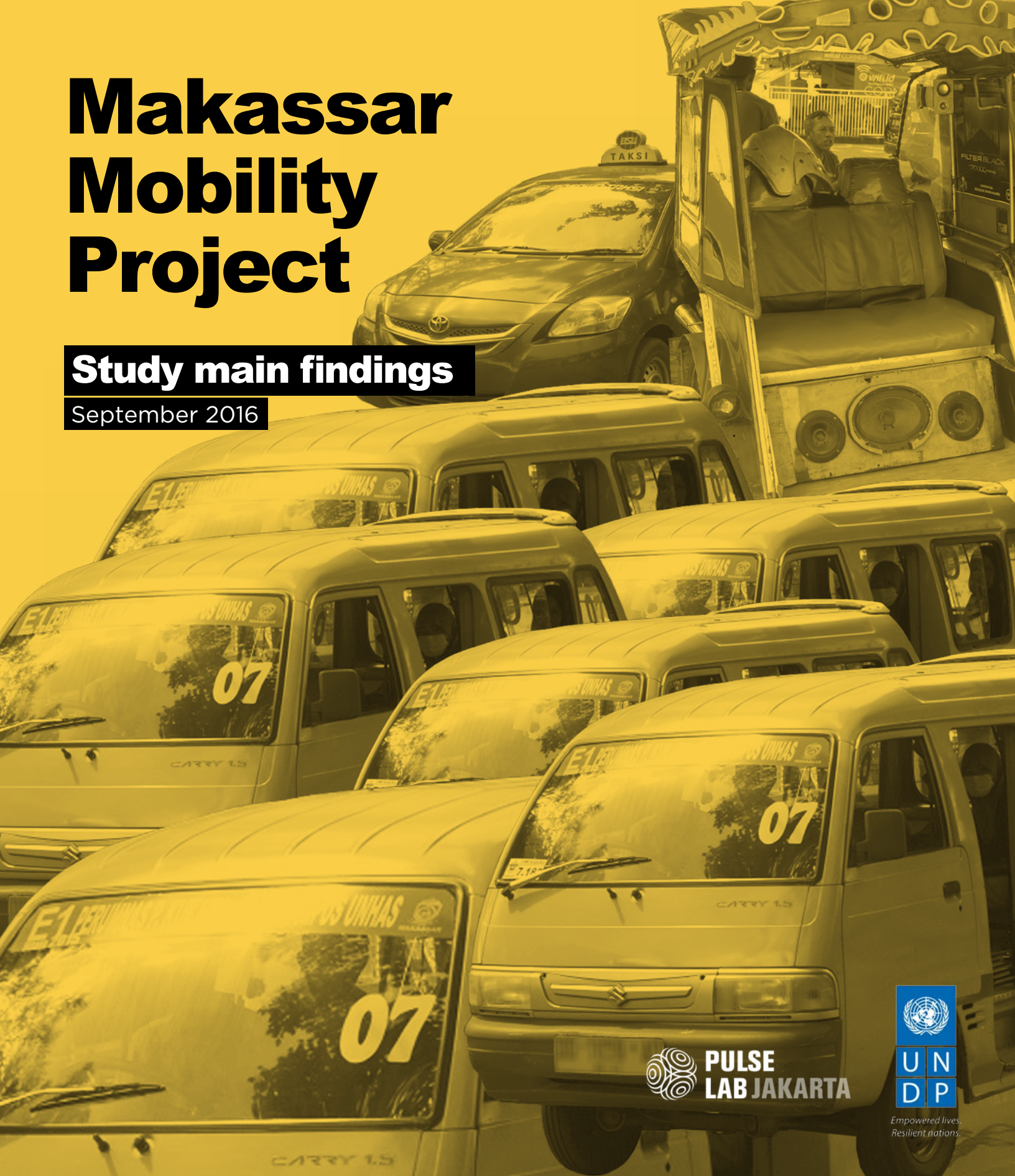
Makassar Mobility Project

Study main findings

September 2016



PULSE LAB JAKARTA

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Makassar Mobility Project

Study Main Findings

September 2016

PULSE LAB JAKARTA

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ABOUT THIS REPORT

This study was commissioned by UNDP to get a glimpse into the mobility patterns in Makassar, Indonesia. This study is part of the overall support provided by UNDP through its City-I-Leaps Initiative - a joint initiative by the Seoul Metropolitan Government and UNDP. It aims to promote the use of design thinking to collaboratively propose solutions that are optimal to people's needs, develop prototypes for testing and evaluation, and eventually scale-up successful designs.

UNDP, conducted the research in collaboration with UN Pulse Lab Jakarta (PLJ). PLJ, established in 2012 by the United Nations and the Government of Indonesia, is a data innovation lab which harnesses the power of new digital data sources and real-time analytics for development and humanitarian action.

Through this initiative, UNDP aims to bring innovation and a user-centered design approach to improve the public transport system and reduce traffic congestion in Makassar, at the request of the City Government of Makassar.

Towards this end, understanding people's mobility patterns and context is seen as an essential first step in designing a public transport system that better serve users' needs. A qualitative approach (including in-depth interviews with users and providers) was used to gain insights into people's mobility needs, habits, and pain points.

The study aims to provide a glimpse into the current mobility patterns and contexts in Makassar. This study, though small, is a key addition to the existing literature on the transport sector and infrastructure needs in Makassar and in the whole South Sulawesi province. It is one of the rare few - if not the only one - which try to gain insights into mobility patterns from the user's perspective.

The findings from the study should be viewed in conjunction with other studies on both the transport sector and on infrastructure needs to a get a full picture of the opportunities and challenges in building a more user-friendly public transport system.

The research was conducted by PLJ Design Research Lead, Kautsar Anggakara, and an Independent consultant, Nisa Fachry, from 11 September to 16 September, 2016. They employed a combination of research methodologies, such as mini exploratories, digital diaries, and in-depth interviews with users, and providers of different forms of public transportation.

The research found that the use of different modes of public transportation such as buses and petepete (privately-owned minivans carrying up to ten people) is limited, and most people prefer to use private vehicles. Buses are perceived as unreliable, while petepete are considered uncomfortable. The finding from the study point to three areas of opportunity to develop solutions. These include:

- Collaboratively designing public transportation routes to meet growing users' needs, while discouraging concentration of different modes of public transport on select routes
- Creating incentives to nudge behavioural change in users and operators to abide by traffic laws and reduce congestion
- Creating and making information easily accessible to improve user experience of public transportation system

This report includes a section on the multi-stakeholder design workshop (16 to 18 November, 2016) that was held to co-create and test solutions based on the above-mentioned opportunity areas. As a result of this workshop, three solutions were proposed by the participants. Viable prototypes of the proposed solutions will be developed during the incubation phase in early 2017.


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Jl. Rajawali
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Jl. Adiyaksa
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Jl. Hertasning

INTRODUCTION

The city of Makassar, with a population of roughly 1.3 million people (2010 census), is keen on reshaping itself into a "Sombere (Kind-Hearted) and Smart City". The city has adopted several innovative solutions to improve public services[1], and is now focusing on improving the public transport system and easing traffic congestion.

However, several challenges persist in developing a people-centric public transport system. These include: (1) lack of relevant and recent data on mobility patterns, (2) user needs[2], (3) unreliability of different modes of public transport, (4) lack of information on service providers' challenges, (5) mismatch between demand and supply, and (6) lack of coordination between provincial and city administrations to improve routes, especially the Bus Rapid Transit (BRT) network. In addition, many of the city's initiatives (such as the "Smart Pete-Pete") were still in planning stages at the time of this study.

The City of Makassar and the local Department of Transportation (DISHUB) are keen on finding innovative solutions to address current challenges and improve the city's transportation network. The city has sought UNDP's assistance in understanding how it can encourage more reliance on the city's public transportation system and reduce traffic congestion.

THE RESEARCH FOCUS

The focus of the study is to obtain an overview of the mobility context of the people of Makassar and to map user experience journeys to understand:

- Public mobility habits, needs, and challenges
- Transport preference of the public (disaggregated by gender, age, etc.)
- The context (how, where and when) in which people access public transport

The research used a combination of different research methodologies, such as mini exploratories, digital diaries, and in-depth interviews with users and drivers of different modes of public transportation, to better understand people's mobility patterns and attitudes toward the various modes of transportation.

[1] Makassar's Data Revolution https://govinsider.asia/innovation/makassars-data-revolution/

[2] The last survey to determine the number of vehicles (Pete Pete) required for providing adequate services was conducted in 2007. From interviews with DISHUB.

The user-research

RESEARCH QUESTIONS

What are the challenges faced by the city in providing an effective and efficient transportation system for the public?

How can a better transportation system that meets the public needs be designed?

RESEARCH APPROACH

a. Mini Exploratory Study

Objective:

To collect information on the different modes of public transportation, and gather preliminary user experience in relation to the different modes of transport available.

Approach:

- Tested several types of available transport modes, both formal and informal.
- Conducted initial informal interviews with fellow travellers.

b. Digital Diary Study

Objective:

To gain an overview of people's' mobility pattern during the day, based on their daily activities.

Approach:

Diary study using Whatsapp/LINE applications

The objective was to document respondent's activities throughout the day, with a specific focus on their travel experience in getting from one point to another. Users were encouraged to share (via whatsapp and/or LINE) stories, images, and videos that describe (a) how they get from one point to another, (b) what they see, (c) how they feel throughout the journey (including pain points and surprises), and (d) their habits while undertaking the journey.

c. In-depth Interviews with Users

Objective:

To gain a deeper understanding of people's mobility and its impact on their lives, and to validate the findings gathered during the digital diary and first-hand experience exercises.

Approach:

Conducted interviews with people to understand:

- Their daily activities
- The reasons for using public transportation, or not using public transportation
- Their feedback on some "sacrificial" concepts (ideas/concepts of services/platforms that could improve traveling experience)

d. Interviews with Drivers of Different Types of Public Transport

Objective:

To understand the drivers' points of view and to learn about their expectations as service providers

Approach:

Conducted interviews with drivers to understand:

- Their daily activities
- Their experiences, needs, and challenges as service providers

ANALYSIS

Affinity diagrams were used to organize and analyse data from the digital diary study, and interviews. The main findings from the research are described below.

RESPONDENTS

In total 26 respondents were interviewed. Of those respondents, 8 were public transportation passengers, 4 were private car owners, and 6 were motorcyclists (2 workers and 4 university students). We further interviewed 8 public transportation operators (1 bus driver, 3 petepete drivers and 4 bentor [rickshaw] drivers). Only 9 of the 26 respondents did the digital diary study. Participants were asked to do the diary study for 3 days: 2 weekdays and 1 weekend day.

The Mayor of Makassar, and the employees of the local DISHUB were also consulted on the current state of, and the future of the city's transportation system.

Main findings

Picture 2: Public transport modes: (left to right), BRT, petepete and bentor

TRANSPORTATION IN MAKASSAR AT A GLANCE

In general, there are two types of public transport in Makassar: formal and informal transport modes. The only formal transport mode is the city bus known as Bus Rapid Transit (BRT) or Trans Mamminasata. These buses are new (operational since 2014), comfortable and clean. Based on the digital diary study submitted by the passengers, however, we found that these buses are unreliable. Passengers do not have access to clear and reliable information on when the buses would arrive or leave a bus stop. Furthermore, as bus stops are far-apart from each other, this forces passengers to either walk a considerable distance or take another mode of transport to reach the next bus-stop. The unreliability of these buses has led to an increase in the popularity of informal modes of transport.

Informal modes of transport are usually owned by private individuals. As shown in Table 1, only some of them are regulated by the government. *Becak, bentor, gojek and gocar,* for example, do not have permits to operate but, at the same time, these modes of transport are not prohibited either.

The *petepete* is similar to a minibus. it is the most commonly used public transport. However, its popularity has decreased in the past 10 years. In 2015 there were 4,113 petepete[3] and, according to the DISHUB, there are approximately 3,000 vehicles plying on the streets. The Makassar City Government plans to launch redesigned vehicles, "Pete-Pete Smart", to replace existing *petepete* and encourage more people to take public transportation. The Makassar City Government has stopped issuing permit extensions for existing petepete, and approving purchasing of old *petepete* models.

Provided by			Permit	Route
Formal	City Bus	Government	Regulated	Regulated
Informal	Becak, non motorized	Private	Not regulated	Only travels short distances, usually in housing complexes
	Bentor (becak, motorized)	Private	Not regulated	Operates everywhere, except for a few main streets
	Taxi	Private	Regulated	Operates everywhere
	Petepete	Private	Regulated	Regulated
	Online transport services (Gojek[4] or Gocar[5])	Private	Not regulated	Operates everywhere
	Car and motorbike rental	Private	Only some are regulated	Operates everywhere

Table 1.
Modes of public transport in Makassar

"Pete-Pete Smart" is designed by the Mayor of Makassar himself, inspired by the public transport system of Curitiba city, Brazil. The current *petepete* is notoriously uncomfortable and unsafe, as most of them are quite old. The "Pete-Pete Smart" is expected to be wider and more spacious, allowing riders to either sit or stand. It will be equipped with air conditioning and Wi-Fi facilities. It will be the feeder for the BRT, and will also reach the alleys of Makassar. Although "Pete-Pete Smart" has received full support from the city, it is still in its planning stages at the time of this study.

[3] Organda (Pete-pete organization) data, 2015
[4] GOJEK: https://www.go-jek.com/
[5] GOCAR: https://www.go-car.co.id/
[6] http://makassar.tribunnews.com/2016/07/14/dinas-perhubungan-makassar-heran-pengusaha-ogah-ikuti-tender-petepete-smart
[7] http://makassar.tribunnews.com/2016/08/22/foto-halte-smart-jl-cendrawasih-makassar-tidak-difungsikan-kini-berdebu-dan-kusam

Transportation challenges

What are the challenges faced by the city in providing an effective and efficient transportation system for the public?

- **Significant increase in the number of private vehicles in Makassar**
  Respondents complained about the increase in the number of private cars and motorbikes on the street. There are currently 1.1 million motorcycles and 1.3 million cars in Makassar[6], a significant increase from 527,040 private vehicles in 2004. To further complicate matters, the infrastructure of the city has not been improved. The low down-payment for buying vehicles was repeatedly mentioned as the main reason for the increase in more people buying new vehicles (Box 1). Respondents mentioned that the government should apply stricter rules in giving permits to new cars. Rules, such as high taxes for second cars per Kartu Keluarga ("Family Card": a card that lists all individuals who live at an address) or prohibition of low down-payments, should be imposed.
- **People use private transportation to avoid traffic jams**
  People use private cars and motorbikes to avoid traffic jams. They claim that because petepete and buses have specific routes they are not convenient. People use private cars or motorbikes to take shortcuts during traffic jams.
- **Different modes of transport operate on the same route**
  Petepete and *bentor* drivers highlighted the need for, and the importance of having "boundaries". With the availability of various modes of public transport, defined routes and boundaries to operate the vehicles should be imposed. This way all modes of transport can become part of a mutually-supporting system (Box 2). For example, buses can become primary modes of transport, while other modes can serve as feeders for buses.

BOX 1: PRIVATE CARS AND MOTORBIKES CAN BE BOUGHT WITH VERY LOW DOWN-PAYMENTS

We asked three car salespersons about their own use of private vehicles, and about Makassarnese car-purchasing power. For work, these salespersons used their private vehicles to travel, and visit clients. If they had to take public transportation to visit their clients, their travel would require too many transfers and their work would not be efficient. The salesperson explained how easy it was to sell a car or a motorbike: "People can buy a motorbike with a down-payment as small as Rp. 500.000 or Rp. 5.000.000 for an Avanza (a model of a car), and many people do this even if it takes them 9 years to pay for their vehicles in installments."

BOX 2: NO TERRITORY/BOUNDARIES FOR DIFFERENT MODES OF TRANSPORT

Territory/boundaries should be imposed. As one of the petepete drivers explained: "Becak used to be a feeder mode for us. We can operate on the main streets and becak can only operate in the alleys. We bring passengers for the becak drivers and vice-versa. Now the becak are becoming bentor and are also on the main streets bringing passengers and taking the same routes as us." He further explained the difficulties that *petepete* drivers face, "We have to pay tax and license to take passengers to the government while they don't."

[6] South Sulawesi Traffic Directory, 2016

- **Private vehicles take passengers from door to door and are also cheaper**
  Respondents prefer private vehicles mainly because they can travel from point A to B without any waiting time, or having to transfer to another mode of transport. Surprisingly, the cost of taking private transportation is cheaper than the public transport (Box 3).
  Even when people do not have access to private vehicles, they take public transportation that offers the same advantages, such as *bentor*, *ojek* or taksi. These modes of transport have no specific routes that they have to follow, and thus can take passengers from door to door. Currently, online transport services such as Gojek or Gocar are popular in Makassar. People are increasingly using these applications because they are cheaper than ojek or taxis and can be pre-booked online. Furthermore, they also offer privacy, as one does not need to share vehicles with other people.

BOX 3: COST FOR PUBLIC TRANSPORTATION

During our diary study, we met a passenger who described how expensive it is to take public transportation. "Every day I go to my office, I take either a *bentor* or a taxi. A *bentor* costs me Rp. 10.000 and a taxi costs me a little more than Rp. 10.000. But I usually take a *bentor* because they are always available at the end of my street. So in a day, if I would only go to my office and back, my trip would cost me Rp. 20.000. In a week, it would be Rp. 100.000. It could be cheaper to take a petepete, but I would have to walk. If I rode a motorcycle, I would spend Rp. 20.000 for the gasoline and that would be enough for me to use it for a week. So you can see the difference. Unfortunately, the streets are so busy nowadays that I am afraid to ride my motorcycle."

- **Pride in using private vehicles**
  For most people, public transportation is their last resort. People of Makassar consider taking public transportation only when they do not have access to private vehicles. So what does it take to persuade people to use public transportation? Regretfully, we found that the mind-set shift towards using public transport rather than private vehicles will take time. Even when the ideas for a more efficient public transportation were shared (comfortable, fast and efficient), we found that people who own private vehicles were not willing to "downsize" and use public transportation. Three male respondents explained that taking public transportation is embarrassing. They even indicated that they would prefer to cancel their trips rather than use public transportation.
- **Mobility patterns differ based on the days of the week and the time of the day**
  Respondents explained that their mobility preference depends on time availability and destination. For work or school, timeliness is important to them (Box 4). Outside work or school, comfort is a criterion used for choosing a specific mode of transport.
  Petepete and *bentor* are used mainly for weekdays, as these modes of transport require almost no waiting time. Buses, although they are comfortable, are not popular during the weekday. Buses are considered unreliable and mainly used during the weekends for leisure purposes.

BOX 4: THE MOBILITY PATTERN OF A HIGH SCHOOL STUDENT

"Usually, my mother or my father would take me to school using family car because I cannot be late for school. If there is a traffic jam near my school, I can just stop anywhere I want and run to school. It is a different story when I want to go home. Sometimes after school, I want to go to the mall with my friends. I then take a bus because it has AC and the buses can take me and my friends right in front of the mall"

- **Source of income**
  When we talked to the petepete and bentor drivers, all of them indicated that driving these vehicles was their main source of income. Many of them do not own the vehicles, but only drive the vehicles for others. This means that a part of their income will go to the owner of the vehicle. To augment their income and cover their expenses, they need to do their best to find passengers.

- **Public transportation is only used by specific demographics**
  Women and students are the main users of *petepete*, especially on the weekdays to run errands. On the weekends, however, they have other options, such as being driven by their husbands or other family members. Hence, the use of *petepete* by women is less during the weekends. One question addressed to women during the digital diary study was whether they had access to private vehicles. We found that most of them had access to private vehicles, but they often did not use these vehicles as they were afraid of causing accidents on the road.

BOX 6: A PETEPETE DRIVER'S REGULAR DAY

We met and interviewed a group of *petepete* drivers at a *petepete* terminal at around 10.00 am. When we arrived, they were having coffee together and chatting. When we asked about their experience as drivers, they complained about the decrease in the number of passengers over the years.
"I usually start driving passengers pretty early. My main customers are women who go to the market. Other than the women, I also take students as passengers. They have to go to school at 7. So by 7am, I usually get enough passengers. However, it is very difficult to find passengers after that. That is why we are here [hanging out at the terminal] and only drive the petepete again just before lunchtime."

BOX 7: A *PETEPETE* DRIVER'S REGULAR DAY AND EXPENSES

"I pay Rp. 75.000 per day to rent a *petepete*. On top of that, I spend another Rp. 75.000 on gasoline. What's left after that is my profit." When asked about his take-home income, after the car rent and gasoline, he answered "at least 50.000." He then added, "You understand why I have to attract passengers. We are just looking for small amounts of money here. I have to provide for my family and I still need to pay for my coffee and cigarettes."

Opportunity areas for designing efficient transportaiton system

Based on the insights and findings highlighted in the above section, How can a transportation system that meets people's needs be designed?

Picture 4 approaches to designing transportation systems

The three distinct approaches to designing a transportation system are highlighted in the above diagram. Based on these approaches, and the study's findings, the research team has identified the following opportunity areas.

1. **Service-oriented opportunity areas:** How can the transport system services be improved for target users? What are the users' criteria for a good transportation system?
2. **Mechanism-oriented opportunity areas:** How can the traffic in the city be distributed, and avoid congestions? How to support shared mobility solutions?
3. **Human-oriented opportunity areas:** How can people's attitudes towards public transportation be changed? How can the public transportation operators (drivers) be supported to gain additional income?

At the same time, the different opportunity areas are connected and interlinked, and one solution could address several or all opportunity areas - thereby creating an efficient transportation system that fulfil users' needs.

Service Oriented Opportunity Areas

- **Providing better services to users.**
  A good transportation system should cater to the needs of people from different backgrounds. Developing such as system, is a long and slow process. The first step is to maintain the number of current users of public transportation, and offer them services that they require. At present, women market-goers and students are the target users of the *petepete*. Increasing the space in the vehicles, for example, can allow more people to travel, and also carry their shopping bags and luggage. Students need for an effective and efficient transport mode, which assures them to be at school on time. "Pete-Pete Smart" could be a solution for this.
- **Efficient and reliable transportation services.**
  There is more than one criterion to define a good public transportation system. Each criterion depends on the purpose of the trip. Efficiency and reliability are key for work and school trips. They are more important than comfort. However, when time is not essential, people tend to seek comfort rather than reliability.

- **Smart transportation system.**
  Modern technologies can be used in designing smart transportation systems. A smart traffic system, for example, can be designed to track the number of vehicles on the street and display information on possible route congestions[7]. During our observations, we found that there are several billboards near the traffic lights in Makassar, but they are mostly used to present general information such as holiday greetings or advertisements. With the information fed by the smart traffic system, these displays can be used to inform public about real-time traffic conditions.

Mechanism Oriented Opportunity Areas

- **Better information on routes and traffic jams**
  At present, people in Makassar, especially those who travel from North to West or vice-versa, are taking the same main streets, resulting in congestion during peak hours. Information about possible shortcuts/alternative routes, and traffic jams could be an answer to reducing congestion. WAZE application, for example, allows drivers to share real-time information on traffic and road conditions[8]. This application is already available in Makassar.
- **Establishing specified routes for different modes of transport**
  There are no "boundaries" for operating different modes of public transport. They operate on the same route and hence compete for the same groups of passengers. To address and improve livelihood opportunities of the operators (drivers), experiment with setting routes or defined areas for different modes of transport can be considered. For example, bentor can operate in certain housing areas and serve as a feeder for petepete and buses. Similarly, *petepete*

[7] McCain, a traffic technology corporation, http://www.mccain-inc.com/

[8] WAZE, community-based traffic and navigation app, https://www.waze.com/

should not be allowed to enter housing areas.

- **Information on private car sharing**
  Car-sharing system can be promoted for people travelling in the same direction or destination. An online system that allows drivers to upload and share their travel plans can be developed. Interested passengers can contact, and travel with the vehicle owners for a fee. This mechanism has many advantages. It not only reduces traffic but also is an opportunity for vehicle owners to earn additional income.
- **An organized transport system for schools and offices**
  For places such as schools and offices, a specific fleet mechanism can be implemented. An empty land can be used as a drop-off point where people can take a fleet car to go to schools or offices. This land can also be used as a parking place for those who want to take the fleet car.

Human-oriented Opportunity Areas

- **Rewarding people for taking public transportation or walking**
  Public transportation is the last resort for many people. Even when a scenario of a more advanced and reliable public transportation was presented by the researchers, respondents who owned a car or motorbike were still reluctant to use public transportation. A few respondents admitted that having a private vehicle is a matter of pride. Furthermore, many respondents complained that walking was not convenient in Makassar. They prefer to use a vehicle even for very short distances. A smart way to encourage or reward people for taking public transportation or walking (in addition to improving the sidewalks) could be a solution. For example, Bounts is an application that encourages people to walk by offering them vouchers and rewards[9].
- **Improving drivers' behaviour**
  Bad driving practices was mentioned as one of the causes of traffic jams in Makassar. Offering training in safe driving techniques can prevent traffic jams and minimize accidents. Furthermore, a system can also be developed to monitor and record driving incidents such as driving through traffic lights or speeding and eventually penalize (fines, etc.) drivers for violating traffic rules.
- **Providing alternative means of livelihood for the drivers**
  As described above, driving a *petepete* does not provide sufficient income for the drivers. Therefore, new ways of providing additional income for the drivers should be explored. For example, the government can provide skills training such as plumbing or gardening, or establish a platform where people can advertise or seek additional side jobs. Another mechanism for improving drivers' income is to think of additional uses for different modes of public transportation. For example, the vehicles could be used as an advertisement platform for commercial products, or repurposed for specific target groups such as people with disabilities or students.

RESEARCH TAKEAWAYS

The use of different modes of public transportation such as buses and *petepete* is limited and many prefer to use private vehicles. Buses are considered unreliable and petepete are considered uncomfortable. But the main reason for not using public transportation is because people would like to travel from point A to B with minimal or no transfers. Only private vehicles or transportation such as bentor or others would satisfy this requirement.

It will take a lot of effort to persuade people to use public transportation in Makassar. Pride plays a role and having a private vehicle is easy and less expensive, as the down payment for purchasing a vehicle is low. Public transportation is now mainly used by specific groups of users, i.e. women and students.

[9] Bounts, https://www.bounts.it/

Translating research insights to opportunities for innovation

UNDP conducted a one-day workshop to discuss research insights and to identify missing opportunities that could be further tested through a multi-stakeholder design workshop. The workshop was attended by Dinas Perhubungan (Department of Transportation) of Makassar City Government, Pulse Lab Jakarta and Bakti, a knowledge-exchange hub for Eastern Indonesia based in Makassar. All of the stakeholders agreed to focus on the following areas:

Service	User-based routes: Collaboratively design public transportation routes to meet growing user's needs, while discouraging concentration of different modes of public transport on select routes
Behaviour	Creating incentives and nudging behavioural change of users and operators to abide by traffic laws and reduce congestion
Information	Creating and making information easily accessible to improve user experience of public transportation system

A multi-stakeholder workshop was organized in November 2016 to develop solutions that address the above mentioned challenges and facilitate the development of a better public transportation system in Makassar. Participants were invited from different walks of life, and from a variety of institutions, including: the Department of Transportation, Provincial Transport Authority, Pete Pete Drivers/Owners' Association, private sector, designers and creative community, service providers, media, and CSO. The multi-stakeholder approach helped to bring together sector expertise with a wide variety of users' perspectives, and also allowed for new opportunities and approaches to be identified.

The workshop adopted a human-centred design method, in which participants went through a set of human-centred design processes, including ideation, fieldwork, research synthesis, and prototyping. Through this process, participants were exposed to the direct users of the proposed solutions. This enabled participants to design solutions for a better public transportation system that could cater to the needs of the people of Makassar. Participants also designed prototypes of the solutions which were then presented to the DISHUB.

OVERVIEW OF SOLUTIONS

Participants were divided into 6 teams. Each team chose a challenge to address out of the 3 available challenges: a) user-based routes, i.e. designing public transportation to fit the needs of their users, b) influencing behavioral change of commuters, and c) making information easily accessible to improve user experience of public transportation system.

Proposed solutions from each team are listed below:

TEAM 1: 'MAKASSAR FOR ALL'

One way to repurpose otherwise-idle petepete vehicles would be to transform a portion of it into Petepete Jumbo, a charter petepete service used specifically to cater to those carrying heavy load.

The prototype includes a single petepete route that circles around the city and petepete stops in strategic areas of the city. In addition, the group also created a prototype of a disability-inclusive petepete system, including ramps within the vehicles and terminals.

TEAM 2: 'HATE - HALTE PETE PETE' (PETE PETE TERMINAL)

The focus of this team was on designing efficient and user-friendly designated petepete stops. In order to attract commuters to wait in the area, facilities will be provided, including water fountain, phone chargers, and an inspiration/aspiration board for users to express their thoughts on public transport, thus encouraging public participation in shaping service delivery.

TEAM 3: 'PASIKOLA'

The team focused on developing a complete solution to repurpose petepete to provide reliable school transport system for elementary and junior high school students, and also encourage behavioural changes of drivers through campaigns and specific initiatives, such as ethics and professionalism training to Pete Pete Pasikola (school) drivers and a campaign animation movie to raise awareness and collaborate with relevant stakeholders to establish the "pasikola system". In addition, an integrated smart card with student cards could also be developed for easy payment system.

TEAM 4: 'AYO BERUBAH SMART!' (LET'S BECOME SMART!)

Revamping vehicles to attract commuters to use petepete: By taking into consideration various factors such as comfort and safety, vehicles will be redesigned and modified to include facilities such as air conditioning, comfortable limited seating, and smoke-free space. Vehicles will also have an operational expiry date of 15 years maximum and each vehicle will be required to undergo usability testing.

To support the ecosystem, the team will also prototype a safe space for users. The designed service includes the introduction of maximum operational hours for the drivers and improving vehicle features such as better interior lighting, clear windows, comfortable seats, etc.

TEAM 5: 'BAJIKIA'

Providing a feeder system so that idle petepete vehicles can be used not as a main transport vehicle, but as a feeder vehicle that connects commuters from their homes to other transport modes (such as BRT) and to public spaces such as malls, markets, and schools. To improve commuters experience and comfort, facilities such as wi-fi, cafes, etc, will be added to existing and new shelters and terminals. In addition, an e-ticketing service that allows commuters to pay for all public transport using one ticket for the whole day can also be developed.

TEAM 6: 'E-NASSAMI':

Public Transportation Tracking System: To install GPS to track bus movement. In the future, this tracking system can also be installed in other modes of public transport such as Pete-Pete Smart.

E-Nassami: The GPS tracking is an important first step in constructing an integrated database system. The system will aim to provides real-time information on bus waiting time, bus stop location and other transportation-related information so that users can better plan their commute and travel. The system can be accessed both offline and online.

Campaign: To ensure public use of the proposed database, the team also proposed a public campaign to raise awareness, including through pamphlets, comics, booklets with information on routes etc., .

Moving forward

The workshop has not only successfully uncovered opportunity areas that were previously overlooked in redesigning the Makassar public transportation system, but it also served as a forum to bring together a variety of stakeholders to discuss their aspirations for change.

By giving voice to the unlikely 'heroes' for change, such as teachers, users, and creative industry practitioners, the workshop successfully brought in new perspectives to solve urban issues. Further, allowing participants (specifically those working in the transport sector) to field-test their assumptions and ideas has helped to build a sense of empathy among participants and increase their ability to think of more user-centric solutions.

On the other hand, providing a safe space for a diverse group of participants to discuss has helped to establish an informal multi-stakeholder network. Many participants indicated that the workshop provided an opportunity for them to collaboratively engage with other stakeholders, rather than the usual contentious discussions between different stakeholders during official meetings. Participants have also revealed that while they initially thought it may be difficult to gain support from other stakeholders, the workshop has opened up an opportunity for everyone to participate and help create a better Makassar.

To fully capitalize on the energy and interest of the teams from the workshop, the six solutions were collated into three clusters, in which all three are eligible for incubation. The clusters are:

Repurposing petepete to provide specialized service.

Feeder routing system and bus/pete pete stops design

Improving offline and online access to information on public transportation services.

During the incubation period, participants will receive strategic and technical assistance to better shape their prototype into ready-to-pilot models, or what is commonly known as the Minimum Viable Product or MVP.