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Analytic Network Process Method on Factors Affecting Increasing The Competitiveness of The Automotive Industry Sector In Promoting Sustainable Economic Growth In Indonesia

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Abstract
The aim of this research is to determine the factors that influence the growth of the automotive industry sector such as automotive exports, automotive imports, Logistics Performance Index (LPI), monetary policy (rupiah exchange rate), fiscal policy (tax ratio), Total Factor Productivity (TFP), Inflation, Infrastructure and Automotive Foreign Direct Investment (FDI), on the competitiveness of the automotive industry sector and its implications for economic growth which affects labor absorption, the level of social welfare and people's purchasing power. The research method used is a quantitative data research method with the analytical network process (ANP) method where this method is used to determine the criteria and alternative priority weight values and the results are carried out ranking in determining the influencing factors in this research. The research results show that the factors that influence the competitiveness of the automotive industry sector) and their implications for economic growth affect labor absorption, the level of social welfare and people's purchasing power. So it is concluded that increasing the competitiveness of the automotive industry sector will be able to encourage sustainable economic growth in Indonesia.

1. Introduction

The strategic role of the manufacturing industrial sector as an engine of economic development, especially in developing countries (Szirmai, 2012). Where the manufacturing industrial sector is able to bring about other related impacts, including increasing the value of capital capitalization, the ability to absorb large amounts of labor, and the ability to create added value (value added creation) from every input or basic material that is processed to become industrial products. The automotive industry sector is one of the manufacturing industry sectors which has activities to produce goods with higher added value, so it has a strategic role in the formation of Gross Domestic Product (GDP). Based on data from the Central Statistics Agency (BPS), Gross Domestic Product (GDP), the manufacturing industry sector in 2010-2020 provided the largest contribution to the formation of Gross Domestic Product (GDP). In 2018 the first largest contribution was the manufacturing industry sector reaching IDR 2,947.3 trillion or 19.82 percent of the national GDP of IDR 14,837 trillion. Seeing the contribution made by the manufacturing industrial sector to GDP and occupying the highest position, namely 19.82 percent in 2018, it is important to prioritize the development of the manufacturing industrial sector so that it can increase its contribution to sustainable national economic growth and It

is hoped that it will be able to increase labor absorption, improve community welfare and increase people's purchasing power by increasing per capita income.

Based on data from the Ministry of Industry, the trend of the growth contribution of the automotive industry sector to GDP in the 2011-2020 period continued to decline, even though in 2013 it was above GDP growth of 14.95 percent, and since early 2014 it has continued to decline, even below national GDP growth. Where a period of slowing economic growth occurred, with GDP growth falling below 5.0 percent, and in 2020 the automotive industry sector decreased to -19.86 percent. There are several factors that have caused this, one of which is the decline in demand both globally and domestically, plus starting at the end of 2019 the emergence of the Corona Virus Disease-19 (COVID-19) pandemic, so that in 2020 it experienced a contraction in growth and a very sharp decline. significant. Seeing these conditions, it is necessary to carry out a series of anticipatory efforts so that the deindustrialization condition does not continue and have a negative impact on the Indonesian economy. (Shzaaberi, 2018), This makes the automotive industry sector a driving force for the national economy as seen from the large contribution of the automotive industry sector to Gross Domestic Product (GDP).

Based on Word Integrated Trade Solution (WITS) data for 2010-2020 Revealed Comparative Advantage (RCA) index in the manufacturing industry sector, with an average of 0.40, with the highest number of 0.43 in 2019 and the lowest number of 0.37 in 2011. For 10 years, namely in 2010-2020 it has been proven that the Indonesian manufacturing industry sector has an average Revealed Comparative Advantage (RCA) index that is still below 1 (RCA < 1) (Isventina, Nuryartono, & Hutagaol, 2018). This shows that the Indonesian state is still stated to have comparative weaknesses which are revealed in products, one of which is in products in the automotive industry sector on a world scale (Wardani & Mulatsih, 2018). The results of these data can be seen in the achievement of the Revealed Comparative Advantage (RCA) index in the Indonesian manufacturing industry sector in 2010-2020, **which are shown in figure 1 the following below:**

Figure 1. Growth of the Automotive Industry Sector (%PDB)

There are several factors that have caused this, one of which is the decline in demand both globally and domestically, plus starting at the end of 2019 the emergence of the Corona Virus Disease-19 (COVID-19) pandemic, so that in 2020 it experienced significant a contraction in growth and a very sharp decline. In 2020 until 2023 Indonesia must recover economic growth due to the last 2 years that have experienced a decline. The automotive industry sector is included in the 5 priority industrial sectors in accelerating the implementation of the Making Indonesia 4.0 roadmap, for development and acceleration of economic growth (Kementerian Perindustrian, 2018). Where, these 5 (five) industrial sectors are able to contribute 60 percent to GDP, so as to encourage national economic growth. It is important to carry out strategic planning in order to maintain Indonesia's economic growth which always grows positively throughout the year so that over time, the automotive industry sector will increase its competitiveness. By having high competitiveness, it can spur a country to improve its economy in a sustainable manner. States that a country's competitiveness is considered as a source of a country's resilience in facing challenges in building a nation's civilization (Raimanu, 2016). Because civilization can only be built through superior economic, political and cultural power. So that the country can strengthen itself in the international market, increase the value of exports so that it can have a positive impact on GDP which in turn can improve people's welfare (Kalaitzi & Cleeve, 2018). Competitiveness is one

of the criteria that determines the success of a country in international trade . In the current era of free trade, the competitiveness of a product is an absolute requirement that must be met so that the product can survive in the international market (Zhao & Zhang, 2007). With high competitiveness, the country can maintain its economic growth and begin to build an orderly state life and at that time the development of civilization begins. Civilization development cannot be done without economic power. And economic power cannot be upheld without competitiveness. Thus, competitiveness becomes very important for the sustainability of a nation's economy and civilization.

Based on the background of this research, economic development aims to realize high and sustainable economic growth and is accompanied by the creation of high employment opportunities and an even distribution of income to improve welfare which has an impact on increasing people's purchasing power. So this research needs to analyze the factors that influence the growth of the automotive industry sector such as automotive exports, automotive imports, logistics performance index, exchange rate, tax ratio, total factor productivity, inflation, infrastructure, and automotive foreign direct investment, on the competitiveness of the automotive industry sector and its implications for economic growth, which affect employment, the level of people's welfare and people's purchasing power, so that it can be used for consideration in planning a reindustrialization strategy as an effort to increase the competitiveness of the automotive industry sector and have an impact on Indonesia's sustainable economic growth.

2. Materials and Methods

The research data method used is qualitative, and the research design is descriptive research which aims to explain the relationship between factors (criteria) and test hypotheses regarding the relationship between these factors (criteria). The factors (criteria) of this research consist of automotive industry competitiveness, automotive exports, automotive imports, logistics performance index, exchange rate, tax ratio, total factor productivity, inflation, automotive industry infrastructure, foreign investment, economic growth, employment , community welfare, people's purchasing power.the data used in this research is primary data obtained from interviews and questionnaires distributed to experts in the manufacturing industry sector and especially the automotive industry sector, including; experts in the manufacturing industry sector, experts in the automotive industry sector, academics, researchers, and the government as regulator. The technique for determining experts is carried out using a purposive sampling method, namely by deliberately selecting experts who are competent and directly involved with the manufacturing industry sector and especially the automotive industry sector consisting of the government as regulator, the business world represented by associations, practitioners or experts in the automotive industry sector, academics from universities and research institutes. A detailed list of experts who were sources for this research can be seen in table 1 following below:

Table 1. Expert Respondents as Research Sources

No	Research Resource	Institution	Number of Respondents
R1	Manufacturing industry sector expert at the Ministry of Industry (Kemenperin)	Ministry of Industry	1
R2	Motorcycle industry expert (AISI)	Indonesian Motorcycle Industry Association	1
R3	Motorcycle industry expert (GAIKINDO)	Association of Indonesian Motor Vehicle Industries	1
R4	Automotive industry sector manufacturing practitioner (TOYOTA)	Toyota Motor Manufacturing Indonesia	1
R5	Automotive industry sector manufacturing practitioner (AHM)	Astra Honda Motor	1
R6	Academics for the economy and industrial sector (Trisakti)	Trisakti University	1
R7	Academics for economics and industrial sector (Unbor)	Borobudur University	1
R8	Industrial sector research institute (BRIN)	National Research and Innovation Agency	1
R9	Consumer Institution (BPKN)	National Consumer Protection Agency	1

The next step is to select an appropriate strategy, in this research using the Analytical Network Process (ANP) method to formulate a reindustrialization strategy model as an effort to increase the competitiveness of the best automotive industry sector. This method is able to represent the level of interest of various parties by considering the interrelationships between the criteria and sub-criteria in this research. There are two types of linkages in the Analytical Network Process (ANP) method, namely linkages within a set of elements (inner dependence) and links between different elements (outer dependence). This research uses the Analytical Network Process (ANP) method to formulate the best strategy model for developing the competitiveness of the automotive industry sector. This method is able to represent the level of interest of various parties by considering the interrelationships between existing criteria and sub-criteria. The ANP method is able to improve the weakness of the previous method, namely the Analytical Hierarchy Process (AHP), namely the ability to accommodate relationships between criteria or alternatives (Ririh, Ningtyas, & Taufiq Rahman, 2021). There are two types of linkages in the ANP method, namely linkages within a set of elements (inner dependence) and links between different elements (outer dependence). This relationship causes the ANP method to be more complex than the AHP method. The following are the stages of the Analytical Network Process (ANP) research, shown in figure 2 below:

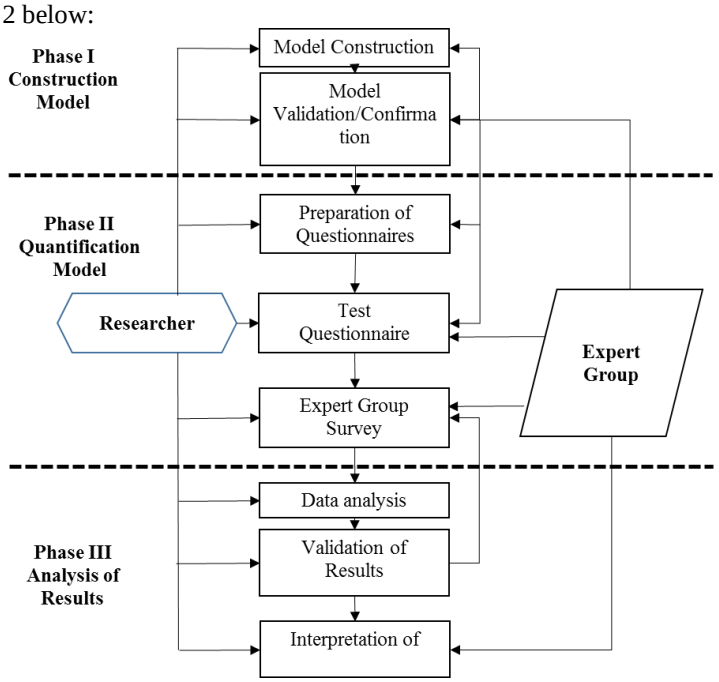

Figure 2. Stages of Analytical Network Process (ANP) Research

a. Model construction, prepared based on theoretical and empirical literature reviews and asking questions to experts, practitioners, academics and research institutions through in-depth interviews to examine the information in more depth. So it can provide a more realistic and measurable picture of the results.
b. Model Quantification, after the Analytical Network Process (ANP) framework has been designed and fixed, the next step is to design a questionnaire according to the Analytical Network Process (ANP) framework in the form of pairwise comparison between elements in the cluster to find out which of the two is greater influence (more dominant) and how big the difference is through a numerical scale of 1-9. The data from this assessment is then input through super decision software to be processed to produce output in the form of priorities and super matrices. The results of each expert respondent as a source in this research will be input into a separate Analytical Network Process (ANP) network.
c. Synthesis and analysis. To find out the results of individual assessments from respondents and determine the results of opinions in one group, an assessment is carried out by calculating the geometric mean (Susanto, Daryanto, & Sartono, 2017). Questions in the form of pairwise comparisons from respondents will be combined to form a consensus. The geometric mean is a type of average calculation that shows a certain tendency or value which has a formula as in the following equation below:

$$GM\bar{y} = \sqrt[n]{y_1 y_2 y_3 y_4 y_5 \dots \dots y_n}$$

GMy = Geometric Mean Value, y_1 $y_2y_3y_4.....y_n$ = value that will be converted into geometric mean

d. Rater Agreement Analysis, Rater agreement analysis is a measure that shows the level of conformity (agreement) of the respondents (R_1-R_n) regarding a problem in one cluster. The tool used to measure rater agreement is Kendall's coefficient of concordance (W; 0 < W < 1). If the test value W = 1, it can be concluded that the respondents' assessments or opinions are in perfect agreement, whereas if the W value = 0 or getting closer to 0, it indicates there is a discrepancy between respondents' answers or varying answers.

The Analytical Network Process (ANP) method is widely used in research on policy, strategic management and various research related to decision making (Handi Khalifah, Soleh Nurzaman, & Cholil Nafis, 2017). In the research "Reindustrialization as an Effort to Increase the Competitiveness of the Automotive Industry Sector and have an Impact on Sustainable Indonesian Economic Growth" using the Analytical Network Process (ANP) refers to several previous studies, including; (1) (Yoyo, Hanitha, & Hendra, 2023) "Strategy for Developing Competitiveness of the Palm Oil Based Fatty Acid and Fatty Alcohol Industry in Indonesia" (Yoyo et al., 2023). (2) (Wisena, 2015)"Analysis of the Sustainable Competitiveness Strategy of the Palm Oil Industry" (Rofiqi, Maarif, & Hermawan, 2016). (Yunia, Fauzi, & Kirbrandoko, 2012) "Strategy Model for Sustainable Development and Management of Marine National Parks" (Tallei, Iskandar, Runtuwene, & Filho, 2013). (3) Rofiqi, D.M. (2016) "Strategy for Accelerating Development of the Crude Palm Oil (MSM) Derivatives Industry in Indonesia"(Rofiqi et al., 2016).

The questions in the Analytical Network Process (ANP) questionnaire are in the form of pairwise comparisons between elements or variables in a cluster to find out which value between the two has a greater influence (more dominant). Pairwise comparisons are carried out based on the subjective preferences of decision makers by comparing the level of importance between variables. In providing an assessment between the two, you can use the Saaty scale (Zhang, Liu, & Yang, 2009), for various issues, a scale of 1 to 9 is the best scale for expressing opinions. Each pairwise comparison is evaluated on the Saaty's scale 1-9 in table 2 following below:

Table 2. Pairwise Comparison Assessment with Saaty's scale 1-9

	Most Important				Naeutral			Most Important		
Element A	9	7	5	3	1	3	5	7	9	Element B

Translated in the form of a pairwise comparison table using a numerical scale of values 1 to 9 which is a translation of the verbal assessment, which are shown in table 3 the following below:

Table 3. Comparison of Verbal Scale and Numerical Scale

No	Scoring scale Verbal	Scale Numerical
1	Very big influence	9
		8
2	The impact is much greater	7
		6
3	Greater influence	5
		4
4	Slightly bigger impact	3
		2
5	Just as big an influence	1
6	Median value of influence (scale between 1-9)	2,4,6,8

Weighting using the Analytical Network Process (ANP) with a weighting calculation algorithm which is carried out starting from the data in the form of a pairwise comparison (pairwise comparison) until the weight for each indicator is produced. Detailed stages of the pairwise comparison weighting algorithm, which are shown in figure 3 the following below:

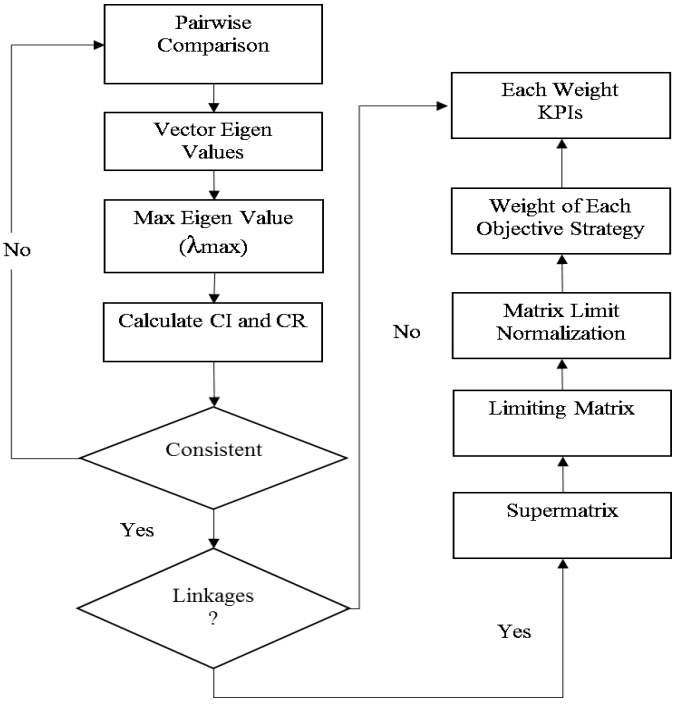

Figure 3. Stages of the Weight Calculation Algorithm with ANP

The selection model in this research has a selection strategy with a complete multilayer structure with BOCR nodes (Benefits, Opportunities, Costs, and Risks) in the Top-level Network, control criteria in the subnet, and decision subnets (decision networks) in the Bottom- Network level which contains alternatives related to the influence of control sub-criteria on objectives. Decision networks are created for each important criteria control element. The top-level model also has a ratings component to evaluate BOCR intensity and merit. The ANP used in this research uses benefit, opportunity, cost and risk (BOCR) control criteria so that the reliability of the strategy to be implemented can be tested. The competitiveness development model with ANP-BOCR in this industry refers to several previous studies conducted by (Yoyo et al., 2023), (Wisena, 2015), (Rofiqi et al., 2016). Apart from that, the main reason for choosing the ANP method with BOCR as the decision analysis tool is because a model like this accommodates the interdependence relationships between elements of a system in this research. The following shows 5 (five) control criteria in the aspects of benefit, opportunity, cost and risk, which are shown in figure 4 the following below:

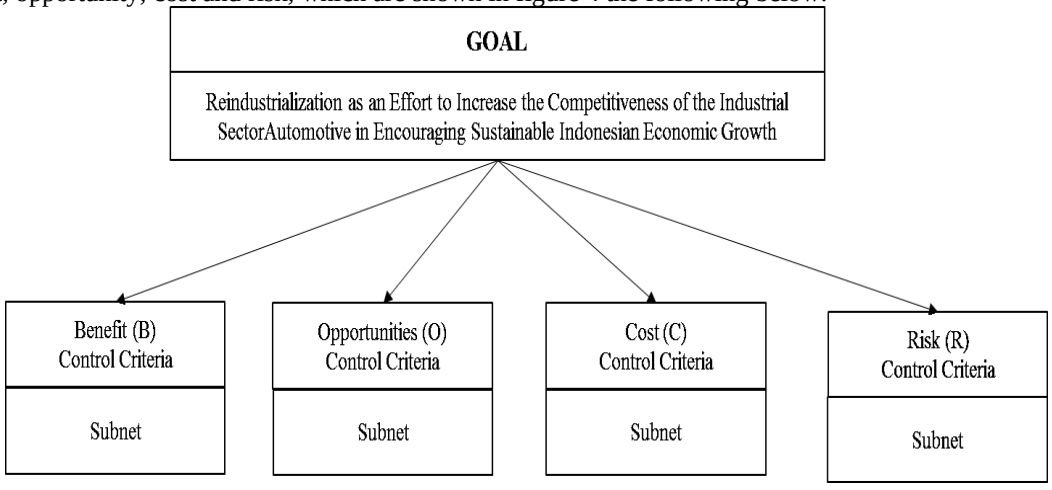

Figure 4. ANP-BOCR Framework

The prioritized strategy is to analyze the alternative that is at the top (ideal) for each BOCR merit (benefit, opportunity, cost and risk), then the normalized BOCR aspect value is used as the basis for determining priorities.

BOCR aspects (benefit, opportunity, cost and risk) with a greater normalized value have a higher ranking, and vice versa.

3. Results and Discussions

To translate the Analytical Network Process (ANP) framework, it is necessary to carry out further analysis using BOCR analysis, namely Benefit, Opportunity, Cost and Risk, which is then derived from each cluster into to "n" alternative strategic activities. Results of data processing with variables that influence the competitiveness of the automotive industry sector such as automotive exports, automotive imports, Logistics Performance Index (LPI), monetary policy (rupiah exchange rate), fiscal policy (tax ratio), Total Factor Productivity (TFP), inflation, infrastructure, and automotive Foreign Direct Investment (FDI) and its impact on economic growth, which influences labor absorption, the level of social welfare and people's purchasing power. The variables are grouped into clusters, criteria and nodes. Results Determination of cluster problems, criteria and nodes are arranged as an Analytical Network Process (ANP) framework model. The Analytical Network Process (ANP) framework used in in-depth interview studies with experts (experts) has been determined, so that the combination of data processing results and in-depth interview studies with experts (experts) will produce a model that forms a complex general network. The results of processing this research data and in-depth interviews with experts who have been determined to produce clusters, criteria and nodes.

The Analytical Network Process (ANP) framework provides an overview of the relationship between criteria, clusters and nodes grouped in BOCR, namely Benefit, Opportunity, Cost and Risk and each cluster is to "n" main strategic alternative activities, which are shown in figure 5 to 8 the following below:

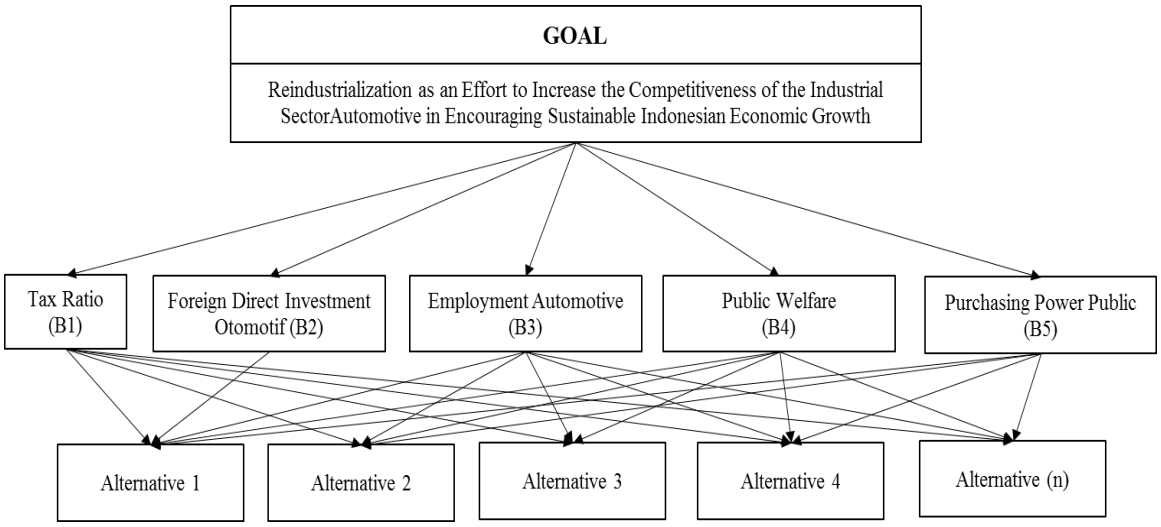

Figure 5. Benefits Criteria in The ANP-BOCR Framework

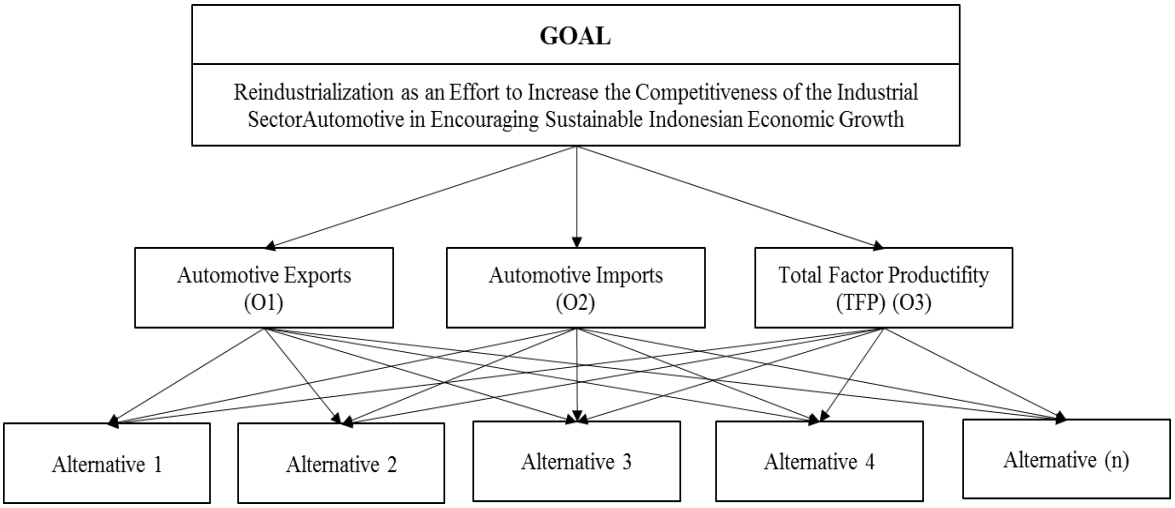

Figure 6. Opportunities Criteria in The ANP-BOCR Framework

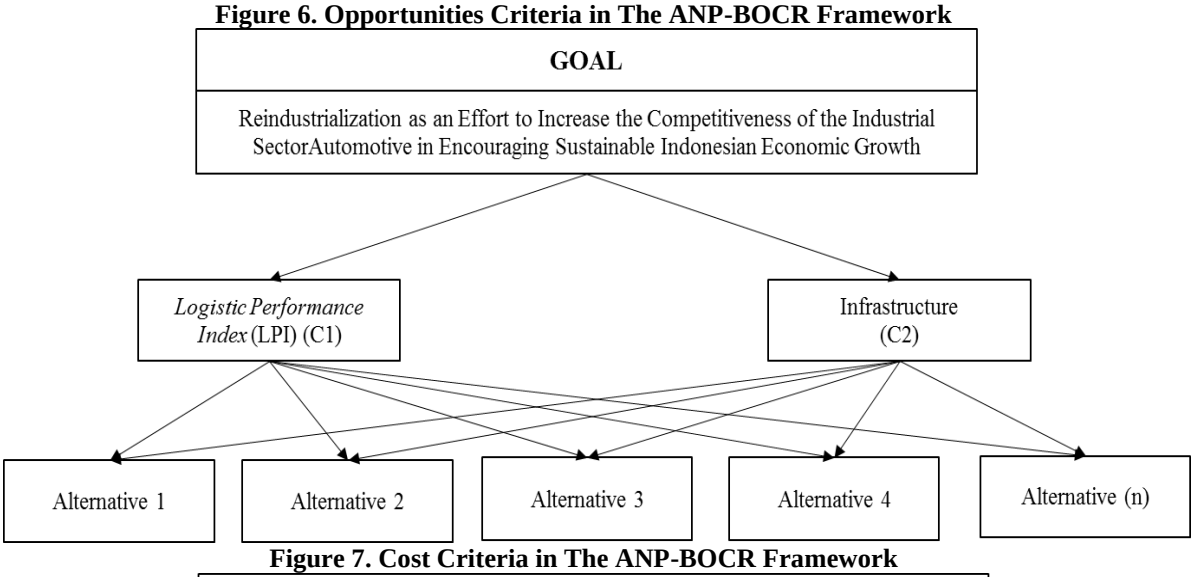

Figure 7. Cost Criteria in The ANP-BOCR Framework

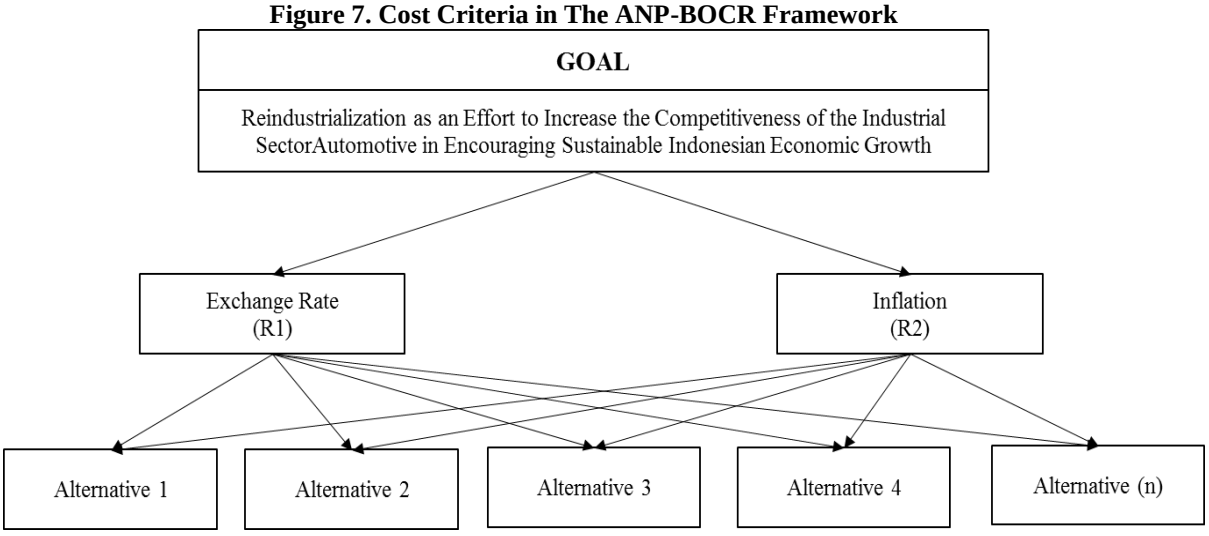

Figure 8. Risk Criteria in The ANP-BOC Framework

The results of the Analytical Network Process (ANP) have been translated into cluster groups, using BOCR analysis, namely Benefit, Opportunity, Cost and Risk. Based on the results of data processing from filling out questionnaires and interviews with previously determined experts. For data processing using Super Decision Software and Microsoft Excel 2013, ANP research results were obtained on the determinants of automotive competitiveness variables, namely from experts (Ministry of Industry, AISI and GAIKINDO), practitioners (TOYOTA and AHM) and academics (Trisakti University and Borobudur University) in form table 4 as follows:

The results of the overall model synthesis and priorities based on the four aspects that control the strategy selection criteria through the combined opinions of expert sources can be seen in Table 3. The normalized BOCR aspect values are used as the basis for determining priorities. BOCR aspects with a greater normalization value have a higher ranking, and vice versa. The synthesis results show that the benefits aspect as the first rank has a normalized value and limiting value which is much greater than the risks aspect as the last rank. ANP results for determinants of automotive competitiveness factors, which can be seen in table 4 following below:

Table 4. ANP Results for Determinants of Automotive Competitiveness Factors

Determinant Factor		**Expert**		**Practitioner**		**Academics**		**Researcher**		**Consumer**		**Total**	
Nodes	Criteria	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R
B1	*Tax Ratio*	0,041	8	0,068	2	0,026	8	0,059	4	0,051	4	0,047	5
B2	Automotive FDI	0,075	2	0,056	5	0,067	5	0,019	9	0,070	3	0,062	3
O1	Automotive Exports	0,102	1	0,072	1	0,053	6	0,093	2	0,114	1	0,085	1
O2	Automotive Imports	0,017	9	0,014	9	0,024	9	0,021	8	0,013	9	0,018	9
O3	*Total Factor Productivity* (TFP)	0,057	3	0,061	4	0,067	4	0,095	1	0,078	2	0,067	2
C1	*Logistic Performance Indexs* (LPI)	0,054	5	0,052	8	0,067	3	0,054	5	0,039	8	0,054	7
C2	Infrastructure	0,056	4	0,055	6	0,075	1	0,076	3	0,043	6	0,061	4
R1	Exchange rate	0,045	7	0,063	3	0,068	2	0,043	6	0,040	7	0,053	8
R2	Inflation	0,051	6	0,054	7	0,049	7	0,035	7	0,048	5	0,049	6

Next, we obtained the results of the ANP research on the determinants of economic growth variables, namely from experts (Ministry of Industry, AISI and GAIKINDO), practitioners (TOYOTA and AHM) and academics (Trisakti University and Borobudur University), which can be seen in table 5 following below:

Table 5. ANP Results for Determining Economic Growth Factors

Determinant Factor		Expert		Practitioner		Academics		Researcher		Consumer		Total	
Nodes	Criteria	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R
B3	Employment	0,567	1	0,733	1	0,250	2	0,400	1	0,333	1	0,456	1
B4	Public Welfare	0,567	1	0,733	1	0,250	2	0,400	1	0,333	1	0,456	1
B5	People's Purchasing Power	0,367	2	0,533	2	0,500	1	0,200	2	0,333	1	0,386	2

The results of the BOCR analysis are Benefit, Opportunity, Cost and Risk, which are translated into strategies "Reindustrialization as an Effort to Increase the Competitiveness of the Automotive Industry Sector and have an Impact on Sustainable Indonesian Economic Growth, namely from experts (Ministry of Industry, AISI and GAIKINDO), practitioners (TOYOTA and AHM) and academics (Trisakti University and Borobudur University), which can be seen in table 6 following below:

Table 6. ANP BOCR Analysis Results for 9 Respondent

Determinant Factor		Expert		Practitioner		Academics		Researcher		Consumer		Total	
Nodes	Criteria	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R
B	Benefit	0,200	3	0,200	3	0,200	3	0,200	3	0,200	3	0,200	3
O	Opportunity	0,333	2	0,333	2	0,333	2	0,333	2	0,333	2	0,333	2
C	Cost	0,500	1	0,500	1	0,500	1	0,500	1	0,500	1	0,500	1
R	Risk	0,500	1	0,500	1	0,500	1	0,500	1	0,500	1	0,500	1

Based on the results of pairwise comparison, the decision "Reindustrialization as an Effort to Increase the Competitiveness of the Automotive Industry Sector and Impact on Sustainable Indonesian Economic Growth" was obtained. The highest priority average value for increasing the competitiveness of the automotive industry sector is at a Cost of 33, 20 percent, Risk 32.80 percent, Opportunity 21.70 percent and Benefit 13.60 percent. These results were obtained from calculating pairwise comparisons between the criteria in this study. The results of the rater agreement measurement show that the level of agreement between respondents on factors (criteria) on the effect of increasing the competitiveness of the automotive industry sector is 0.3793 or 37.93 percent, with a p-value of 0.000 until 0.004 (Susanto et al., 2017). So it can be concluded that the use of factors (criteria) such as automotive exports, automotive imports, Logistics Performance Index (LPI), monetary policy (rupiah exchange rate), fiscal policy (tax ratio), Total Factor Productivity (TFP), inflation, infrastructure, and Foreign Automotive Direct Investment (FDI), the results obtained using ANP and BOCR analysis will have a positive and significant impact on increasing the competitiveness of the automotive industry sector, even though the Cost (cost) and Risk (potential risk) values are greater than the Benefit value (benefits) and Opportunity (opportunities that arise). ANP BOCR kendall's all cluster coefficient Index of alternative analysis results, which can be seen in table 7 following below:

Table 7. ANP BOCR Kendall's all cluster coefficient Index

Determinant Factor		Coefficient		
Nodes	Criteria	Kendall's (W)	P-value	DF
All	All BOCR	0.3793	0.0040	3
B	All Benefit	0.9769	0.0000	10
O	All Opportunity	1	0.0000	10
C	All Cost	1	0.0000	10
R	All Risk	0.4309	0.0000	3

Selection of the strategy "Reindustrialization as an Effort to Increase the Competitiveness of the Automotive Industry Sector and have an Impact on Sustainable Indonesian Economic Growth". Where after analyzing the factors that influence the growth of the automotive industry sector with the Analytical Network Process (ANP) on the determining factors of automotive competitiveness and economic growth with BOCR analysis, namely Benefit, Opportunity, Cost and Risk. So the conclusions that will be used as a basis for selecting alternative strategies can be drawn, namely as follows:

Weighting for Determining Alternative Strategies

To determine alternative strategies based on the weighting of the ANP-BOCR results, it is considered that the measurement with rater agreement needs to be strengthened with weighting, where this measurement is to determine the weight of determining the priority of a strategy that will be carried out. Therefore, a recalculation was carried out using the negative additive formula to see long-term priorities. This formula is specifically used to formulate a long-term strategy. Where the formula takes into account the BOCR (Benefit, Opportunity, Cost and Risk) of each strategy offered to be implemented so that the goal of increasing the competitiveness of the automotive industry sector and having an impact on sustainable Indonesian economic growth can be achieved. The following are the results of the weighting of alternative reindustrialization strategies for the automotive industry sector, which can be seen in table 8 following below:

Table 8. ANP BOCR Analysis Results of Alternative Reindustrialization Strategies

Nodes	Determinant Factor Criteria	*Benefit* (0,136)	*Opportunity* (0,217)	*Cost* (0,332)	*Risk* (0,328)
B1.1	Increased Tax Ratio	0,022	0,035	0,053	0,052
B2.1	Increased FDI with improved investment climate	0,025	0,04	0,062	0,061
B2.2	FDI for modern industrialized areas	0,025	0,04	0,062	0,061
B3.1	Creation of a conducive investment climate	0,025	0,041	0,062	0,061
B4.1	Education Improvement	0,025	0,04	0,062	0,061
B5.2	Increase in GDP per capita	0,013	0,02	0,031	0,031
O1.1	Increase in foreign exchange through exports	0,049	0,079	0,121	0,119
O2.2	Increasing Domestic Market Penetration and Protection from Imported Products	0,041	0,067	0,102	0,100
O3.2	The ability of a company to achieve maximum output from a particular combination of inputs and technology	0,044	0,071	0,109	0,107
C1.6	Acceleration of delivery time lines	0,072	0,116	0,178	0,175
C2.1	Increased Infrastructure Budget	0,063	0,101	0,154	0,152
R2.1	Increase in Exchange Rates	0,072	0,116	0,177	0,174
R1.2	Decreasing Inflation	0,063	0,116	0,115	0,153

Determining Alternative Ranking Strategy Priorities

The next calculation to provide a priority ranking for alternative strategies uses an additive negative formula approach, which is common and can be used to determine long-term priorities for alternative strategic options for reindustrialization to increase competitiveness and sustainable economic growth. Where the additive negative formula is as follows, and the results of reindustrialization strategy alternative priority rank, which can be seen in formula and tabel 9 following below:

Additive Negative Formula = bB+oO-cC-rR

Table 9. Results of Reindustrialization Strategy Alternative Priority Rank

odes	Determinant Factor Criteria	bB+oO-cC- rR *Priority*	*Rank*
1.1	Increased Tax Ratio	-0,048	10
2.1	Increased FDI with improved investment climate	-0,058	8
2.2	FDI for modern industrialized areas	-0,058	8
3.1	Creation of a conducive investment climate	-0,057	9
4.1	Education Improvement	-0,058	8
5.2	Increase in GDP per capita	-0,029	11

Determinant Factor		bB+oO-cC- rR *Priority*	*Rank*
odes	Criteria		
1.1	Increase in foreign exchange through exports	-0,112	4
2.2	Increasing Domestic Market Penetration and Protection from Imported Products	-0,094	6
3.2	The ability of a company to achieve maximum output from a particular combination of inputs and technology	-0,101	5
1.6	Acceleration of delivery time lines	-0,165	1
2.1	Increased Infrastructure Budget	-0,142	3
2.1	Increase in Exchange Rates	-0,163	2
1.2	Decreasing Inflation	-0,089	7

Based on the results of pairwise comparisons and BOCR analysis calculations for each strategy offered, priority values are generated for each weighting strategy and priority assessment of 13 reindustrialization strategies, namely: 1) Acceleration of delivery time lines, 2) Increase in exchange rates, 3) Increased infrastructure budget, 4) Increased foreign exchange through exports, 5) A company's ability to achieve maximum output from a certain combination of inputs and technology, 6) Increased domestic market penetration and protection from imported products, 7) Reduced inflation, 8) Increased FDI with improvements investment climate, 9) FDI for modern industrialized areas, 10) Increasing education, 11) Creating a conducive investment climate, 12) Increasing the tax ratio, 13) Increasing GDP per capita. To be able to provide an overview of the priority alternative reindustrialization strategies that will be implemented, a more detailed presentation will be made in the following presentation of ideas.

Reindustrialization Strategy Design Scheme as an Effort to Increase the Competitiveness of the Automotive Industry Sector and Have an Impact on Sustainable Indonesian Economic Growth in Accordance with 10 Government Program Initiatives Through the "Making Indonesia 4.0" Roadmap

Based on the results of this research, namely "Reindustrialization as an Effort to Increase the Competitiveness of the Automotive Industry Sector and have an Impact on Sustainable Indonesian Economic Growth in accordance with the Government program through the "Making Indonesia 4.0" road map program containing 10 national initiatives that are cross-sectoral and are expected to be able and capable To accelerate the development of the manufacturing industry in Indonesia(“Mak. Indones.,” 2019), it will produce a research design scheme which is expected to complement each other in designing reindustrialization strategies in the manufacturing industry sector and especially in the automotive industry sector. So it is hoped that the manufacturing industrial sector will be the driving force for economic growth with a contribution of 60 percent to GDP and especially in 5 (five) priority industrial sectors, namely food and beverages, automotive, chemicals, textiles and textile products, electronics and medical devices. Where the contribution of the automotive industry sector has a driving role in the manufacturing industry sector which is expected to have an impact on increasing Gross Domestic Product (GDP), increasing employment, increasing people's welfare and increasing people's purchasing power for automotive products. The following is a scheme resulting from the design of "Reindustrialization as an Effort to Increase the Competitiveness of the Automotive Industry Sector and have an Impact on Sustainable Indonesian Economic Growth" adapted and collaborated with 10 Government Program Initiatives through the "Making Indonesia 4.0" Roadmap (Kementerian Perindustrian, 2018), so that it can become a proposed research result that is expected to be contribute to completing the 10 strategic initiatives set by the government on the "Making Indonesia 4.0" road map. The proposed scheme can be seen in figure 9 below:

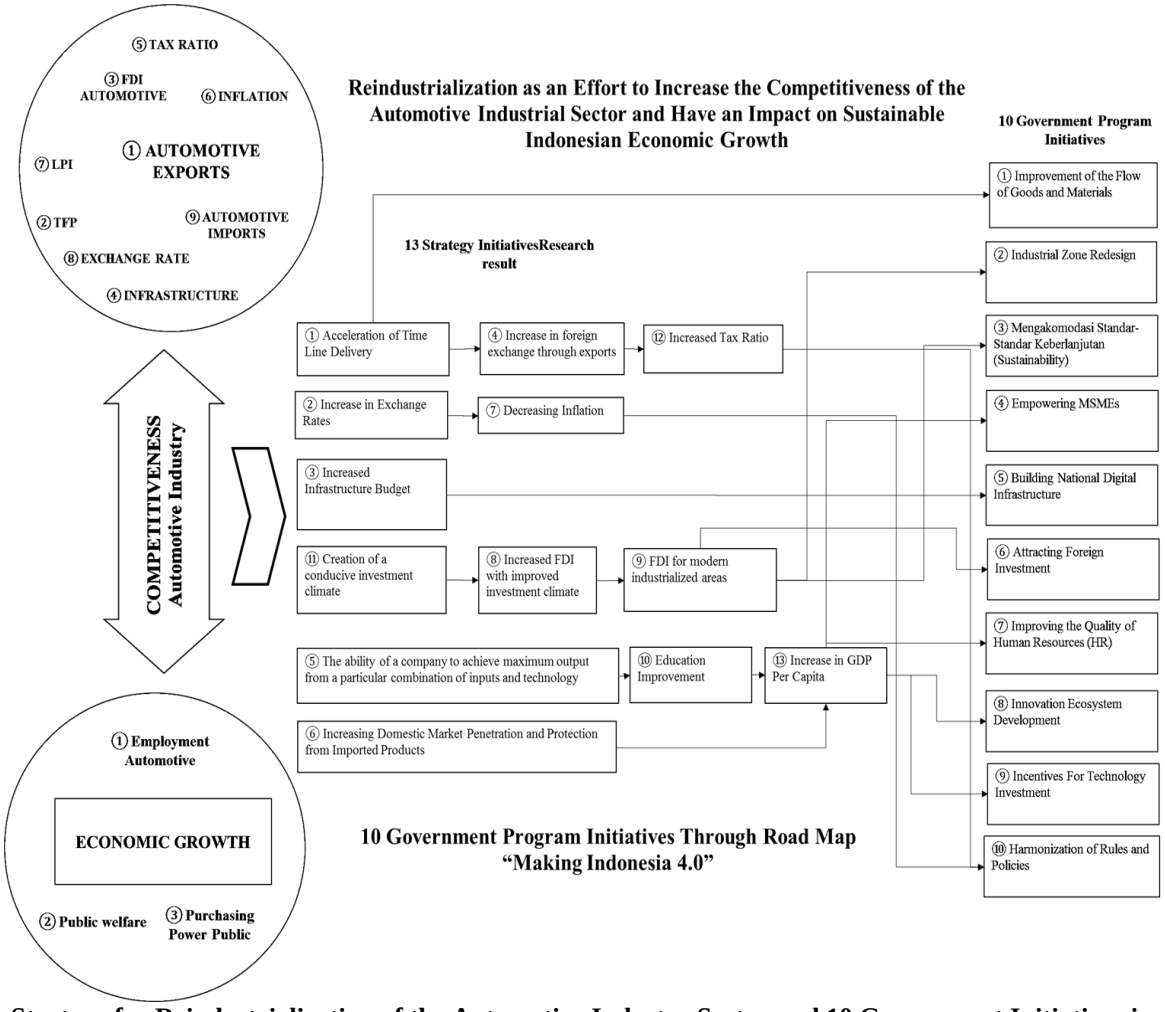

Figure 9. Strategy for Reindustrialization of the Automotive Industry Sector and 10 Government Initiatives in "Making Indonesia 4.0"

4. Conclusion

Based on the results of pairwise comparisons and BOCR analysis calculations for each strategy offered, priority values are generated for each weighting strategy and priority assessment of 13 reindustrialization strategies, namely: 1) Acceleration of delivery time lines, 2) Increase in exchange rates, 3) Increased infrastructure budget, 4) Increased foreign exchange through exports, 5) A company's ability to achieve maximum output from a certain combination of inputs and technology, 6) Increased domestic market penetration and protection from imported products, 7) Reduced inflation, 8) Increased FDI with improvements investment climate, 9) FDI for modern industrialized areas, 10) Increasing education, 11) Creating a conducive investment climate, 12) Increasing the tax ratio, 13) Increasing GDP per capita.

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