square) at 0.02 (small), 0.15 (medium) and 0.35 (large).

The measurement model analysis showed the link between manifest variables (indicators) and each latent variables. Analysis of the measurement model aims to test the validity and reliability of dimensions and indicators used to measure each of the variables that were constructed. The analysis of the measurement model can be explained by the value of discriminant validity (AVE) with a suggested value above 0.5, loading factor (> 0.50 or p value $< 5\%$), constructed Composite Validity and Reliability (Cronbachs Alpha > 0.70 (Nunnally, 1994), can be concluded that dimension and indicator stated is reliable in the measurement of the research variables. The figures show in Table 5 below are the values of AVE, CA, CR, R Square, and Q-Square:

Table 5. Goodness of Fit Model (GoF)

Variable	AVE	Cronbachs Alpha	Composite Reliability	R Square	Q Square
BUSINESS PERFORMANCE	0.695	0.782	0.872	0.576	0.367
COMPETITIVE STRATEGY	0.629	0.719	0.835	-	-
INNOVATION MANAGEMENT	0.599	0.798	0.798	-	-

Source : Primary data processed by Smart PLS(2015)

The value of R^2 show that that the criterion is strong, with large Q Square value, so it can be concluded that the model is supported by the empirical research or the model is fit. Similarly, the values of AVE > 0.5 , indicate that all the variables in the model were estimated to meet the criteria of discriminant validity. Composite Reliability and Cronbachs Alpha of each variable is > 0.70 thus can be concluded that all the variables have good reliability.

Table 6. Loading Factor of Dimension-Indicator

Variable	Dimension-Indicator	Λ	t value	P Values
INNOVATION MANAGEMENT	X1 <- INNOVATION MANAGEMENT	0.674	3.831	0.000
	X2 <- INNOVATION MANAGEMENT	0.700	5.769	0.000
	X3 <- INNOVATION MANAGEMENT	0.606	4.230	0.000
	X4 <- INNOVATION MANAGEMENT	0.664	4.427	0.000
	X5 <- INNOVATION MANAGEMENT	0.626	4.020	0.000
	X6 <- INNOVATION MANAGEMENT	0.499	3.735	0.000
COMPETITIVE STRATEGY	X7 <- COMPETITIVE STRATEGY	0.705	6.006	0.000
	X8 <- COMPETITIVE STRATEGY	0.806	11.168	0.000
	X9 <- COMPETITIVE STRATEGY	0.860	24.279	0.000
BUSINESS PERFORMANCE	Y1 <- BUSINESS PERFORMANCE	0.869	20.792	0.000
	Y2 <- BUSINESS PERFORMANCE	0.868	24.692	0.000
	Y3 <- BUSINESS PERFORMANCE	0.760	8.886	0.000

Source : Primary data processed by Smart PLS(2015)

The results of measurement model analysis on dimensions by the indicators indicates that the indicator is valid where most of the value of loading factor is greater than 0.70 with a p value <0.05.

The following figure shows the results of model testing by using PLS Smart 3.0 as follows:

Figure 1. Path Coefficient of Research Model

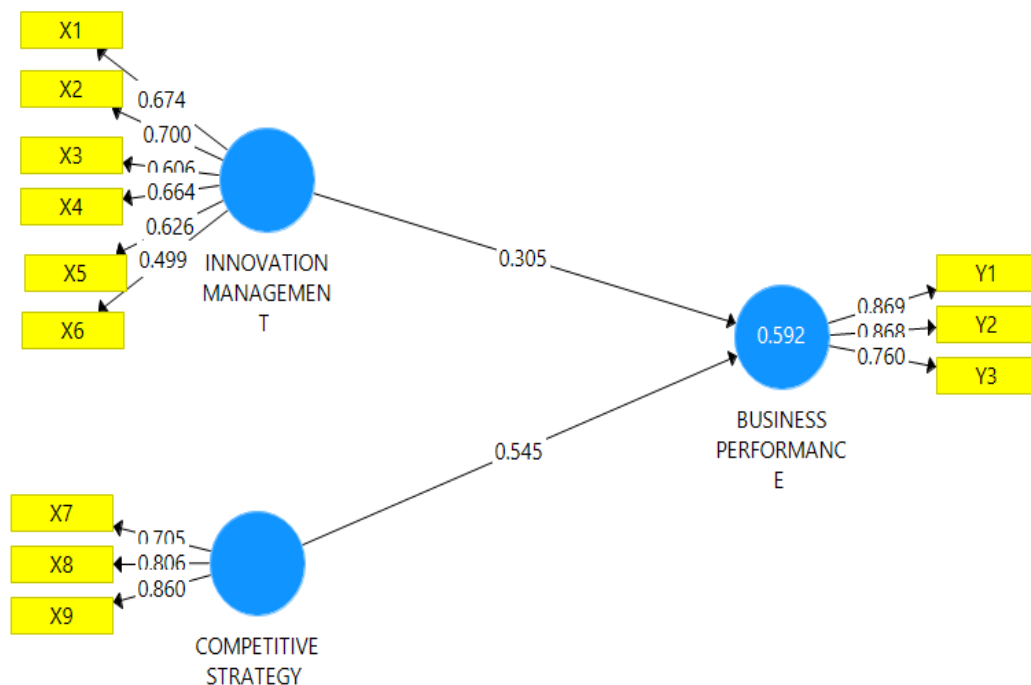


Figure 2. t statistics of Research Model

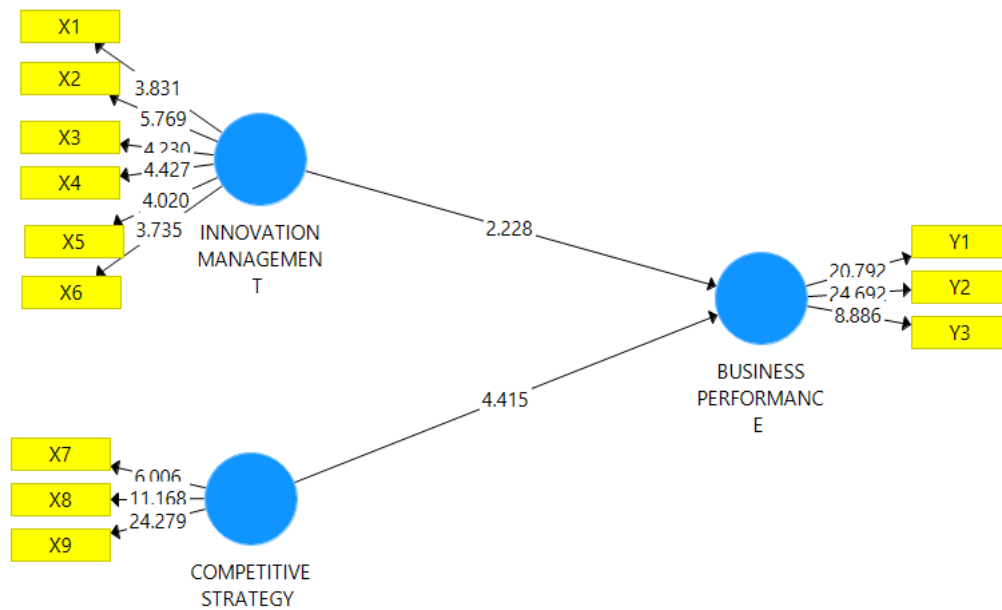


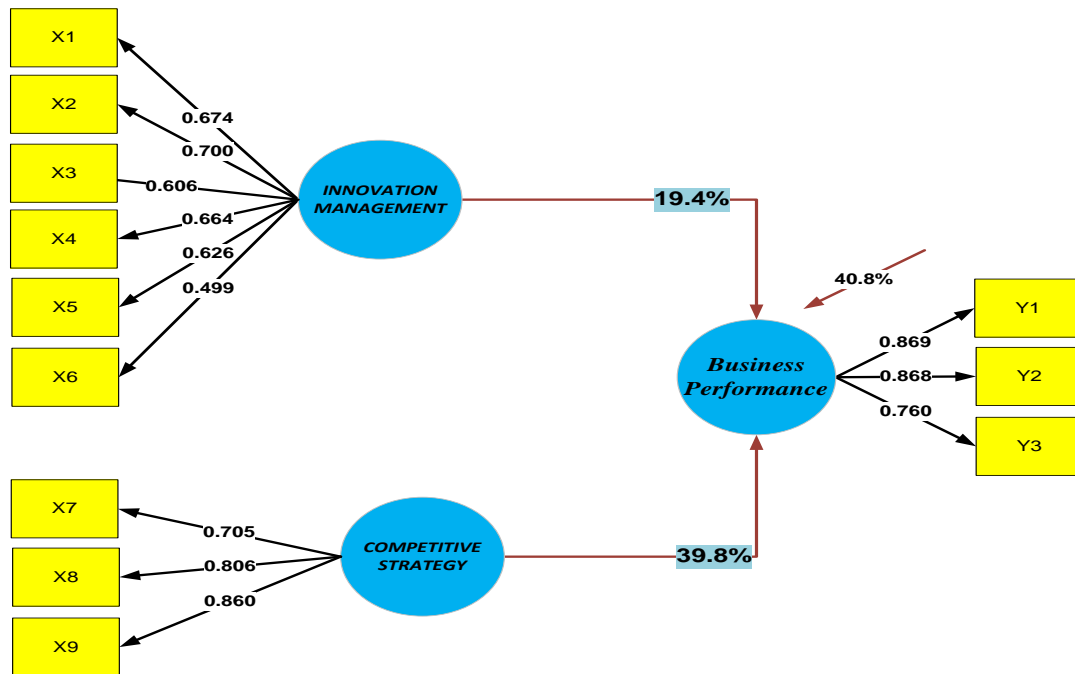
Table 7. Hypothesis Testing

Hypothesis	R ²	F value	γ	P value	Conclusion
INNOVATION MANAGEMENT AND COMPETITIVE STRATEGY → BUSINESS PERFORMANCE	0,592	36.327*			H0 Rejected
INNOVATION MANAGEMENT → BUSINESS PERFORMANCE	0.194		0.305*	0.000	H0 Rejected
COMPETITIVE STRATEGY → BUSINESS PERFORMANCE	0.398		0.545*	0.012	H0 Rejected

*significant at $\alpha=0.05$ (F table 3.183)

Based on the test results above, it is figured out that there is a significant influence either simultaneously or partially of Innovation Management and Competitive Strategy on Business Performance, where the influence of Competitive Strategy is more dominant than the Innovation Management on Business Performance with the total effect of 39.8%.

Figure 3. Research Model Finding



Based on the test results above, it is showed that there is a significant influence either simultaneously or partially of Innovation Management and Competitive Strategy on Business Performance, where the influence of Competitive Strategy is more dominant than the Innovation Management on Business Performance.

The Competitive Strategy of organic fertilizer industries has an effort of the creation of a Sustainable Competitive Advantage through Low Cost Strategies, Differentiation Strategies, and Speed-based strategies. The results of this study revealed that Speed-based Strategies has a great influence in Competitive Strategy.

Speed-based Strategies revealed in this study give us a guide line that all company might be aware of this speed influence in the coming future on doing business, especially the organic fertilizer industries. This also give us a picture that not only low cost and differentiation are the strategies that we might concern as the implementation of Business Strategies, but speed-based must be taken in account of strategy design.

The results of this study indicate that the effect of Competitive Strategy has more influence on Business Performance compare to Innovation Management, but this does not mean that Innovation Management can be left out in the implementation on Business Strategy, as Innovation Management have played a big influence on today market research. Without innovation the business will tend to be stagnant or even fail to exist.

Kagochi (2007) determine that the impact of public investment in R&D, Human Capital, and competitiveness of US agricultural export commodity. This research resulted in the index of R&D and human capital that is used to analyze the competitiveness of four US agricultural export commodities against their competitors. The results of the study found that Australia has maintained its market share and maintain a higher price to differentiate wheat by creating the perception that their wheat is of better quality. In addition Dwyer (2007) highlight and discuss how to use the approach as a simple rule strategy (the strategy as simple rules as (SSR) to improve the measurement of performance, competitiveness, accountability of the growth of private enterprise, public sector, and nonprofit organizations.

In order to improve the business performance, besides implementing Competitive Strategy, Innovation Management is also required to be taken into account as mentioned by Trott, Paul (2005:17) that innovation is so important that each company has to decide to improve new product and process continuously, otherwise the competitor may be ahead of the product without further innovation. The type of innovation describe by Trott:

- a. Product innovation : The development of a new or improved product
- b. Process innovation : The development of a new manufacturing process such as Pilkington's float glass process
- c. Organizational innovation: A new venture division; a new internal communication system; introduction of a new accounting procedure
- d. Management innovation : TQM (Total Quality Management) systems; BPR (Business Process Re-engineering)
- e. Production innovation : Quality circles; Just-in-time (JIT) manufacturing system; new production planning software
- f. Commercial/marketing Innovation : New financing arrangements; new sales approach
- g. Service innovation: Internet-based financial services

CONCLUSION AND RECOMMENDATIONS

The result of the statistical test seem to indicate that variables defined as Innovation Management and Competitive Strategy have simultaneously and partially effect on Business Performance of organic fertilizer industries. Partially Competitive Strategy has a greater influence rather than Innovation Management. Speed-based Strategy, the dimension of Competitive Strategy suggested a greater influence than the dimension of Low Cost Strategy and Differentiation Strategy in reflecting to the organic fertilizer industries. While the reason behind this is are completely clear that in order to be able to sustain the Business Performance

of organic fertilizer industries, even though the business opportunities is promisingly and widely opened, the management must be able to impose the proper strategy in the business. Based on the results of this study, it is suggested that the management of organic fertilizer industries must further develop Competitive Strategy focused on Low Cost Strategy, Differentiation Strategy, and Speed-based Strategy, then based on the speed-based strategy to develop the Innovation Management Strategy to enhance the product, process and production to reach the sustainable competitive advantage.

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