

# Cultural Factors in the Success of PPP Toll Roads: A Conceptual Framework

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## ABSTRACT

The government is increasing the development of toll road infrastructure to improve connectivity between regions in the context of economic growth. But the government faces limited funding. Therefore, the government made a PPP scheme to fill the financial gap. But what happened was the existence of toll road PPP obstacles in various regions in Indonesia. Multiple studies have identified the success of toll road PPP, but cultural factors have never discussed as factors that have an essential role in determining the success of PPP. Cultural factors play a role in determining behavior in making decisions. Therefore, this study proposes a conceptual framework of the part of cultural factors in determining the success of toll road PPP with the AHP approach.

## CCS Concepts

Social and professional topics → Cultural characteristics

## Keywords

PPP; toll road; culture.

## 1. INTRODUCTION

Transportation infrastructure has an essential role as a driver of the national economy. At present, the Indonesian government is strengthening widespread connectivity to achieve development balance and equity. The road infrastructure sector is one of the arteries in the region's economic growth, so the accuracy of its supply through the amount of investment is crucial. Concerning economic development, investment in roads and bridges has a broad influence both for road users and or bridges and for the region as a whole. For this reason, appropriate policies are needed

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ICIEI2020, July 26–28, 2020, London, United Kingdom

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ACM ISBN 978-1-4503-7575-7/20/07...\$15.00

DOI: <https://doi.org/10.1145/3411681.3411699>

in the administration of roads so that they can support regional development and economic growth.

In the period of Jokowi-Jusuf Kalla's administration (2014-2019), infrastructure improvements were the mainstay of national development to boost the economy, with one of the targets being the construction of 1,000 km of toll roads, which required at least 5,519.4 trillion rupiahs. But the Government only has half of the costs needed [1].

The limitations of the APBN in financing infrastructure development stipulated in the 2015-2019 RPJMN have caused funding gaps to be meet. To overcome this, the Government is required to use several funding alternatives, one of which is using a development cooperation scheme involving the private sector or known as the Public-Private Partnership (PPP) of Business Entity Government Cooperation [2].

However, road infrastructure strategic projects in Indonesia face obstacles, so that project completion is not timely. It has become a fundamental problem for infrastructure development because the government has sought PPP schemes in terms of funding, but the performance of project completion raises other issues.

Several studies have suggested several key success factors of PPP for road infrastructure such as economic factors such as regional and national economic conditions [3], [4], support and financial guarantees from the government [5], [6], strong consortia [7]-[9], support from financial institutions [10]. Organizational factors, such as developer reputation [8], [11], [9], [12], have also been suggested by several previous studies regarding PPP success factors. Risk allocation factors [13]-[18] are imposed, government competency factors such as institutional [19]-[21], also legal factors related to regulatory substance [22], [23] and its application [20].

These factors have been raised and become a general reference regarding success factors in the implementation of PPP. Meanwhile, in practice, the execution of toll road PPP still faces a series of obstacles. Based on the Committee for the Acceleration of Priority Infrastructure Provision (2019), there are at least four toll road development projects with PPP that are experiencing delays in the implementation process, resulting in delays.

The implementation of PPP for toll road projects has its complexity because it involves various stakeholders from the government, business entities, and the community. Multiple previous studies have presented the study of the determinants of the success of toll road PPP. Considering that there is a phenomenon of the delay, the authors consider other factors that also determine the success of the PPP.

It is suspected that cultural factors have the potential to contribute to the success of toll road PPP [24]. Other research also mentions that cultural factors and linguistic differences also affect relations and communication between government, business entities, and society [25]. In many studies on the critical success factors of road PPPs, cultural factors have never been a particular topic as one of the essential success factors. Meanwhile, cultural factors receive attention in connectivity between entities or groups of people that are different [26], which in this case is the government and business entities. Where the Government has a different organizational culture that is public service, and business entities have a clear business orientation [27].

Constraints that occur in PPP include technical and non-technical limitations. As for technical constraints such as the complexity of procedures and bureaucracy at the central and regional levels, community rejection, land acquisition issues, the development of land speculators, the tug of war of local political power to determine locations, and the weak process of Environmental Impact Analysis (E). Meanwhile, for non-technical constraints, among others: differences in perceptions among stakeholders in realizing PPP, infrastructure funding priorities sourced from the state budget and PPP, the thriving economic politics in the region, and the difficulty in maintaining private commitments [28].

Technical constraints and non-technical constraints have never been understood in a cultural approach [24]. Culture itself is a complexity that includes knowledge, beliefs, arts, morals, laws, customs, and habits practiced by members of the community [29]. Culture is the values that are adhered to and adhered to, be it custom, conduct/behavior, norms, including everything related to attitudes, perspectives, and mindset (30). So in the PPP process that requires integration between the government and business entities, there are two entities from different cultural elements [31].

The PPP scheme, which involves the government, business entities, and the community in which there are individual members, and organizational units, certainly have a cultural character that is not necessarily compatible with one another. Therefore, this paper aims to build a cultural construction in determining the success of toll road PPP. This paper expects to contribute to providing an understanding of the critical role of culture in the toll road PPP process.

The concept of culture used in understanding the success of PPP in infrastructure projects [24] applies social-cultural theory [32], where the cultural characteristics of the Power Distance Index, Uncertainty Avoidance Index (UAI), Individualism vs. Collectivism, Masculinity vs. Femininity. The concept of cultural character uses to understand what cultural trends can determine the success of PPP. Previous studies conducted a general survey in various countries on various types of infrastructure, such as toll roads, railways, airports, and ports.

This research focuses on understanding the success of PPP, especially toll roads, through the concept of culture. The purpose of this study is to develop a conceptual framework to achieve a successful PPP in the context of cultural character from the

government perspective as the organizer and business entity as the executor. A literature review is used as an underlying assumption to determine the indicators that will form through the AHP (Analytical Hierarchy Process) approach. So it is expected to produce priority cultural characteristics that can determine the success of the PPP.

## **2. LITERATURE REVIEW**

### **2.1 PPP on Toll roads**

Toll roads are public roads that are part of the road network system and with the status of a national highway whose users are required to pay tolls (Law No.38 / 2004).

Based on Perpres 38/2015, it explains that the purpose of PPP in Indonesia is to meet the funding needs sustainably in the provision of infrastructure through the mobilization of private funds; Realizing the provision of quality, effective, efficient, targeted, and timely support; Creating an investment climate that encourages the participation of business entities in the provision of infrastructure based on sound business principles; Encouraging the use of the policy of the user paying for the service received, or in some instances considering the ability to pay for the user; and Provide certainty of return on investment of business entities in providing infrastructure through periodic payment mechanisms by the Government to business entities.

The concept of involving business entities in infrastructure development organized by the government is not new. The basic idea of PPP is that the government requires an event, while the available budget is insufficient; therefore, the government opens opportunities for business entities to be involved in a cooperation scheme that has been arranged by the Government.

PPP can run with several models of approaches or concepts. The use of methods can differ from one project model to another, depending on mutually beneficial agreements between the government and private operators.

Road PPP is a scheme that considers having a significant risk because it makes large funds at the beginning; assets owned by investors are sedentary, long investment periods, and slow recovery speed (Munggarani, 2017). Also, investment in toll roads is different from investment in other infrastructure sectors due to abnormal growth in traffic volume, which in specific periods since the operation of traffic volume has experienced a significant increase. Furthermore, the traffic volume will decrease until it reaches stability that is approximately equal to the growth of traffic on the surrounding toll roads that have been established [33]

The concept of Public-Private Partnership must be applied carefully because of differences in characteristics between Government and Private Parties. In practice, there are various difficulties in accommodating the wishes of the Government who think of broad interests to synergized with the intentions of Private Parties who are more likely to prioritize private investment alone. Private parties have the potential to exhibit opportunistic behavior (opportunistic behavior), which consider as the leading cause of market failure in providing public goods [24].

### **2.2 Cultural Concepts in the PPP**

The initial concept of culture originated in the study of societies that contained a practical side, as a source of strength intended to influence a range of ideas and actions. Human awareness of his experience then encourages humans to compile formulations, limits, definitions, and theories about routine activities in his life, which then refer to as culture. Such awareness starts from a mind,

feelings, and instincts. Therefore, then humans and culture are an inseparable unity [34].

Meanwhile, a PPP project that involves governments, business entities, and communities with different backgrounds, and different goals is always understood in terms of risk, economic, and physical. However, PPP performance in infrastructure still faces obstacles in various countries [35].

The understanding of culture, where humans and culture are a unity, is an underlying assumption in the conceptual framework of this paper. Some studies suggest that cultural factors have essential significance in explaining an infrastructure project in various fields such as technology [36], the performance of business entities in development projects in China [37], knowledge sharing in international joint ventures [25], and culture in understanding ways appropriate local ways for the success of toll road PPP [24]

Whereas other research also confirms that the application of the PPP so far has only placed formal and administrative legal factors but not or has not placed an informal institutional or cultural framework as a factor that has an important role [38]. Cultural differences are essential aspects because cultural norms and beliefs are powerful forces that shape a person's perceptions, dispositions, and behavior [39]. However, the concept of culture is an abstract concept that is difficult to apply in utilizing a scientific field of study.

The concept of culture that commonly uses is the concept of Hofstede [32], who views culture as a programmed character of a community entity, which arises from people's response to their environment. So culture is not as an innate trait as is the case with genes, but culture is as a constructor human formation in responding to its environment. These cultural dimensions have a significant role in the transfer of knowledge, as well as the potential to become a barrier between collaborating partners [40].

The cultural dimension divide into four parts. The first dimension is the Power Distance Index (PDI). This dimension explains the presence/absence of alignment between members in a community or organization that has no power (superiors with subordinates, seniors, and juniors). The value of this misalignment is inherent in the amount of skill that practice in society. These differences have implications for differences in translating, looking at and interpreting things. In groups of people with high PDI or unevenly distributed power, generally related to the status quo, do not want change, and tend to be conservative in dealing with various things [39]. This thing also has implications for a society that is less open to new ideas than those supplied by the holders of power (seniors, superiors, etc.).

The next dimension is the avoidance of uncertainty (Uncertainty Avoidance Index / UAI). This dimension is a dimension that shows the character of the community in dealing with an unpredictable, unclear, and not structured environment. The community can circumvent something beyond its control with technology and law. The technology uses to help defend against the uncertainties caused by nature. Rules use to help protect against risk about other people's behavior. In organizations, the risk is related to something outside the control of the organization, institution, or company. People with low UAI levels tend to accept uncertainty, ambiguity, and ambiguity. Generally, the character of people with low UAI is more flexible and innovative because they are more willing to take risks and dare to try new things. Meanwhile, people with high UAI tend to emphasize the

existence of clear rules and laws. So that people with lower UAI are more receptive to changes [41] [32].

The next dimension is individuality vs. collectivity. This dimension shows the attitude that views personal and family interests as the main interest or as a common interest in a group. This dimension can also occur in society and organizations. People with a high level of collectivity tend to prioritize harmony as a key in the community/organization. In contrast, communities with a high level of individuality tend to prioritize the role and contribution of individuals in community groups/organizations.

The next dimension is Masculinity vs. Femininity. This dimension refers to the way people deal with things. In this context, people with masculinity characteristics tend to show off, perform, achieve, and make money. Conversely, in feminine societies, the dominant value is human-oriented, quality of life, and the environment. An organization that has a masculine culture has a reward system based on individual recognition and promotions, bonuses, and so on. In contrast, an organization that has a feminine culture of reward systems will base on a network of cooperation, security, and ownership.

The cultural dimension has a positive influence on the willingness to share knowledge between partnerships with low PDI, high levels of collectivism, femininity, and high UAI [40]. The low PDI reflects the closeness between superiors and subordinates, seniors and juniors so that the flow of information is better in both directions. Employees or partners in a lower position structurally or more junior are not afraid to show their ideas and help communication between partners and cooperation.

The collectivistic index refers to employee awareness that teamwork produces better results than individual work. They are more cooperative with others who promote knowledge production and share with others in the organization.

Femininity refers to a cooperative environment where employees feel safe to share their knowledge with other colleagues. It shows reconciliation, not aggression, and self-achievement.

Low UAI correlates with a loosening of rules and regulations in an organization. It expresses when employees find no formal obstacles, such as rules that avoid communication with others in the organization.

Next, the cultural construct in the success of the road PPP will be formed based on the concept of Hofstede's cultural dimension (2011) as in the following table.

**Table 1. Cultural factors**

Dimension	Description	Score	Authors
Power Distance Index (PDI)	The level of alignment between members/individuals in community groups	Low PDI	Hofstede, 2015; Kaminsky, 2015; Kaminsky, 2016; Kaminsky, 2018, Kivrak, 2014
		High PDI	
Uncertainty Avoidance Index (UAI)	Level of acceptance individuals to uncertainty	Low UAI	
		High UAI	
Individualism VS Collectivism (IDV)	The degree of integration of individuals in a community/organization group	IDV	
		KOL	

Masculinity vs. Femininity (MAS)	The way people deal with / deal with something related to their work	MAS	
		FEM	

### 3. METHODOLOGY

To be able to answer the research objectives, a literature review will conduct related to the concept of culture and literature on the success of the PPP. Given the limited documentary that examines the success of toll road PPPs from an aesthetic point of view, a variety of interdisciplinary literature uses on cultural characteristics related to individual and community behavior in determining or making decisions in organizations. The relevance of the literature review is that both the government and business entities constitute a group or community entity whose behavior and decision-making base on the cultural character inherent in each individual. These cultural characteristics then formed as criteria and sub-criteria within the AHP framework.

Several other studies used the AHP approach in determining the success of PPP by identifying priority factors in several other developing countries [43] such as toll roads in Malaysia [44] and other public infrastructure in India [45].

#### 3.1 Analytical Hierarchy Process

Analytical Hierarchy Process (AHP) is a method of decision making by making pairwise comparisons between selection criteria and also pairwise comparisons between available choices [46].

This study proposes a concept through a structured procedure to assess, rank, and determine cultural determinants that can achieve the success of toll road PPP. The stages in AHP are as follows:

##### 3.1.1. Making decomposition or modeling

this stage is the division of factors that are intact into the elements or dimensions formed in a hierarchy of the decision-making process. Each component or feature is interconnected.

##### 3.1.2. Comparative Judgment

Comparative Judgment is an assessment based on the relative importance of two parts at a certain level concerning the level above it. Comparative Judgment is the core of the use of AHP because it will affect the priority order of the elements. The results of the assessment will show in the form of a pairwise comparison matrix, which is a pairwise comparison matrix containing the level of preference of several alternatives for each criterion. The preference scale used is scale 1, which shows the lowest level (equal importance) up to scale 9, which shows the highest level (extreme stress).

##### 3.1.3. Synthesis of Priority

Synthesis of Priority does by using the Eigenvector method to get the relative weights for the elements of decision making.

##### 3.1.4. Logical Consistency

Logical Consistency is done by aggregating all Eigenvectors obtained from various levels of the hierarchy and, subsequently, a weighted vektgit composite, which results in a decision-making sequence.

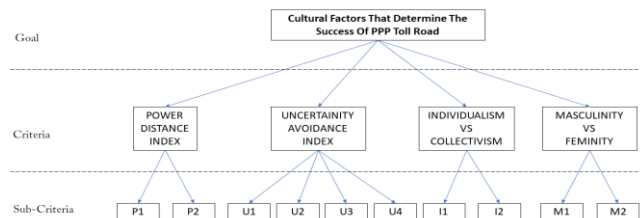
## 4. CONCEPTUAL FRAMEWORK FOR SUCCESSFUL OF PPP TOLL ROADS THROUGH CULTURAL FACTOR

Based on a literature review, this paper identifies cultural factors as determining the success of toll road PPPs, which then reduce to criteria and sub-criteria. Each cultural character will form into measures in the AHP framework. Then from each action, a sub-criterion will be created based on the element in the cultural characteristics factor. So, in a conceptual framework, a series of AHP models will be formed that can show the priority cultural characteristics that can determine the success of PPP.

**Table 2. Criteria and sub-criteria cultural factors that determine the success of Toll Road PPP**

Criteria	Sub-Criteria	Expert
PDI	P1. Relationships between senior and junior colleagues P2. Relationship between superiors and subordinates	Government and business entities
UAI	U1. The attitude in dealing with new work / has never done before U2 Attitude in dealing with new work partners U3 Attitudes towards unclear job descriptions U4 Attitude towards the ambiguous cooperation agreement	
IDV	I1. The choice of attitude between individual task completion vs. harmony between coworkers I2. The choice of approach in expressing personal ideas vs. team harmony	
MAS	M1. Settlement of conflicts in work between normative (according to regulations) and deliberations/consensus M2. How to achieve targets in work between competition vs. cooperation	

The proposed conceptual framework consists of 3 hierarchies, namely goals as the success of toll road PPP, then criteria which are cultural characters, and sub-criteria, which are the results of the translation of cultural aspects. The conceptual framework will produce priority cultural characteristics that can determine the success of toll road PPPs from the perspective of the government and business entities. So, from this conceptual framework, we can know and explain the cultural character, which is an essential key in determining the toll road PPP process.



**Figure 1. Conceptual framework for cultural factors that determine the success of PPP in toll roads.**

## 5. CONCLUSION

This paper reviews the role of the cultural characteristics that have an essential role in determining a person's behavior in making a decision, which in this case, draws into the context of PPP from the perspective of government and business entities. So far, the explanation about the success factors of the PPP does not see from the standpoint of cultural character. Therefore, this paper then proposes a conceptual framework from the perspective of cultural role in determining the success of PPP through the AHP approach. The results of this analysis can then explain the priority cultural characteristics that can determine the success of toll road PPP, both from the character of culture from the government and from business entities. Besides, cultural factors in this study can also lead to broader research, such as research on success factors in PPP infrastructure in addition to tolls which also always face technical and non-technical obstacles, or in the form of other collaborations involving many parties with a background different ones.

## 6. ACKNOWLEDGMENTS

Thank you very much to those who participated in providing information and data to complete this work. The author would also like to thank the lecturers as reviewers for their thoughtful comments, which remarkably improved this article and its presentation.

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