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COMPETITIVE POSITION AND BUSINESS STRATEGY OF SUGAR CANE PLANTATION COMPANY (CASE STUDY PTPN X SURABAYA)

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Abstract: This research aims to analyze the position of PTPN X in the sugar industry map in Indonesia and to analyze the priority of business strategy that can be implemented by PTPN X. Data analysis methods used are descriptive analysis, SWOT analysis and Analitycal Hierarchy Process (AHP). The results of the research shows that PTPN X is in the position to expand the business through staged revitalizion and diversification. The strategy priority that can be implemented by PTPN X is improving cooperation with farmers with sugar cane-based agro-industry program, increasing the production of sugar through land expansion and revitalization, diversifying sugarcane-based products, changing the production machines. Managerial implications of the research recommend the improvement of cooperation with farmers with sugar cane-based agro-industry program.

Keywords: Sugar, PTPN X, SWOT, AHP

Abstrak: *Penelitian ini bertujuan untuk menganalisis posisi PTPN X dalam peta industri gula di Indonesia serta menganalisis prioritas strategi bisnis yang dapat diimplementasikan oleh PTPN X. Metode analisis data yang digunakan analisis deskriptif, analisis SWOT dan Analitycal Hierarchy Process (AHP). Hasil penelitian menunjukkan bahwa PTPN X berada pada posisi melakukan ekspansi bisnis dengan melakukan revitalisasi dan diversifikasi secara bertahap. Prioritas strategi yang dapat dilakukan PTPN X adalah meningkatkan kerjasama dengan petani dengan program agroindustri berbasis tebu, meningkatkan hasil produksi gula dengan perluasan lahan dan revitalisasi, melakukan diversifikasi produk berbasis tebu, mengganti mesin produksi. Implikasi manajerial hasl penelitian merekomendasikan untuk meningkatkan kerjasama dengan petani dengan program agroindustri berbasis tebu.*

Kata kunci: *gula, PTPN X, SWOT, AHP*

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INTRODUCTION

Sugar cane is one of Indonesia's first rate commodities in plantation. Sugar cane as the base product in sugar production has a strategic role in the economy of Indonesia. The yearly demand for sugar in Indonesia has not been followed by the increase of sugar production itself. Up to the present, if observed from the productivity aspect, area development as well as the existing social relationship the sugar industry in Indonesia is still poor (Aminuddin, 2016).The availability of sugarcane land decreases every year (Eko, 2010). The sugar consumed will eventually increase in accordance to the population growth rate (Budiman, 2001).

Mardianto et al said that many farmers shift from planting sugarcane to planting other commodity which is more economically profitable like paddy. To reincrease the sugar cane production in Indonesia, the government must be able to apply an integrated upstream and downstream system. Through the implementation of an integrated upstream and downstream system the company will be able to minimize the cost production, and give assurance to the sugar cane farmers for their post harvesting production. To increase the sugar cane production, the company should renew the capacity of the sugarcane crusher, expand the planting area by opening new land and lessen the hour termination of the sugarcane crusher in terms that the production should continue.

Developing the sugarcane plantation extensively as well as intensively and increasing the production performance, the sugarcane maximum production capacity should be increased by rising the immersion of sugarcane, is one solution to provide the availability of the sugar nationally. This situation strengthens the position of sugar as one of the strategic commodity for Indonesia's economy (Utami et al. 2016). The plantation based agroindustry has the ability to be the leading sector in economy growth, the employment sector, and also to improve the income distribution. One of the downstream sector of the industrial estate is sugar industry (Marpaung et al. 2011).

Sugar is one of the strategic commodities in Indonesia's economy. Sugar is also one of the basics needs in Indonesia especially as a source of calorie. Sugar is also one of the commodities which has a strategic value for food security and the increase of economy growth in Indonesia. However, nationally at present the sugar production could not meet the need for household consumption nor the industry (Subiyanto, 2014). The demand for sugar increases gradually due to the population increase, income, and the industrial development of food and beverages. Hence the availability of sugar is incapable of covering the needs of the population that is caused by the stagnancy of the land size and also the unpredictable climate (Apriawan, 2015).

The annual increase of sugar consumption in Indonesia provides an extensive opportunity to increase the production of sugar. Due to the incapability of domestic sugar production to comply with the required national sugar (BPS, 2015). Referring to the population growth in the coming years, the domestic demand of sugar is predicted to be continued to rise (Hartanto, 2014). In conducting the business, the company must be able to optimize the production and the operation (Siahaan, 2000). The demand for sugar increases gradually due to the population increase, the population income, and the industrial development of food and beverages. While the availability of sugar is incapable in covering the needs of the population due to the stagnancy of the land size and also the unpredictable climate (Apriawan et al. 2015).

PT Perkebunan Nusantara X (PTPN X) is one of the sugar industries which are integrated from upstream to downstream. PTPN X is full responsible for the stock availability of sugar especially in Indonesia's market. The source of the product is from an area of 72.000 Ha which 97% is owned by the farmers. The production of sugarcane is 6,1-6,7 million tons therefore the production depends on the supply from the sugarcane owned by the farmers. Compared to other PTPN, the PTPN X financial performance for selling and income has exceeded other PTPN (Table 1).

Table 1. Average selling and income of BUMN sugar industry in Year 2011–2015

	Selling (millions)	Profit (millions)
PTPN IX	1,350,552	26,466
PTPN X	2,212,493	152,900
PTPN XI	1,963,946	-21,718
PTPN XIV	516,031	-147,966

Based on Table 1, PTPN X has the highest average of income compared to other sugar state owned enterprises. This shows that the financial condition in PTPN X is good. The competition in the globalization

and strict free market era demands each of the company to deal with the intense competition like in PTPN X. The company has to have a strong competitive strategy which is used in every aspect especially technology that has to be managed as optimal as possible. Therefore, every sugar company in Indonesia including PTPN X need to establish a business strategy to fulfill the demand of sugar in the society and to increase the competitiveness to overcome the challenges and the market opportunities.

PTPN is trying to achieve the self-supporting program which is planned by the government by taking several strategic stages among others are maintaining the continuation of sugar cane supply, and doing the revitalization. Revitalization as Daft (2004) is a changeable strategy which could be radical or incremental. In general the radical change will also change the reference, direction and the policy of the organization while the operational change is incremental. The aim of revitalizaion is to optimize the capacity of the crusher to economic level by upgrading the production machines. This will increase the productivity of the company and reduce the operational costs. In general, the revitalization process of the sugar company owned by the state is slow and is linked to several policies which is inconsistent and unintegrated so it causes conflict between the industry agents and uncondusive for the sugar productivity (Hariadi, 2015).

With the strategic stages taken by PTPN X to improve their competitiveness, this research aims to observe the revitalization development based on the above mentioned factors. The objective of the research is to analyze the position of PTPN X as the producer of sugar in Indonesia and to determine the business strategy priority implemented by PTPN X.

Based on the problem and the objective of the research, the scope of the research is limited to PT Perkebunan Nusantara X main business unit of sugar industry. To understand the development of sugar in Indonesia, the research is carried out using the financial performance report and BPS data. A performance assessment is important to be carried out in a company, to improve the company. The continued improvement process is the most strategic way for the company to maintain its vision and mission (Suryadi, 2005).

METHODS

The research is conducted in PT. Perkebunan Nusantara X, located at Jl. Jembatan Merah No. 3-11, Surabaya 60175 East Java, Indonesia. The research was held for 2 months from Februari to April 2017. The primary data collected was from seven experts while the secondary data was collected from the company's file, other literatures and references from inside and outside the organization. The research was done descriptively through case study. The data and information collection was done by observation, interview and questioner filling. The analysis method used was descriptive method, SWOT analysis and Analitycal Hierarchy Process (AHP).

SWOT Analysis is a tool used to match the external and internal key factors which can help a manager develop the four strategy type (David, 2009). SWOT analysis which is known as Strengths, Weaknesses, Opportunities, Threats is the basic technique in a company (Houben et al. 1999). In this analysis, the two factors must be considered. The factors compared are internal and external factors which are Strengths and Weakness as internal factors and Opportunities and Threats as external factors. The result is then presented in a SWOT matrix construction (Rahmana et al. 2012). The matrix area for strength, weakness, opportunities and threat is a significant tool to help management compare the data.

Analytic Hierarchy Process (AHP) is an analyzing tool that is used to evaluate the SWOT factors systematically, the result of this will then be used in making decision for the company (Kahraman et al. 2007). According to Ching-Fu (2006) Analytic Hierarchy Process (AHP) is a model of analysis evaluation method based on strength, weakness, opportunities and threats (SWOT). The priority strategy is based on the pairing comparison Matrix using software Expert Choice 11. This process is usually implemented on real problems and especially helpful to allocate the resources, planning, policy analysis and conflict settlement. AHP also test the consistency of the valuing. If the deviation is too far from the perfect consistency value, this shows that the scoring needs to be evaluated or the hierarchy needs to be rearranged. Based on Saaty (1993), there are three basic analytic hierarchy process: 1) Define and analyze the hierarchy. The arrangement of the hierarchy is carried out through identifying the knowledge observed, starting with the complex problems which is analyzed to get the main element and this main element is put into parts in hierarchy. In an evaluation study of an organization,

the hierarchy arrangement consists of objective, criteria and alternatives; 2) The difference between priority and synthesis is how to determine the level of the elements based on their importance; 3) Logical consistency assured that all of the elements are grouped logically and leveled consistently based on a logical criteria. AHP measures the consistency comprehensively from all the decisions through a consistent ratio. The value of the consistent ratio must be 10% or less. If it is more than 10%, then the grading is still at random and needs to be evaluated.

The framework of the research is to elaborate the priority strategy implemented by PTPN X to develop the company. The research used strategic management approach by analyzing the internal and external factors and also the performance based on the financial report of PTPN X. The research framework in Figure 1.

RESULTS

Position Identification of PT Perkebunan Nusantara X

PTPN X is one of the state owned sugar enterprises which has the best technical performance and is the leader in the development of downstream sugar cane industry. PTPN X supervises 11 sugar industries located in Sidoarjo, Mojokerto, Jombang, Nganjuk, Kediri and Tulungagung. It is also fully responsible for the availability of the sugar stock after harvested especially in Indonesia's market. The sugar produced by PT Perkebunan Nusantara X uses sugar cane as their raw material which is produced through defecation and sulphitation process. The making of white crystal sugar is a long stages process that involved extracting phenomena, chemical reaction, separating, vaporizing, crystallization, dehydrating, and refrigerating.

The analysis process in the research proceeded by identifying the internal and external strategic factors of the company. The data is collected from the FGD of the decision makers involved in the development of the industry and also independent professionals who are competent and experienced in developing an industry. Following is the list of internal and external strategic factors which was obtained during the group discussion and in-depth interview (primary data).

Internal Factor PTPN X

The industry internal environment factor that is the strength that must be optimally utilized in developing the industry (Table 2). The result of the internal factors analysis showed that there are six factors each for both strength and weaknesses of PTPN X. The highest score in strength factor is the low cost production with the value of 0.394, while the lowest score is production capacity optimization with the value of 0.150. The highest score for the weaknesses factor is the minimum ability of the human resource in technology with the value of 0.283 while the lowest score is the stagnancy of planting area, the value is 0.050. The total score for internal factors is 2.623. According to Rakhmawati and Navastara (2013), the human resource holds an important role in the industrial activities and sustainable development as the key to the success of industrial territorial development.

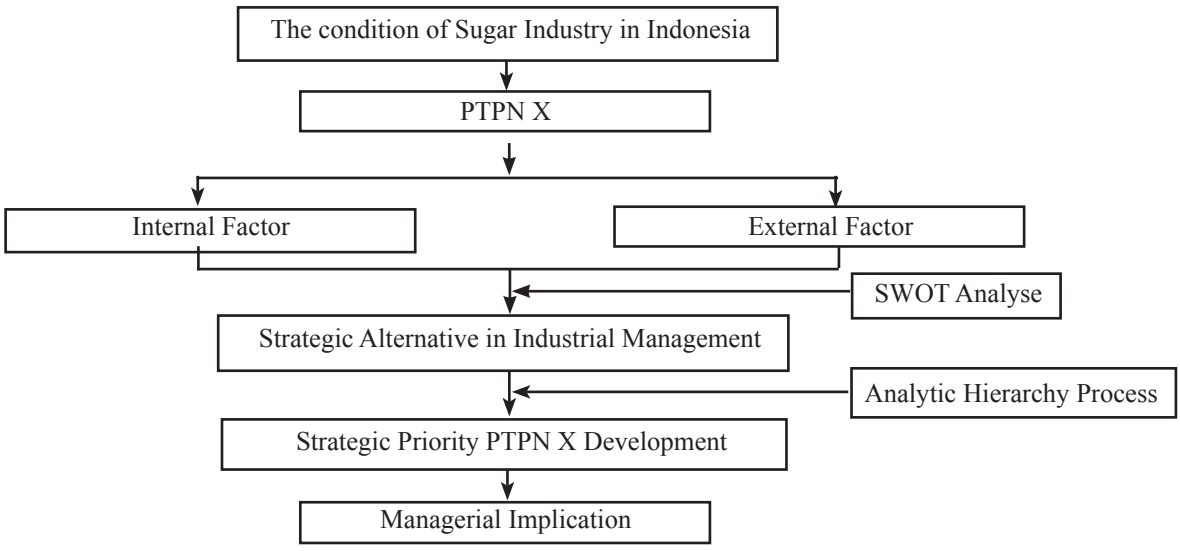

Figure 1. The research framework

External Factors PTPN X

The company's external environment factors are opportunities and threats which are shown in Table 3. The analysis for external factors showed that there are six factors in opportunities and six factors in threats for PTPN X. The highest score for opportunities is funding support from the government, 0.321, while the lowest score is the large market prospect for sugar-cane based product, 0.125. While, the threats factor with the highest score is the dependence towards imported sugar, 0.277 while the lowest score is the low interest of farmers in planting sugarcane, 0.125. The government should prioritize the funding on sugar industries which urgently requires the funding (Subiyanto, 2014). The dependency in sugar import caused the growth of sugar industry to decrease and also one threat towards the food security in Indonesia where the demand of staple food is fulfilled as much as possible by the domestic production (Kusumanto, 2016).

Table 2. Analysis Result for the internal factors

Internal Factors	Ranking	Weight	Score
Strength			
Less cost production	4	0.098	0.394
Optimized product capacity	3	0.050	0.150
Sustainable raw material that support production	4	0.081	0.322
Ability to cooperate with the farmer	3	0.081	0.242
Sugar cane based agroindustry development	3	0.104	0.311
energy efficiency	3	0.081	0.242
Weaknesses			
Revitalization needed high cost	2	0.050	0.100
Stagnancy of planting area	1	0.050	0.050
Technology limitation	2	0.081	0.161
Funding limitations for development	2	0.104	0.208
Minimum ability of the human resource in technology	2	0.141	0.283
Relatively small capacity of the sugar industry	2	0.081	0.161
Total		1.00	2.623

Table 3. Analysis result for the external factors

External Factors	Ranking	Weight	Score
Opportunities			
Funding support from the government	3	0.235	0.321
Government policy related to sugar industry including refined sugar sugar cane based.	2	0.313	0.286
Policy support in spatial cultivation of sugar cane	3	0.202	0.277
The increase demand for sugar consumption	3	0.147	0.201
The large market prospect for sugar-cane based product	3	0.091	0.125
The develoomentand advanced production process technology	3	0.202	0.277
Threats			
The low interest of farmers in planting sugarcane	3	0.091	0.125
The minimum awareness of farmers towards advanced technology	3	0.179	0.246
The dependence towards imported sugar	3	0.202	0.277
The unhealthly competition with the private sugar industry	2	0.179	0.164
No welfare security for the farmers	3	0.202	0.277
The advanced technology of the competitors	3	0.147	0.201
Total		1.00	2.775

PTPN X has become one of the pioneers in sugar cane national industry. Based on the internal and external factors which influenced the company, the result showed that the position of the company is in business expansion level. It can be concluded that PTPN X has succeeded in sugar cane national industry level and produced the sugar with low production cost therefore this position is an advantage in market expansion. In this situation, the strategy implemented by the company is applying the strength from the internal factors to utilize the existing opportunities. In addition, PTPN X expand their business by opening branches with the support from the government's funding and also increase the product quality with low cost production.

The Strategy Formulation for Industrial Development

The SWOT analysis aims to obtain alternative strategic formulation for PTPN X to develop its industry. Based on the SWOT analysis matrix, four strategic alternative are obtained through the integration between the internal factor (strength and weakness) with the dominant external factor (opportunity and threats) The analysis is used to find out the best strategy to utilize the company resource by considering the company's internal and external situation to establish the company's resources base in the future. This is the verifying stage using the SWOT matrix to obtain an alternative strategy through a discussion with the respondents regarding the PTPN X competitiveness (Table 4).

Table 4 SWOT analysis result of PT Perkebunan Nusantara X

	Strength(S)	Weaknesses(W)
	1. The smaller the production cost (0.394) 2. Production capacity optimization (0.150) 3. sustainable availability of raw material to support the production (0.322) 4. The ability to cooperate with the farmers (0.242) 5. Sugar-cane based agro industry development (0.311) 6. Energy efficiency (0.242)	1. High cost for revitalization (0.100) 2. Stagnancy of Planting area (0.050) 3. Technology limitation (0.161) 4. Limited Funding for development (0.208) 5. The minimum ability of the human resource in technology (0.283) 6. Relatively small capacity of the sugar industry (0.161)
Opportunities (O) 1. Funding support from the government (0.321) 2. Government policy related to sugar industry including sugar cane based refined sugar. (0.286) 3. Policy support in spatial cultivation of sugar cane (0.277) 4. The increasing demand for sugar consumption (0.201) 5. Large market prospect for sugar-cane based product (0.125) 6. The development and advanced production process technology (0.277)	Strength-Opportunites (SO) 1. Updating the production machinery by revitalization (O1, S1) 2. Intensifying the production capacity to increase the profitability of the company (O2, O3, S2) 3. Optimize the sugar production to maintain the sugar stock (O8, S6) 4. promotion enhancing(O7, S5) 5. Extension service on sugar-cane land (O4, S4)	Weaknesses-Opportunities (WO) 1. conducting sugar-cane based product diversification (O1, O5, W1) 2. providing training to enhance the ability of the human resource on bioethanol application technology (O5, W5) 3. Technology updating (O6, W6)
Threats (T) 1. The low interest of farmers in planting sugarcane (0.125) 2. The minimum awareness of farmers towards advanced technology (0.246) 3. The dependence towards imported sugar (0.277) 4. The unhealthly competition with the private sugar industry (0.164) 5. No security welfare for the farmers (0.277) 6. The advanced technology of the competitors (0.201)	Strength-Threat (ST) 1. Increase cooperation with the farmers on agroindustry sugar-cane based(S4, S5, T3, T4, T5) 2. Updating the sugar production machinery (S1, T6) 3. Conducting based planting technique extension service program to increase the sugarcane capacity for the farmers. (S2, S3, S4, T1, T2, T3)	Weaknesses-Threat (WT) 1. Increasing the sugar production result by expanding the land (W2, W3, W5, T3) 2. Seek additional capital to update the sugar production technology (W1, W4, T6)

The Strategy Priority of PTPN X

The result of the SWOT analysis is a strategic formulation that will be processed with AHP Method to achieve a strategic priority. AHP method is used as a tool to assist the strategic arrangement which requires hierarchy forming in every process, beginning with the goal, factor, sub factor, and strategic alternative. AHP method consists of four levels. The first level is the aim of the strategic formulation. The second level consists of four factor groups defined by SWOT technique. The third level is strategic factors which comprise from each factor group in SWOT technique. The fourth level is the strategic level which must be evaluated and compared (Dewi et al. 2012). The result of AHP-SWOT Hierarchy of PT Perkebunan Nusantara X in Figure 3.

The result of sub factor ranking in threat factor has shown that there is a dependency to imported sugar. The high consumption level of sugar resulting in the inability of the sugar industry to provide for sugar, this makes the government imports sugar. Ernawati dan Suryani (2013) explained that along with the population growth, the increase in income per capita, the change pattern of society consumption and industrial growth of food and beverages processing, caused the sugar consumption will gradually increase. This condition is a serious threat for the company especially for PTPN X because the company has not been able to fulfill the demand for sugar. Strategic alternative priority with SWOT matrix based on AHP calculation in Table 5.

Based on the research conducted using Analysis Hierarchy Process, it is known that the strategy is influenced by four factors which are strength, weaknesses, opportunity, and threat. The main focus for PT Perkebunan Nusantara X is to increase the capacity of the production by increasing the cooperation with the sugarcane farmers through sugar cane based agroindustry program (Table 6). Besides that, since 2012, PT Perkebunan Nusantara X has gradually revitalized the machinery by replacing the old ones with new ones. As a value added for the company, PTPN X has also conducted sugarcane based product diversification as the main focus.. The company must encourage the farmers to take part in the program where they are also included as decision makers in developing the program (Hafsah, 2003).

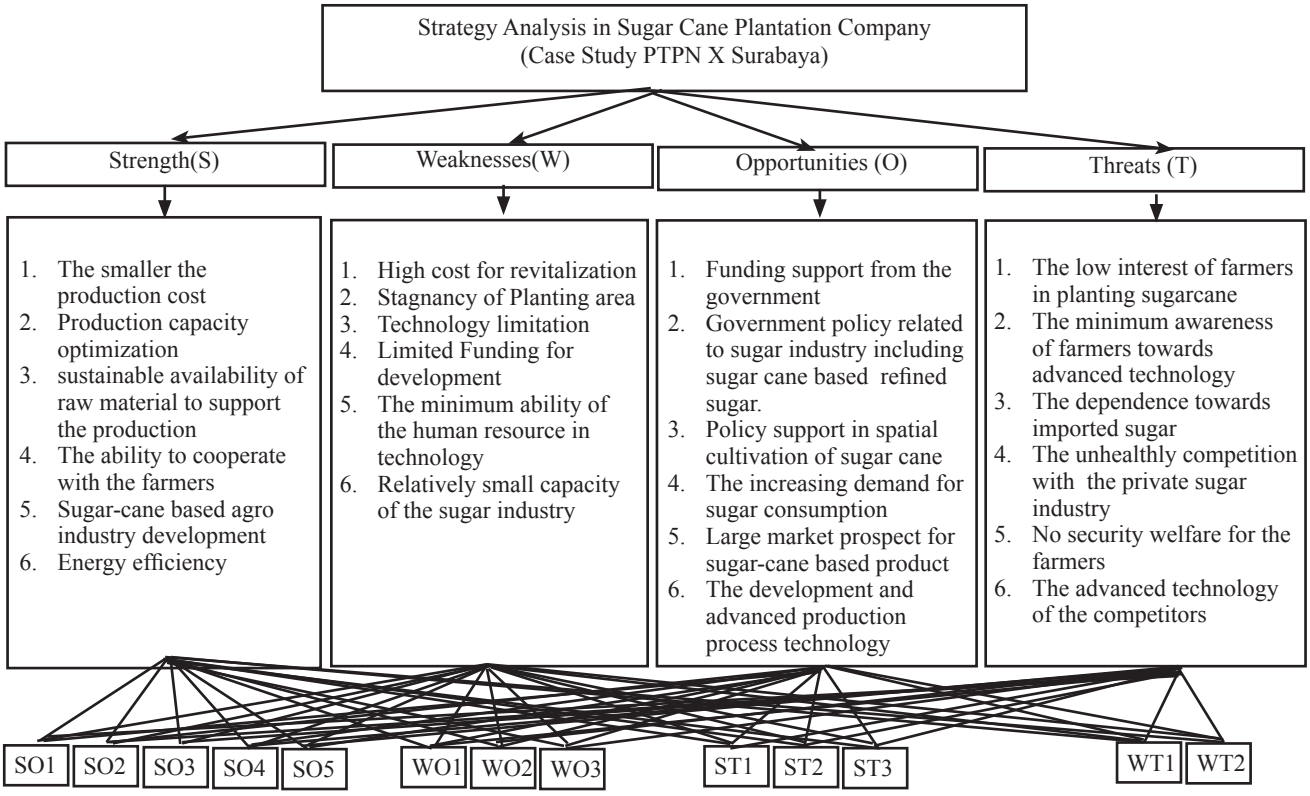

Figure 3. AHP-SWOT hierarchy of PT Perkebunan Nusantara X

Table 5. Strategy alternative priority with SWOT matrix based on AHP calculation

	Strength(S)	Weaknesses(W)
	1. The smaller the production cost (0.394) 2. Production capacity optimization (0.150) 3. sustainable availability of raw material to support the production (0.322) 4. The ability to cooperate with the farmers (0.242) 5. Sugar-cane based agro industry development (0.311) 6. Energy efficiency (0.242)	1. High cost for revitalization (0.100) 2. Stagnancy of Planting area (0.050) 3. Technology limitation (0.161) 4. Limited Funding for development (0.208) 5. The minimum ability of the human resource in technology (0.283) 6. Relatively small capacity of the sugar industry (0.161)
Opportunities (O) 1. Funding support from the government (0.321) 2. Government policy related to sugar industry including sugar cane based refined sugar. (0.286) 3. Policy support in spatial cultivation of sugar cane (0.277) 4. The increasing demand for sugar consumption (0.201) 5. Large market prospect for sugar-cane based product (0.125) 6. The development and advanced production process technology (0.277)	Strength-Opportunites (SO) 1. Updating the production machinery by revitalization (O1, S1) (0.132) 2. Intensifying the production capacity to increase the company profitability (O2, O3, S2) (0.045) 3. Optimize the sugar production to maintain the sugar stock (O8, S6) (0.064) 4. Promotion enhancing (O7, S5) (0.024) 5. Provide Extension Service on sugar-cane land use (O4, S4) (0.018)	Weaknesses-Opportunities (WO) 1. Conducting sugar-cane based product diversification (O1, O6, W1) (0.132) 2. Providing training to enhance the ability of the human resource on bioethanol application technology (O5, W5) (0.042) 3. Technology updating (O6, W6) (0.061)
Threats (T) 1. The low interest of farmers in planting sugarcane (0.125) 2. The minimum awareness of farmers towards advanced technology (0.246) 3. The dependence towards imported sugar (0.277) 4. The unhealthly competition with the private sugar industry (0.164) 5. No security welfare for the farmers (0.277) 6. The advanced technology of the competitors (0.201)	Strength-Threat (ST) 1. Increase cooperation with the farmers on sugar-cane based agroindustry program (S4, S5, T3, T4, T5) (0.138) 2. Updating the sugar production machinery (S1, T6) (0.082) 3. Provide extension service for the farmers on planting technique to increase the sugarcane capacity (S2, S3, S4, T1, T2, T3) (0.067)	Weaknesses- Threat (WT) 1. Increase the sugar production result by expanding the land and revitalization (W2, W3, W5, T3) (0.134) 2. Seek for additional capital to update the sugar production technology (W1, W4, T6) (0.060)

Table 6. Strategy Alternative

	Alternative	Priority Score	Priority
SO	Updating the production machinery by revitalization	0.132	4
	Intensifying the production capacity to increase the profitability of the company	0.045	10
	Optimize the sugar production to maintain the sugar stock	0.064	7
	Promotion enhancing	0.024	12
	Provide Extension Service on sugar-cane land use	0.018	13
WO	Conducting sugar-cane based product diversification	0.132	3
	Providing training to enhance the ability of the human resource on bioethanol application technology	0.042	11
	Technology updating	0.061	8
ST	Increase cooperation with the farmers on agroindustry sugar-cane based	0.138	1
	Updating the sugar production machinery	0.082	5
	Provide Extension Service to the farmers on planting technique to increase the sugar-cane capacity	0.067	6
WT	Increasing the sugar production result by expanding the land and revitalization	0.134	2
	Seek for additional capital to update the sugar pro duction technology	0.060	9

Managerial Implications

The strategy priority from the research recommended some implications based on the strategy priorities using the combination of AHP and SWOT. The results showed that the efficiency from each strategy to take advantages from the strength factor, decrease from the weaknesses factor, get benefit from the opportunity factor and be aware of the threat factor. Every strategy alternative formed has the ability to comply with the goal whereas in the process will be influenced by the limitation of resources owned by the company. The following are some strategically alternative suggestions: First priority, PT Perkebunan Nusantara X must increase cooperation with the farmers on sugar-cane based agroindustry. The company must encourage the farmers to take part in the program where they are also included as decision makers in developing the program. Second priority, PT Perkebunan Nusantara X must increase the sugar production result by expanding the land and do the revitalization. PTPN X is able to expand the land which will be used to grow sugar cane that can increase the capacity. This will affect the production to produce more. To support the revitalization, the sugar cane farmers could give the land to be managed by PTPN as an exchange for a share in the company. Third priority, PT Perkebunan Nusantara X has to conduct diversification in sugar-cane based product to give value added to the company. To gain higher profit the company could conduct a diversification to produce sugarcane based product like electricity and ethanol. This process is to reuse the sugar cane waste after the sugar cane is processed. The fourth priority is updating the production machinery. This program has been a program in PT Perkebunan Nusantara since 2012 by gradual revitalization. An ineffective sugar industry will be closed by PTPN X and merged to become new sugar plant with new machinery with the expectation of increasing produced sugar. The renewal of machinery is necessary to optimize the sugar production within a short period of time.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the internal and external factors which influenced PTPN X the result was that the position of PTPN X is in the business expansion stage. Further analysis to determine the strategy priority is obtained from the grade of weight in SWOT-AHP system. The alternative strategy obtained is to increase cooperation with the farmers on sugar-cane based agroindustry, increase the sugar production by expanding the land and revitalization, Conduct sugar-cane based diversification and updating the production machinery. From the four priority the main priority is increasing cooperation with the farmers on sugar-cane based agroindustry.

Recommendations

Based on the carried out research it is suggested that in analyzing the PTPN X business strategy a research strategy method could be added to the further research. The data being used in this research is only limited to PT Perkebunan Nusantara X, it is expected that further research used other company to have the result better and more generalized.

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