Implementation, challenges and stakeholders perception of modernized Jeepneys in Metro Manila

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Abstract. Jeepney is one of most used public transportation in the Philippines wherein Filipino passengers used Jeepney as their primary mode of transportation in their everyday lives to get to their desired destination. However, due to its negative issues such as lack of maintenance system, ensuring the safety of the passengers and drivers, negative effects to the environment and improper loading and unloading of passengers, the government decided to implement the Jeepney Modernization program which old regular jeepneys were phased out and replaced with modernized jeepneys. This study centered on the implementation, challenges and repercussions of modernized jeepneys in the Philippines. This study aimed to determine different perceptions between three (3) stakeholders involved which were jeepneys operator/driver, passengers and modernized jeepney manufacturers included the government initiatives and agreement that is acceptable to all parties. The mixed method approach was also utilized in this study to gather data based from the views and opinions of the different stakeholders. The result showed that miscommunication and diffusion of wrong information was main cause of inconsistent perceptions, as well as the different demand of each stakeholders. The findings aimed to contribute to the upward mobility of implementation of modernized jeepneys and provided all factual data to the affected stakeholders in this study.

1. Introduction
Transportation is a person movement and things from one place to another. A good transportation network is among every modernized city’s initial priorities since modern society needs mobility in every life aspect [1]. Rapidly, the industry of transportation has been advancing globally. In the 20th century, the changes of transportation began as focuses on the accessibility, mobility and safety of the vehicles [2]. Transportation has helped people to reach their desired destinations faster. The transportation provides opportunities for employments and business such as trading and product import or export to another country as required transportation. Besides, European Union (EU) has announced that transport is an important factor for economic growth and provides connectivity between states [3,4,5].

There are different modes of transportations available but the primary modes are air, water and land transportation which are essential in every country. Air transportation is an important mode of transport in a country as fastest way of connecting internationally and locally. However, this transportation mode is expensive and only some people can afford while water transportation is transportation mode that uses ships and barges for passengers and heavy cargos. Although, water
transportation is fairly cheap and very affordable but slow and not suitable for perishable good. Meanwhile, land transportation is most popular transportation mode and most goods and passengers are transported by land.

The jeepneys are most used and affordable public mode of transportation and most common mode of transportation in the Philippines [6]. The jeepneys were originally cycled from US military jeeps left by the American troops at end of the World War II and, Filipino citizens later on converted the spare parts of the recycled machines to a passenger type vehicle with a maximum capacity of six, painted it with colourful shades, and enhanced with metal roofs to protect each passenger from the sunlight and windows for proper ventilation. These vehicles are constructed by local manufacturers and sold to the operators as brand-new units [7].

Currently, jeepney in the Philippines is still best to cope with the modernization growth in the transportation industry. Most Asian and European countries have this systematic mode of transportation wherein they have this Cashless payment, timely bus schedules, limited passenger capacity, and many more which make their country globally competent when it comes to the advanced transportation system [8-10].

According to research, jeepneys are incompetent in terms of fast phase development of the country. The issues such as lack in maintenance system, ensuring the safety of the passengers included the jeepney operators/drivers, its negative environmental effects and tile improper system of loading and unloading of passengers are timely issues that usually seek the government's attention.

The government decided to implement the Jeepney Modernization which phased out old regular jeepneys and replace with modernized jeepney. This study aimed to determine different perceptions between three (3) stakeholders involved which were jeepneys operator/driver, passengers and modernized jeepney manufacturers included the government initiatives and agreement that is acceptable to all parties.

2. Methodology
This study was used mixed method approach in various stakeholders perception included initiatives of government difference from another and agreement that was acceptable to all parties. Meanwhile, qualitative approach collected detailed understanding on the stakeholder assessment on jeepney modernization factors.

Both survey questionnaires and scheduled interview with structured classifications were used as study instrument. The survey questionnaire utilized Likert-type scale which four pre-coded response with “Strongly agree”, “agree”, “disagree” and “strongly disagree”. The questionnaires were provided for the passengers and jeepney operators or drivers.

A scheduled structured interview was administered to Land Transportation Franchising and Regulatory Board (LTFRB) personnel included jeepney operators or drivers, passengers and modernized jeepney manufacturers who living in Metro Manila. The mixed method gave two different perspectives about the data from interview and survey [8]. The acquired data determined that both study instruments are compatible with each other and responses of the stakeholders included the government.

In this study, the study was involved by LTFRB jeepney operators or drivers, passengers and modernized jeepney manufacturers. These respondents were primary foundation since stakeholder perception were essential on agreement as regarded to jeepney modernization implementation.

The study was conducted in selected major terminals in metro Manila mainly in Quezon City-SM North central terminal, Pasay City-Edsa rotunda terminal and Mall of Asia terminal, Makati City-Park square, Mandaluyong city-SM Megamall terminal, Marikina City-Cogo terminal, and Manila City-Divisoria Terminal.

Besides, the purposive sampling technique was used to determine the sample. This method was proven to be competent on produced result which outweigh any favouritism in this study. The purposive technique was used in the interview with government, jeepney operator or drivers, passengers and modernized jeepney manufacturer.
Structured interview questions were provided for the stakeholders such as the government, jeepney operators/drivers, passengers, and modernized jeepney manufacturers concerning each of their perceptions as regards to the implementation of the modernized jeepney program in the Philippines. Furthermore, the interview guide questionnaires consists of four (4) parts: (1) the consultation of the government with the passengers and jeepney operators, (2) the assessment of the passengers and jeepney operators in terms of the feasibility and effects of the implementation, (3) the considerations of the government in environmental, financial and heritage aspects, and (4) the distinct features in the new models of jeepney.

A survey questionnaire was most feasible way to collect data or information from large group in certain area. A four-point Likert-type scale of survey questionnaires was utilized in this study. The questionnaires purpose to determine agreement level with regarded to respondent perceptions on fare changes, implementation duration, safety and payment protocol and convenience. The survey questionnaires were divided into two parts such as socio-demographic status and variable statement.

In additions, Pearson correlation coefficient was used to determine on the significant differences between jeepney operators/drivers and passengers in agreement level of jeepney modernization in term of fare changes, implementation duration, safety and security measurement, payment protocols and convenience. The independent t-test was used in measured the two perception differences of the jeepney operators or drivers and the passengers regarded jeepney modernization implementation.

3. Result and Discussion
The study was identified that jeepney body made from galvanized or stainless steel. The benches were mounted at the side covered with fabric that accommodated more than 20 passengers. The windows had plastic cover that could rolled down if raining season. There were steel bars attached at top that served as handrails. The jeepney drivers earned their fare through “paabot ng bayad” system which passengers were paid and passed until payment reached the driver. The jeepney body is filled with colourful designs and figurines were placed in front of jeepney. The engine that traditional jeepney used was four-cylinder diesel engine with 3.3 litres of displacement.

The government had pilot testing on e-jeepneys but unsuccessful but COMET was implemented on year 2014. This platform was replaced traditional jeepneys to minimize air pollution in the Philippines. This electric powered vehicle had features such as CCTV, Wi-Fi and cashless payment system. The vehicle was 100% electric which used lithium ion batteries encased in watertight casing to protect from rain and floods.

The meeting and forums were conducted for jeepney operators and drivers for sharing opinions and ideas with regard to the modernization program. The jeepney operators and drivers were aware on this programs and this program was not able to push through over the years since administration transition for every terms. Besides, the public relations chairman of LTFRB was not consulted the passengers due to this program was implemented for passenger safety and convenience. The government geld senate conventions for the manufacturer which manufacturers were given chance to present the prototypes of modernized jeepney and confirmed if the requirement mandated by the government were followed.

The result showed most jeepney operators or drivers were claimed jeepney modernization program since no capacity to afford modernized unit. Meanwhile, passengers perspective on the financial and minimum fare proposed is only affordable for middle class and working class. All passengers were selected jeepney as their transportation mode since this transportation was cheapest transportation in the country. Furthermore, the estimated price for modernized jeepney was 1.2-1.3 million peso. Thus, the manufacturer claimed that government was provided funds for modernization program.

The stakeholders stated that modernized jeepney features would have positive effect in the transportation system. The manufacturer also stated that modernized unit had positive effect on the environment as the government required euro-4 engines which reduced pollution in metro Manila. Besides, the stakeholders worrying was unemployment that modernization program caused. Independent jeepney operators or drivers who di not availed modernized unit had no choice but did not
end their operations. Most factor that hinders their full support on the program was the cultural lineage of the jeepney was removed once jeepney modernization implementation.

For jeepney drivers, the jeepney modernization was not good for the country if there was no discipline. The passengers was followed regulation for program successful. The passengers were perceived that jeepneys modernization was good step for the globalization. Meanwhile, there would lot of accredited manufacturers was available to provide enough units to replace traditional jeepney. The passengers were expected world-class transportation with better quality service and facilities such as air conditional, WiFi, GPS and CCTV cameras.

Furthermore, half of jeepney drivers stated that the Philippines is not ready for the jeepney modernization and half of drivers claimed this program was introduced on right time and price. Most passengers stated that the Philippines was step up for globalization while manufacturers claimed the Philippines was ready long time ago since this program was passed from previous administration.

Moreover, the chairperson claimed there was financial support from the government such as loans for jeepney drivers who did not afford to purchase the modernized jeepney. The tourism and public purpose had affected the stakeholders. Besides, the chairperson also suggested that traditional jeepney was still operated for tourism purpose. The chairperson believed that right time for change and innovation with this program helped in economy growth.

The manufacturer had proposed the modernized jeepney features such as physical, technological and mechanical aspects. The government wanted modernized jeepney was simple in size, height and colour. In technological aspect, the modernized jeepney had innovative features such as cashless system, CCTV, speed limiter, GPS, WiFi, air-conditions and dash earns. In mechanical aspect, the government required emo-4 engine which minimized air pollution.

Based on Table 1, the jeepney operators or drivers were strongly agreed and passengers only agreed on fare changes. Meanwhile, the jeepney drivers were disagreed and passengers were agreed on implementation duration. Besides, the jeepney drivers were agreed and passengers were strongly agreed on safety and security concern. The jeepney drivers and passengers were agreed on payment protocol included cashless payment and other payment policies of modernized jeepneys. In additions, the jeepney operators agreed and passengers were strongly agreed that convenience also important which modernized jeepney features included build-in handrails, air conditions unit and spacious capacity.

### Table 1. Significant difference between the respondent-passengers and respondent-jeepney operators/drivers' responses in terms of the following variables.

| Variables                | Jeepney drivers/operators | Passengers       |
|--------------------------|---------------------------|------------------|
| Overall                  | Verbal interpretation     |                 |
| Changes of fares         | Strongly agree            | Agree            |
| Time implementation      | Disagree                  | Agree            |
| Safety and security      | Agree                     | Strongly agree   |
| Payment protocol         | Agree                     | Agree            |
| Convenience              | Agree                     | Strongly agree   |

The proper compliance of jeepney operators or drivers was solution as long as the government accepted their suggestion and consideration to the program. Meanwhile, the jeepney operators or drivers also wanted to enhance their traditional jeepneys with advance features that the government requires. In additions, the passengers believed that supporting the government program lead to successful implementation of jeepney modernization. The manufacturers also needed accreditation from government.
4. Conclusion
In conclusions, all stakeholders and government had different perception regarded to jeepney modernization. There was significant difference between agreement level of jeepney operators or drivers and passengers. Miscommunication and diffusion of wrong information was main cause of inconsistent perceptions of the stakeholders. For jeepney operators or drivers, the rehabilitation was the solution for phased out of traditional jeepney units. The passengers agreed that jeepney modernization was helped metro Manila was great step toward globalization. The manufactures considered modernized jeepney was provided convenience for passenger and drivers.

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