

Development model of small and medium scale industry's business strategies for textile commodity in Bogor

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**Development Model of Small and Medium Scale Industry's Business
 Strategies for Textile Commodity in Bogor**

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ABSTRACT

The growth of Small and Medium Industries (SMI) up to now continues to increase, based on data from the Ministry of Industry (2004) it is stated the number of SMIs in 2002 was 2.55 million business units and in 2003 increased to 3 million business units. It means the SMI growth has occurred at 15% per year. So this shows the high competition that occurs among SMIs. Potential SMIs will excel in their business, while SMIs which are not competitive in the competition will retreat from their business. The research methodology used in this research is to generate scenarios selected textile industry that is TK, ACI and VI based on the behavior of real systems, by using dynamic system simulation approach, and assisted software of Powersim 2000. Each industry has 3 scenarios that must be determined its implementation priority in order to develop a business plan for 60 periods in the future by using Fuzzy AHP approach. Policy scenarios developed by TK industry consist of developing the concept of e-commerce for the first scenario, developing 2 DC for the second scenario, and the third scenario is developing 3 DC. The three scenarios developed by each ACI industry are investing new machine, old engine optimization and work system design. Scenarios developed by industry VI for three of which, each is the variation development of new products based on new machine investment, the development of new product variations by maintaining of existing machines and the development of embroidery designs. Selected alternative priority for TK industry is to develop the concept of e-commerce with score of 0.575. Selected alternative priority for the ACI industrial is working system design with score of 0.536. Selected alternative priority for the industry VI is the development of embroidery designs with score of 0.506.

Keywords

strategy, scenarios, models, systems, profit

1. INTRODUCTION

Growth, development and survival of an industry can not be separated from the formulation of business plans that are designed with mature thought the various parties in the organization at the company. At present, the industrial development is very rapid, so that increasing rivalry in the industrial world.

The growth of Small and Medium Industries (SMI) up to now continues to increase, based on data from the Ministry of Industry (2004) it is stated the number of SMIs in 2002 was 2.55 million business units and in 2003 increased to 3 million business units. It means SMI growth has occurred at 15% per year. So this shows the high competition that occurs among SMIs. Potential SMIs will excel in their business, while SMIs which are not competitive in the competition will retreat from their business.

Some industries that appear do not have a long business lifecycle, one of contributing factor is the inability of SMIs in designing its business development strategy. Based on the foregoing, the research on the modeling of the business development strategy for the survival of SMIs is very important to do.

The result of the first year research has developed a modeling by approach to dynamic system simulation based on a Causal Loop Diagram (CLD). There are 4 models generated, namely the business development model design system for textile finished goods products SMIs, the second model is a sub system of the addition of new markets, the third model is a sub system of productivity improvement and the last model is a sub system of product diversification.

Based on the results of the first year research, it will be developed Stock Flow Diagram (SFD) based on the CLD that has been designed. The development of CLD to the SFD will show the development of core variables into several more specific variables within the framework of the third business development strategy formulation of three selected SMI units as research objects.

The formulation of business development strategy which will be raised its policy scenario is the industry sustainability for SMI ACI with the score of the Non Numeric Multi Experts Multi Criteria Decision Making (ME-MCDM) Very Important (VI), add

new markets for SMI TK with the score of the ME-MCDM Very Important (VI), and increase productivity for SMI VI with the score of the ME-MCDM Important (I).

The policy scenarios will be conducted with Power Simulation software. Where the policy scenarios generated by the model simulation result based on real behavior systems that have been validated by the U-Theil's.

The policy scenarios will be developed into more than two scenarios, in which the best policy scenario election would be conducted. The selection of the best scenario would be done by using Fuzzy Analytical Hierarchy Process (AHP). The policy scenario the 5 has the score of highest fuzzy AHP will be elected to the SMI business development policy.

The main objective of this research is to develop a model of business plan development policy of small and medium industries for textiles finished goods commodity. Based on the results of the first year research has been known the formulation of strategies for developing business plans for small and medium industries of TK, ACI and VI that are located in Kabupaten and Kota Bogor. Where this three industries are the model which is taken for similar SMIs which are in the same quadrant, namely the quadrant of star and stability, based on the BCG matrix, which has been done in the first year.

Second year research will develop a model of CLD into SFD in Powersim to determine the value of company profits or earnings during the next 5 years if the policy scenarios are specified for the development of business plans. Where the TK industry will determine the value of profit based on the policy scenario to add a new market, while the ACI industry based on the productivity improvement strategies, and the industry VI based on the product diversification strategy.

The benefits of this research obtained are as follows:

1. The model of policy obtained, can be used SMIs to apply in developing its business, so that SMIs can sustain the survival of its business, and survive in the world competition of textile finished goods commodity industry.
2. Give thought contributions to the development of systems science and systems approach applications for the policy making with regard to efforts to minimize the "out of business" companies of textiles finished goods commodity IKMs in Kabupaten Bogor and Kota Bogor Jawa Barat.

2. RESEARCH METHODOLOGY

This research has been preceded by preliminary research that has been done through the research of *Hibah Dosen Muda DIKTI 2007*, entitled "Modelling of Textile Finished Goods Product Marketing Strategy based on dynamic System Simulation Approach to SMI in Kota Bogor." (Nurhasanah, 2008). This research has been done mapping the position of SMIs on the growth of companies and relative market share. From this it is known that 50% (8 IKM) sample of companies collected by the way of cluster random sampling in a position that is growing and must be maintained growth and survival. While only 12.5% (2 SMI) companies that are included on the stable phase, and 37.5% (6 SMI) are included on phase that should be liquidated or sold its assets to a more advanced SMIs.

Then the research of *Hibah Dosen Muda* continues with the *Hibah Bersaing DIKTI 2009* research that has been approved in the first year, with the title of *Model of the Business Plan Development Policy of Small and Medium Industry of Textile Finished Goods Commodity in Kabupaten dan Kota Bogor* (Nurhasanah, 2010).

The selected strategy will be developed its model by using the mental models generated with CLDF and SFD. This model developed will use the assistance of Power simulation software.

The model that has been developed will be built the scenarios by using supporting variables to be included in modeling the dynamic system simulation. The scenario that is developed is a scenario to be used to determine the policy of SMI business development model of textile finished goods products in Kabupaten Bogor and Kota Bogor. The scenario which is successfully developed will be weighted the level of interest with a matrix of pairwise comparison to be processed by the fuzzy AHP approach. Figure 1 below presents the flow diagram of research framework.

3. ANALYSIS AND DISCUSSION

3.1. Policy Scenario Simulation

The policy scenarios developed for TK industry is to add new market. Where prior to the policy scenario is done, it must first be a review of the basic model which is the behavior of real systems of this industry.

The condition that occurs in the behavior of the system here based on the simulation of dynamic systems is that everyday this industry produces 6,000 dozens or 72,000 piece of blouse or tops clothing special for adult female. This means that with the labor of 25 male and 40 female, the company has the profit that can sustain its business in facing competition with other similar industries, where profits obtained is amounting to IDR.563.858.590. U-Theil's value of the current condition is at 0.015.

Now, the TK industry only market their products to Bogor and Bandung. Based on the selected strategy formula namely by adding new markets, then this industry will expand its marketing area. The first scenario that will be developed based on the real system that has been simulated for next 60 monthly periods is to add new markets through the development of TK industry sites. In this site it will be developed e-commerce system. Recapitulation of the simulation results are presented in Table 1.

Table 1. TK Industry Recapitulation Scenario Simulation

Condition	Description	Profit (Rp.)	U-Theil's
Existing	PC ^a = 6000 lusin	563.858.590	0,0150
1 st scenario	Develop e-commerce	405.668.306	0,0125
2 nd scenario	Develop 2 DC	546.239.315	0,0126
3 rd scenario	Develop 4 DC	494.406.896	0,0127

^aPC = Production Capacity

Currently the ACI industry occupies a position in the quadrant of stability, based on the first year research, which meant that the company is able to organize production and make profits in the current cash flow condition. In addition, the production routines have been already performed well and smoothly every day.

Daily production that is carried out by this industry is capable of producing 840,000 pieces of adult female finished clothes from synthetic fibers, with the assistance of 132 operators. In which 11 male, and 121 the rest are female. Operators here are helped ranging from receiving raw materials in the warehouse, designing, measuring, cutting, hemming mechanically and sewing, and packaging.

The stability condition which is modeled with the SFD in the simulation of dynamic systems informs the company's profit amounted IDR.791.793.752 with the deviation value based on the U-Theil's approach amounted to 0.0093. The simulation results of the recapitulation are presented in Table 2.

Table 2. ACI Industry Recapitulation Scenario Simulation

Condition	Description	Profit (Rp.)	U-Theil's
Existing	Defect = 2%	791.793.752	0,0013
1 st scenario	New machine investment and training operator	691.793.752	0,0009
2 nd scenario	Old machine dan training operator	442.413.752	0,0010
3 rd scenario	Work system design, old machine, and training operator	858.213.752	0,0011

Initial condition of VI industry that is simulated by the model based on the behavior of the real system is this industry has produced with a capacity of 3600 dozen per month of adult female Moslem dress. Where the number of operators who operates the machines is 32 people. Twelve of them are male, while the remaining 30 people are female. The simulation results for the profit is amounted to IDR.669.432.008,- with the U-Theil deviation value of 0.0011.

The first scenario that is developed from VI industry VI is to develop products variation, invest in new machinery and improve marketing methods that have been done. The investment of new machine will be conducted at the period of 7 with an investment value of IDR.500.000.000,-.

Investments in new machines are done to meet demand of the third new product variations. Another consequence that must be implemented is increasing the number of operators as much as possible.

The products variations that are developed are hijab for adult female, *koko* shirt for children and Muslim clothes for female children. The three variations of this product will be produced in the period of the 12th and incur the cost of IDR.487.296.000,-. The recapitulation of the simulation results is shown in Table 3.

Table 3. ACI Industry Recapitulation Scenario Simulation

Condition	Description	Profit (Rp.)	U-Theil's
Existing	One product	669.432.008	0,0011
1 st scenario	New machine investment and develop 3 new products	764.837.600	0,0008
2 nd scenario	Old machine, training operator and develop 3 new products	818.570.724	0,0008
3 rd scenario	Embroidery machine, training operator, develop 3 new products dan adding 3embroidery design	602.570.724	0,0014

3.2. Policy Scenario Priority

The weight value for TK industry policy scenarios based on the fuzzy AHP and the hierarchical structure is presented in Figure 2. The selected scenario for TK industry from SFD graphic is presented in Figure 3. The weight value for ACI industry policy scenarios based on the fuzzy AHP and the hierarchical structure is presented in Figure 4. The selected scenario for ACI industry from SFD graphic is presented in Figure 5. The weight value for VI industry policy scenario based on the fuzzy AHP and the hierarchical structure is presented in Figure 6. The selected scenario for VI industry from SFD graphic is presented in Figure 7.

4. CLOSING

The research result concluded that the policy scenarios that are developed by TK industry consists of developing the concept of e-commerce for the first scenario, developing 2 DC for the second scenario, and the third scenario is developing 3 DC. The three scenarios that are developed by each ACI industry are investing new machine, old machine optimization and working system design. The scenarios developed by VI industry for each of which is the development of new products variation based on new machinery investment, the development of new product variations by maintaining of existing machines and the development of embroidery designs.

Alternative priorities for the TK industry are to develop the concept of e-commerce with the score of 0.575. The alternative priority for ACI industry is designing working system with the score of 0.536. The alternative priority for VI industry is the development of embroidery designs with the score of 0.506.

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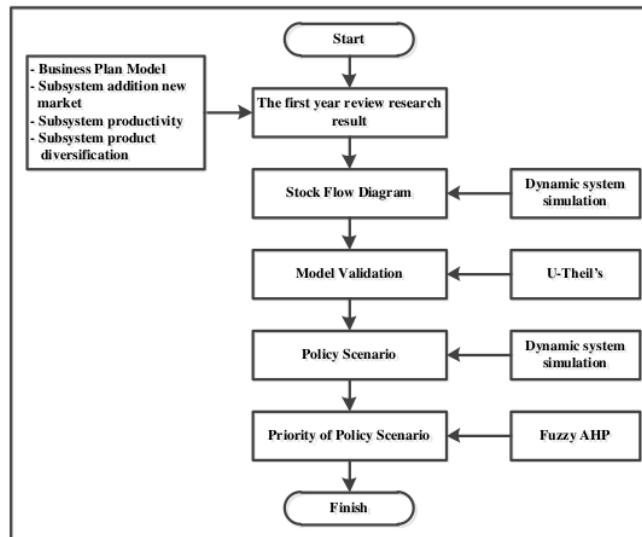


Figure 1. Research Method Diagram

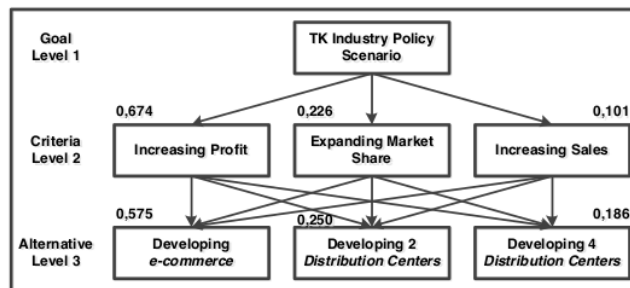


Figure 2. Hierarchy Structure of TK Industry Policy Scenario

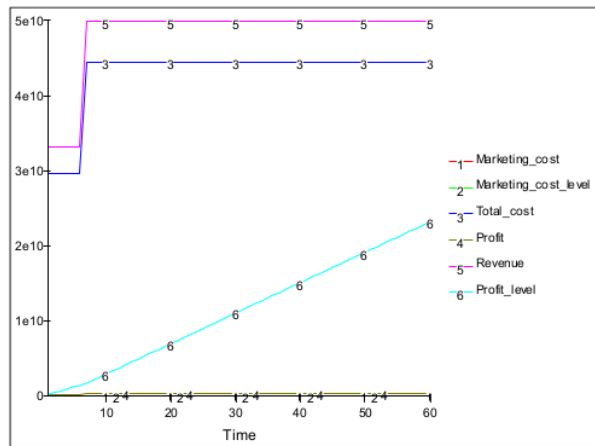


Figure 3. SFD Graphic for TK Industry

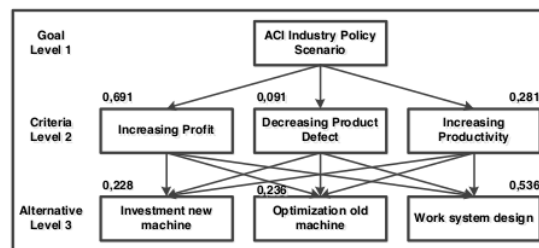


Figure 4. Hierarchy Structure of ACI Industry Policy Scenario

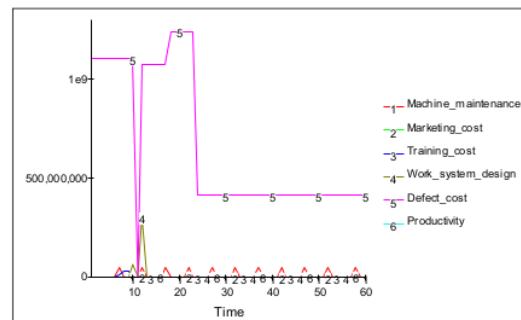


Figure 5. SFD Graphic for ACI Industry

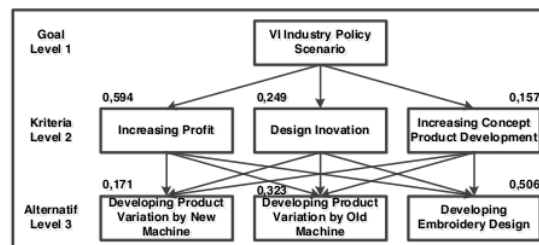


Figure 6. Hierarchy Structure of VI Industry Policy Scenario

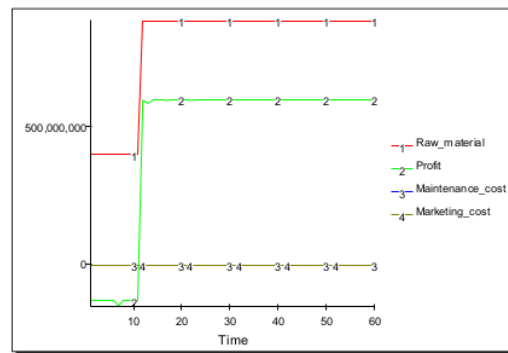


Figure 7. SFD Graphic for ACI Industry

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PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6