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Successful Public Private Partnership Model and Strategy in The Manado-Bitung Toll Road Project

Geertje Efraty Kandiyoh[1], Rusdi Usman Latief[2], M. Asad Abdurrahman[2] and Rosmariani Arifuddin[2]

[1]Doctoral Course Student, Civil Engineering Department, Hasanuddin University
[2]Associate Professor, Civil Engineering Department, Hasanuddin University
[1]geertje.kandiyoh21@gmail.com*, [2]rusdiul@gmail.com, [2]asadmuh@gmail.com,
[3]Rosmariani_ar@yahoo.com

Abstract:

Indonesia is speeding up growth by constructing toll roads in several places, one of which is the Manado-Bitung toll road in North Sulawesi. Infrastructure development is carried out through the Public-Private Partnership (PPP) program due to budget constraints. This study aims to examine the success model of public-private partnership for the Manado-Bitung toll road development project and how the efforts and strategies of stakeholders to achieve this success model. This research takes a sample of stakeholders involved in Manado-Bitung toll road PPP, namely from the government, practitioners, academics, and the community. The analysis technique of this research is to use Structural Equation Modelling and SWOT analysis. The results of the study show that the factors that encourage the success of Public-Private Partnership for the Manado – Bitung toll road construction project sequentially are as follows: environmental factors are the most significant factor in explaining the success of toll road PPPs Manado-Bitung, followed by organizational, political, economic, legal, physical, social, risk, and cultural. Stakeholders must carry out efforts and strategies in meeting the factors that drive the success of the Manado-Bitung toll road PPP to reduce significant threats, namely avoiding development in places that have a function of public needs.

Keywords: PPP, SEM, SWOT Analysis, Toll Road

I. INTRODUCTION

The critical role of road infrastructure is fundamental to the economy of a region. Therefore, the availability of road infrastructure can significantly positively impact the regional economy of an area [1]. Currently, Indonesia is increasing infrastructure development, one of which is toll roads, intending to accelerate development. The infrastructure development program in Indonesia is included in the national development priority program and its implementation in

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several strategic areas. Due to the limited budget, and the need for toll road infrastructure development, the Indonesian government then carried out the construction of toll roads through the PPP scheme.

However, most PPP projects involve risks that are difficult to control and analyze, because the PPPs involve various parties in their implementation, the nature of PPPs creates risk as a critical factor in practice. Most PPP projects involve risks that are difficult to control and analyze [2]. Meanwhile, there is a difference between the involvement of the private sector for infrastructure development and the development of the service sector or other services, where the infrastructure sector, such as toll roads, requires significant capital, involves industry in the capital, and applies in the long term [3]. In addition, it is argued that most of the risks in PPP projects stem from the complexity of the arrangement itself [4].

One example of PPP projects is The Manado -Bitung toll road. The Manado-Bitung toll road is a priority development program that began in 2016 and is targeted to be completed and operationalized in 2019. However, up until 2021 the construction of the toll road is still ongoing, although it has partially operated. Several factors determine the success of a PPP toll road because it involves several stakeholders involved in its implementation.

In the case of PPP in various countries, the implementation of a cooperation project still does not clearly define the success factors for PPPs toll road. It is essential considering that understanding the success factors is the primary step in developing a practical PPP conceptual framework [5].

Several studies have stated that the evaluation of PPP implementation has been carried out by the development organizers themselves, which in this case is the government. It makes the evaluation process ineffective [6]. It is also the case in the PPP market, which is even more advanced and mature, such as Australia and the UK. Therefore, the ineffectiveness in conducting evaluations, especially in the factors used to evaluate the success of toll road PPPs, will have implications for the quality of output that is below standard or should not be. It is crucial that considering the infrastructure development costs from PPPs are not small, involving many resources, so that the project's output should be commensurate with the sacrifices incurred [7].

II. RELATED WORK

The infrastructure projects have macroeconomic impact. Macroeconomics is a picture of stability and economic growth. Based on previous research, the variables that make up the macroeconomic dimensions are arranged, namely; inflation [8-9], taxes [10-11], economic growth [8,10], economic stability [12-15], and factors of production [9-10] are variables that can measure the macroeconomic picture. This economic factor aims to determine the extent of macroeconomic conditions, the financial environment such as banking support, and the financial capacity of stakeholders in determining PPP. Not only macroeconomics, but the social factors in previous research are also community support, a benefit for the community, job opportunities, and community involvement [15-16]. Social factors aim to determine the extent to which

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community support and project benefits perceived by the community affect the success of government-business-enterprise cooperation

In terms of cultural factors, the cultural dimensions that can determine the success of a PPP consist of the Power Distance Index (PDI), Masculinity vs. Femininity (MAS), Uncertainty Avoidance Index (UAI), Individualism vs. Collectivism (IDV) [17]. The concept of this cultural characteristic was developed in the context of the PPP. Cultural factors reflect the extent to which the culture and way of life held by stakeholders determine the success of PPP.

In organizational factors, the reputation of the private sector has an essential role in the success of public-private partnerships [8-9]. This condition can come from internal or external. The internal environment is a person's ability to take care of himself, and the external environment is the danger that occurs from outside [13,19,20].

In environmental factors, measurements are created based on the quality of natural resources, composed of air quality, the volume of waste, and traffic congestion [13,21,22]. Besides, the usefulness of natural resources is also part of this dimension, where the potential of natural resources can be utilized for projects and environmental sustainability practices [20]. This environmental dimension aims to determine the handling of the impact

of development carried out by development organizers dan clarity regarding the handling of air pollution, noise, volume of waste, and the level of traffic congestion [10,13,21].

In terms of risk factors, proper risk allocation can avoid losses to the stakeholders involved and based on the Regulation of the Minister of Finance No. 38/PMK.01/2006 has set a reference for risk allocation for the construction of toll roads. Previous studies have stated that a balanced risk allocation is a key to the success of road PPPs [10,22-23].

The constructs to explain political and governance factors consist of institutional, program, and aspirations dimensions. The institutional dimension aims to determine the capabilities of government institutions that can increase PPP acceleration [20, 22, 24]. The program dimension aims to determine the existence, readiness, quality, and involvement of the construction service community in programs organized by the government. The aspiration dimension aims to determine the suitability of the program and the level of satisfaction of the construction service community with the program [14, 25, 25].

Physical factors in the PPP process are related to the procurement process, including a transparent and competitive procurement [9,13,16], the quality of project direction, and technical aspects [23,25,26].

To measure legal factors, it consists of dimensions of regulatory substance to determine the extent to which regulations related to PPPs can be understood, detailed and clear by each related party [10,12]. In addition, the dimension of law enforcement is to determine the extent to which regulations related to PPPs are implemented in practice [6,19]

III. METHODOLOGY

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A. Type of Research

This is survey research with the sequential explanatory method approach that uses quantitative and qualitative approaches by making a successful Public-Private Partnership strategy model on the Manado-Bitung toll road project.

B. Research Time and Location

This research location is in the North Sulawesi Province, Indonesia, namely the Manado-Bitung toll road construction project. This research was carried out for four months.

C. Collection Data and Sources

The primary data were obtained in the location through questionnaires, observation, documentation, and interviews with parties that understood and competent the topics studies. These include the government, practitioners, academics, and the community. There are 136 respondents as the sample of this study. In this study, the researcher used purposive sampling with the sample criteria being competent stakeholders and concerned with the Public-Private Partnership Manado-Bitung toll road. The secondary data were obtained from journals, book references, internet sites, and other supporting documents which are accurate and relevant to the study material.

D. Data Processing Analysis Method

The analysis technique of this research is using Structural Equation Modelling (SEM) and SWOT analysis. SEM analysis aims to build a PPPs model for the Manado–Bitung toll road construction project. SWOT analysis aims to develop a strategy for the success of PPPs in the Manado-Bitung toll road project.

IV. DATA ANALYSIS AND INTERPRETATION

The result of the study comprises four components: outer model, inner model, goodness of fit index and strategy of the Manado Bitung toll road. The following subsection is described in detail of the result of the study. The result show that the factors that encourage the success of Public-Private Partnership for the Manado-Bitung toll road construction project.

A. Outer Model

The outer model specifies the relationship between the latent variable and the indicator or manifest variable. The outer model defines how each indicator block relates to its latent variable. Figure 1 is an image of the calculation results of the initial model, which was processed using the SmartPLS 3.0 application.

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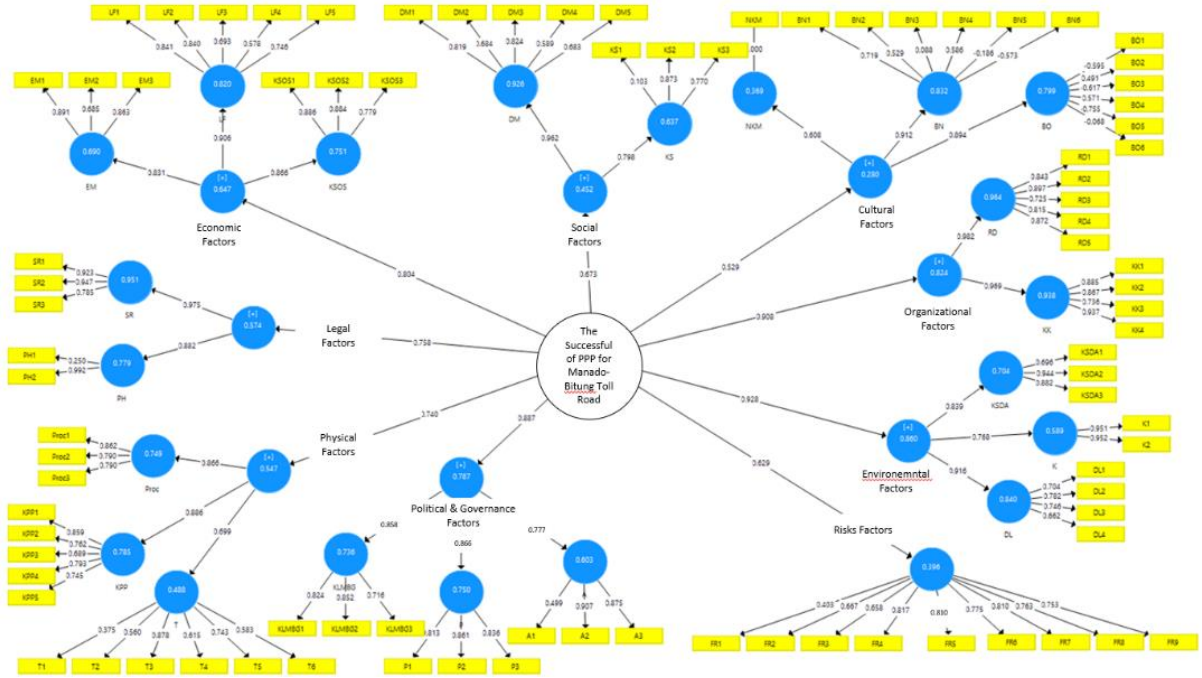

Fig 1: The path coefficient of the Manado-Bitung toll road PPP model

Based on figure 1, the equation of the Manado Bitung Toll Road PPP Success Model is obtained based on Economic Factors, Social Factors, Cultural Factors, Organizational Factors, and Environmental Factors, Risk Factors, Political and Governance Factors, Physical Factors and Legal Factors, which are as follows:

The Successful of Manado Bitung Toll Road PPP = γ_1 Economic Factors + γ_2 Social Factors + γ_3 Cultural Factors + γ_4 Organizational Factors + γ_5 Environmental Factors + γ_6 Risk Factors + γ_7 Political and Governance Factors + γ_8 Physical Factors + γ_9 Legal Factors + ζ

The Successful of Manado Bitung Toll Road PPP = 0,804 Economic Factors + 0,673 Social Factors + 0,529 Cultural Factors + 0,908 Organizational Factors + 0,928 Environmental Factors + 0,629 Risk Factors + 0,866 Political and Governance Factors + 0,740 Physical Factors + 0,758 Legal Factors.

These results indicate that the economic factor has a very strong and positive path coefficient on the success of the Manado-Bitung toll road PPPs. Likewise with organizational factors, the environment, as well as political and government factors. Meanwhile, social, risk, physical, and legal factors have a strong relationship with the strong category. The cultural factor is the weakest factor among all the factors, with a moderate strength of relationship with the success of the PPPs for the Manado-Bitung toll roads. Based on the above results, most loading factor values indicate the relationship between the observed variables (manifest) with dimensions above 0.5.

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TABLE I CRONBACH'S ALPHA

	Cronbach's Alpha	Test Criteria > 0,7
Economic Factors	0.886	Valid
Social Factors	0.768	Valid
Cultural Factors	(0.744)	Invalid
Organizational Factors	0.940	Valid
Environment Factors	0.863	Valid
Risk Factors	0.883	Valid
Political And Governance Factors	0.842	Valid
Physical Factors	0.848	Valid
Legal Factors	0.784	Valid

According to the provisions, the value of Cronbach's alpha must be above 0.7. In the Cronbach alpha calculation results, there are several aspects and dimensions whose Cronbach alpha value is below 0.7. However, aspects and dimensions that do not meet the requirements are still used in the research model because if they are removed from the model, the model will not fully be explained.

B. Inner Model

The inner model specifies the relationship between latent variables (structural model), which describes the relationship between latent variables based on substantive theory. The results show that Environmental Factors are the most decisive factors for success with an R^2 of 0.860 or 86.0%, then Organizational Factors, with an r^2 of 0.824 or 82.4%, Political and Government Factors, with an r^2 of 0.787 or 78.7%, Economic Factors, with an r^2 of 0.647 or 64.7%, Legal Factors, with an r^2 of 0.574 or 57.4%, Physical Factors, with an r^2 of 0.547 or 54.7%, Social Factors, with an r^2 of 0.452 or 45.2%, Risk Factors, with an r^2 of 0.396 or 39.6%, and Cultural Factors, with an r^2 of 0.280 or 28.0%.

These results indicate that environmental factors are the factors that can best explain and influence the success of the Manado-Bitung toll road PPP. Environmental factors are arranged based on the dimensions of the quality of natural resources, sustainability of natural resources,

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and environmental management of development. By continuing to pay attention to the quality of natural resources during construction, accompanied by the concept of sustainability and responsibility for development impact, a project can be achieved. Of course, this is also supported by the contractor's organizational capacity as an executor and the government as an organizer. Furthermore, political support from the central government is also a driving force for the success of this project. In addition, clarity of regulations and their application also plays an important role, especially when dealing with cases of land disputes with communities around the project.

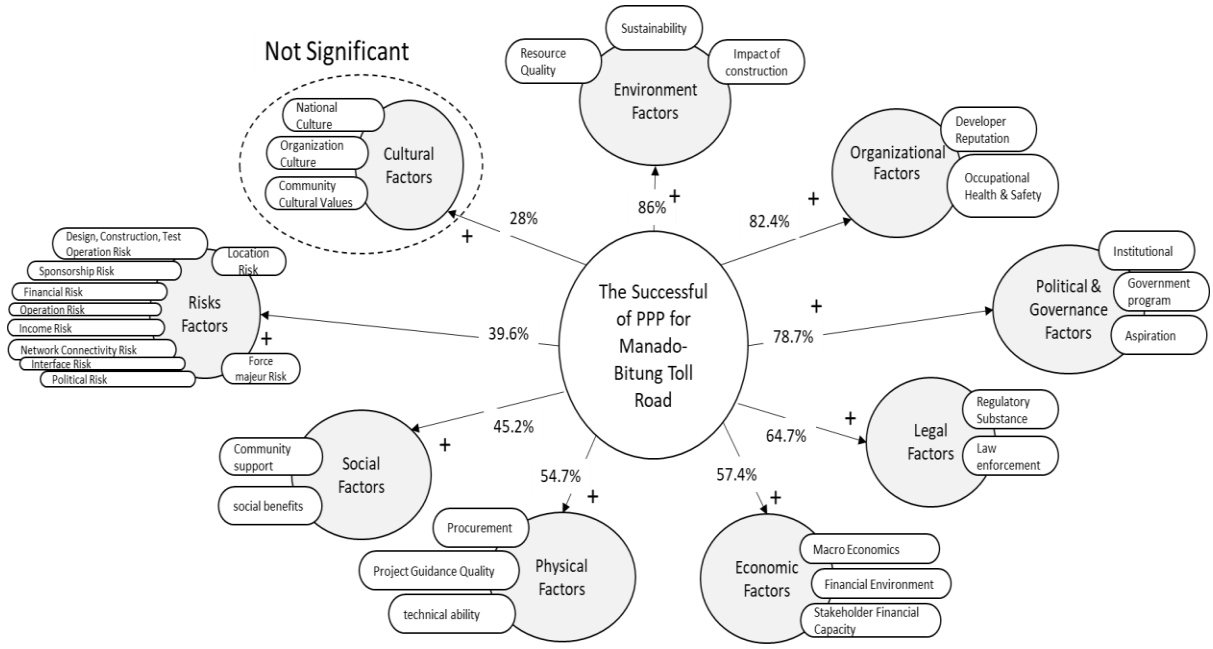

Fig 2: Value of t-Statistic and R2 of The Manado-Bitung toll road PPP success model

The economic factors measured against the macroeconomic framework, the financial environment such as the support provided by the banks with the financing of projects and the financial performance of the organizers are factors that play an important role. With stable macroeconomic conditions at both the provincial and national levels, such as a controlled inflation rate, it will be possible to draw up development plans in accordance with the previously established budgetary capacity. Financial support from banks will encourage the private sector to access capital more easily and may ultimately strengthen the consortium.

TABLE II PATH COEFFICIENT

VARIABLE	ORIGINAL SAMPLE (O)	T-STATISTICS	P-VALUE	H_0	RESULT

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VARIABLE	ORIGINAL SAMPLE (O)	T-STATISTICS	P-VALUE	H_0	RESULT
Economic Factors	0.804	8.581	0.000	Rejected	Significant
Social Factors	0.673	6.974	0.000	Rejected	Significant
Cultural Factors	0.529	1.934	0.054	accepted	not significant
Organizational Factors	0.908	37.299	0.000	Rejected	Significant
Environment Factors	0.928	41.550	0.000	Rejected	Significant
Risk Factors	0.629	10.067	0.000	Rejected	Significant
Political and Governance Factors	0.887	24.186	0.000	Rejected	Significant
Physical Factors	0.740	5.079	0.000	Rejected	Significant
Legal Factors	0.758	9.964	0.000	Rejected	Significant

Clarity and transparency in procurement, supported by good quality project direction, as well as the technical capabilities of experienced contractors in the construction of toll road projects, also need attention in the success of toll road PPPs. In addition to these physical factors, stakeholders should also seek community support. Municipal support can also be achieved by creating construction jobs, so that municipalities benefit from the construction of toll road. The risk factor is the lowest factor in explaining the success of PPPs for the Manado-Bitung toll road. This is because all parties involved in this project have understood the allocation of risk, so the risk factor has become a factor that has been taken into account from the start.

Meanwhile, the cultural factor is an insignificant factor in explaining its influence on the success of the Manado-Bitung toll road PPPs. This reflects that, stakeholders do not consider the cultural values adopted by the community to be unimportant. Then, the culture of resolving problems with the community in the process of toll road construction through deliberation is appropriate, although this can be resolved briefly due to clear regulations.

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C. Goodness of Index

This index is used to evaluate measurement models structural models. In addition, it provides a simple measure of the overall model prediction. The GoF value of 0.10 is in a small category. The GoF value of 0.250 is in the medium category, and the GoF value of 0.36 is in a large category. For this reason, the GoF index is calculated from the square root of the average communality index and average R^2 values as follows:

$$GoF = \sqrt{\text{Avrg Comm x Avrg } R^2}$$

$$GoF = \sqrt{0.813 \text{ x } 0.702} = 0.756$$

Based on the above calculation, the GoF value obtained is 0.756. It states that the GoF value is in the significant (high) category. This high category indicates that the PPP success model has a high degree of conformity to the phenomena that occur.

D. Successful Strategy of Manado-Bitung Toll Road PPP

After identifying the factors that determine the success of the toll road PPP, then interviews with stakeholders regarding the strategy in meeting the factors that drive the success of the Manado-Bitung toll road PPP are conducted. The interview results will then be grouped into an analysis of the internal and the external environment. External environmental analysis is an analysis of external factors or situations and conditions that are outside the organization, which in this case is the government and business entities, which can affect directly or indirectly the organizational performance of the government and business entities. The purpose of the external analysis is to develop a list of opportunities (opportunities) that can be exploited by the organization and a list of threats that the organization should avoid. Internal environmental analysis is an analysis to formulate and evaluate the strengths and weaknesses of the organization.

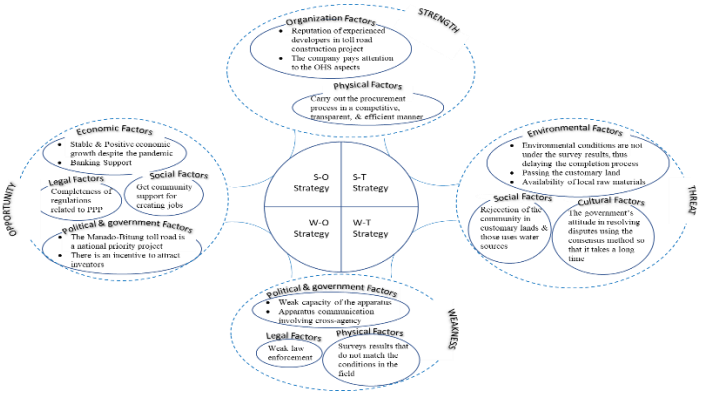

Fig 3: Matrix SWOT

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The results of interviews with stakeholders explain that the economy is stable at the provincial and national levels despite the pandemic, and the support from banks for financing is an opportunity for the implementation of the Manado-Bitung toll road project. In addition, this project is a national priority, so there are incentives for investors, accompanied by clear regulatory instruments to ensure the implementation of toll road construction. Local people who live around the toll road construction lane, as well as those in cities connected to the Manado-Bitung toll road also support the development, given the high level of congestion on existing roads.

However, the success of this project also faces several threats such as inappropriate survey results, such as unsuitable soil conditions and the availability of raw materials, thus requiring more time in the completion process. This discrepancy is also found in locations that are used by the community for customary activities, but are still being passed by development projects. This then led to rejection from the community.

From internal factors, the strength of this project lies in the work experience of the developer for the construction of toll roads. In addition, the developers themselves also pay more attention to work safety and security during construction, so that no work accidents occur. This is also related to a transparent, competitive, and efficient procurement process which is also an advantage of this toll road PPP process. However, the weakness of the PPP implementation lies in the capacity of the apparatus, especially to coordinate across institutions. In addition, the weak implementation of the law is also a weakness of this project, especially in relation to the land acquisition process.

From external factors that describe the conditions of project opportunities and threats, as well as internal factors that describe the conditions of project strengths and weaknesses, four alternative strategies can be formed as shown in Table 3.

TABLE III ALTERNATIVE STRATEGY

	Strength	**Weakness**
Opportunity	**S-O Strategy** In order to be able to take advantage of opportunities for solid government support, economic stability, banking support, adequate regulations, and community support with a positive perception of development, the essential strength to be able to take advantage of these opportunities comes from organizational factors, namely Developer Reputation, ongoing Occupational Health and Safety (OHS) well, as well as a competitive, transparent, efficient procurement process	**W-O Strategy** In order for the existing opportunities to help fix weaknesses so that communication is more effective and result-oriented, stakeholders must fix several things, including government communication must be improved immediately, increase the capacity of the apparatus, involvement of local service providers, and carry out more mature development preparations so that the survey results are more in line with actual conditions

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Threat	**S-T Strategy** Reduce or minimize project threats in the form of environmental factors, low daily traffic, community resistance by utilizing the strength of the reputation of developers who have experience in carrying out the construction and operation of toll roads	**W-T Strategy** Improve existing weaknesses, such as government communication, the capacity of the apparatus, and better surveys

After understanding the alternative strategies and taking into account the results of the SEM analysis in the overall model, sequentially Environmental Factors are the most significant factors in explaining the success of the Manado- Bitung toll road PPP with a significant influence in a positive direction, followed by organizational, political and governance, economic, legal, physical, social, risk, and cultural factors. A strategy can be formulated as follows.

ST strategy and WT strategy are alternative ways that contain factors that can explain the success of the largest Manado-Bitung toll road PPP, such as environmental factors and economic factors contained in threats, organizational factors contained in strength, political factors, and legal factors which is in weakness.

To determine the strategy for the success of the PPP Manado-Bitung toll road, several stages are needed. Step 1 by tabulating based on the results of interviews. Step 2 is to consider alternative strategies resulting from the SWOT analysis. Then in step 3 the results of the interview and the results of the SWOT analysis will be combined, so that a successful PPP Manado-Bitung toll road strategy emerges.

TABLE IV STRATEGY DETERMINATION STEP

STEP I	
Based on the results of research through interviews, it is known that. • The Manado-Bitung Toll Road PPP is threatened due to the delay in the completion of the construction project • The delay in completing the Manado-Bitung Toll Road construction project is mainly due to resistance from the community, primarily related to land acquisition, which takes two years to resolve the dispute. It is related to the complexity between ENVIRONMENTAL FACTORS, SOCIAL FACTORS, & CULTURAL FACTORS, which are project threat factors	
STEP II	
THREAT ANALYSIS	**STRENGTH ANALYSIS**
1. Environmental Factors a. Environmental conditions that are not following the survey, making the work process must be reviewed to make the processing time longer. b. The land status, which turns out to be in the territory of customary land, at the	1. Organizational Factor a. Experience of Developers who have built toll roads in various regions in Indonesia b. Companies that pay attention to Occupational Health Safety (OHS) aspects, so get an award for zero

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same time, there is a spring that is used by the community c. Inadequate availability of local raw materials 2. Social Factor a. Community refusal regarding land acquisition, especially in customary areas & water sources that last a long time 3. Cultural Factor a. The government's attitude in a land acquisition, which tends to have a national cultural character that has a feminism approach (consultation) rather than masculinity (settlement based on regulations)	accidents during the construction process 2. Physical Factor a. The procurement process is carried out in a competitive, transparent, and efficient manner for development carried out by the government so that contractors who work on the construction process have completed first for sections 1A and 1B
STEP III Reduce/minimize existing threats, and it is possible to take advantage of the strengths of the Manado-Bitung toll road PPP project, especially the developer experience. Therefore, the ST strategy is an alternative strategy that can determine the success of the Manado-Bitung toll road PPP	

Based on the steps that have been carried out, it can be seen that the strategy can be done by stakeholders is to reduce the most significant threat, namely avoiding development that has a function of general needs such as customary areas or springs that have a long history for the community. Because this can pose another threat, namely rejection from the community, so for that, the appropriate strategy is to take advantage of the reputation of developers who are experienced in the field of toll road construction to provide their views and insights to local governments, especially those who have insufficient experience in toll road construction, so that local governments can communicate with the public with more effective results. However, this needs to be done by increasing the capacity of the apparatus, where increasing the capacity of the apparatus can be done through education that is based on the knowledge and experience possessed by Private sectors that have a good reputation.

IV. CONCLUSION

The model variable test using structural equation modelling shows that the variables that drive the success of government and business cooperation for the Manado - Bitung toll road development project sequentially are as follows: environmental factors are the most significant factors in explaining the success of the Manado-Bitung toll road PPP with an influence of 86%; followed by organizational factors with an influence of 82.4%; political and governance factors with an influence of 78.7%; economic factors with an influence of 64.7%; legal factors with an influence of 57.4%; physical factors with an effect of 54.7%; social factors with an influence of

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45.2%; risk factors with an effect of 39.6%; and cultural factors. The results of the hypothesis also show that cultural factors do not significantly influence the success of the Manado-Bitung toll road PPP even though the magnitude of the influence is 28%. Furthermore, the efforts and strategies carried out by stakeholders in fulfilling the factors that drive the success of the Manado-Bitung toll road PPP are to reduce the most significant threat, namely avoiding development that has a function of general needs that can pose other threats in the form of rejection from the community. So that by utilizing the strength of the reputation of experienced developers in the field of toll road construction to provide their views and insights to local governments, especially those who have insufficient experience in toll road construction, local governments can communicate with the community with more effective results.

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