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Article

Critical Success Factor (CSF) of Implementing PPP Road Sector in Indonesia

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Abstract

The MPWH of Indonesia has a role in the development of road projects. Road projects require a large number of funds. One of the funding schemes currently being pursued by the government to overcome this funding gap is Public Private Partnership (PPP). The implementation of the PPP requires a lot of attention from various parties so that the project runs well. The purpose of this study is to examine the priorities of CSF in the implementation of PPP in the Road Sector in Indonesia. This study used questionnaires and analysis used mean score & RII. There are 45 samples of private sectors and 5 governments. The results of the study show that strong commitment from the government during the PPP implementation, clear PPP regulations, transparent and competitive procurement process are the top three success factors of the PPP road sector in Indonesia. CSF can provide an overview to governments and private sectors in the implementation of the PPP Road Sector in Indonesia. A strong commitment from governments and private sectors is expected to minimize the risk of project failure.

Keywords: CSF; public private partnership; road sector; Indonesia.

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1. Introduction

The future of developing countries is determined by the success of infrastructure development because infrastructure is identified as a catalyst for economic growth (S. Babatunde & Perera, 2017). The demand for the development and maintenance of infrastructure occurs due to economic growth and population growth, this causes insufficient government funding capacity to provide infrastructure (S. Babatunde & Perera, 2017). One of the critical areas that facilitates economic activity and commerce is transportation infrastructure (Osei – Kyei & Chan, 2016).

The development of national connectivity and improving the stability of national roads need to be done in order to encourage economic growth and Indonesia's competitiveness in the international market. With the implementation of quality road infrastructure services to the community, it is expected to increase community accessibility to the goods and services needed, and vice versa (Welde & Tveter, 2022). The Government of the Republic of Indonesia hopes that quality road infrastructure services can increase the level of competition and productivity of the community's economic sector, one of which is by absorbing labor, which is reflected in strong and sustainable regional and national economic growth. The Indonesian Ministry of Public Works and Housing (MPWH) plays a significant part in the growth of the road sector. Based on the MPWH's Strategic Plan for 2020-2024, the MPWH through the Directorate General of Highways have a vision of 97% stable road conditions; development of 1,500 km of toll roads; development of 2,500 km of new highways; development of 60,000 m of new bridges/flyovers.

Based on the MPWH's Strategic Plan for 2020-2024, in providing infrastructure from 2020 to 2024, funding of Rp. 2,058 trillion is required. Meanwhile, the available state budget is only Rp. 623 trillion or around 30%. Thus, there is a funding gap in the investment needs of the MPWH until 2024 amounting to Rp1,435 trillion. This investment need is intended for development in the water resources, housing, settlements, and roads & bridges sectors. The total investment required for road and bridge infrastructure development in 2020-2024 is IDR 573 trillion.

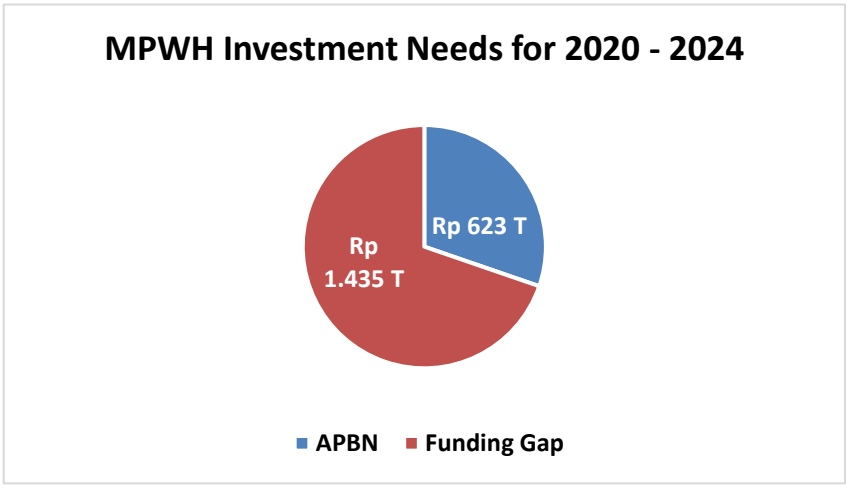

Figure 1. MPWH Investment Needs for 2020 – 2024
Source: MPWH's Strategic Plan for 2020-2024

Governments have been prompted to look for alternate policy mechanisms to finance and provide public services due to financial limitations and project complexity (Kang et al., 2019). Public-Private Partnerships (PPP) are one of the funding strategies of the government to overcome the funding gap. PPPs attempt to provide public services and create infrastructure by combining the public and private sectors (Al-shareem et al., 2015). PPP is a long-term agreement between the public and private sectors, and it involves a risk-sharing arrangement for the projects (Bayat et al., 2019)

Public-private partnerships (PPPs) have been widely used internationally as a model for creating infrastructure projects, such as in the United Arab Emirates (UAE), Indonesia, Ethiopia, etc (Al-Saadi & Abdou, 2016). Due to the significant need for infrastructure services and the constrained financial resources, this investment strategy is particularly well-liked in emerging countries (Le et al., 2020). Various parties (private sectors, public, and governments) with a variety of interests and expectations are involved in infrastructure projects created under the PPP program (Rohman et al., 2017). An ongoing partnership between the public and the private sector can be mutually beneficial. The government wants to make sure that the asset benefits the community and the private sector ensures profitability to survive in the market (Liyanage, 2016).

Referring to the Bappenas Regulation Number 2 of 2020, one type of infrastructure that can be cooperated is road infrastructure, such as arterial roads, collector & local roads, toll roads, toll bridges, non-toll bridges, and public street lighting. The MPWH is implementing a PPP scheme for the road sector. Indonesia, an emerging country with a large geographical area, needs a very important road network. Huge amounts of money are needed for road construction. Through PPP, the government solicits private funding for the development and upkeep of road networks.

In the MPWH, road sector infrastructure is the sector that uses the PPP scheme the most. Referring to the Data from MPWH 2023, there are currently several PPP road sector projects including 14 projects in the preparation stage, 4 projects are preparing for transactions, and 5 projects are in the transaction stage. In addition, there are currently 84 road infrastructures that are in the construction and operation stages. When compared to other sectors, the settlement sector currently has 16 projects, the water resources sector has 3 projects, and the housing sector has 3 projects, this shows that the road sector is more mature and ready.

There are factors that explain the increasing interest and popularity of PPP, including the effectiveness and reduction of the fiscal burden for countries with budgetary constraints, the existence of clear goals, the presence of innovation, flexibility, good planning, and incentives for competitive tenders. Although PPP has several advantages, there are certain projects that have several issues, and many of them fail or need to be renegotiated (Babatunde et al., 2019). Several previous studies have identified challenges faced by some countries in the PPP implementation. Some examples of challenges in PPP implementation include improper risk management or allocation (Aerts et al., 2014); (Hashim et al., 2016); (Regan et al., 2017a); (Wang et al., 2019), lack of ability and knowledge of parties involved in PPP implementation (Kavishe et al., 2018), inappropriate financial structure issues (Kavishe et al., 2018; Regan et al., 2017b; Wibowo & Alfen, 2014).

In addition to the challenges, to identify the elements that contribute to PPP project success, several previous studies have also been carried out. The Critical Success Factors (CSF) concept was first developed by Rockart J. (1982) and the Sloan School of Management

at the Massachusetts Institute of Technology. CSF are described as significant elements of projects and groups of activities that, in order to produce positive results, must be adhered to when project-related activity is carried out (Sanni, 2016a, 2016b). According to some research, every project will have a distinct priority for CSFs and that the creation of CSF in PPP is very context-dependent (Dithebe et al., 2019a).

Several studies on CSF in the implementation of PPP have been conducted, including Dithebe et al. (2019b) CSF in the implementation of PPP projects in the water resource sector are good planning for project feasibility, a high level of transparency and accountability, and favorable legal framework. Kulshreshtha et al. (2017), there are seven CSFs on the metro system in Hyderabad City - India namely socio political– environmental, stable macroeconomic and institutional legal framework, government support, effective procurement, good governance, well-structured PPP projects, appropriate PPP implementation processes. Alteneiji et al. (2019), CSFs most influential in the housing sector in the United Arab Emirates are good governance, government guarantees, commitment and accountability of the public sector and private sector, a profitable and efficient legal framework, political support and stability, and demand & project capacity to pay off debts. Ngullie et al. (2021), CSF in the implementation of the KPBU project in the solid waste management sector in India, from the government's side, including the technical validity of the project, project planning, and transparent procurement processes while from the private side, including the transparency of procurements processes, appropriate rates, and adequate financing. Debela (2019), CSF in the implementation of the PPP road sector project in Ethiopia that is clear PPP regulations, government commitment, a stable political and social environment, a supportive legal framework and good governance. Sadullah et al. (2017), identified CSF in Malaysia's first highway PPP project, including a good monitoring system, good governance, and stable political conditions.

Implementation of PPP in developing countries has increased and can provide valuable implications for future development of PPP projects (R. Osei-Kyei & Chan, 2015). One important step in the development of the PPP is to identify and analyze various factors that are important for the success of the PPP. Therefore, the purpose of this study is to examine the priorities of CSF in the implementation of PPP in the Road Sector in Indonesia. In order to execute the PPP road sector successfully, the government and private sector must take certain precautions and make certain preparations. This research is being undertaken to offer an overview of CSF priorities and to determine what preparations and precautions need to be made by each.

2. Method

This study adopted a quantitative descriptive approach. Quantitative descriptive research is a study to describe in detail a particular phenomenon (Siregar, 2013). Structured questionnaires are frequently used in quantitative research because they allow for more precise quantification and generalization of data (Dithebe et al., 2019b). Statistical analysis is used in quantitative research to get conclusive and descriptive results.

2.1. Indicators

To realize the implementation and success of PPP as a whole, identifying critical success factors (CSF) is very important. In this study, CSF indicators were adopted from

previous research by (Alteneiji et al., 2019; Debela, 2019; Dithebe et al., 2019b; Ngullie et al., 2021; Sadullah et al., 2017).

Table 1. CSF Indicators

No	CSF	Debela (2019)	Dithebe et al. (2019b)	Alteneiji et al. (2019)	Ngullie et al. (2021)	Sadullah et al. (2017)
1	Strong commitment from the government during the PPP implementation	✓	✓			✓
2	The transparent and competitive procurement process	✓	✓	✓	✓	✓
3	Favorable political environment	✓	✓	✓	✓	✓
4	Support from the public/community	✓		✓	✓	✓
5	There is a government guarantee during the PPP implementation	✓	✓	✓		✓
6	Good governance	✓		✓	✓	✓
7	Clear PPP regulations	✓				✓
8	Strong private consortia	✓		✓	✓	✓
9	Stable macroeconomic policies and conditions	✓		✓		✓
10	Project feasibility	✓	✓	✓	✓	✓
11	Sharing and allocating risks appropriately	✓	✓	✓	✓	✓
12	Favorable legal systems	✓	✓	✓	✓	✓
13	The country's people have a pro-investment culture	✓				
14	A robust framework for monitoring and evaluation of project	✓	✓		✓	✓
15	Appropriate PPP knowledge and expertise	✓			✓	

No	CSF	Debela (2019)	Dithebe et al. (2019b)	Alteneiji et al. (2019)	Ngullie et al. (2021)	Sadullah et al. (2017)
16	Availability of established financial markets	✓		✓	✓	✓
17	Parties' agreement to assign authority	✓		✓	✓	✓
18	Multiple benefits goals (public and private sectors)	✓		✓		✓
19	High standard of transparency and accountability		✓			✓
20	Appropriate toll/tarif				✓	✓

Sources: (Alteneiji et al., 2019; Debela, 2019; Dithebe et al., 2019b; Ngullie et al., 2021; Sadullah et al., 2017)

2.2. Data

The type of data collected is primary data. The data was obtained through a survey method using a questionnaire because a large number of research respondents were needed. In this study, the questionnaire will be distributed online to respondents. To respond to questions on the research questionnaire in this study, a Likert scale was utilized. The scale used in the questionnaire given is a five-point Likert scale (1: unimportant; 2: least important; 3: moderately important; 4: important; 5: most important).

In this study, the total population was 62 private sector and 5 government. To obtain a sample, a purposive sampling technique is used, a selection of the population determined by a set of criteria, not randomly (Hair et al., 2014). The samples in this research were chosen based on three criteria (Debela, 2019); (i) be knowledgeable enough about government infrastructure policies (minimum 3 years working experience); (ii) taking part in road sector procurement; and (iii) as a position of management within the project's field of specialization. Thus, a sample of 59 private sector and 5 government was obtained.

2.3. Analysis Technique

The collected data will be analyzed using several analysis techniques.

2.3.1 Validity and Reliability Test

The validity test is used to determine the accuracy of a measuring instrument in performing measurements (Hair et al., 2014). A research instrument said to be valid means that the measuring instrument used to obtain data is valid and can be used to measure what should be measured. The validity test in this study was performed using confirmatory factor analysis (CFA). The condition of a factor can be said to be valid when the value of the loading factor > 0.5 (Hair et al., 2014).

A research instrument is said to be reliable when it is used to measure the same object and generate the same data (Hair et al., 2014). The reliability test in this study uses

cronbach alpha. The coefficient of the Cronbach alpha that is getting closer to 1 means that the measured reliability is also getting better. If the cronbach alpha value is greater than 0.6 then the question in the questionnaire is considered reliable (Hair et al., 2014).

2.3.2 Mean Score

Based on the responses to questions that participants completed, this study's mean score is used to rank CSF. Several previous researchers have used the mean score, such as (Debela, 2019), (Dithebe et al., 2019b), and (Muhammad & Johar, 2018). The following formula was used to determine each factor's mean score:

$$Mean\ Score\ (MS) = \frac{\sum(f \times s)}{N} \quad (1)$$

Where, f is the number of ratings given for each factor; s is the score that the respondents assigned to each factor, on a scale of 1 to 5; and N is the overall response count for that factor.

2.3.3 Relative Importance Index (RII)

The Relative Importance Index (RII) method is used to ascertain the relative importance of the factors filled in by respondents (Debela, 2019). The similar methodology was used in this study to weigh several aspects that affect the Indonesian road sector. The RII approach is typically used to rank variables according to their importance, agreement, and severity (Holt, 2014). The RII method has been used by several previous researchers, such as (Debela, 2019), (Alteneiji et al., 2019), and (Ngullie et al., 2021). The following formula illustrates how to calculate RII:

$$RII = \frac{\sum W}{A.N} \quad (2)$$

Where: W = equal to the total score that respondents assigned to each element (on a scale of 1 to 5); A = represents the highest grade (in this example, 5).; and N = represents how many respondents gave the factor or issue the same score.

The factor ratings are then divided into three groups—low, medium, and high—using the RII computation, as shown in Table 2 below.

Table 2. Rating the RII levels

Average Score	RII	Level RII
4.0 to 5.0	0.8 to 1.0	Hight (H)
3.0 to < 4.0	0.6 to <0.8	Medium (M)
1.0 to < 3.0	0.2 to < 0.6	Low (L)

Source: Chileshe & John Kikwasi, 2014

2.3.4 One Sample t - Test

One sample t-test was run to determine the significance of these parameters in affecting the execution of PPP Road Sector projects in Indonesia. The t-test is indicated by the t-table and t-count values. The variable is deemed to be significant if the t-count value is bigger than the t-table, which means that H1 is accepted and H0 is rejected (Hair et al., 2014). The t-test can also be shown with a significant value. If the sig value < $\alpha = 0.05$, the variable is said to be significant.

3. Results and Discussions

3.1. Validity and Reliability Test

The validity test in this study uses confirmatory factor analysis with the condition that the load factor value must be greater than 0.5. Table 3 shows that the whole factor has a loading factor value above 0.5, so the validity of the data from the questionnaire results has been of good quality.

Table 3. Validity Test

Factors	Loading Factor	Result
F1	0,736	> 0,5 (valid)
F2	0,802	> 0,5 (valid)
F3	0,703	> 0,5 (valid)
F4	0,686	> 0,5 (valid)
F5	0,559	> 0,5 (valid)
F6	0,559	> 0,5 (valid)
F7	0,642	> 0,5 (valid)
F8	0,675	> 0,5 (valid)
F9	0,664	> 0,5 (valid)
F10	0,587	> 0,5 (valid)
F11	0,621	> 0,5 (valid)
F12	0,698	> 0,5 (valid)
F13	0,657	> 0,5 (valid)
F14	0,663	> 0,5 (valid)
F15	0,785	> 0,5 (valid)
F16	0,588	> 0,5 (valid)
F17	0,536	> 0,5 (valid)
F18	0,678	> 0,5 (valid)
F19	0,546	> 0,5 (valid)
F20	0,650	> 0,5 (valid)

The reliability test uses the Cronbach Alpha statistical test, if the Cronbach Alpha value is > 0.6, then the question items in the questionnaire are declared reliable. Here's the reliability test results:

Table 4. Reliability Test

Variable	Cronbach Alpha	Result
Critical Success Factors of PPP Road Sector	0,928	Reliable

Table 4 shows that the questionnaire has a Cronbach Alpha value of 0.928 > 0.6. Based on these results it can be concluded that the questions that measure the CSF of PPP road sector in Indonesia have been reliable.

3.2. Demographic Information

Table 5 shows the respondent's demographic information. The questionnaire was distributed with a google form filling link via WhatsApp application and email to respondents as many as 5 governments and 45 private sectors. A total of 79 questionnaires were filled out by the private sector, while 43 were filled out by the government.

Table 5. Demographic Information

Demographic	Frequency	Percentage
Category of respondents		
Government	43	35,2%
Private sector	79	64,8%
Years of experience in infrastructure		
3 – 4 years	14	11,5%
4 – 5 years	1	0,8%
5 – 6 years	21	17,2%
7 – 8 years	13	10,7%
9 – 10 years	15	12,3%
> 10 years	58	47,5%
Participation in PPP road sector		
1 – 3 projects	80	65,6%
4 – 6 projects	22	18,0%
7 – 9 projects	7	5,7%
10 – 12 projects	2	1,6%
> 12 projects	11	9,0%

In the infrastructure experience profile, the most known is with more than 10 years of work experience of 58 people (47.5%). Furthermore, respondents with 3 – 4 years of working experience of 14 people (11,5%), 4 – 5 years of 1 person (0.8%), 5 – 6 years of 21 people (17.2%), 7 – 8 years of 13 people (10.7%), and 9 – 10 years 15 people (12.3%). This shows that respondents have adequate knowledge in government policy and infrastructure development.

Data on the participation of respondents in PPP projects in the Road Sector are at most 1-3 projects with 80 people (65.6%) and at least 10-12 projects with 2 people (1.6%). In addition, there were also respondents who had been involved in 4-6 projects as many as 22 people (18%), 7-9 projects as many as 7 people (5.7%) and more than 12 projects as many as 11 people (9%). This shows that respondents have experience in implementing PPP Road Sector in Indonesia.

3.3. Ranking CSF

The following is a ranking of CSFs for PPP in Indonesia's road sector:

Table 6. Ranking of CSF

CSF	Mean	Sig. t-test	RII	Level RII	Rank
Strong commitment from the government during the PPP implementation	4,327	< 0,001	0,866	H	1
Clear PPP regulations	4,320	< 0,001	0,864	H	2
The transparent and competitive procurement process	4,312	< 0,001	0,862	H	3
Sharing and allocating risks appropriately	4,303	< 0,001	0,861	H	4
There is a government guarantee during the PPP implementation	4,295	< 0,001	0,859	H	5
Appropriate toll/tariff	4,287	< 0,001	0,857	H	6
Project feasibility	4,279	< 0,001	0,856	H	7
Strong private consortia	4,270	< 0,001	0,854	H	8
Appropriate PPP knowledge and expertise	4,254	< 0,001	0,851	H	9
Favorable legal systems	4,238	< 0,001	0,848	H	10
high standard of transparency and accountability	4,213	< 0,001	0,843	H	11
Availability of established financial markets	4,131	< 0,001	0,826	H	12
Good governance	4,123	< 0,001	0,825	H	13

A robust framework for monitoring and evaluation of project	4,107	< 0,001	0,821	H	14
Parties' agreement to assign authority	4,098	< 0,001	0,820	H	15
Favorable political environment	4,057	< 0,001	0,811	H	16
Stable macroeconomic policies and conditions	4,033	< 0,001	0,807	H	17
Support from the public/community	3,992	< 0,001	0,798	M	18
Multiple benefits goals (public and private sectors)	3,697	< 0,001	0,739	M	19
The country's people have a pro-investment culture	3,443	< 0,001	0,689	M	20

3.4. Strong Commitment from The Government During the PPP Implementation

Based on the mean score in Table 6, strong commitment from the government during the PPP implementation has a mean score of 4,327. The RII value on this factor has the value of 0.866 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which indicates the strong commitment of the government during the PPP implementation to be a successful factor in the road sector in Indonesia.

Most often, private investors are drawn to engage in a PPP project when the government has shown a strong commitment (Osei – Kyei & Chan, 2016). Governments can improve their capacity in project appraisal and decision-making by establishing specialized PPP units (Debela, 2019). In this situation, the creation of a PPP unit with the necessary knowledge for PPP transactions can send a clear message to the private sector about the government's capability and dedication. Along with the PPP Unit, the ability of other government departments to assess and manage PPP projects, is a critical component of the success of PPP initiatives in a country (Jomo et al., 2016).

In the New Public Management (NPM) theory, government performance success will be achieved, if government organizations and existing personnel within the government have a high commitment to public service (Yescombe, 2007). Organizational culture will affect the behavior of its members, as performing a number of functions within the organization, culture facilitates the emergence of commitment to something wider than personal interests.

In this context, the MPWH has committed to the establishment of the Directorate General of Public Works and Housing Infrastructure Financing as a PPP unit. The existence of this PPP unit is a crucial development step for PPP, particularly for the Indonesian road sector. In the preparation and procurement stage of PPP projects, there is a PPP Team and Procurement Committee consisting of government employees who handle PPP Road sector projects. The commitment of the PPP Team and Procurement Committee is stated in the Decree. The government's commitment in the implementation of PPP in the Road sector can

be seen in the cooperation contract agreed between the government and private sector. Government commitment is also required, especially in providing support for the project. However, in order to increase the government's commitment, it is also necessary to increase the implementing agencies' capacity in the area of PPP expertise.

3.5. Clear PPP Regulation

Based on the mean score in Table 6, clear PPP regulation has a mean score of 4,320. The RII value on this factor has the value of 0.864 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which indicates the clear PPP regulations to be a successful factor in the road sector in Indonesia.

International institutions in the development of PPP also state that implementing PPP policies can explain the purpose of cooperation with the enterprise sector is a critical first step towards PPP project success (Debela, 2019). A country's ability to adopt PPP schemes for the construction of public infrastructure is also shown by the existence of an enabling PPP policy (Geroniks & Lejnieks, 2015). According to Dithebe et al. (2019a), a PPP initiative's projects should, if possible, be consistent with any country's strategy's present national policies.

This factor is in line with the NPM theory, policies and programmes that the government has designed to meet the needs of the community (Yescombe, 2007). Regulations for PPPs should ensure their accessibility and effectiveness of legislation relating to PPPs to manage any legal difficulties emerging in the process (Al-Saadi & Abdou, 2016). The importance of enabling policy and legal frameworks in influencing the private sector's investment choices, particularly for long-term infrastructure projects, has also been highlighted by prior studies (Ameyaw & Chan, 2016). A return on investment that is commensurate with the risks taken is ensured by PPP legislation, which also enable arbitration of disputes, enforce contractual obligations generally, and safeguard the private sector. Without an appropriate PPP legal framework, the private sector could be hesitant to take part due to the uncertainty of how they will cope with future government policies and actions (Ameyaw & Chan, 2016).

Indonesia Government have several PPP policies, such as

1. Presidential Regulation No. 38 of 2015 about PPP in Infrastructure.
2. Bappenas Regulation Number 2 of 2020 about Amendment of Bappenas Regulation Number 4 of 2015 about Procedures for Implementing PPP.
3. Minister of Public Works and Housing Regulation Number 2 of 2021 about Procedures of PPP in the MPWH.
4. LKPP Regulation Number 29 of 2018 about Procurement Procedures of PPP on the Initiative of the Minister/Head of Institution/ Head of Region.
5. LKPP Regulation Number 19 of 2015 about Procurement Procedures of PPP.

3.6. Transparent and Competitive Procurement Process

Based on the mean score in Table 6, transparent and competitive procurement process has a mean score of 4,312. The RII value on this factor has the value of 0.862 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which

indicates the transparent and competitive procurement process to be a successful factor in the road sector in Indonesia.

Conflict is inevitable in every endeavor with various stakeholders. However, practicing a high standard of transparency and competitiveness is one strategy for reducing conflict. Transport PPPs that are started without a fair and open procurement procedure are extremely likely to fall short of their goals and can come under intense public criticism (Osei – Kyei & Chan, 2016).

This factor is in line with the NPM theory as a new concept that seeks to eliminate the inefficient service monopoly carried out by bureaucracy and government officials (Yescombe, 2007). PPPs, particularly in consortium agreements, should foster unity among the participating companies. All companies should be given equal opportunities. One of the biggest challenges to ensuring a transparent process and that decision-makers are responsible to the interests of the general public is the absence of post-project audits (Liu et al., 2016). The process of procuring PPPs incorporates probity management (Byiers et al., 2016)) concur that the public and private sectors must collaborate in order for PPPs to succeed. They also both need to be transparent and competitive.

According to the LKPP Regulation Number 29 of 2018, there are seven procurement principles, two of which are transparent and competitive. The procurement process is conducted according to the transparency principles, which means that all relevant terms and details are made fully, plainly, and publicly available. In order for the infrastructure offered to be obtained competitively and without interference from outside forces, competitive procurement requires that the Procurement be conducted through open competition among as many equal and qualified Participants as possible.

3.7. Sharing and Allocating Risk Appopriately

Based on the mean score in Table 6, sharing and allocating risks appropriately has a mean score of 4,303. The RII value on this factor has the value of 0.861 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which indicates the sharing and allocating risks appropriately to be a successful factor in the road sector in Indonesia.

The fundamental tenet of risk management and risk allocation is to distribute particular risks to people who can manage and reduce them (Debela, 2019). Identifying risks, allocating risks, and mitigating risks are the three primary aspects of risk management. The goal of risk management is to ensure that stakeholders profit financially as much as possible from the risk management process, which entails removing, reducing, transferring, and accepting the risk. The concept of the government shifting all project risks for PPP roads to the private partner should be rejected. One of the applications of NPM is that there is a transfer of risk to achieve value for money (VfM) (Yescombe, 2007).

One of the challenges in PPPs and a major factor in the failure of PPPs in emerging countries is risk allocation (Dithebe et al., 2019a). Due to the lengthy contract duration, the breadth of the project, and the diverse private sector backgrounds, PPP projects carry a high amount of risk. Therefore, effective risk distribution in PPP projects can lower the likelihood of hazards, particularly project costs. Thus, the private sector offers costs for PPP projects based on the risks that will occur and their likely effect on costs and revenues. In Indonesia, risk allocation can refer to the risk management guidelines issued by IIGF every year.

3.8. Goverenment Involvement by Providing Guarantees

Based on the mean score in Table 6, government involvement by providing guarantees has a mean score of 4,295. The RII value on this factor has the value of 0.859 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which indicates the government involvement by providing guarantees to be a successful factor in the road sector in Indonesia.

The role of government guarantees in encouraging private sector investment in PPP countries like Indonesia. Additionally, even when a project's strong economic worth can be demonstrated, it may not necessarily be financially viable. In these situations, the government must intervene by offering assurances and funds to make sure the initiative is commercially feasible (Alteneiji et al., 2019). The most significant risk element for the enterprise sector in the road sector is traffic reliability, which the government can reduce by offering a minimum income guarantee based on service availability (Debela, 2019).

NPM provides the theoretical basis for PPP, that if there is a lack of government funds in infrastructure development, then it requires funding from the enterprise sector (Yescombe, 2007). The role of the government is required to guarantee the return of investment to the private sectors. If the PPP road sector projects are carried out in Indonesia, this guarantee is intended to ensure the commitment of MPWH will act as the government contracting agency (GCA) in fulfilling its financial obligations in the PPP Agreement. Based on Presidential Regulation Number 78 of 2010, the guarantee can be provided through Indonesia Infrastructure Guarantee Fund (IIGF).

IIGF will enter into a Guarantee Agreement with the Private Sector, which guarantees the performance of GCA in fulfilling the PPP Agreement, specific to the risks allocated to GCA in the PPP Agreement, and has been agreed with IIGF to be included in the guarantee structure. IIGF will request that GCA sign a Regression Agreement with IIGF in exchange for the assurance, and vice versa.

If GCA fails to fulfill its obligations according to the PPP Agreement, IIGF will make payments to the Private Sector against the claims submitted. The process of submitting the claim will be regulated in the Guarantee Agreement. Consistent with the Regression Agreement, IIGF will get a reimbursement from GCA for payments made to the Private Sector's claim, plus the time value of money from IIGF funds.

3.9. Appropriate Toll/Tariff

Based on the mean score in Table 6, the appropriate toll/tariff has a mean score of 4,287. The RII value on this factor has the value of 0.857 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which indicates the appropriate toll/tariff to be a successful factor in the road sector in Indonesia.

The achievement of a sustainable project in a PPP scheme requires an acceptable toll/tariff rate following a thorough analysis of willingness to pay, affordability, and proportionality (Ngullie et al., 2021). To establish a robust PPP project, it is necessary to take private sector profitability needs into account. A project's success is determined by its ability to recoup all O&M costs. In order to keep public affordability and private profitability in balance, the government may also provide ongoing service fees to the private sector to defray project costs.

Based on Article 12 of Presidential Regulation Number 38 of 2015 stipulates that in the event that the return on investment of BUP is sourced from payments by users in the form of tariffs, GCA sets an initial tariff for the provision of infrastructure to ensure a return

on investment that includes covering capital costs, operational costs, and profits within a predetermined time frame. Toll rates in Indonesia are calculated based on the ability of toll road users to pay.

Every two years, BPJT evaluates and adjusts toll tariffs based on the former tariff adjusted for inflation using a certain formula: New tariff = old tariff (1+inflation). BPJT recommends the results of the evaluation of the toll road adjustment to the MPWH to be determined.

In PPPs for non-toll roads, the availability payment (AP) is used to determine how much money the private sector receives. Revenue is received by the private sector if the services provided are in accordance with the specified criteria. This is in line with NPM theory, the existence of performance standards and performance measures (Yescombe, 2007). Generally, this AP payment is given annually. Based on Minister of Finance Regulation Number 260 of 2016, the use of the service availability payment scheme or AP aims to (a) make certain that the general public always has access to high-quality services; (b) optimize the Value for Money (VfM) of the GCA budget. The AP scheme is used based on the fundamentals of (a) state financial strength; (b) fiscal sustainability; (c) fiscal risk management.

3.10.Project Feasibility

Based on the mean score in Table 6, project feasibility has a mean score of 4,279. The RII value on this factor has the value of 0.856 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which indicates the project feasibility to be a successful factor in the road sector in Indonesia.

In order for a PPP project to be feasible, it must be successful and long-lasting (A. Osei-Kyei & Chan, 2018). Early on in the PPP appraisal process, a comprehensive and practical cost-benefit analysis is included. The government must invest in project planning during the feasibility stage in order to draw in highly qualified bidders later on for a successful partnership (Debela, 2019). One of the components of NPM is that the public sector must be managed professionally by having a planning system (Yescombe, 2007). A PPP project's feasibility assessment establishes the public and private partners' ability to carry out the project successfully and economically. In PPP contracts, it should also be taken into account to make it easier to incorporate future technological advancements during the concession time, making it a more appealing choice (Dithebe et al., 2019b).

The public sector should make sure feasibility studies are finished and all possibilities that may benefit the community and government are taken into consideration before finishing the document before moving on to the procurement stage. Projects should be well structured taking into account technical studies, siting, fiscal conditions, etc.

According to the Bappenas Regulation Number 2 of 2020, at the planning stage, the GCA will prepare a preliminary study document. At the planning stage, GCA will prepare a preliminary study document. At the preparation stage, GCA will prepare the Outline Business Case (OBC) and Final Business Case (FBC).

3.11.Strong Private Consortia

Based on the mean score in Table 6, strong private consortia have a mean score of 4,270. The RII value on this factor has the value of 0.854 and belongs to the high level. The

one sample t-test has a significance value (p-value) of < 0,001, which indicates the strong private consortia to be a successful factor in the road sector in Indonesia.

When awarding contracts for PPP projects, the government should make sure the private sector is qualified and financially prepared to complete the projects (Akalkotkar, 2016). This implies that bidders should investigate the strengths and shortcomings of other participants and, if necessary, join together to form a consortium that is able to synergize each other. In the NPM theory, the main driver of PPP is the private sector capable of providing more efficient, better and less costly services to the public (Yescombe, 2007). The partners must get along well because they all share the applicable risks and benefits of the partnership (Akalkotkar, 2016).

The primary driver of PPP is that the enterprise sector is able to provide more efficient, better and lower cost services to the public (Debela, 2019). For PPP projects to be successful, the private sector needs to be dependable and well-organized. An individual party may find it challenging to undertake a PPP project occasionally due to its intricacy. Thus, several different companies form a consortium. The compatibility and structure of these entities influence the success of the project. In PPP Road Sector procurement in Indonesia, the private sector must meet the qualifications set by the GCA. Generally, these qualifications consist of legal criteria, financial capability, and technical capability or experience.

The PPP project will not be implemented because of the consortium's weakness and bad management (Ngullie et al., 2021). As a result, in order to engage in PPP projects, the consortium must possess strong operational, technical, and managerial capabilities. A strong company consortium is one that possesses the management, technical, and financial capacity to complete PPP projects.

3.12.Adequate Knowledge and Skills of PPP

Based on the mean score in Table 6, adequate knowledge and skills of PPP has a mean score of 4,254. The RII value on this factor has the value of 0.851 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which indicates the adequate knowledge and skills of PPP to be a successful factor in the road sector in Indonesia.

One of the obstacles to the construction of PPP projects is the public sector's lack of competent and skilled capacity (Debela, 2019). This is a special issue that arises frequently in emerging countries during the initial PPP stages. The results indicate that governments in charge of PPP procurement should have the necessary knowledge and abilities to interact with the private sector, including technical knowledge of project, negotiation and procurement, risk management, contract management, and financial analysis (Ngullie et al., 2021). The main component of the NPM theory states that the existence of professional management in government, it shows that knowledge is needed for government to perform (Yescombe, 2007).

Enhancing local practitioners' abilities and expertise to implement PPP projects through capacity building and training (A. Osei-Kyei & Chan, 2018). Governments should take particular note of this as the majority of them are accustomed to the conventional procurement procedure. Capacity building of the MPWH's human resources regarding PPP has been carried out, such as PPP Road Sector training, international PPP certification, and cooperation with other countries.

3.13.Favorable Legal Frameworks

Based on the mean score in Table 6, favorable legal frameworks have a mean score of 4,238. The RII value on this factor has the value of 0.848 and belongs to the high level. The one sample t-test has a significance value (p-value) of < 0,001, which indicates the favorable legal frameworks to be a successful factor in the road sector in Indonesia.

A strong legal foundation is essential to the success of PPP projects because it guarantees government commitment, openness, and predictability for private sector investment (Debela, 2019). The current policy and legal clarity are the only factor that determines how the host government will react to the country's political and social issues (Dithebe et al., 2019a). In NPM theory, governments create and formulate policies to improve performance (Yescombe, 2007). The favorable regulatory frameworks are necessary to entice private sector funding for infrastructure development under the PPP scheme.

The Government of Indonesia have several legal frameworks to encourage the adoption of PPP in Road Sector, including

1. Indonesia Law Number 38 of 2004 about Road.
2. Indonesia Law Number 22 of 2009 about Road Traffic and Transportation.
3. Indonesia Law Number 2 of 2012 about Land Acquisition for Development in the Public Interest.
4. Government Regulation Number 27 of 1999 about Environmental Impact Analysis.
5. Government Regulation Number 47 of 1997 about National Spatial Plan.
6. Government Regulation Number 17 of 2021 about Fourth Amendment to Government Regulation Number 15 of 2005 about Toll Roads.
7. Minister Public Works and Housing Regulation Number 16 of 2014 about Toll Road Minimum Service Standards.

4. Conclusions and Recommendations

The PPP model is seen as one way to overcome Indonesian budget constraints in providing infrastructure. As this study shows, the PPP road sector is more mature than any other sector. Through identification CSF can provide an overview to the government and the private sector in the implementation of PPP Road Sector in Indonesia.

The aim of this study is to examine the priorities of CSF in the implementation of PPP Road Sector in Indonesia. There are 20 factors of CSF. All factors are significant, so it can be concluded that the factors that have been determined of CSF in PPP road sector in Indonesia. Considering the findings of the questionnaire that respondents completed, the top three factors are strong commitment from the government during the PPP implementation, clear PPP regulations, and transparent & competitive procurement process. The bottom three factors are public/community support, multiple benefits goals (public and private sectors), and the country's people have a pro-investment culture.

With the PPP scheme, private sectors fund all or part of project investments and develop infrastructure, and instead, the government compensates private sectors with profits adequate for the risks borne. The PPP of the road sector in Indonesia has grown so fast

compared to other sectors. Here are some recommendations for strengthening the implementation of the PPP road sector in Indonesia:

1. The government can draw up PPP regulations specifically for the Road Sector. The drafting of these PPP regulations can be consulted with various parties, such as the countries that have already developed PPP, PPP experts, and the private sector. The regulations can include the stages of the PPP, either solicited or unsolicited, risk allocation, guarantees, and feasibility study.
2. The government may recruit PPP experts as advisors.
3. The PPP unit should always increase its capacity by being trained regularly because each employee will handle a different project. Training can consist of the preparation of a feasibility study, procurement process, and monitoring during project implementation.
4. Make a database regarding the risks of each Road Sector PPP project that is already running. This is useful for identifying, analyzing, and mitigating risks for future projects.
5. The GCA must support the PPP project because this can attract the private sector to invest in Indonesia.
6. All procurement committees should have the same understanding of the procurement process, particularly in providing information.
7. The GCA should ensure that tariff increases are carried out during the partnership period and following with users' capabilities.
8. The GCA can involve the public to ensure that the services provided by the private sector have been in accordance with the contracts.
9. There must be a penalty for the private sector if it cannot fulfill the financial close according to the specified time.

This study uses only 20 factors, so it can be added to give more complex results. This research used mean score and RII as an analysis method in determining priorities, these indicators can be extracted to form a new factor using Exploratory Factor Analysis (EFA). Specific selection of PPP road projects and comparison of the implementation of solicited and unsolicited in PPP Road Sector can be considered for best result of CSF in PPP road sector.

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