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Conceptual Framework of Road Plus Property Developer Business Model on Toll Roads Assignment Scheme to Improve Investment Performance

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Abstract

Toll road concessions using assignment schemes in Indonesia have several investment problems such as limited funding, inefficient operations, and lack of implementation of value capture. These problems have an impact on delays in the completion of project construction and reduce the financial performance of toll road development companies. Therefore, the development of value capture-based business model innovations for assigned toll road developers needs to be studied. The purpose of this study is to formulate a conceptual framework for Road Plus Property Developer as an innovative value capture-based business model in toll road concessions with assignment schemes in Indonesia to improve investment performance. The method used in this research is descriptive qualitative analysis to formulate its development. The results of this study are targeted to provide a conceptual framework for the Road Plus Property Developer business model in toll road concessions with an assignment scheme based on value capture implementation to improve investment performance.

Keywords

Business Model, Toll Road, Value Capture, Property, Investment

1. Introduction

The acceleration and continuation of infrastructure development is one of the five visions of President Jokowi's leadership in the second period of the 2019-2024 government. The development of a transportation infrastructure network with small industrial areas, tourism areas, special economic zones, plantations, rice fields and fisheries can have a positive impact on Indonesia being more productive and globally competitive [1]. Based on the author's processed data sourced from the World Bank in 2020 regarding the study of Indonesia's State public spending, it is explained that there are at least 4 (four) challenging issues for the road sector in Indonesia, namely: (1) the length of roads per capita tends to be lower compared to neighboring countries both China, Malaysia, and Thailand; (2) the level of transportation connectivity is lower than neighboring countries in Southeast Asia; (3) the disparity conditions between road hierarchies are quite large; and (4) the need for high financing in infrastructure development [2].

The Indonesian government is trying to respond the backwardness of the four challenges in the national road sector through accelerating toll road development programs, one of which is an assignment scheme to State-Owned Enterprises (SOE). An example of a toll road concession project assignment scheme is the development of the Trans Sumatra Toll Road (TSTR). PT Hutama Karya (Hutama Karya) as SOE was assigned based on the Presidential Regulation No. 100 of 2014 and Presidential Decree No. 115 of 2015 (Amendments to Government Regulation No. 100 of 2014) regarding the Sumatra Toll Road Development acceleration. The assignment of toll roads has special characteristics, that project economically feasible but not financially feasible, causing limited investors interested to investing so that a value capture initiation is needed to increase project feasibility [3].

In carrying out its assignment, Hutama Karya as a Toll Road Business Entity Developer (TRBD) faces several obstacles. The first obstacle is the limited project funding if it expects to only come from the state equity participation, where the high level of state debt also affects funding in the infrastructure sector. In this case, the position of Indonesia's foreign debt in the first quarter of 2021 was US\$415.6 billion [4]. The second obstacle is that there is still

a deficit toll road concession. Based on data from BPJT, there were 17 toll roads that still generating operating losses, which when combined reaching IDR 989.32 billion [5]. Furthermore, the third obstacle is the inoptimal assets utilization and the implementation of value capture from toll roads that have been built [6].

This study aims to create a new conceptual framework for value capture-based business model innovation through the establishment of Road Plus Property Developers for toll road concessions with assignment schemes in Indonesia which will improve investment performance so that it is expected to become a reference when toll road construction is carried out with the same scheme. The scope of the study is limited for a case study of the assignment project for the TSTR in Indonesia and project investment value based on the toll road concession agreement with the Ministry of Public Works and Housing (MPWH).

2. Literature Review

2.1 Assignment Toll Road

Providing the toll road infrastructure, the government encourages the private sector or SOEs to be actively involved in taking role in toll road concessions, especially for economically and financially viable toll road operations which are expected to provide a good rate of return for business entities [7]. However, the government is faced with the condition that toll road concessions are not financially viable but economically feasible, causing no business entity of toll road developer to be interested in investing the concession. Therefore, an assignment scheme policy appears. Furthermore, the classification of toll road concessions type in Indonesia is divided into two major groups according to Figure 1 below.

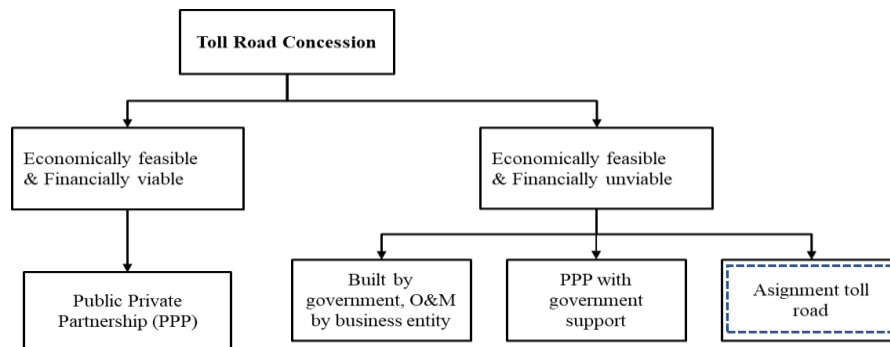


Fig. 1. Toll Road Concession Classification

Assigned toll roads are toll road concession schemes through government assignments to SOEs aimed at toll roads that are economically feasible but not yet financially viable in terms of a limited government budget [8]. One of the toll roads built under the assignment scheme to SOEs is the TSTR, which is 2,813 kilometer toll road that connects Lampung and Aceh along the Sumatra Island of Indonesia. TSTR is one of the largest infrastructure mega projects in the world with an investment value of about 37,724 million USD. The TSTR concession was carried out under an assignment scheme to Hutama Karya for the first 4 sections through Presidential Regulation No. 100/2014, followed by a revision of Presidential Regulation No. 100/2014 by Presidential Regulation No. 117/2015 expanding the assignment to 8 toll road sections [9].

2.2 Toll Road Concession Business Model

Business Model is a model that explains the reasons for how a company organization can create, deliver, and capture value. The concept of a business model can be mapped out through nine basic blocks that show the logic of how a company intends to run its business and make money. The nine blocks cover four main areas of business: customers, offerings, infrastructure, and financial viability. The nine basic blocks in mapping out this business model are known as the Business Model Canvas (BMC) [10]. BMC is a visual chart in the form of a strategic management template used by companies to develop business models. The nine blocks in question consist of main activities, main partnerships, customer segments, value propositions, channels, customer relationships, revenue streams, key resources, and cost structures.

In accordance with studies conducted previously [12, 13], business models must always be updated to keep up with times. Business models that are newer and more efficient in creating, combining, and leveraging resources and capabilities in the marketplace are associated with higher performance. However, this competitive advantage can be lost over time [11, 15], thus requiring business model innovation. According to [16], business model innovation involves "design, novelty, nontrivial changes to the key elements of a firm's business model, and/or the architecture connecting those elements." As formulated by Amit and Zott [14], business model innovation can involve adding new resources or activities, connecting resources or business activities with new methods, shifting one or more parties that carry out business model activities, or innovating the value logic of business models itself (e.g. creating a new revenue model). According to this approach, business model innovation is more than a strategic change; there is a level of novelty of the business model [17]. Thus, business model innovation can change the way a company focuses on doing business and is carried out by management with the main goal of increasing its competitive position [18].

Studies on the business model of toll road concessions on a global scale have been carried out since the 1970s. An example of one of the largest toll road concession models was conducted in Spain, where the business model was integrated between investment, construction, and toll road concession business models. Initially, the three functions (investor, construction company, and operator) were usually carried out separately by the company. In 1977, the 2,000 km toll road concession had 66% of the equity of the concessionaire held by a financial institution (a large investment bank syndicate), while around 20% of the equity was held by the construction company itself [19].

2.3 Value Capture of Toll Road Concession

Value capture is a type of mechanism to capture added value that is able to replace part or all of the value that will be generated by public infrastructure for landowners (private parties). In the context of transportation, the provision or improvement of a transportation system leads to benefits related to accessibility to properties surrounding the infrastructure. The link between land use and transportation systems has been carried out by several previous studies [20]. This can provide positive capitalization benefits into increased land values as the surrounding properties benefit from the infrastructure of the transportation system. Increases in land value can be captured in a number of ways, including increasing property tax revenues, selling or co-development of public land near transit systems, leasing or selling of air rights over transit stations, special appraisal levies, imposition of public taxes, transportation impact costs, land value taxes, and receipts of increased property taxes [21].

The transportation infrastructure discussed in this study is toll roads with assignment schemes. The toll road concession strategy for the assignment scheme is based on a land development-based value capture mechanism known as land value capture. According to previous study [22], land value capture (LVC) is defined as an effort to monetize investment capital in an infrastructure through the utilization of land value as a source of financing for infrastructure investment. In the case study of TSTR development with an assignment scheme, it is necessary to innovate a business model by optimizing value capture in the hope that the rate of return on investment will increase and can attract investors to invest to support toll road development funding. In this case, value capture-based business model innovation has a positive influence on project investment performance and company performance [23, 25].

2.4 Road Plus Property Developer (RPPD) Business Model

Toll Road Developers are business subjects who can be in the form of agencies or business entities that carry out toll road concessions. Meanwhile, the business model run by the road developer is a business model run by business entities in carrying out toll road concessions, which include planning, funding, construction, operation and maintenance activities of the toll roads [25]. In Indonesia, a toll road developer is known as a Toll Road Business Developer (TBRD), a corporate entity that holds toll road infrastructure concessions on certain sections. In general, the toll road concession business process with the assignment scheme consists of three stages, namely the planning, the construction and operation, as well as the maintenance stages of toll roads. This can be seen in Figure 2 below.

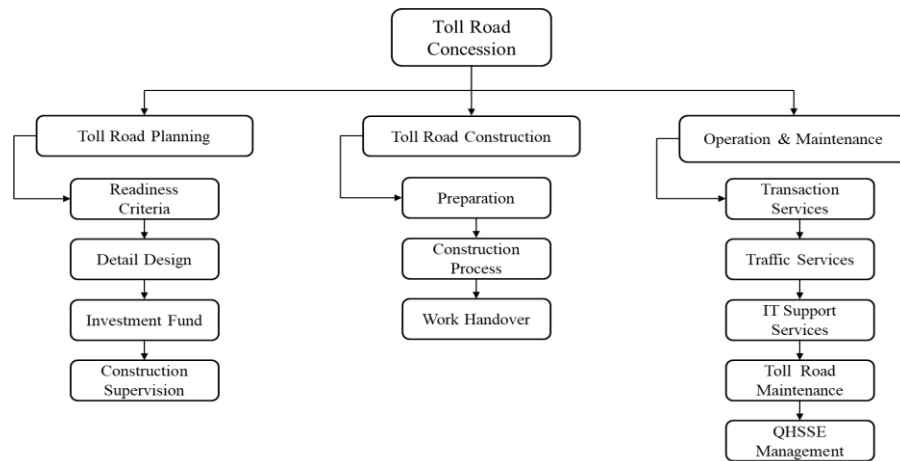


Fig. 2. Assigned Toll Road Concession Phase

PT Hutama Karya is one of the largest toll road developers in Indonesia which was assigned for the concession of the Trans Sumatra toll road (TSTR) 2,813 kilometer that connects Lampung and Aceh along of Sumatra Island. The TSTR concession was carried out under an assignment scheme to PT Hutama Karya (Persero) for the first 4 sections through Presidential Regulation No. 100 of 2014, followed by a revision of Presidential Regulation No. 100 of 2014 by Presidential Regulation No. 117 of 2015 expanding the assignment to 8 toll road sections [9].

Property Developers are business subjects who build an area or region, such as housing or apartments. It can be in the form of an institution or agency in the form of a company owned by the private sector or the government engaged in the property sector [26]. Meanwhile, business model is defined as a business model run by a business entity in carrying out the development of an area or region including planning, funding, construction and operation, as well as maintenance activities including handling marketing or marketing activities therein. The value capture scheme will capture the value of land prices that will increase and quote it to be allocated as initial capital for the next stage of infrastructure development [27].

Based on the definition of Road developer and Property developer that has been explained previously, the common thread can be drawn that Road and Property Developer (called by Road Plus Property Developer) is an integration concept between toll road developers as well as property in one business entity. Meanwhile, the Road Plus Property Developer business model is a business model that integrates toll road concessions with property development so that it can help create a toll road transportation system that is financially independent, while at the same time encouraging sustainable urban growth. The concession activities carried out include planning, funding, construction and operation, as well as maintenance activities of the toll roads and their assets.

2.5 Investment Performance

According to previous research [28], investment is a commitment to a number of funds or other resources that are carried out at current time, with the aim of obtaining a number of benefits in the future. The existence of future needs or current needs that have not been met, the desire to increase the value of assets and the need to protect the value of assets that are already owned, as well as the presence of inflation, are the three main things that underlie investment. Investment feasibility analysis is an action taken to determine the prospects of an investment project that underlies the decision to accept or reject the investment. Before making an investment decision, a feasibility analysis is needed in order to avoid investing in unprofitable projects or activities [29]. The investment feasibility aspect is planning by considering several factors or aspects that show the benefits of an investment. There are at least six aspects of investment feasibility that must be considered, namely financial aspects, technical and production aspects, social aspects, legal aspects, organizational and marketing aspects. In addition to several investment aspects that must be analyzed, things that need to be monitored regularly in each investment project are [30] sales development (revenue), profit development (net income), dividend development, value development (value) of business activities, as well as the problems and risks faced.

2.6 Implementation Policy

The application of value capture is highly dependent on the active role of both the Central Government and Regional Governments because of the close link between TSTR development and the benefits received by each region through which TSTR passes. Seeing the economic and fiscal potential of the presence of TSTR for both the national and regional economies, the Central Government needs to support the sustainability of the project in order to accelerate the realization of economic, fiscal, and welfare impacts for the community. This can be done through several acts, including through government capital participation, the provision of guarantees for financing from creditors, and the provision of facilities in project coordination and implementation including licensing [36]. The central government needs to encourage the optimization of appropriate utilization in accordance with national and regional spatial planning for the areas around the TSTR by providing clear guidelines for the regions for the national strategic area development zones so that they are in synergy with the planning carried out by the regions. In addition to the need for central government policies that must be prepared, the main supporting force for the successful development of TSTR is the support of policies and strategies by local governments. The regional government currently welcomes the construction of TSTR in their area and supports this development by designing certain programs, such as developing industrial estates or tourism areas to building supporting physical infrastructure.

3. Research Methodology

In this study, descriptive narrative research was used. The research methods and strategies used in this study are archival analysis sourced from papers, books, research document, and related regulations which were validated by experts. The conceptual framework was based on the literature on toll road business models that are not financially feasible and the implementation of land value capture that has been carried out in the case of the development of transportation infrastructure. Then, the papers were grouped, filtered, and analyzed between toll road concessions and the implementation of land value capture to develop innovative company business models through the formation of Road Plus Property Developers in the operation of toll road assignments in Indonesia which can provide optimal returns on investment. The correlation between toll road concession concepts examined by previous research was applied to different concepts to develop a conceptual framework with the hypotheses that were tested in this study. The next evaluation step is to develop research indicators for each variable and dimension by carrying out the assignment toll road concession business model. These indicators will be used to determine the quantitative and qualitative relationships between variables and dimensions. The following are the research methodology for conceptual framework study examined the relationship between investment variable, business model variable, land value capture, business model innovation, policy aspects, and elements of investment performance can be seen on Fig.3 below.

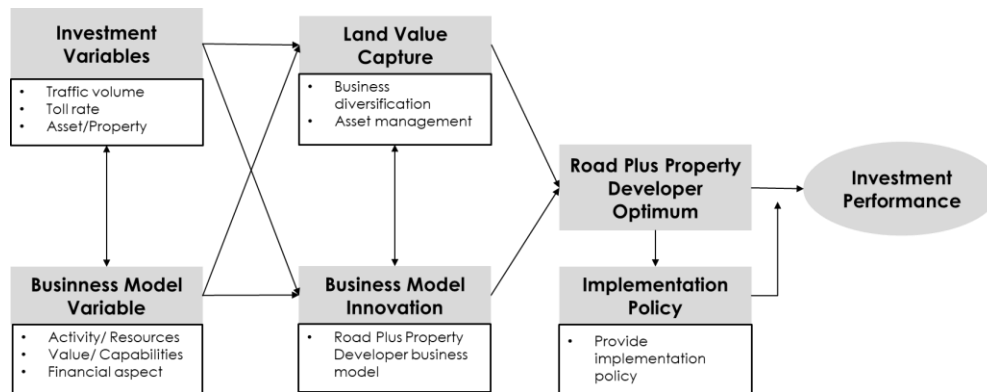


Fig. 3. Research methodology for conceptual framework

4. Data Collection

This study employed a comprehensive literature study as a research methodology to see how the variable land value capture affects the toll road concession business model in a peer-reviewed study and establishes a conceptual framework for establishing a Road Plus Property Developer business model to improve investment performance. Based on the specified search criteria, publications from important journals and conference proceedings that have been widely used by researchers and practitioners were selected for analysis. The selection of articles or references is the initial stage in the evaluation process. In this case, we selected 121 articles from peer-reviewed sources such as Science

Direct, ASCE, publications of conference proceedings and working documents from Hutama Karya. The selection criteria were based on specific search keywords related to research objectives and publication date. In this case, (1) Toll roads concessions, (2) Business models and business model innovations, (3) Value capture in the transportation sector, (4) toll road developers and property developers, and (5) Factors influencing/affecting investment performance are search keyword applied. Furthermore, it attempted to screen papers with the most recent year period and no papers older than 2000 were selected as part of the study in order to examine articles over the past 25 years to gain insight into a comprehensive assignment of toll road concessions. As a result, papers were selected during the review process based on title, year of publication, and keywords.

5. Results and Discussion

5.1 Road Plus Property Developer (RPPD) Business Model

The study related to the RPPD business model began with a literature study related to the Critical Success Factor of the toll road concession business model with an assignment scheme based on value capture. The results showed that there are five variables that must be considered in order to achieve success in increasing investment performance, namely government sector variables, sector variables private toll road operators, property developer variables, a supportive investment environment, and project specific planning and conditions. Based on this, the results showed that the RPPD business model is a key factor that increases the level of investment feasibility in toll road concessions. Three broad categories of capabilities can be distinguished in terms of RPPD infrastructure management, namely:

1. Planning for the management of toll road assets and land along the toll roads which are concession rights;
2. Data management, commercialization and devices (information technology systems);
3. Developing and benchmarking of toll road business models or other transportation infrastructure that successfully manage the transportation and property business.

These three categories are interrelated, the RPPD can be considered as an approach or even a business model for a toll road authority assignment scheme, but without the right tools, data and training, it will only be an organizational aspiration or ambition, not a reality goal experienced by customers or stakeholders in its implementation. The RPPD business model can be considered as a meta-level process in an organization that enables the extraction of value for customers and the organization. It further requires adopting a holistic approach, as the success of the RPPD requires the participation of many individuals within the organization and its supply chain. The RPPD business model can be seen in Figure 4 below.

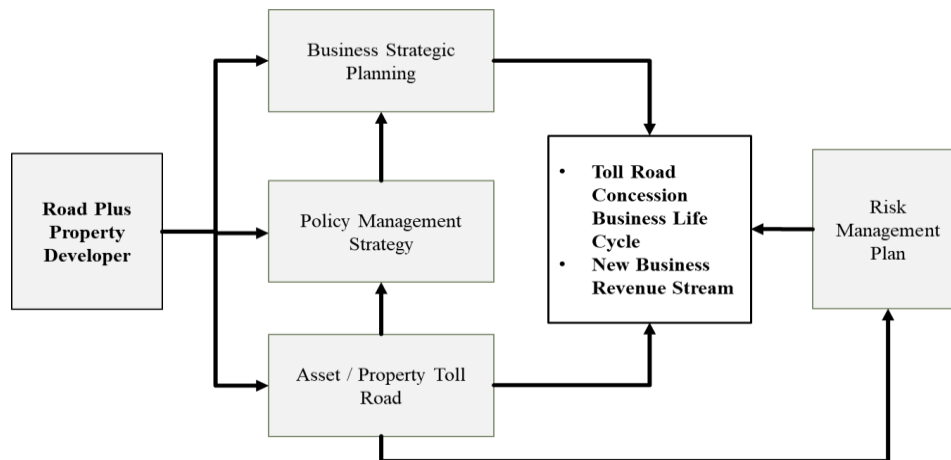


Fig. 4. Business Model Road Plus Property Developer

Based on Figure 4 it can be explained that in the Road Plus Property Developer business model, there are three main components that play an important role:

1. Business Strategic Planning

Business strategic planning is a component that has a strategic function in aligning organizational activities and the results of commercialization of its business with organizational goals, including managing the organization's business processes in improving management systems and the ability to commercialize good business. The

components of business strategy planning consist of asset/property management policy, asset/property management strategy, demand analysis, strategic planning and asset/property management planning.

2. Policy Management Strategy

Policy management strategy is a strategic leadership component of the organization in considering the challenges faced and organizational decision-making approaches which cover three main stages in toll road concessions, (1) acquisition or new business development, (2) operation and maintenance, and (3) end of Concession. Decisions made at each stage have an impact on the next stage. This component consists of investment decision making, operation and maintenance decision making, business life cycle realization, resource strategy and business termination strategy.

3. Toll Road Business Life Cycle

Toll road business life cycle is a component that considers the toll road concession life cycle process developed from the business strategy planning component. Control of business processes carried out to acquire, operate or maintain, and dispose of assets is considered important for the successful implementation of toll road concessions, especially the assignment scheme. Focusing on integrating activities throughout the life cycle allows organizations to create new revenue stream through business diversification and reduce costs through business processes improvement and a good risk management plan so that potential risks can be properly mitigated.

5.2 Conceptual Framework

This conceptual framework study examined the relationship between value capture, business model innovation, policy aspects, and elements of investment performance, as can be seen in Figure 5 below.

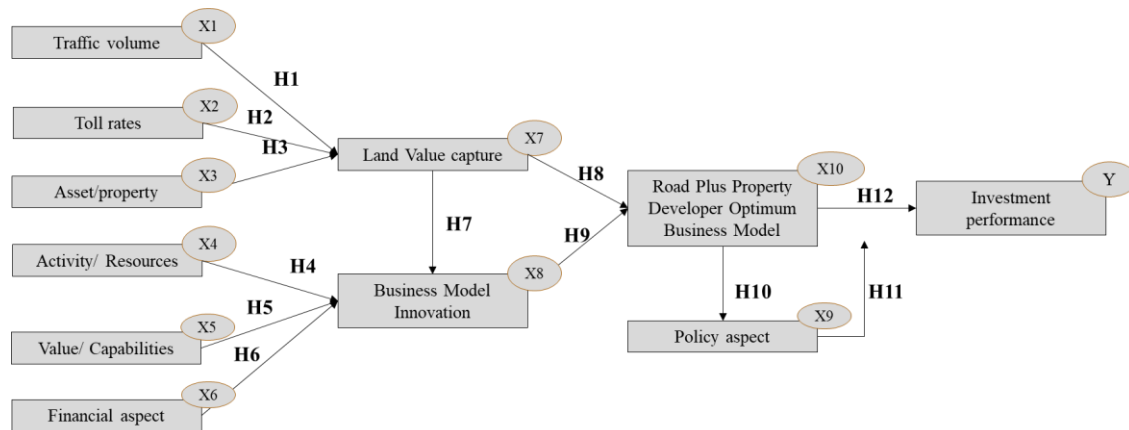


Fig. 5. Conceptual Framework

In order to prove the concept as shown in Figure 5, several hypotheses were developed which can be summarized as follows,

H1: Traffic volume has a positive effect on land value capture.

Integration of traffic and travel behavior models has a positive influence for estimating the impact of transportation under Cumulative land development. On the other hand, transportation users do not have network knowledge in maximizing their travel utility. Instead, they seek better options to reduce their transportation costs due to delays or congestion by scheduling early and late [31]. This has an impact on the tendency to develop better land value capture in areas with high traffic density.

H2: The toll rates have a positive effect on land value capture.

Road pricing scenario calculations are evaluated with the MOSART transportation model and the UrbanSim application. The scenario results showed that accessibility decreases drastically and most of the population leaves urban areas. Districts without new housing developments are more sensitive to changes in housing demand than other areas. In this case, housing supply that is inelastic gives rise to extreme price changes, which if growth occurs, it can lead to patterns of income segregation [32]. This shows that there is an influence of the amount of toll rates which also influences the pattern of development of population areas.

H3: Asset or property management has a positive influence on land value capture.

In the Hong Kong MTR case study, successful asset management cannot be separated from support from the government's favorable transportation and land use policies to increase rail traffic and asset or property development, and apply the principles of Transit Oriented Development which can improve LVC implementation. Most of the revenue comes from leasing and property management, commercialization of the station business, and development of both residential and other commercial properties [23]. This shows that good asset or property management has a positive impact on the success of land value capture.

H4: Activities/Resources have a positive influence on business model innovation.

Activities, values, and finances are the three main components that make up a company's business model, while comprehensive functional elements can be fulfilled by the business model canvas, although external environmental factors need to be added to the architecture. Using the fuzzy method, the results showed that at the first level, the internal environment exceeds the external environment. At the second level, activity is ranked first, sustainability is ranked second and value is ranked third. At the third level, key partners are ranked as the most important element among the others [33]. This shows that activities and resources have a positive impact on the innovation of a company's business model.

H5: Value/Capability has a positive influence on business model innovation.

According to the research that has been done before [33, 10], it was found that through the fuzzy method revealed the external environment was below the internal environment for all methods at the first level. At the second level, it shows that activity is ranked first, sustainability is ranked second, and value is ranked third. At the third level, key partners are found as the most important element for all methods. This shows that value and capability have a positive impact on encouraging the innovation of a company's business model.

H6: The financial aspect has a positive influence on business model innovation.

In accordance with the previous explanation [33, 10], the use of fuzzy method discovered that at the first level, the internal environment exceeds the external environment. At the second level, when activity ranks first, the second and third ranks are occupied by sustainability and value. Furthermore, at the third level, key partners are ranked as the most important element among others for all methods. This shows that the financial aspect has a positive impact on encouraging the innovation of a company's business model.

H7: Land value capture has a positive effect on business model innovation.

Based on the previous research [23], the development of land value capture can affect the emergence of new business model innovations in a company. In accordance with the case study at the Hong Kong MTR, it shows that property development is a new business diversification in the TOD area that can increase revenue and profits significantly so that the business model changes from transportation business to becoming an additional property developer.

H8: Land value capture has a positive effect on project investment performance.

According to a study [24], the methods of evaluating the feasibility of investment projects can exacerbate and strengthen dependence on market actors or the private sector providing public benefits, and magnify existing inequalities. Local governments and citizens in the UK face increasing levels of dependence on profitable development in suitable locations with potentially increased land values, to fund wider infrastructure and affordable housing elsewhere. This shows that land value capture can encourage increased market demand which will certainly affect the increased investment feasibility of the project.

H9: Business model innovation has a positive effect on project investment performance.

The results of previous project [34] showed that business model innovation is an effective strategy for improving investment performance, although the strength of this relationship decreases as the degree of novelty and frequency of business model innovation increases. In addition, the theoretical models from the research explained and predicted how firms transcend organizational boundaries to acquire and use resources in volatile industrial and macro environments to secure competitive advantage.

H10: The Road Plus Property Developer business model influences the need for implementation policy aspects.

Previous statement [35] revealed that one of the important reasons why the rail and property-based transportation business model can work well is because of the Hong Kong government's support for the MTR to get income from increasing property asset values which usually follow the construction of railroad lines. In the new railway line, the

government gives land management rights to the MTR for development at stations along the line. MTR pays a land premium to the government based on the market value of land without a rail link. Therefore, policy support from the government is needed in implementing the Road Plus property developer business model

H11: Policy aspects affect the implementation of the Road Plus Property Developer business model in improving investment performance.

Public investments in transportation assets that increase access and increase opportunities to benefit owners of adjacent properties through greater land values and other economic impacts. Value Capture starts with the value created by the transportation access it provides. The value is then increased through private sector investment and economic development made possible by public investment obtained is classified in the Road Plus Property Developer business model, both planning and implementation depending mainly on local government initiatives [36]. It shows that policy aspects from the government are needed in the implementation of the Road Plus Property Developer business model in improving investment performance.

H12: The Road Plus Property Developer business model has a positive influence on investment performance.

According to previous research [37], it was found that in the period of 1998-2013, the construction of railroad lines could generate profits from property operations of more than USD 11 billion. The revenue was derived from sharing profits from the sale of real estate with private developers, mostly residential projects, as well as from leasing and managing properties owned by MTRC (particularly for commercial and office operations). This shows that the transportation plus property business model can improve investment performance.

6. Conclusion

Based on this study, it can be concluded that to improve investment performance in toll road concessions with the Indonesian assignment scheme, it is necessary to implement the value capture which can be realized by developing the Road Plus Property Developer business model. This conceptual framework will be developed for further research so that the relationship between variables can be identified and the conceptual RPPD business model can be formulated to provide effectiveness and accelerate the creation of new business diversification in toll road concessions. The RPPD business model will determine the best scenario in improving investment performance by integrating the toll road and property concession business models.

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