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## Hedging Local Products : Optimizing The Processed Products of Sago Commodity to Become More Competitive Globally

**Cifebrima Suyastri, Marhadi, Artha Yudilla**

Universitas Islam Riau, Department of International Relations

Jalan Kaharuddin Nasution No 113, Pekanbaru, Riau

[cifebrimasuyatsri@gmail.com](mailto:cifebrimasuyatsri@gmail.com) [marhadifeur@yahoo.com](mailto:marhadifeur@yahoo.com) [arthayudilla@gmail.com](mailto:arthayudilla@gmail.com)

**Abstract** - This study aimed to analyze the strategy of increasing food security and self-reliance through the Riau province of processed products sago as a substitute for food diversification . By leveraging the leading sectors in the region , it is expected to be a major driving force in improving both regional and national economy, as well export competitiveness in the global market. This paper getting its samples by gathering data from questionnaires conducted on SMEs and sago industry in the islands of Meranti. It also apply the SWOT analysis and measurement of product competitiveness through diamond porter to determine the potential of the processed products of sago. Moreover , to strengthen the sharpness of analysis, such direct observation in the form of unstructured interviews and gather relevant literature will be performed. The authors find new strategies in providing solutions to improve food security and self-reliance through the optimization of processed products of sago . Meeting the needs of the region in the consumption of basic materials requires another alternative to avoid product shortages and increase the potential of the region in developing the seed sector. The result is the increase of processed products of sago and to make it a superior product that can compete in national and global markets.

**Keyword:** *Hedging Local Product, Strategic, SWOT analysis*

### 1. Introduction

Sago (*Metroxylon* spp) is one of the potential traditional food sources that can be developed in supporting diversification of local and national food security. This traditional food has a nutritional value which is not inferior to other food sources such as rice, maize, cassava, and potatoes.

A food security policy which in practice utilizing local food is a very appropriate step, because local food is available in sufficient quantities throughout the areas and easily developed because according to local agro-climatic. Sago is a kind of plantation crops, a local food for people in some regions (including in Riau) has a very strategic development opportunities as a component of food security in the establishing both local and national food security.

One of areas that have potential in the developing sago production is Meranti district. Based on data obtained from forestry and plantation office in 2014, the amount of land that reaches 38 399 hectares of sago able to produce 198 162 tons of corn per year. Development of sago products in the form of product diversification and improvement of the quality of products can make a major contribution to the agricultural and industrial sectors. So, as to stimulate the economy and provide a regional scale contribution to the national economy.

Next is on government regulations especially on economic improvement in export sago products. Local and national food availability is still not able to meet

the needs of the people. Food imports such as rice and wheat is still the main alternative to meet those needs. Though sago is capable of resolving problem of food shortages in Indonesia.

Strengthening the export-potential sectors provides opportunities and challenges for the provision of Riau in encouraging the development of the agricultural sector, especially in the sub-plantation sector of ago. Optimization of sago products are substituted in the strengthening of regional and national food security and boost the productivity of sago towards the export market.

## **2. Research Questions**

1. How to optimize sago derivative products as a substitution of diversification programme in maintaining regional food security.
2. How to improve product competitiveness of Riau province, in this case sago commodity, as a global competitiveness

## **3. Research Aims**

This study aims to determine empirically the Optimization of derivative products (dairy products) of sago, in improving food security through food substitution and diversification in the province of Riau and develop the potential of sago to become a globally competitive product.

## **4. Literature Review**

### **4.1. Sago and Sago Processed Products**

Sago (*Metroxylon* spp) is one of commodities that is high carbohydrate contented so that it can be used as a source of carbohydrate in addition to rice, corn, or cassava. Sago used as food and industrial raw materials. According Heyne (1950) understanding of sago has not been limited overall (1950) and Deimun (1948) the true sense of the plants belonging to the genus *Metroxylon*. True sago plants by Heyne (1950) are divided into two groups according to whether or not is spiked petiole. Thorny ones included Rumphii *Metroxylon* Mart, which is the main type in this group. The term is often used to name sago flour produced from the base of plant various kinds of palm trees, not specifically derived from *Metroxylon*. Then producing tree called sago palm genus also includes a wide range. General palms are covered in addition to *Metroxylon* such as *Arecastrum* (Cocos), *Arenga* (Aren), *Borassus* (ejection), and *Roystonea*. Even *Cycas* (Pakis Haji) but not included in the group of palm trees producing sago (Deinum, 1948; Heyne, 1950). For clearer understanding, a palm tree *Metroxylon* lan do not produce flour (Stem-starch palms or trees) so-so called "fake sago".

### **4.2. Processed Products of Sago**

Sago has the important role either social, economic, or culture wise, especially in provinces, since it is a food replacement of the staple food for the people especially those living in coastal areas. Sago plants have many benefits. The flour is used for basic foodstuffs called papeda, in addition to cakes and raw materials for the production of alcohol. The leaves are used as the roof of the houses, its midrib used for the walls of the house, and the pulp can be used as pulp for paper manufacture or fodder (Haryanto and Pangloli 1992; Batseba. Et al. 2000).

Related to Sago, the most important product of the sago palm is aci (flour) which is used for various purposes (Abbas and Ehara, 2012). In Salem Area, (Tamil, India) sago industry is currently the backbone for rural economy society (Gurusamy, et al, 2011). In a specified area aci production availability is increasingly important because it has a lot of sago functions, namely as a staple food of the population.

Sago is a component of the main results of the sago palm. Sago starch derived from the pith so that the processing results are quite heavy and require special tools as well. Furthermore, Sago is getting skinned to get starchy pith. The result of shredded pith is used in order to facilitate the kneading (pressing). Kneading is done by using a press to remove the starch from the pith of the grater. After completion of crushing, screening is done to get rid of coarse fibers from the pith. Starch suspension is then deposited to separate corn starch from the water. The next step is drying, packing and saving or distributing to consumers. Each stage of activities or types of jobs using different tools.

Sago has many uses, where almost all parts of the plant have its own benefits. The trunk can be used as a pole or Beam Bridge, leaves as roofs, midrib for the wall of the house, and the "aci" as a source of carbohydrate (food) and industry (Haryanto and Pangloli 1992). Aci sago can be processed into a variety of foods, both staple foods and snacks such as noodles sago, "ongol", and sago plate.

Therefore, sago plant plays an important role in the diversification of food to support the stability of the food and the opportunity to be developed into a domestic industry. Papeda and Kapurung, two of staple foods for the majority of indigenous people in Maluku, Papua and South Sulawesi. This means that when the sago can be maintained as a staple food for most of the population in the three regions, the national rice procurement load becomes lighter. Sago plate, buburnee, and bagea likely to be developed into a domestic industry. Manado (North Sulawesi) is famous for bagea as souvenirs for tourists who visit the area.

#### **4.3. Food Security**

Sago has the greatest potential to be used as a substitute for rice. Sago advantages compared to other carbohydrate sources are plants sago or sago forests are harvested when desired. Sago trees can grow well in marshes and tidal, where the other "carbohydrate" crops difficult to grow. Agronomic wise, it is also simpler than other crops and harvesting is not depending on the season.

The calorie content per 100 grams sago starch was no less than the calorie content of other foodstuffs. Comparison of the calorie content of various sources of starch is ( per 100 grams): 361 calories corn, 360 calories milled rice, 195 calories cassava, 143 calories sweet potatoes and 353 calories sago.

Generally, sago palm processing technology that turn it into the sago starch, in Indonesia is still done traditionally and only a few areas such as Riau, Jambi and South Sumatra who uses a mechanical spring in extracting the sago starch. Processing sago pith of sago starch traditionally produces lower quality than the semi-mechanical and mechanical processing, whereas sago starch can also be used as an export commodity. Importing countries need tens of thousands of tons of sago starch each year to be made into glucose syrup, fructose syrup, sorbitol and others.

Until now, farmers have not been able to determine the right age to be harvest sago to get the optimum results. In general, sago farmers less concerned with the growth of sago from sapling its until ready be harvested. However,

farmers in the central areas of sago ordinarily using criteria or specific traits that may indicate that the corn is ready for harvest.

#### **4.4. Competitiveness**

Competitiveness is the ability of the commodities entering the international market and ability to survive in the international market. Competitiveness can also be regarded as a commodity's ability to enter foreign markets and the ability to survive in the market, in the sense that if a product has the competitiveness than the product is exactly demanded by many consumers (Tatakomara, 2004). There are two approaches that are often used to measure the level of competitiveness of a commodity that is from excellence of comparison been described in International Trade theory and competitive advantage proposed by Porter, but commodities that have a comparative advantage is not necessarily has excellence of competitiveness, because a market failure may exist due to regulation which causes it.

According to Porter (1990), competitiveness is defined as the productivity of a country that uses human resources, capital, and natural resources, while according to a comprehensive dictionary of International trade competitive advantage is how a product can be sold in the specific market, because the quality and the price is acceptable and supported with good services, terms of delivery, after-sales services, so that the product become more attractive and preferable to a rival product that comes from another source.

The competitiveness of an industry of a country depends on its four attributes, known as Porter's Diamond, consisting of (1) the condition factor (2) demand condition; (3) related and supporting industries; (4) strategy, structure and rivalry of companies. The fourth attribute will run well when coupled with the opportunity, as well as the role of government that will affect the role of the industry of a country in other countries.

#### **5. Research Methodology**

The method used in this study is a literature review. Literature study is a technique to get information through records, literature, documentation, etc. related to the object of research, such others:

1. Data on issues related to productivity, the area of export commodity, like statistics of Riau sago industry.
2. Data coming from government sites such as the Central Bureau of Statistics, annual data of the ministry of trade and agriculture.

Various information which supports this research are came from books, economic journals, and economics website.

#### **6. Data Analysis**

##### **SWOT Analysis**

SWOT analysis (SWOT analysis) which includes efforts to identify the strengths, weaknesses, opportunities, and threats that determines the performance of the company. External Information opportunities and threats can be obtained from many sources, including customers, government documents, suppliers, banks and other colleagues in the company. Many companies use the services of the institution to obtain scanning and clippings from newspapers, research on the internet, and relevant global and domestic trend (Richard L. Daft, 2010: 253).

## 7. Result and Discussion

### 7.1. Result

Sub-plantation sector has a very important role in the development of the national agricultural sector. The agriculture sector, especially in the sub plantation sector contributes significantly to national income. Sago crop plantation which is a very potential trade, mostly located in the District of Kepulauan Meranti. Where the plantation area is large enough that up to 38 163 Ha. The growing number of citizens, the need for food is increasing. The quantity of resources that is still available to be utilized optimally for society prosperity. Biodiversity in Riau province has a great opportunity in making the substitution of food, which is another food alternative that can be used to ensure food security.

Sago grow in Kepulauan Meranti, Although it has a small area compared with the national corn acreage at 5.5 million ha, but the islands has such a high level of productivity. Meranti highest sago with sago flour production numbers 440 thousand tons per year of production, compare to nation productivity at number of 523 thousand tons per year. In addition, Meranti is also a contributor to the sago refined products throughout Indonesia. Furthermore, sago processed food product used as a food substitute in Riau province and throughout Indonesia. Sago production should be able to offset the consumption pattern. The need for food that keep increasing all the time, becomes a challenge for the government because various types of food cannot be produced in all regions. In determining the ability of corn to be used as part of the diversification and substitution of food, it will be seen how potential sago actually is by comparing with the same sector in a wider area coverage.

**Table 1. Sago Production in Riau Province**

| No | Kabupaten/Kota   | Produksi (ton) |                | (+/-)          | Persentase    |
|----|------------------|----------------|----------------|----------------|---------------|
|    |                  | 2013           | 2014           |                |               |
| 1  | Kampar           | -              | -              | -              | -             |
| 2  | Rokan Hulu       | -              | -              | -              | -             |
| 3  | Pelalawan        | 914            | 9915           | 1              | 0,11          |
| 4  | Indragiri Hulu   | -              | -              | -              | -             |
| 5  | Kuantan Singingi | -              | -              | -              | -             |
| 6  | Bengkalis        | 5.889          | 1.607          | - 4.282        | - 72,71       |
| 7  | Rokan Hilir      | -              | -              | -              | -             |
| 8  | Dumai            | -              | --             | -              | -             |
| 9  | Siak             | 19.904         | 46.764         | 26.860         | 134,,95       |
| 10 | Indragiri Hilir  | 7.457          | 7.452          | - 5            | - 0,07        |
| 11 | Pekanbaru        | -              | -              | -              | -             |
| 12 | Kep Meranti      | 91.981         | 283.459        | 191.478        | 208,17        |
|    | <b>TOTAL</b>     | <b>126.145</b> | <b>340.197</b> | <b>214.052</b> | <b>169,69</b> |

From the data obtained above, it figures that in 2014, sago production amounting from 197 tons to 340 tons (126.10%) or getting higher by 26.10% of the target set by the government (LAKIP Plantation Riau Province, 2014). Meranti Islands became the largest producer of sago in a few last years. So it can be used as food diversification in meeting food needs in the province to help increase national food.

### A. Product Competitiveness of Riau Sago Industry

Entering the era of cooperation between countries, known lately as the ASEAN Economic Community, has established a pattern of trade integration among ASEAN countries. According to Bakhri (2015), the implementation of the ASEAN Economic Community (AEC) in 2015 is a form of regional economic integration. Assuming, free competition in the Southeast Asian region will trigger each ASEAN member country to perform optimal efficiency and will ultimately improve the welfare of the people. If this mechanism goes well, then all the countries involved will be benefited, although these gains will not be evenly distributed. Formation of competitiveness between countries cannot be separated from a country's ability to increase the resource potential of the area owned from different sectors. Indonesian agricultural sector which has advantages in competing in the global commodity market still has a weakness, especially on the development of the downstream sector. In improving the competitiveness of sago production areas, efforts are needed to increase the amount of production and the optimization of value-added output in the sago in achieving industrialization process.

Sago plant management has been carried out in several places in Meranti Islands. From the data obtained, there are 9 districts developing sago palms.

**Table 2. Meranti Islands sago industry**

| No | KECAMATAN        | TBM<br>(Ha) | TM<br>(Ha) | JUMLAH<br>(Ha) | PETANI<br>(KK) | PROD.<br>(Ton/Th) | Jumlah Kilang<br>(Unit) |
|----|------------------|-------------|------------|----------------|----------------|-------------------|-------------------------|
| 1  | Tebing Tinggi    | 50          | 306        | 356            | 70             | 2.754             | 3                       |
| 2  | T. Tinggi barat  | 2.204       | 6.813      | 9.017          | 340            | 61.317            | 32                      |
| 3  | Rangsang         | 261         | 262        | 523            | 749            | 2.358             | 1                       |
| 4  | Rangsang Barat   | -           | 165        | 165            | 170            | 1.485             | -                       |
| 5  | Merbau           | 3.756       | 1.465      | 5.221          | 789            | 13.185            | 5                       |
| 6  | T. Tinggi Timur  | 8.638       | 7.946      | 16.584         | 1.068          | 71.514            | 17                      |
| 7  | Pulau Merbau     | 387         | 801        | 1.188          | 703            | 7.209             | 1                       |
| 8  | Rangsang Pesisir | 606         | 1.615      | 2.221          | 2.144          | 14.535            | 4                       |
| 9  | Tasik Putri Puyu | 479         | 2.645      | 3.124          | 733            | 23.805            | 4                       |
|    | JUMLAH           | 16.381      | 22.018     | 38.399         | 6.766          | 198.162           | 67                      |

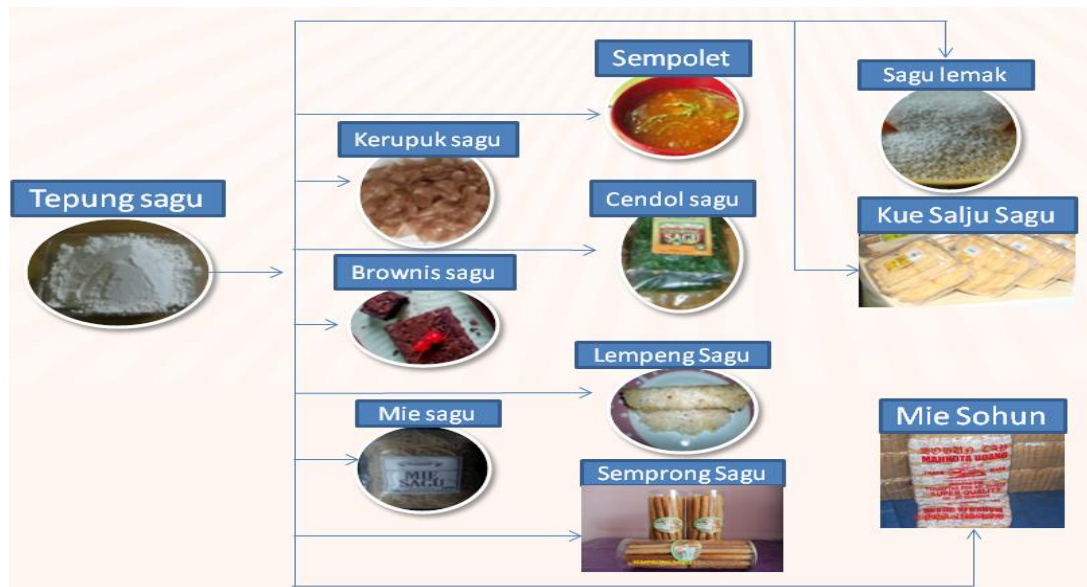
Source: Department of Forestry and Plantation Meranti Islands District 2014

Based on these data, 67 refineries capable of producing 198.162 tons /yr of dry corn starch, it can be estimated on average 1 ± refinery sago able to produce 2,957 tons / yr of dry corn starch. The potential for refinery construction of sago is needed to meet the production shortfall. From the farmer side, the demand of refineries owner / agent is high enough. (No more than ± 67 refineries sago in the district. Meranti. 1 refinery requires an average of 300-500 tual per day). With the production of 198.162 tons / yr of dry corn starch, then the velocity of money for sago: ± RP 1,129,523,400,000 per year. If the demand of 400,000 tons / yr of dry corn starch can be met from the district. Kep. Meranti, then the velocity of money for sago is ± Rp. 2.3 Trillion.

Meranti Islands sago potential is huge and should continue to be developed for the region's autonomy towards national and global competition. Future demand for food will continue to increase and become more varied.



Potential consumer demand must be immediately responded positively; due to the increase of population dominated by young age will also provide opportunities for other countries to find its market share. The development of sago products that have been processed in Kepulauan Meranti is:



**Figure 1. Derivative Products of Meranti Islands sago industry**

*Source: Meranti Islands Department of Trade and Industry*

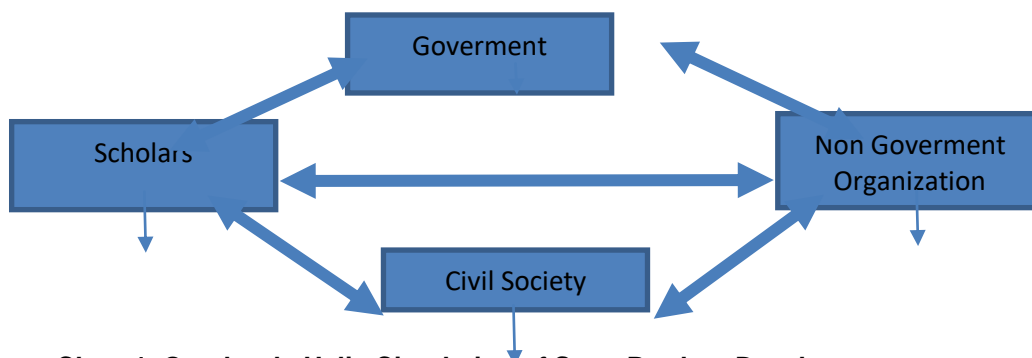
Diversification of sago products can provide a lot of food alternatives that can be used to improve the quality and capacity in maintaining food security, as well as variations of a product will be part of the bestselling products from Meranti Islands regency in the era of global competition. Indonesian economy is still stable and will continue to encourage the development of food security in meeting the needs of society.

### **B. Strengthening Food Security Strategy and Competitiveness of Processed Products of Sago**

Each region has a lot of strategy formulation been done in enhancing the ability to compete and produce the qualified products. But along the way, still, many obstacles make it hard to achieve the expected goals. The role of government, academics, the Company and the community is a very important factor in moving towards food security and competitive products. Some of the strategies that can be done in improving the competitiveness of sago processed products are:

### **C. Quadruple Helix Strategy**

Quadruple Helix role in strengthening food security and competitiveness is very important. Implementation of government policy, supported by the private sector, research and development through academic advancement will encourage people to be independent. Food security will be formed through a pattern of cooperation between the various parties. Furthermore, the competitiveness will be formed when all the sector collaborate and continue to be developed which will eventually contribute to the economy.



**Chart 1. Quadruple Helix Circulation of Sago Product Development**

**a. Government (Government)**

Government as policy makers supposed to have credibility through transparency and accountability, as well flexibility and political legitimacy. The existence of the legal form of regulation is also necessary to provide security. The availability of good infrastructure and the role of government in shaping the long-term-oriented leadership and political partner is highly expected as well as the capability in directing the decision making process to be equally build on the progress as to create a balance of power. The government's role is also very important as the fulfillment of public access that can improve the quality of society in general.

**b. Academics (scholars)**

Research and development into the early progress of a country in building the nation. Take measurements and accurate forecasting in the economy, find inventions that facilitate the work and provide a wide range of contributions in the world of education.

**c. Private / Company / Organization (Non-Government Organization)**

Entrepreneurs are the engine of the economy that has a significant role in the world. The number of entrepreneurs in Indonesia is still low. So that business activity in the trade still dominated by a few people, so that economic disparities often occur. In addition, maintaining business ethics, optimizing Good Governance and Corporate Social Responsibility are also needed.

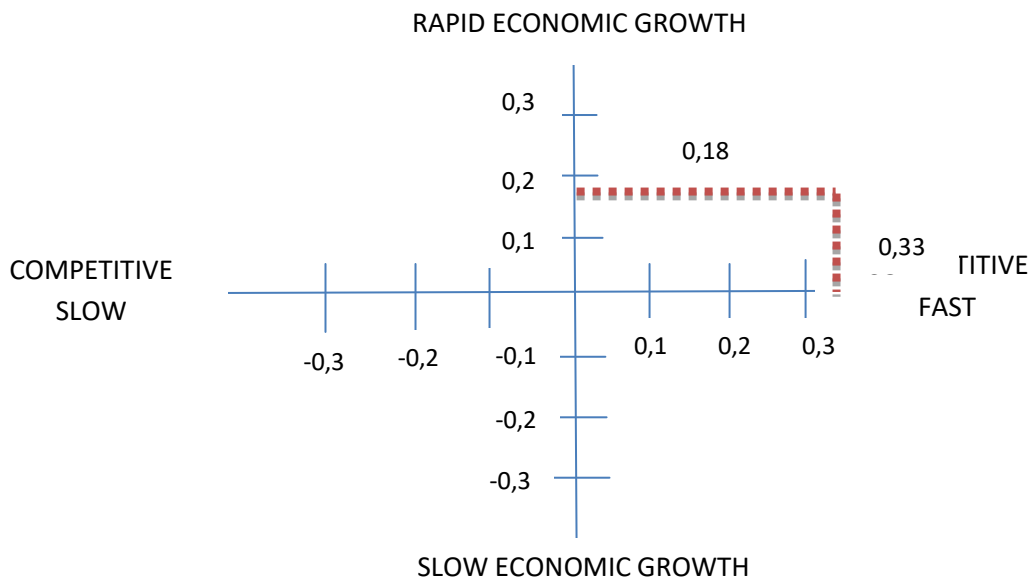
**d. Society (Civil Society)**

In the economy system, people as the provider of production factors should be educated properly. The formation of human capital has a long-term function. Maintaining the flow in the economy system that considering community aspect is part of the chart above. Society not only play role as consumers, but as human capital which is far more important than material capital.



#### D. SWOT analysis

IE matrix analysis is used to find a common strategy (grand strategy) in achieving successful business development in Riau economic development program. IE matrix is based on two key dimensions, namely the total value of Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE), each of which is weighted on the X-axis and Y-axis. The results of the external and internal factors are used to determine the coordinates of the successful strategy and development using a matrix analysis of grand strategy. With the horizontal axis (X) is the internal factors. The value of the X coordinate represents the difference between the power factor in reducing weakness factor =  $(1,825-1,645) = 0,18$ . While the vertical axis Y represents the difference between chance factor in reducing the threat factors (external), value of  $Y = (1,640- 1.310) = 0,33$ . See the following figure.



#### 7.2. Discussion

Results obtained from the grand strategy matrix shows the position of the sago conditions Meranti Islands in quadrant 1 and governments are advised to use an aggressive growth strategy (Growth Oriented Strategy). The strategies that can be done by Roland chritsmen in David R Freed in his concept of strategic management: market development, market penetration, product development, integration forward of backward integration, concentric diversification.

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