ASIAN TRANSPORTATION RESEARCH SOCIETY

Successes, failures, and futures of shared micro-mobility services in Bangkok

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CHAPTER 1 INTRODUCTION

1.1 Background

Shared micro-mobility (SMM) services have become well known as a promising solution to the sustainability of the urban transport system. SMM refers to a range of light-weight devices or mini-vehicles that operate at speed typically less than 45 kph. The services are provided for users through sharing schemes (Dias, Arsenio and Ribeiro 2021). Examples of SMM services include e-scooters, shared bicycle and e-bicycle, all of which can be stationed or free-floating. Research has identified the roles of micro-mobility in providing flexible, sustainable and affordable modes of transport that can reduce private vehicle dependency for short-distance travel (Shaheen et al. 2020, Tiwari, 2019).

While there are positive prospects for SMM services to the urban transport system in enhancing accessibility and reducing private vehicle dependency, the success of these services is still limited. Only a handful of cities, such as Zurich, Vienna and London have reported some successes of SMM operations and adoptions. SMM services in other cities, such as Ofo bike sharing in Amsterdam, have not been successful. For cities in developing countries, such as Bangkok, the success of SMM services is even more negligible. The attempts to launch several SMSS initiatives in the past decade have not been fruitful; SMM schemes in Bangkok, such as Ofo, Mo bike (shared bicycle) and Neuron (shared electric scooter) drew much attention at the time of their launches but have since ceased their operations. Other schemes, such as Pun Pun (shared bicycle), are still in operation, albeit with restricted adoptions and usages.

Despite the lack of success of SMM services in such cities as Bangkok, there is still a clear need to support future implementation of SMM services as a sustainable urban transport solution. In the broader picture, SMM services can provide travelers with first-mile and last-mile connections that complement public transport services, serving as a viable alternative to private vehicle use. Moreover, SMM can be among the different mobility solutions that provide an integrated and personalized door-to-door transport concept, purported in Mobility-as-a-Service (MaaS), that shifts from ownership-based to an access-based mobility paradigm.

In this study, we contribute to the stated field by carrying out a systematic approach to review and reflect on the underlying reasons and factors that prohibited SMM services from being successful in Bangkok. We adopt research frameworks that help to explain the successes and failures in adoptions of innovation transport service, such as the Multi-Level Perspective (Geels, 2001), and integrate them with a system perspective approach in System Dynamics to identify the causal relationships between identified factors. In doing so, we seek to provide answers to these research questions:

- What are factors that influence their successes and failures of SMM services in general and in Bangkok?
- What are the interactions between these factors? And how are they differing in each case?

- What were/are the intended roles and value proposition of these services within the transport system and how were they implemented and to what end?

- What can be learned from the incumbent transport services in Bangkok that have similar roles or provide similar services, such as motorcycle taxi?

- What are the factors that can contribute to a successful SMM service and its role as a sustainable transport service in Bangkok? What policies and measures can contribute to this end?

The scope of this study includes the shared micro-mobility services, such as shared e-scooters and shared bicycles operated both in closed areas (accessible to a limited group of users e.g., university campus) and those operated in a publicly accessible area and within the proximity of mass transit stations (i.e., those serving as first-mile and last-mile connections). In this research project, we aim to carry out the following activities:

1) A literature review on the factors that influence successes and failures of SMM services in different contexts. We examine peer-reviewed scientific publications and include grey literature that are relevant to ensure the comprehensiveness of our review.

2) Interviews with relevant stakeholders, such as service providers and decision makers to ascertain the influencing factors for successes and failures of SMM in Bangkok (approximately 20 interviews). The interviews will be transcribed and analyzed, using Multilevel Perspective framework (MLP). We will also account for new and emerging trends that can affect SMM services, such as COVID-19 pandemic.

3) Comparisons of the contributing factors identified in (1) with SMM in other contexts (e.g., Western cities or other developing cities) and identified in (2). We also compare the factors with those that contribute to the success of the incumbent mobility services in Bangkok (e.g., motorcycle taxi), identified through literature review and the stakeholder interviews.

4) Focus group meetings for experts to discuss findings of 2) and 3) and to elicit the interconnectedness between the identified factors. We use a qualitative approach in System Dynamics modelling in form of causal loop diagramming method to capture the proposed relationship. We also quantify experts' agreements of factors and identified relationships.

5) Expert meetings with policymakers to discuss policy implications of the findings and provide a policy to outline the findings of this research project.

1.2 Research Objectives

To achieve the goal of the study, the objectives are five folds:

1) To determine the factors that influence the successes and failures of SMM services in general and in Bangkok.

2) To determine the interactions between the factors.

3) To determine the policies and measures that are related to and support SMM in Bangkok.

The outcomes of this project are expected to provide useful insights for future SMM service providers in Bangkok. Policymakers and transport planners can also use the knowledge to plan and design measures and policies to support SMM as a sustainable transport solution.

1.3 Research Framework

This research project consists of 4 tasks, each of which expects different outcomes. The details are as follows:

- Task 1: Literature review
- Task 2: Undertaking an analysis of successes and failures
- Task 3: Creating a system dynamic model of existing and potential roles
- Task 4: Reporting
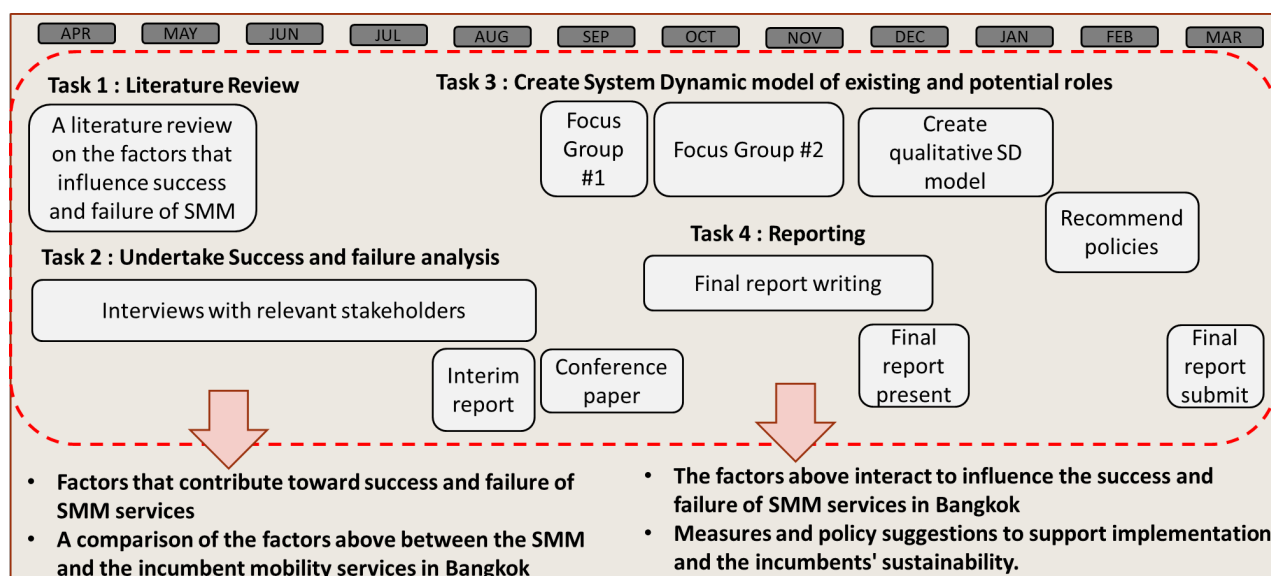
The research framework is illustrated in Figure 1.1.

Figure 1.1 Research Design Framework

This research is composed of 3 key tasks, including identifying the factors that influence successes and failures of SMM, interviews with relevant stakeholders for the analysis of successes and failures, and finally, the arrangement of a focus group to create a system dynamic model of existing and potential roles and determined recommended policies. The details are as follows:

Task 1: Literature Review

In the first step of this research, the researcher team reviews relevant literature on the following elements:

- Shared mobility
- Factors that influence the successes and failures of SMM
- Policies relevant to SMM

Task 2: Undertaking an analysis of successes and failures

To understand the successes and failures of SMM in Bangkok, we reviewed identified key stakeholders of the shared micro-mobility in Bangkok and set up interviews with them. The interviews were guided by a set of questions that help to identify the factors that influence the successes and failures of SMM. After the interviews, we will summarize and analyze interview transcripts by using the MLP framework.

Task 3: Creating a system dynamic model of existing and potential roles

To have an understanding of the roles of relevant stakeholders in SMM, we set up two workshops with the relevant stakeholders. We monitored and processed the outputs between each session. The sessions involve a combination of focus group techniques, the qualitative SD model and feedback identification from relevant stakeholders. The outputs of this session include a system dynamic model of existing and potential roles and recommended policies to support SMM in Bangkok.

1.4 Project Schedule

The duration of this study is 12 months, starting from April 2022 to March 2023, as shown in Table 1.1.

Table 1.1 Schedule/timeframe of the project

Task	2022									2023		
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Task 1 – Literature review												
Literature Review	■	■										
Task 2 - Undertaking Success and failure analysis												
Desktop study	■											
SMM service providers' IDs and contacts		■										
Interviews with 20 stakeholders			■	■								
Summary and analysis of the interview transcripts using MLP framework				■	■							
Task 3 – Creating a System Dynamic model of existing and potential roles												
Focus Group #1						■						
Focus Group #2							■	■				
Create qualitative SD model									■	■		
Recommended policies											■	
Task 4 - Reporting												
Inception report due	■											
Conference paper						■						
Interim report presentation				■								
Interim report submitting						■						
Final report writing							■	■	■			
Final report presentation										■		
Final report submission												■

CHAPTER 2   LITERATURE REVIEW

This section presents a literature review by using the systematic literature review method on shared mobility, factors influencing the successes and failures of SMM and policies relevant to SMM.

2.1   Systematic Literature Review Method

The systematic literature review method is different from the traditional literature reviews and has several advantages, including making the results less biased and providing an exhaustive outcome.

The systematic literature review methodology starts with a pre-determined and documented review protocol that allows researchers to identify their research objectives, questions and methods to perform the review.

The systematic literature review methodology relies on a clearly defined search strategy to structure and classify the literature and identify gaps in knowledge. The methodology also uses sophisticated search engines that comprise inclusion and exclusion criteria to filter and categorize relevant studies. The systematic literature review methodology includes the following tasks as shown in Figure 2.1 (Abduljabbar, Liyanage, and Dia 2021).
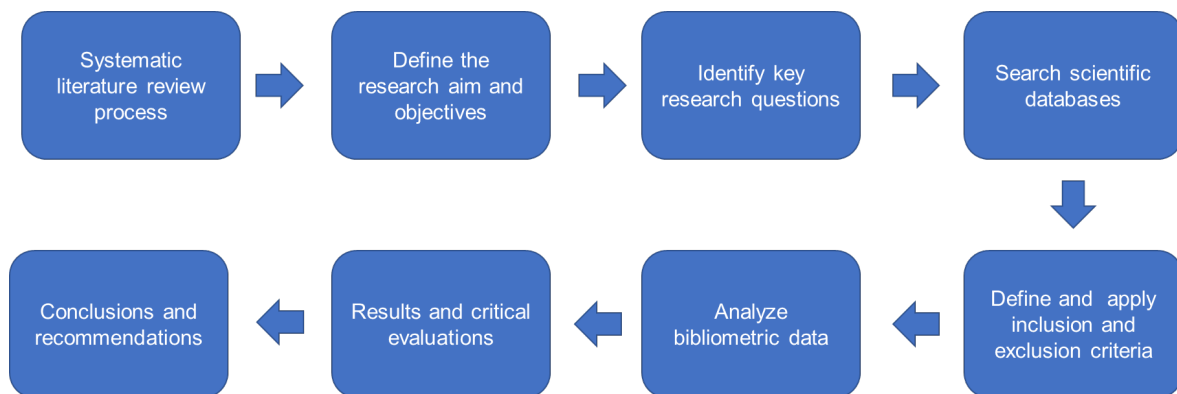

Figure 2.1 Systematic literature review process

In the literature review session, the research team used the systematic literature review method to find the related literature. We started the session by finding related articles and searching for keywords. We then excluded some articles based on the paper title, abstracts and article contents. Lastly, the snowballing technique was used to include additional papers in the analysis (see **Error! Reference source not found.**).
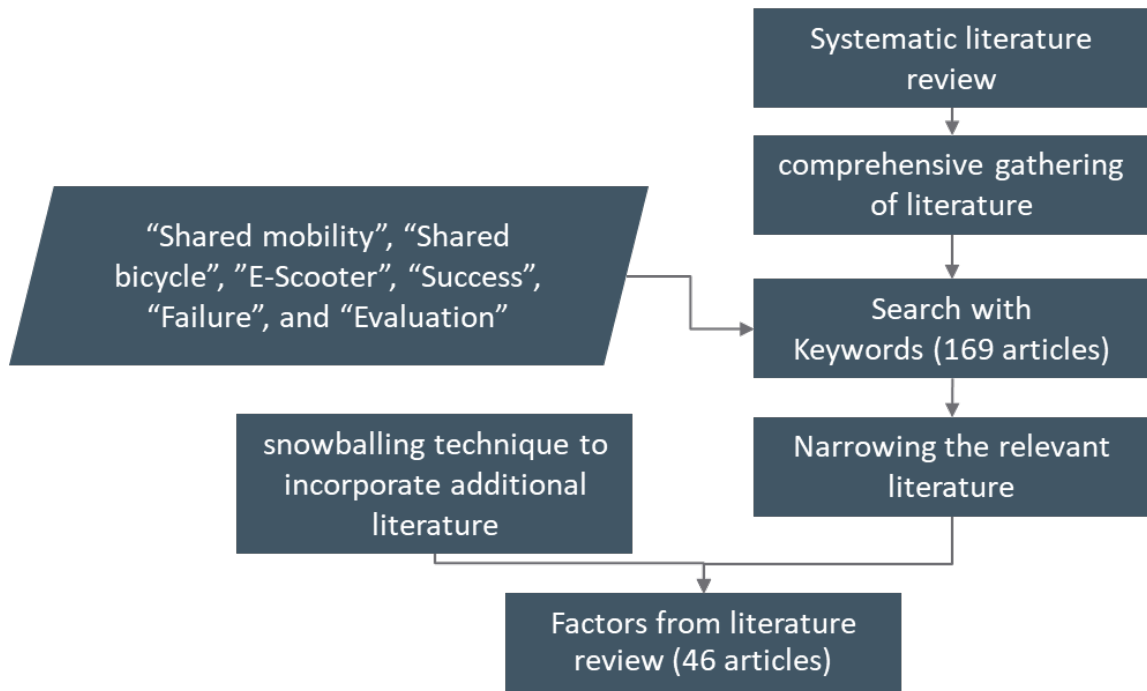
Figure 2.2 Systematic literature review of research

In the first step, the literature search was conducted in Web of science database under 5 keywords: "shared mobility"," shared bicycle", "e-scooter", "success", "failure", and "evaluation". Other criteria included 1) only journal articles, 2) only journal articles published between 2018 and 2022, and 3) only English journal articles. A total of 169 relevant articles were found using this set of search criteria.

Subsequently, we screened out the irrelevant literature based on their titles, abstracts and article contents. We also snowballed additional articles that were not included in the systematic literature review. As a result, 46 articles were included in this step.

2.2 Factor categories

Based on the 46 articles, we listed all the factors related to the successes and failures of shared micro-mobility services. The examples for the 124 factors resulting from the analysis are illustrated in Table 2.1 and Table 2.2. All factors are categorized into 9 groups, which are city infrastructure, customer service, geography, institution and governance, personal, safety and crime, social, technological and travel characteristics.

Table 2.1 Success factors of the shared micro-mobility services mentioned in the 46 articles.

Success factors	Description
Marketing strategy	Operating agencies should incentivize potential users to encourage them to become frequent riders.
Physical of roads	City downtowns are typically suitable places for the e-scooter system.
	The success of e-scooter sharing in a densely populated and constantly busy downtown area.
	Closed areas may be suitable for the launch of the system.
Short trip	Successful e-scooter sharing systems especially for short trips and last-mile trip.
First-mile/last-mile trip	
Policy enforcement	The government dedicated this area as a very limited entry zone or no-entry for personal cars.
Awareness	Instruction and awareness, which should be provided by operations, are also crucial.
Pricing	The service-related factors e.g., pricing, safety, or parking.
Safety	
Parking	
Infrastructure investment	Controlling investment for shared mobility infrastructure by tactically increasing the number of users.

Table 2.2 Failure factors of the shared micro-mobility services mentioned in the 46 articles.

Failure factors	Description
Negative perception	The e-scooter users' concern regarding safety of riders and pedestrians.
Unavailable infrastructure	Three top ranked obstacles in Saudi Arabia are insufficient infrastructure, weather and safety.
	Insufficient infrastructure may impede the success of e-scooter sharing.
Unfavorable climate	Three top ranked obstacles in Saudi Arabia are insufficient infrastructure, weather, and safety.
	Hot weather is not suitable for launching the system.
Safety	Three top ranked obstacles in Saudi Arabia are insufficient infrastructure, weather and safety.
Capacity	Obstacles imply that e-scooters fail to satisfy certain needs, such as the capacity issue of e-scooters.
Pricing	The service-related factors e.g., pricing, safety and parking.
Safety	
Parking	
Infrastructure investment	Controlling investment for shared mobility infrastructure by tactically decreasing the number of users.
Customer service	The issue most discussed is customer service.

CHAPTER 3   SUCCESS AND FAILURE ANALYSIS

In this section, we summarize the factors that influence successes and failures from literature review, create a list of stakeholders, and create a questionnaire related to shared micro-mobility.

3.1   Factors Influencing Success and Failure of SMM

Shared micro-mobility has gained much attention and popularity as this mode of transport provides a short-distance trip option, including first-mile/last-mile services. It is a flexible, cost-effective, on-demand and sustainable alternative and can reduce private vehicle use, especially for short-distance trips (Abhishek Tiwari 2019; Regina Clewlow 2018). The increased adoption of shared micro-mobility has also helped promote a mode of travel that is favorable to health benefits. It is also recognized as an important urban mobility system that can be adapted to users' needs, either for individuals or families. It can also be used for parcel delivery in urban areas (Metrobike 2009).

Major cities around the world have implemented shared micro-mobility with a wide range of alternative vehicles for short trips. SMM has been successful in many countries. Raviv and Kolka (2013) explained that a crucial factor in the success of such a system is its ability to meet the fluctuating demands for both bicycles and vacant lockers at each station. In addition, shared systems can help cities to improve environmental issues, such as reducing air pollution, reducing inequality in access to transport, promoting money-saving and improving mobility resilience.

However, shared micro-mobility in many countries has been scarcely successful. Several studies have addressed barriers to the success of SMM. Almannaa et al (2021) said the major obstacle to deploying e-scooters in Saudi Arabia is insufficient infrastructure. Pistelok and Straub (2022) identified that there is insufficient cooperation between the private and public sectors.

Factors of successes and failures of SMM services were also obtained from the stakeholders' interviews. There are 25 organizations participating in this study, including service providers, decision makers and users.

3.2 List of Relevant Stakeholders

The researcher team determines a list of relevant stakeholders. The details are as follows:

Table 3.1 List of stakeholders

Stakeholder group	Description	Participants
Academic	Views of experts on working domain in transportation planning and a knowledge of traditional travel behavior theories	University professors
Consultants	Views of experts on the know-how in planning and designing the shared micro-mobility system	Consultants of urban transport planning companies
Enforcement agencies	Views of experts on the know-how in nationwide policies	Traffic police
		Department of Land Transport
Service providers	Views of experts dealing with real time projects and undergoing public interaction during operational stages	Shared micro-mobility companies
Decision makers	Views of experts dealing with policy frameworks by government officials (Ex. transport planner, urban planner)	Office of Transport and Traffic Policy and Planning (OTP)
		Traffic and Transportation Department
Users	Views of users on the problems while using the service	Shared micro-mobility's customers, bike club
Insurance companies	Views of users who pay money for people injured in road accidents	Insurance companies
Vendors and suppliers	Views of experts who operate the sales of micro-mobility vehicles	E-scooter suppliers

3.3 Interview sessions

A list of questions for the semi-structured interviews of the stakeholders were created. We started contacting stakeholders in the list and planned to validate at least 20 interviews from the relevant stakeholders. The questions are slightly different, depending on the contexts of the interviewers, such as Motorcycle Taxi Association of Thailand and an insurance company. We sent each respondents the questionnaire in advance, inquiring about 1) their roles in the public transportation and shared micro-mobility in Bangkok, 2) their vision of a shared micro-mobility, such

as the familiar related shared micro-mobility, the role of shared micro-mobility and the factors and measures related to successes and failures of shared micro-mobility, 3) what factors influence the success of motorbike taxi, and 4) the policies or measures that should be considered. All interviews were conducted and recorded via online teleconference service. Each interview lasted 30-45 minutes on average. The process started in May 2022 and ended in July 2022.

3.3.1   List of Questions

Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.

1. Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.
2. What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)
3. In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)
4. As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?
5. What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?
6. In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)
7. As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?
8. What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?
9. Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?
10. Results from the interview

3.3.2   Results of the interviews

The final list of interviewees comprises 25 stakeholders. They include academicians (3 organizations), consultants (3 organizations), an enforcement officer (1 organization), an insurance company (1 organization), an insurance regulator (1 organization), a motorcycle taxi association (1 organization), a land transport regulator (1 organization), a local authority (1 organization), a planning agency (1 organization), service providers (5 organizations), a transportation provider (1 organization), and users (6 users). We utilized Zoom for a 30-to-45-minute video call with each participant who was familiar with the tools (see Figure 3.1 and Figure 3.2).
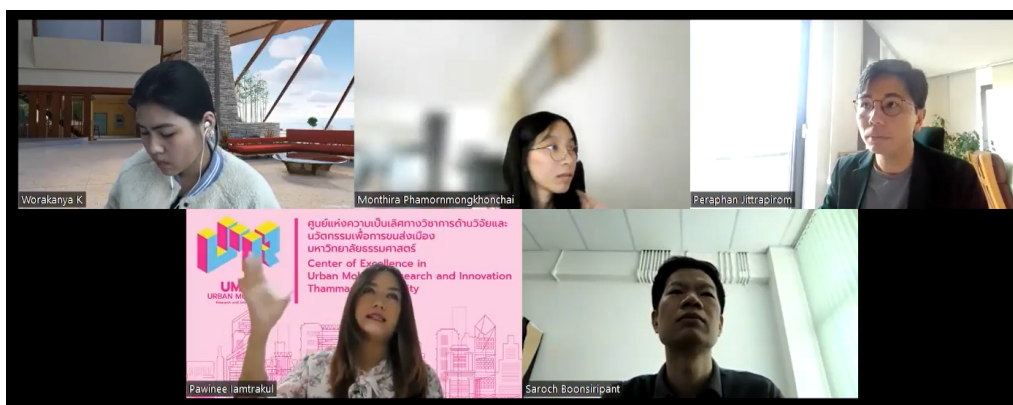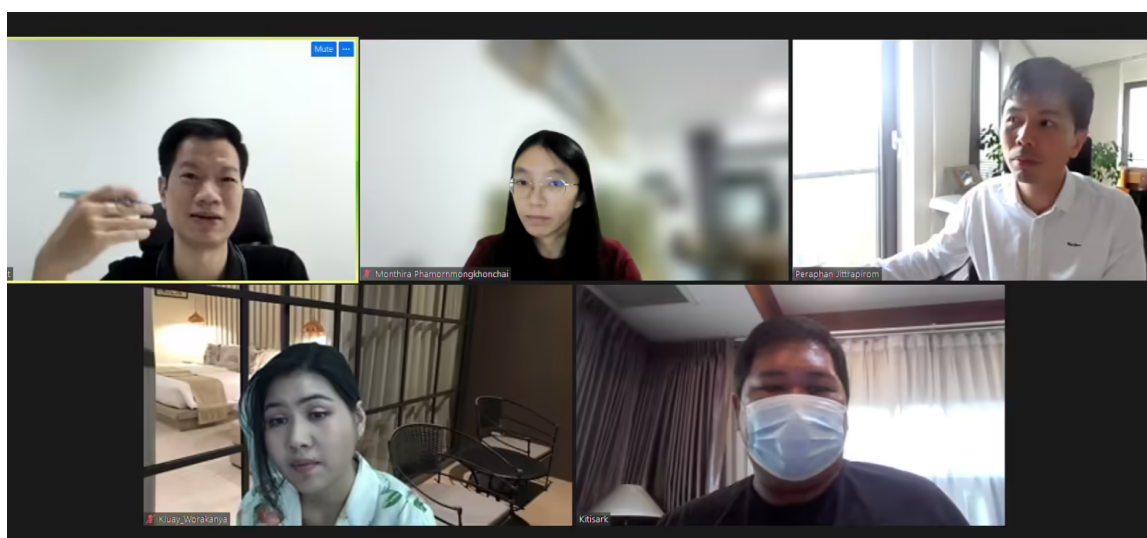
Figure 3.1 Interview with the academician

Figure 3.2 Interview with the consultant

3.3.3 Categories of factors from the interviews

From the results of the interviews, we can garner 120 factors, which are used to identify the successes and failures of SMM services in different contexts. The factors are divided into 9 categories including entrepreneur, government, infrastructure, insurance, operation, policy, technology, travel characteristics and users.

3.4 Combination of factors between the literature review and the interview results

We identify the final factors of the successes and failures of SMM services by combining the results from literature review and the interview results (See Figure 3.3).
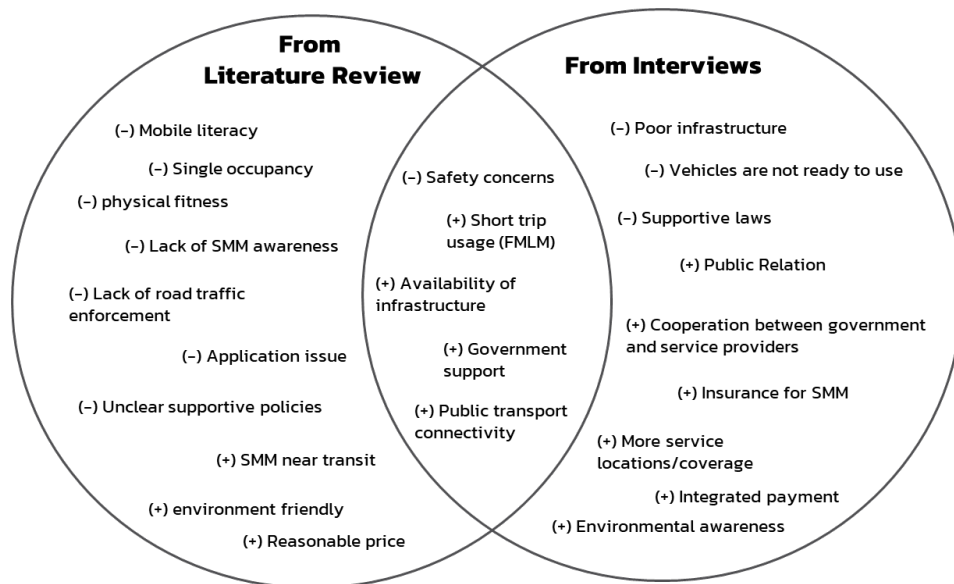
Figure 3.3 Combination of factors between the literature review and the interview results

After the combination of the results, there are 92 factors into 4 sections including success factors, failure factors, measure to enable success of shared micro-mobility, and measures to remove obstacles of shared micro-mobility and each section is divided into different categories including context, product, and market.

Sections	Factors	Categories
Success factors	Supports from government	Context
	Supports for non-motorized modes	Context
	Integration between SMM/PT	Context
	Awareness of SMM on the environment	Product
	Good public relation	Product
	SMM stations are well organized	Product
	Good SMM station locations	Product
	Service coverage	Product
	Good service operations & management	Product
	Low rental fee	Product
	Listen to customer feedbacks	Product
	High awareness of SMM	Product
	High quality of equipment	Product
	Increase SMM demand	Market
	High usage from tourists	Market
	Successful implementation in the pilot areas (e.g., campuses)	Market
	High usage from general users	Market
	Users are from various groups	Market
	High usages	Market
	Regular usage	Market
Failure factors	Unclear or no regulation	Context
	High maintenance costs	Context
	Poor PT network	Context
	Poor infrastructure for SMM	Context

Sections	Factors	Categories
	Lack of public relation	Context
	Lack of Gov't/Private sector collaboration	Context
	Lack of studies on business models/financial analysis	Context
	Lack of travel demand data	Context
	Lack of awareness from decision makers	Context
	Lack of safety	Context
	Lack of public policies to support SMM	Context
	Lack of insurance products for SMM	Context
	Conflicts with the incumbent	Context
	Conflicts among SMM providers	Context
	The city plan is unfavorable	Context
	Lack of maintenance	Product
	Service not addressing demand	Product
	High rental fees	Product
	Insufficient no. of available vehicles during peak time	Product
	Unsuitable station locations	Product
	Poor accessibility of SMM stations	Product
	Poor app (complicated, out of date)	Product
	Unclear pricing info	Product
	Lack of safety equipment (e.g., headlamp)	Product
	Resistant to change	Market
	Skepticism about SMM safety	Market
Measures to enable success	Set clear safety standard for SMM	Context
	Subsidize SMM costs by gov't (tax incentive, import tax)	Context
	Provide continuous SMM routes	Context
	Monitoring and studying SMM awareness	Context
	Implement pilot projects	Context
	Amend laws and regulations for SMM	Context
	Gov't/private sector collaboration	Context
	Lower SMM rental fees (relative to other services)	Context
	Promote SMM infrastructure (markings, signages, lanes)	Context
	Promote SMM awareness	Context
	Create familiarity among potential users	Context
	Expand fleet size	Product
	Ensure sufficient service coverage	Product
	Provide station covers/roof to extend vehicle lifespan	Product
	Provide SMM facilities	Product
	Meet the local needs	Product
Measures to remove obstacles	Provide dedicated lanes	Context
	Set vehicle standards for SMM	Context
	The gov't initiative to allow and support new technology	Context
	Provide infrastructure to support SMM	Context
	Provide sandbox programs/pilot projects	Context
	Set speed limits for SMM	Context
	install CCTV and other security measures	Context

Sections	Factors	Categories
	Research and study on travel demand	Context
	Promote collaboration among SMM providers	Context
	Collect data for designing insurance products	Context
	Establish agency directly responsible for SMM	Context
	Enhance payment integration	Context
	Set safety standard to increase the safety of vehicles	Context
	Provide dedicated lanes	Context
	Promote law-abiding drivers	Context
	Communicate benefits of SMM to public	Context
	Locate SMM station where demand is	Product
	Integration with PT	Product
	Provide free-floating service	Product
	Provide flexible insurance products	Product
	Ensure technology is updated for ease of use	Product
	Revise import policy to support SMM vehicles	Product
	Make mobile app easy to use	Product
	Ensure readiness of the service	Product
	Promote long-term use	Product
	Emphasize on the maintenance effort	Product
	Respond to users' needs	Product
	Set safety standard to increase the safety of vehicles	Product
	Reduce operating costs	Product
	Provide opportunity to test ride	Market
	Except charge and penalties	Market
	Initiate government private collaboration	Market
	Promote SMM public relation (usage & awareness)	Market

CHAPTER 4   FOCUS GROUP

4.1   Pre-Workshop 1

The research team transcribed and translated the interviews into English as included in the appendix of this report.

Before the workshop, the research team prepared and made available an online collaboration space for participants. It included a workshop program, presentations, a list of factors from the combination between the literature review and the interview results.
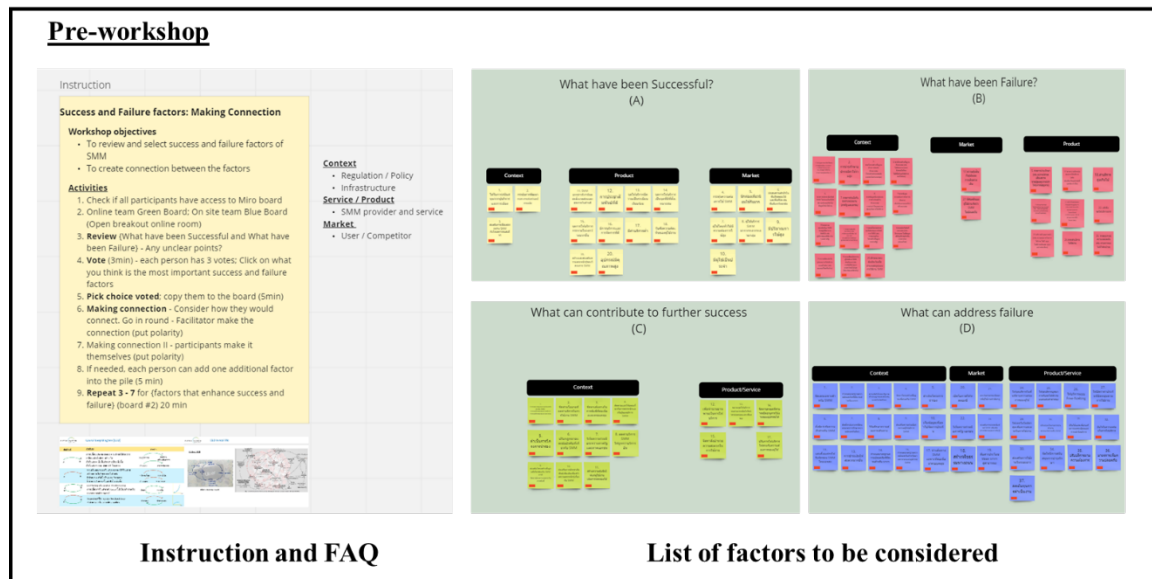

Figure 4.1 Online SMM collaboration space

4.2   Workshop 1

The schedule of the workshop sessions 1 is shown in Table 4.1. On the first day, after a brief welcome and an explanation on the goal of the exercise, the research team (one main facilitator and two group facilitators) and participants introduced themselves. The team explained the background of shared micro-mobility, the workshop process and the iconography of CLD. The participants were later divided into two groups (on-site and online group). The first period of the workshop was to identifying key factors for successes and results of shared micro-mobility. In the second part, there were linking measures to promote positive factors and solve negative factors. In the last period of the workshop, the results from the workshop day 1 were summarized. (See Figure 4.2 to Figure 4.5).

Regarding the results from the workshop 1, the participants identified the key factors of success and failure factors (See Figure 4.6 and Figure 4.7). Later, in the second round, we identified the success and failure measures, combined with the success and failure factors (See Figure 4.8 and Figure 4.9).

Table 4.1 Schedule of the shared micro-mobility workshop Day 1

Day 1: Activity / duration - (total duration 3 hrs)	Duration
Introduction, setting of the scene, the outline of activities and expected outcomes	10 min
Background of shared micro-mobility, explanation of the process and results from the interview, clarification on CLD and the GMB process	15 min
CLD formulation round 1 (2 groups, onsite and online groups)	35 min
Break	10 min
CLD formulation round 2 (2 groups, onsite and online groups)	35 min
Group discussion and concluding remarks	15 min

Figure 4.2 Brief welcome during the shared micro-mobility workshop Day 1

Figure 4.3 Explaining the process of shared micro-mobility on workshop Day 1

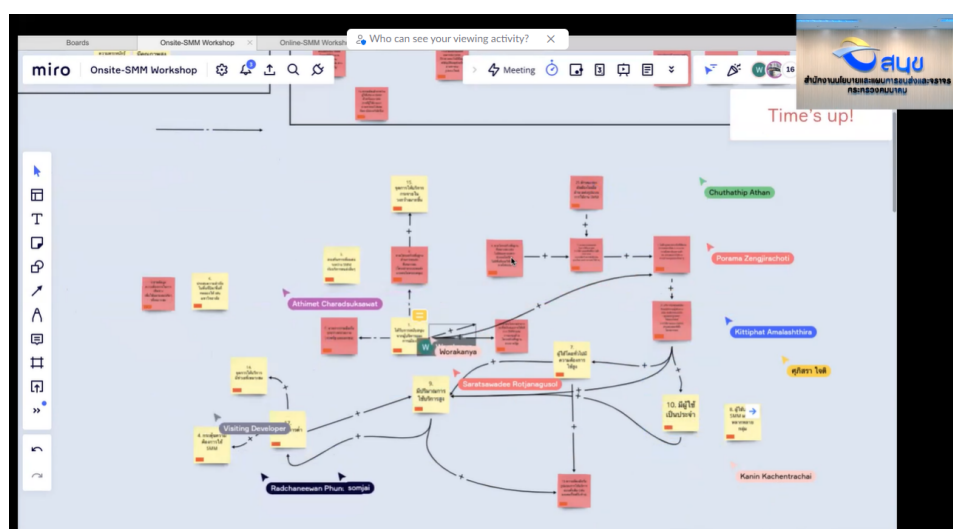**Figure 4.4 On-site group on workshop Day 1**

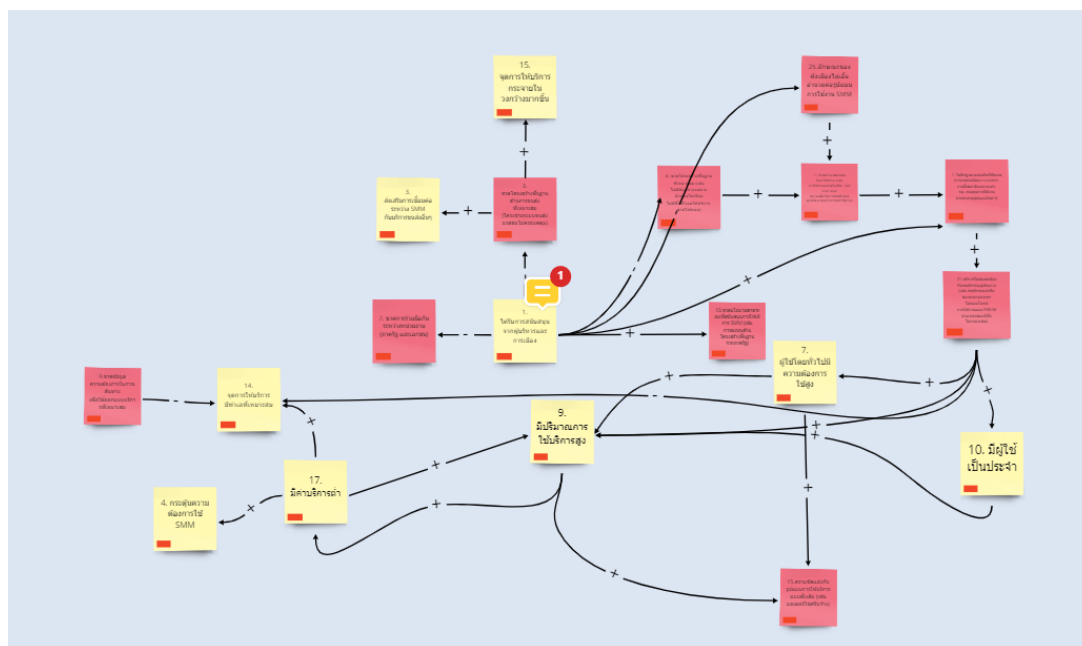**Figure 4.5 Online group on workshop Day 1**

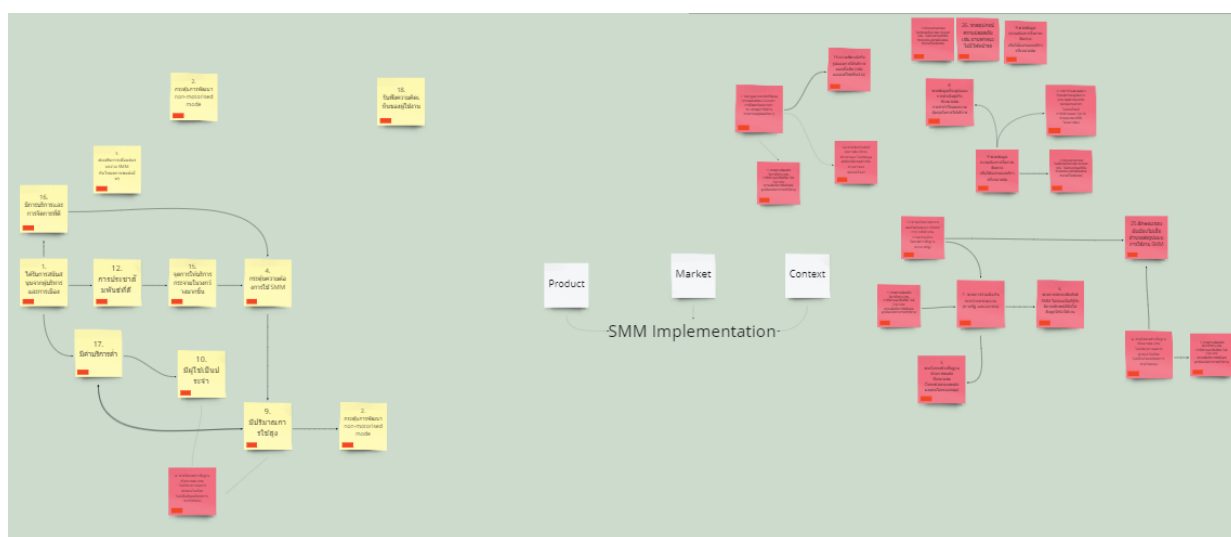**Figure 4.6 On-site group's CLD resulting from the first round of the activity**

Figure 4.7 Online group's CLD resulting from the first round of the activity
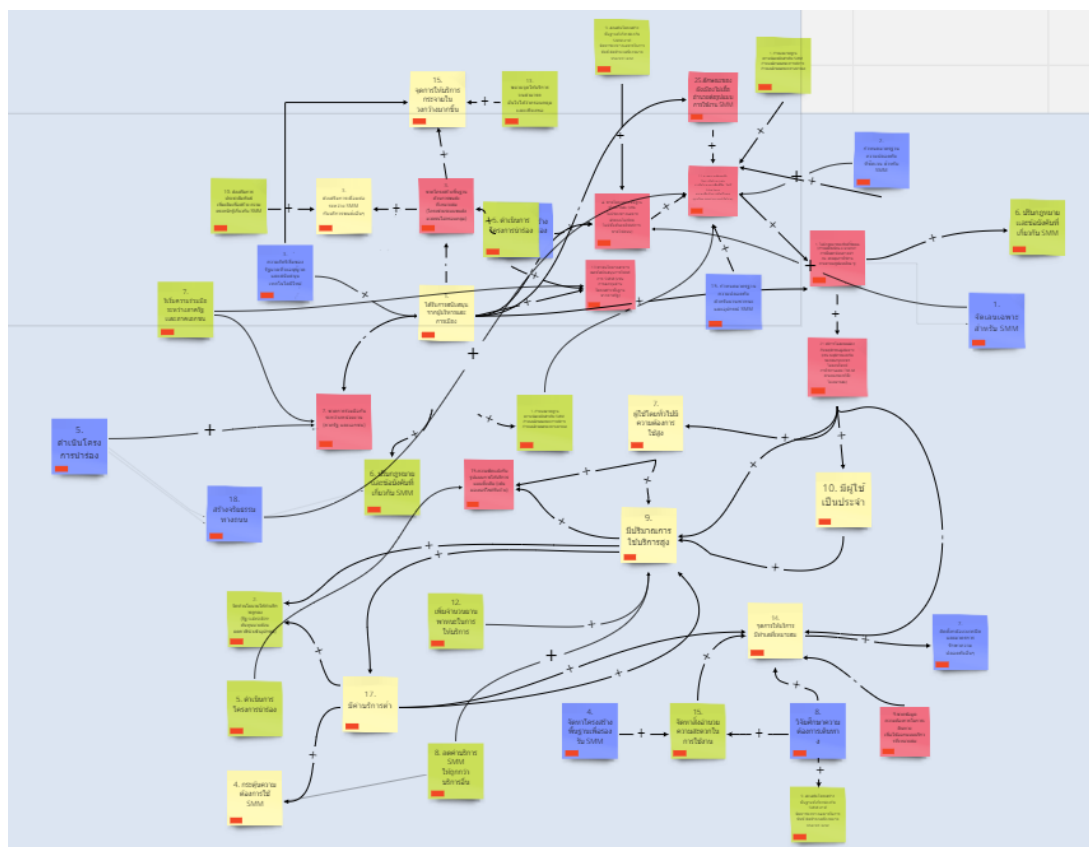
Figure 4.8 On-site group's CLD resulting from the second round of the activity
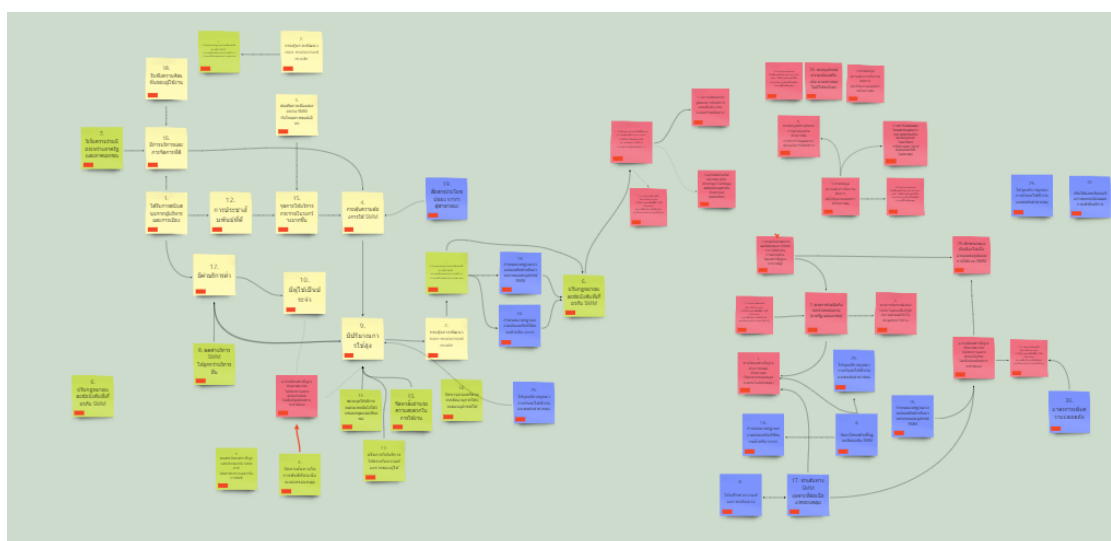

Figure 4.9 Online group's CLD resulting from the second round of the activity

4.3   Pre-Workshop 2

Before the second workshop, the research team had several meetings to combine and finalize the two CLDs resulting from the first workshop (on-site CLD and online CLD). The results from CLD can be illustrated in Figure 4.10. The research team prepared and made available an online

collaboration space for participants, including the workshop program, presentations, and identification of the motorcycle taxi's success factors (see Figure 4.11).
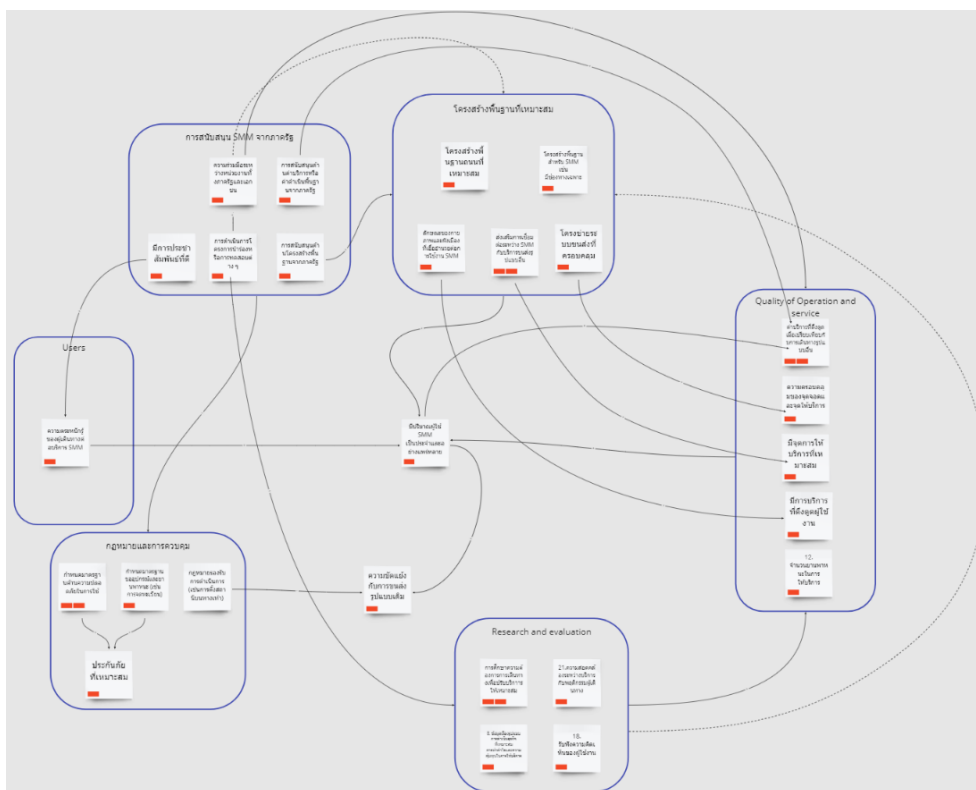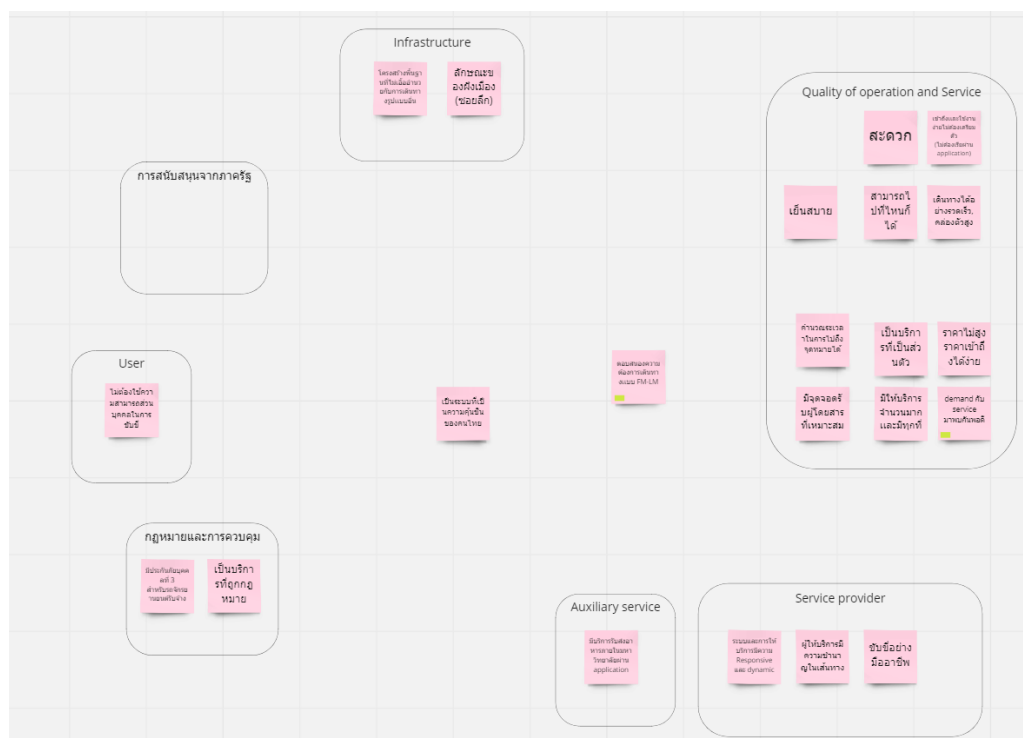

Figure 4.10 Combined CLD

Figure 4.11 Motorcycle taxi's success factors

4.4 Workshop 2

The schedule of the workshop session 2 is shown in Table 4.2. The research team presented a combined CLD to the group in detail at the beginning of the second day of the workshop. The first period of the workshop day 2, they presented the results from the workshop session 1. During the second period, the participants could determine the relationship strengths of the factors. They then discussed the successes and failures of shared micro-mobility, debrief and what's next? (Figure 4.12 to Figure 4.17)

Regarding the results from the workshop 2, the participants determined the relationship strengths of the links of the relationship between the factors. The relationship strengths of the factors are divided into 3 levels including strong, medium, and weak. (See Figure 4.18)

Table 4.2 Schedule of the shared micro-mobility workshop day 2

Day 2: Activity / duration - (total duration 3 hrs)	Duration
Introduction, setting of the scene, the outline of activities and expected outcomes	10 min
Presentation of the results from the workshop 1, comparing SMM with the motorcycle taxi service	15 min
Voting CLD links	40 min
Break	10 min
Discussion on successes and failures of shared micro-mobility	30 min
debrief and what's next?	15 min

Figure 4.12 Introduction of the workshop Day 2

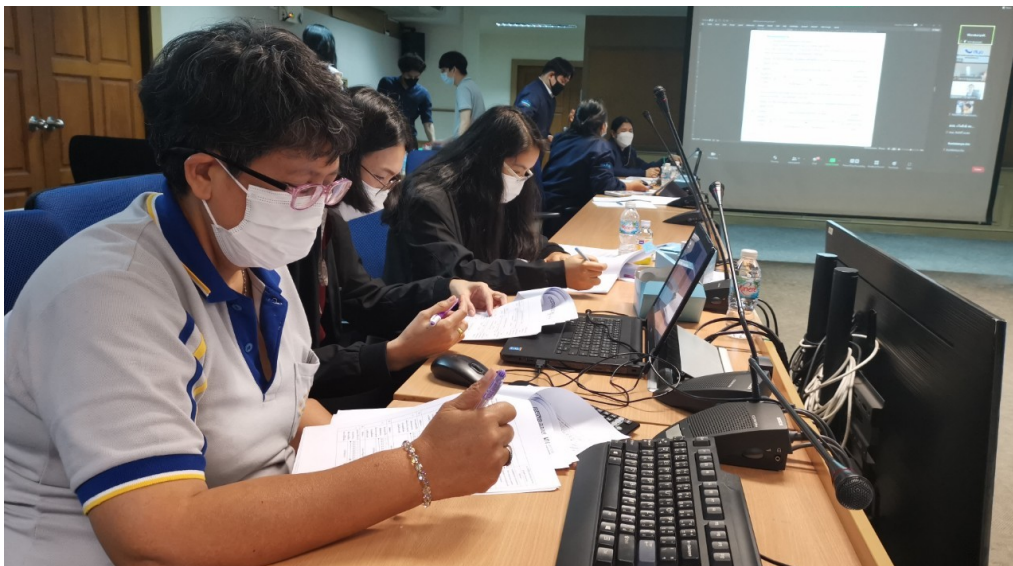**Figure 4.13 Discussion on SMM and motorcycle taxi services**

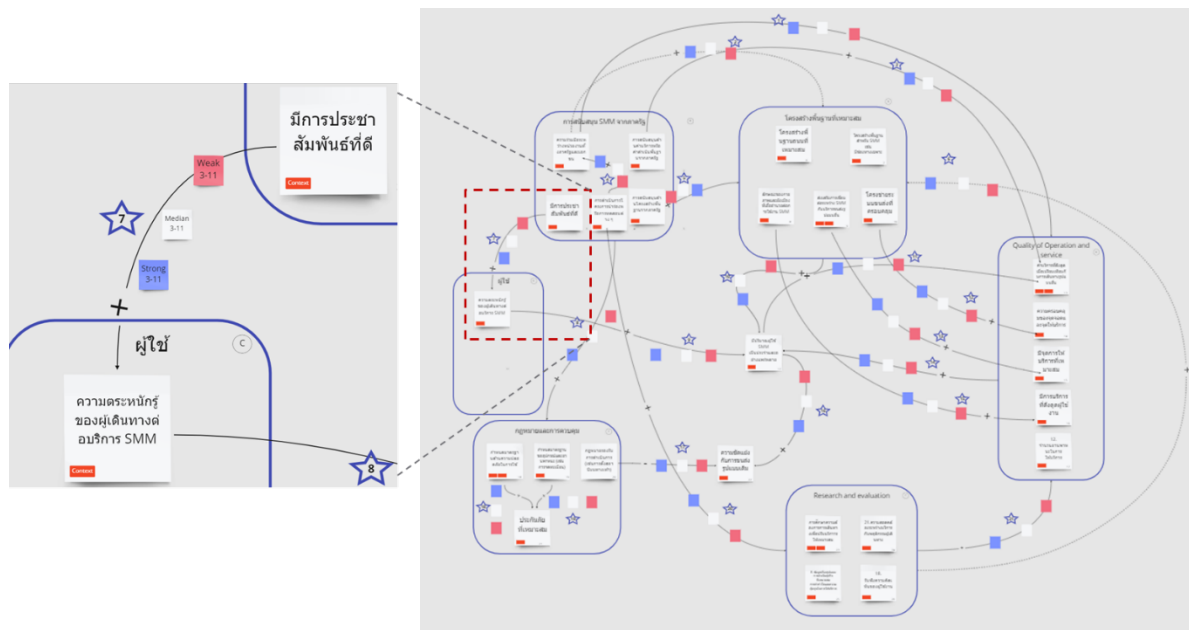**Figure 4.14 The participants voting CLD links**
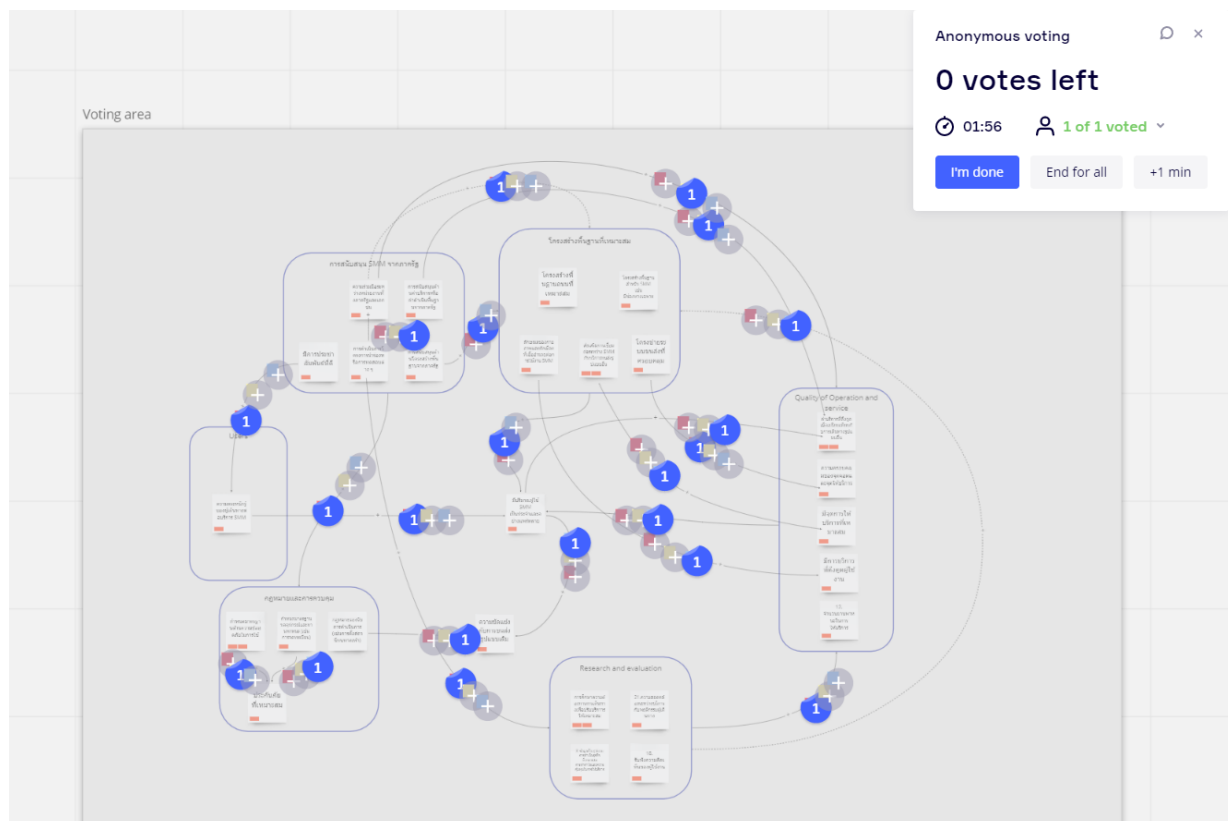
Figure 4.15 Determining strength of the relationships

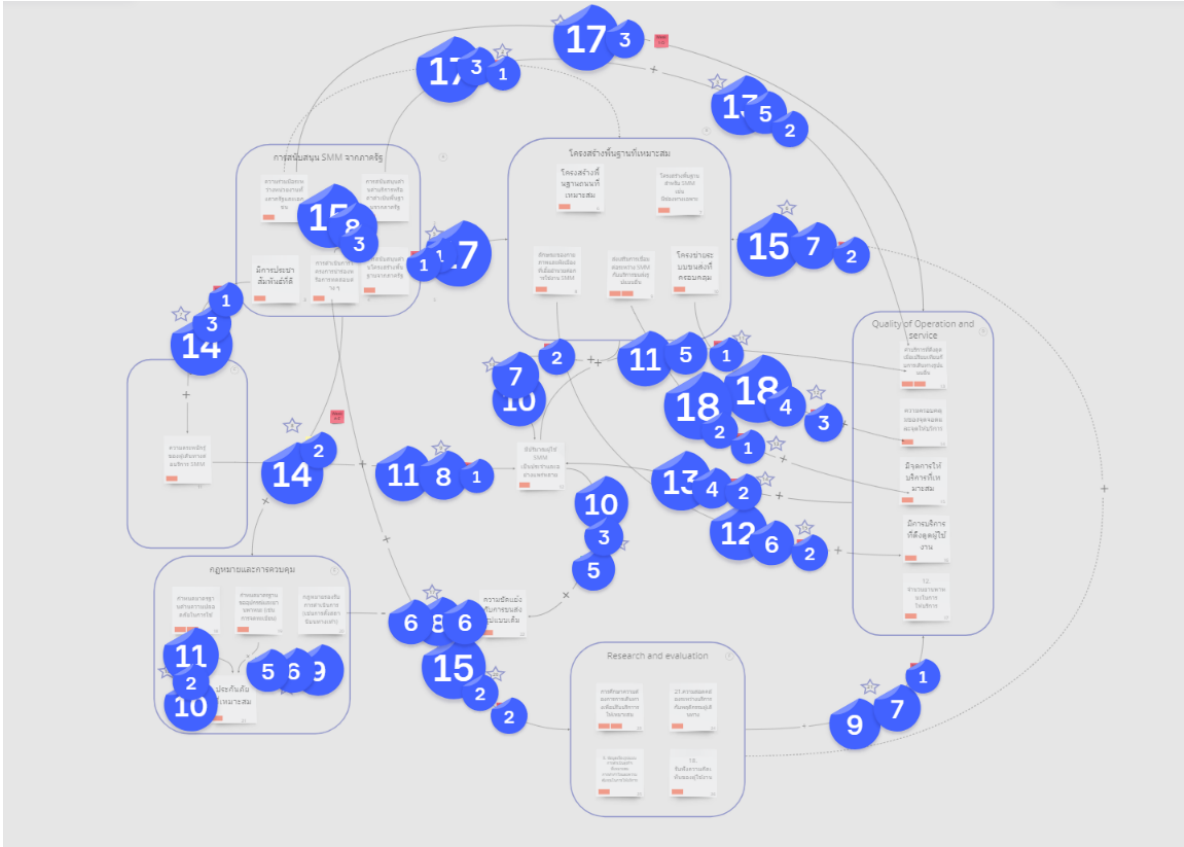**Figure 4.16 Voting interface in Miro**

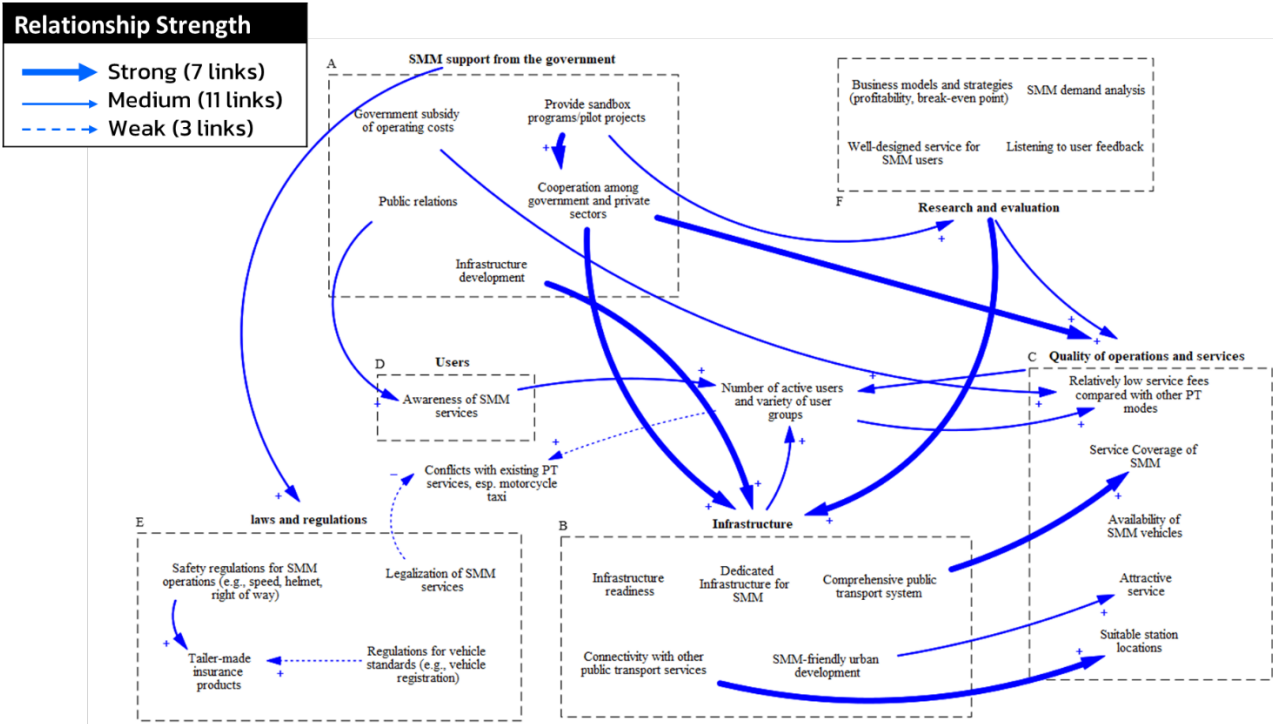**Figure 4.17 Link voting results by stakeholders**

Figure 4.18 Link voting results using Vensim

CHAPTER 5   DISCUSSION AND CONCLUSION

This study had three objectives: 1) to determine the factors that influence the successes and failures of SMM services in general and in Bangkok 2) to determine the interactions between the factors and 3) to determine the policies and measures that are related to and support SMM in Bangkok.

In this study, we conducted a series of interviews and workshops with the expectation that the results obtained would provide useful insights for future SMM service providers in Bangkok. Policymakers and transport planners can also use the knowledge to plan and design measures and policies to support SMM as a sustainable transport solution.

5.1   Online vs. On-site groups

In this study, we use participatory group model building (GMB) technique to identify factors that contribute to success and failure of SMM service in Bangkok with key stakeholders. The approach involved over 20 participants in interviews and workshops. The interviews were undertaken mostly online with a few face-to-face meetings. For the two workshops, we organized an online and onsite workshop, both formats were jointly organized in a hybrid manner. The online GMB settings were used in the research to help reduce the risk of exposure to the coronavirus, saving time and flexibility for the participants and the facilitators.

We found that online interview and online workshop section has a few challenges, such as the lack of engagement from online participants. Facilitators needed to encourage participants to join the discussion. It was also found that the most suitable duration for online workshop is 2 hours. A longer duration would lead to less engagement from the participants and make certain stakeholders feel reluctant to engage in the process. In addition, the participants found it beneficial to meet and have the opportunity to discuss issues and collaborate with each other.

5.2   Systematic Literature Review

We utilized a systematic review approach to examine pertinent literature and identify the factors linked to the success and failure of shared micro-mobility (SMM) as well as SMM policies. Through this method, we discovered 46 articles and extracted 124 factors associated with SMM success and failure. We also extracted the success and failure factors that are mentioned by participants from the interview. And then, we combination of factors between the literature review and interview results, there are 92 factors, and we separate the factors into 4 sections include success factors, failure factors, measure to enable success of SMM, and measures to remove obstacles of SMM. And each section is divided into different categories including context, product, and market. And we used the factors in the workshop.

One interesting observation is that while many articles from literature reviews mention weather and dressing as factors that can impact the success or failure of SMM, our interviews conducted in the Thai context often do not mention these factors. This may be attributed to the early stages of SMM

in Thailand, which requires greater support from the government and service providers to initiate widespread use.

5.3 Results from the workshops

Regarding the workshops, the key factors of success and failures identified by the participants can be categorized into 5 groups, namely: 1) support from the government, 2) infrastructure, 3) quality of operation and service, 4) users and 5) laws and regulations. From the key factors of success and failures, the participants determined the relationship strengths of the links of the relationship between the factors. The relationship strengths of the factors are divided into three levels including strong, medium, and weak. There are 7 links are the strong relationship, 11 links are the medium relationship, and 3 links are the weak relationship.

Due to the relationship strengths (See Figure 4.18), 4 strong links out of 7 are from the support of the government. Research and evaluation can guide infrastructure development and improve the quality of operations and services. In addition, even though the infrastructure for SMM is identified, providers and BMA believe that shared lanes with proper signages in some areas are sufficient and more achievable.

The participants also felt that several of these factors are related to governmental activities; the government is seen by the participants as a key actor who primarily influences SMM operation and their success and failures. Whether the role of successful SMM implementation is really a one-sided governmental role or requires the cooperation of many parties? It foresees the benefits of dialogue and exchange among stakeholders within the transport system.

The participants also felt that several of these factors are related to governmental activities; the government is seen by the participants as a key actor who primarily influences SMM operation and their successes and failures. However, it remains unclear whether the SMM role is solely a government responsibility or if it necessitates collaboration with other entities. Participants suggested that the construction of the Mobility Interactive Forum served as an example of the benefits of communication and cooperation among stakeholders in the transportation industry, according to the attendees.

5.4 Lessons learned from the motorcycle taxi's success

Concerning the successful factors of motorcycle taxi, most participants agreed that the service is considered safer than shared micro-mobility on the motorized road networks as they do not require any skill to use the motorcycle taxi service. In contrast, shared micro-mobility (e-scooter) needs more skills for using the service. However, shared micro-mobility can be more hazardous than motorcycles in some ways, as the difference in speed puts them at risk when driving on the same road as cars. Moreover, they found that conflicts with motorcycle taxi services may arise if the number of shared micro-mobility users significantly increases.

5.5 Recommended policies and measures

From the causal loop diagram, we can group the factors from the strong relationship into three categories: government section, shared micro-mobility providers, and the collaboration between the two parties.

Under the government sector, there are 4 tasks to implement including 1) provides complete public transport, 2) shared/dedicated lanes, 3) provides shared micro-mobility and public transit connectivity, and infrastructure development. In the shared micro-mobility providers, there are 3 tasks including 1) expand service areas, 2) identify suitable station locations such as near transit station, 3) continuously improve service quality. The last, for the collaboration between the government and shared micro-mobility providers, there are 2 actions including 1) develop sandbox program or pilot projects and 2) research and evaluation (feedback) of the shared micro-mobility.

Finally, we are listed the recommended policies and measures form the strong relationships including 1) the government to provide a sandbox program for shared micro-mobility providers, 2) focus on potential corridors or areas with proximity to mass transit stations, 3) dedicated lanes or shared lanes with signages, and 4) shared operations should be evaluated periodically by the third party.

5.6   Limitations

The main limitation of this study is that the state of SMM in Thailand is still in its early stages and has not yet gained widespread popularity. As a result, it can be challenging to gain a complete understanding of the factors that contribute to success, failure, and effective measures to enhance success. If the SMM context in Thailand changes in the future, participants' views on these factors may also change accordingly, highlighting the need for continued research in this area.

Next, during the voting process, we could not track back who was voting for which relationships due to the limitation of the collaboration tool we chose, namely, Miro. Therefore, we were unable to identify the patterns of the voting from particular group of stakeholders such as government sector, service providers, and users. Also, all participants in this study had the same voting weight. However, in the real implementation, some stakeholders might have higher impact or influence than other groups of stakeholders.

CHAPTER 6   RESPONSES TO IATSS COMMENTS

From the meeting on January 19, 2023, the IATSS advisors had several useful comments. We had responded each comment/question as shown in Table 6.1.

Table 6.1 Comments and questions from the committee members and advisors

on January 19, 2023

Comments and Questions	Responses
Regarding your conclusion, people's awareness about safety seems very interesting. People feel that SMM is rather more dangerous than motor taxi, right?	They feel that SMM is more dangerous to use on the road when comparing with motorcycle taxi.
In Japan, transport policies are often affected by political pressures through the business side actions. I would like to know what kind of political pressure is now going on in your transport policies in Bangkok or in Thailand about the SMM. Just simply explain the background and ongoing situations.	Now, there are not many users of the SMM at the moment. So, there is no political pressure or social pressure to the government to support or regulate the SMM service yet. There are several examples of the social pressure that required the Thai government to regulate and legalize the informal transportation services such as motorcycle taxis, transit vans, and recently ridehailing once their passengers reached the critical mass and caused some issues/impacts to the overall transportation system.
The government want to replace motorcycle taxi by something?	Not yet. Thai people perceived that motorcycle taxi is a convenient service and is affordable for all classes of people. Therefore, the government does not feel it is necessary to replace the motorcycle taxi service with other alternatives.
I would like to know what is the difference between onsite meeting and online meeting?	In terms of activities, there was no difference. There are brainstorming session, discussion session, and causal loop diagram creation session for both on-site and online groups. In addition, both online and on-site groups similarly consist of government sector, providers, and users to guarantee the mix of the stakeholders in both groups. But there were some differences in the aspects of interactions among participants and engagement during the workshops. The online group was less interactive and had less discussions. On the other hand, the on-site group interacted more with each

Comments and Questions	Responses
	other and there are more discussion among the participants.
In this onsite meeting, they had some experience to take a ride on SMM?	Yes, we invited SMM users including bike sharing users and e-scooter sharing users attend our workshop. However, during the interview, some government officers reported that they never used SMM before.
I recommend you will focus on the difference of vehicle types and summarize your research finding in detail.	During the research activity, we did not differentiate the vehicle types (i.e., bikesharing vs. e-scooter sharing) since they have a similarity in usage purpose and cost. However, after the interview and workshops, we found that bikesharing is recognized by law while e-scooter, as a new mobility mode, is not supported by law yet. Therefore, in the conclusion and recommendation, we proposed that the government should support the bikesharing first due to its readiness in the laws and familiarity aspects.
About motorcycle taxis in success factors. I would like to confirm the results from the viewpoint of failure of SMM service. You mentioned not only success factors, but also failure point/failure factor. So, I would like to know the result from viewpoint of failure of SMM service.	Since the purpose of this exercise was to identify the lessons learned from the motorcycle taxi service that can be applied to the new mobility services such as bikesharing and e-scooter sharing, therefore, we did not look at the barriers of the motorcycle taxis.
About slide page 24, I don't understand where the association between the upper three boxes and bottom four description.	In the box there are the factors from the causal loop diagram, but we group it into three categories: government section, SMM providers, and the collaboration between the two parties. The four bullets under the government sector are the task for the government to implement. In addition, there are three action items for the SMM providers. Furthermore, the list in the middle are the collaboration between the government and SMM providers. The recommended action items are listed in the bottom of the page.
How to lead?	We planned to form an informal consortium to discuss and connect all related stakeholders regularly. This group can link between the service providers and the government sector. Findings

Comments and Questions	Responses
	from this study can be discussed during the future meetings.

Appendix A

Interview Transcripts

Transportation Institute – Chulalongkorn University's interview on June 3, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   Our main roles are to support the Urban Transport Policy and make it sustainable, effective, and secure both for users and service providers. We are also supervising the regulations within related organizations and in charge of academic research, focusing on rail-hailing. The works aim to study rules and regulations to enhance the transport system in Bangkok.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

   We used to use bike-sharing, but only occasionally. (It was a trial.)

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It is capable of short-distance travel, as well as first-mile and last-mile ones. However, its role in society is still negligible. Service stations, where vehicles and devices can be rented and returned, are also limited.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   It reflects the market, which is not successful in itself. It also reflects the global trend of the business, whose popularity initially grew fast but continued to decline later. There are many obstacles, including the inadequate number of vehicles and devices that cannot meet demand, unavailability of the infrastructure and the inefficient payment system. Moreover, competitiveness is intense and everywhere. For example, motorbike taxi services can cover larger areas and better meet the needs of users. For users of shared micro-mobility, it requires a lot of experience in terms of how to access and use the service. Also, insurance in this industry is still not good enough.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   The service has to cover all essential areas, where it is in high demand. There should be a good system to deal with the needs of clients. Also, it has to be well-organized enough. This will create more options and discourage the system from relying only on motorized modes of transport. As a result, it can compete with motorbike taxi services and offer clients a cheaper way of travel.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes
   - Good PR

- Measures that will help enhance the business
- Appropriate routes and infrastructure for users
  Failures
- Poor infrastructure
- No improvement in the payment system, such as lack of an integrated payment system to allow users to switch to other modes of transport, including Co-Bike, BTS and MRT.
- An imbalance between demand and supply, such as the insufficient number of vehicles.
  Measures to solve problems
- The government is expected to introduce an integrated payment system for clients to access different modes of transport more easily.

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

It is because city planning was not well designed and there are a huge number of narrow streets and alleys where traveling by a motorbike taxi is possible. This planning also affects travel distance, how pavements are used and why motorbike taxi stops are everywhere. This service can pick up passengers in places that cannot be accessible by larger vehicles. It also helps passengers to reach their destination more quickly.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

There is no particular policy for the project 'Pun Pun' (a concession from the government). The project is another choice for commuters, although it is just a niche market.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

There should be a quick investment. This means a sufficient number of bicycles. An investment in land is also necessary. Moreover, rules and regulations that allow private sectors to operate the system are crucial to its success (planning, provision, regulation, financing).

Bike sharing operator A - Interview on June 7, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   This company is the only service provider of public rental bikes in Thailand. The operating area is in Chiangmai (the vicinity of Chiangmai University and around City Moat). The company later expanded its operation to Bangkok, where the operating area is within the grounds of Thammasat University. My role is 'city lead' – to study probable areas for the shared micro-mobility service. Besides, I also used to work on the operation with Mobike.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g. e-scooter and bicycle)**

   I am familiar with the shared micro-mobility service, which covers shared bicycle and shared e-scooter.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g. short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It facilitates people's lives and provides another choice, which is suitable for first-mile/last-mile travel. This kind of travel helps connect different modes of transport and also serves as a way of exercise.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as Pun Pun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   The operation includes the application of good-quality vehicles and devices, although they are outdated and difficult to use. There are stations at appropriate points, but the registration process and the procedure of renting and returning the vehicle cannot be understood and accessed easily. It still lacks a proper infrastructure that supports users' safety. There are also tariffs that hinder service providers' operations.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   It will be a seamless integration of modes of travel. We can commute and change vehicles without having to change the way we pay. This can be done via a mobile application. However, there should be sufficient equipment and parking spots that everyone can access. The system has to meet the needs of users who can manage to travel from place to place in urban areas. Also, bicycle lanes have to be highly efficient and cover the whole city.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g. service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes

- Quality of vehicles and other related devices (light but durable)
- Awareness of healthy lifestyles and zero-carbon approaches
  Measures that will help enhance the business
- Appropriate routes and infrastructure for users
- More imports of modern equipment
  Failures
- Poor urban planning that does not support shared micro-mobility
- Lack of connectivity between different modes of transport
- No PR
- No specific law regarding shared micro-mobility
- Lack of an integrated payment system that connects different modes of transport
  Measures to solve problems
- A specific setup of an organization for shared micro-mobility
- A setup of a seamless integration of modes of travel (including an integrated payment system via a smart card or a mobile application)
- An improvement in bike lanes
- Import and development of equipment used in the service

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

    The service is most convenient and quick because it can be accessed without using a mobile application (No preparation in advance). Drivers can pick up and drop off passengers at almost every point and the service can satisfy the needs of passengers. (The service is often only one choice for passengers, since passengers have very few options.)

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

    There are a limited number of policies, which often do not come into effect. Some existing rules and regulations seem outdated, hence lacking the efficacy of dealing with problems of registration, parking spots and vehicle lanes.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

    There should be specific organizations that directly supervise shared micro-mobility. Government sectors need to work hand in hand with private sectors on operating areas and parking spots. In addition, the government sectors have to be in charge of overseeing import tariffs.

E-scooter club Thailand's interview on June 7, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    We are the leader of E-Scooter Club Thailand, promoting the e-scooter services in the country. We also arrange meetings of e-scooter riders. The Club is also a manufacturer of high-performance e-scooters (high-speed).

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g. e-scooter and bicycle)**

    We are used to riding an e-scooter, which is mostly for commuting within the university. We hardly use shared micro-mobility as we already have our private e-scooters.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g. short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It can be used on a daily basis and can answer the demands of users who have first-mile and last-mile travels, such as commuting on BTS. However, the service is more suitable for closed areas, such as universities, where bike lanes are available.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as Pun Pun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    It is not successful, since there is no constant maintenance of vehicles and devices, causing equipment failures (because of humidity and heat). As the efficiency of equipment is low, the number of users tends to decrease and many businesses are likely to close down.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    The shared micro-mobility service needs to attract a huge number of users to maintain the business. It has to be applied to short-distance and first-mile/last-mile travels. Furthermore, the rental e-scooter service, in my opinion, is more likely to be more successful than the rental bike service, since the former is a smaller enterprise and can be more adaptable.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g. service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes
    - A well-organized system and arrangement of the service.
    - Good unlocking system and rent-and-return system
    Measures that will help enhance the business
    - Well-designed parking spots with roofs to protect vehicles and other devices
    - A campaign to raise awareness of shared micro-mobility

Failures

- Lack of maintenance of vehicles and devices
- Lack of safety of using devices outside closed areas

Measures to solve problems

- Employment of staff who can take charge of maintenance and check-up of vehicles and devices
- Infrastructure that provides convenience and safety to users of shared micro-mobility

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

It has become one of the cultural things as to how Thai people commute. This is because the service is convenient, quick, comfortable and reasonably cheap. Passengers can take control of their travel time and do not have to ride themselves.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

There is a policy that encourages shared micro-mobility as universities have permitted private sectors to take charge of the operations in their areas. There is also a promotion of bike lanes that will provide safety and convenience to users.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

Government sectors have to arrange appropriate spaces for parking to avoid disrupting pedestrians (management of pavements). Specific spaces should also be provided for riding, concerning long smooth rides on good lanes and allocation of spaces for riders and other road users.

A shared e-scooter user from e-scooter sharing operator B's interview on June 9, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   I am a user of the shared e-scooter service.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g. e-scooter and bicycle)**

   We are used to the shared e-scooter service that is available at condominiums. It is mainly used for short-distance return travel.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g. short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It is for short-distance return travel and can be adopted as a way of recreation.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as Pun Pun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   Although shared micro-mobility has been around for quite a long time, it is not widely known or heard of in society, not to mention those particular projects that offer this kind of service. This is due to the fact that its operating area does not cover suburban areas.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   A sufficient number of service stations that should cover all areas, including city centers and suburban areas. This will lead to high demand in the service and public awareness of shared micro-mobility.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g. service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes

   - A number of service points that cover large areas
   - Measures that will help enhance the business
   - A rule that fines for late returns of vehicles or devices should be reasonable or regulated as flat rates.

   Failures

   - Lack of safety measures (e.g. No bicycle front light)
   - Lack of infrastructure that provides safety (e.g., streetlight and special lane)
   - An insufficient number of vehicles and devices
   - No fixed price
   - No supporting law

Measures to solve problems

- Infrastructure that boosts safety of the service (e.g., bicycle lane and light)
- PR for shared micro-mobility

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

Because of the complex network of narrow streets, which makes it difficult for road users to commute by themselves. The poor quality of streets is also an obstacle to using shared micro-mobility. Moreover, motorbike taxis are easy to reach and so numerous in the city that they can satisfy the needs of most passengers.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

There is still no related policy.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

There should be a policy about travel insurance for users against any equipment malfunctions or emergencies, such as road accidents.

Consultants A interview on June 8, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   We are an engineering consulting company. As a consultant, we offer advice on the impacts of traffic congestion. For shared micro-mobility, the advice is primarily about the operation of the service within enterprises, such as shopping malls, or large organizations (True Digital Park as an example of a Smart City). Anyway, the work has not yet become operative.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g. e-scooter and bicycle)**

   We used a bike-sharing service at Kasetsart University a couple of times.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g. short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It is widely used for recreational purposes and physical activities. The role as a mode of first-mile/last-mile travel takes second place because it is not easily accessible and still barely known in society.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as Pun Pun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   It is not as successful as expected due to its unpopularity. The service first attracted numerous clients but started to decline later, with many businesses gradually closing down. The small number of users is the result of some features of shared micro-mobility that cannot satisfy the needs of commuters in Bangkok.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   The service needs to attract a big number of users. In reality, its functions can serve only short-distance first-mile/last-mile travel and a narrow range of people are likely to use the service (only public transport commuters, not car owners).

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g. service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes
   - No success so far

   Measures that will help enhance the business
   - PR for shared micro-mobility to make it better known among a wider society

   Failures
   - No PR

- Incompatibility with people's way of travel in Bangkok
- Strong inclination to old ways of commuting
- Inaccessibility
- Lack of infrastructure that boosts safety, such as bicycle lanes
- No supporting law (illegal)
  Measures to solve problems
- More PR
- An increase in bicycle lanes

7. As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?

It is a highly flexible service, has several stops and is suitable for first-mile/last-mile travel. It is also more or less similar to shared micro-mobility, hence leading to high competitiveness in the market. A couple of aspects from the motorbike taxi service can be learned and adopted for shared micro-mobility in order to meet demand, such as proper service points and stop points.

8. What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?

There is still no direct policy that supports shared micro-mobility, but some rules and regulations supporting EV are already in place, bolstered by government sectors. Some legal restrictions are still obstructing the registration of this kind of service.

9. Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?

There should be special lanes for the safety of users and sales promotions to attract many clients. Private sectors should also provide a variety of services to satisfy the needs of users.

Consultant B's interview on June 10, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    We are a consulting company for transportation planning, traffic planning, highway design, urban transportation planning (micro-mobility) and feasibility studies, all of which cover areas both on the microscale and the macroscale.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We have sometimes heard of the bike-sharing business, but we are still not used to the system. Neither have we started to learn anything about it in detail.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It is mainly for short-distance travel and for recreational purposes However, the service, in my opinion, is not suitable for first-mile/last-mile travel due to the weather and poor infrastructure of pavements and lanes, which are blocked by a lot of obstructions. There are also imbalances of parking spots and service stations.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    The business does not live up to expectations as it is not widely recognized among the public, although it was intensely promoted. The operation is not well-planned, leading to service stations not being built at right spots. The ill-advised policy regarding advertising and safety issues are also the obstacles.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    The service has to be convenient, cheap and highly safe. Accessibility to the service has to be broader (Service stations do not have to be located at very short distances apart. This will lead to high demand for the service at each station). This will make shared micro-mobility a good alternative to motorbike taxi and pick-up truck taxi services.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes
    - Good PR (although it does not cover large areas.)
    - Service stations at appropriate locations

    Measures that will help enhance the business

- Sufficient routes for users
- More PR and promotion

    Failures

- Inappropriate locations of service stations that do not support first-mile/last-mile travel
- Poor infrastructure (lack of connectivity between vehicle lanes)
- No feasibility study and lack of data regarding demand for the service
- No proper study into the expenses and profits of the operation

    Measures to solve problems

- Support of academic studies on demand for the service
- Improvement in the infrastructure that will support first-mile/last-mile travel
- Measures that support the safety of users in their first-mile/last-mile journeys
- Measures that support the construction of more service points at well-chosen locations

7. As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?

The service takes little time to take passengers to the destination and is easily accessible. Service points also cover large areas. As a result, passengers can take control of their travel time. The motorbike taxi service is also a private one. Moreover, riders are highly proficient at riding the vehicle through the complex network of routes.

8. What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?

Government sectors have a series of policies that encourage people to use public transport, although it is still not a complete integrated system. That is why shared micro-mobility has become another choice for people to travel in a more convenient way.

9. Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?

The TEM measures should be achieved to manage demand for travel and control travel volumes and the number of private vehicles in the city center. An integrated system of modes of transport on a platform is also essential to the success of shared micro-mobility.

Urban Mobility Research and Innovation – UMRI's interview on June 6, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    Our organization is a research center of transport innovations in urban areas, focusing on improving solutions to traffic and transport issues in various aspects. A group of experts on different fields are brought in, working together to produce fresh ideas of development. The work takes on many different forms, including online applications and big data, in order to encourage people of all ages to be familiar with and have access to new innovations.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We used to work in cooperation with various organizations on shared micro-mobility, but we are not the direct operator of this kind of service.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It is for short-distance and first-mile/last-mile travel. The service is also for commuters who travel on a daily basis, but it still lacks connectivity between the system itself and other modes of transport.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    It has created an opportunity of connecting many different modes of transport together and hence facilitating various methods of accessing those modes. There are pilot schemes in many areas where shared micro-mobility has been used. However, the means of operating the service in many different areas is similar. This sometimes causes problems as the way in which the system works is not compatible with particular contexts and circumstances of those areas. The problems also involve land development, land use and the belief that shared micro-mobility is only a matter of business. This leads to rejecting the service rather than coming up with solutions when problems occur.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    The operation should be carried out jointly by private sectors and government sectors, with the work covering all the exact and in-depth data about public demand for travel and demand for shared micro-mobility. All related facilities should also be supported to enhance the service. This includes the arrangement of parking spots or areas that are managed by private sectors and government sectors.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help**

solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)

Successes

- Good PR and campaigns

Measures that will help enhance the business

- A long period of PR and campaigns for shared micro-mobility
- More business partners for the improvement of the day-to-day service

Failures

- Law that obstructs shared micro-mobility (pavements and operating sites)
- Poor strategies for the operation (inactive approach and discontinuous process)
- Poor back-office system
- Inappropriate operating sites

Measures to solve problems

- A syndicate of partners that lead to improvements, including an integrated payment system

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

It is because the existing public transport is still not an effective choice for people and does not cover all areas where many modes of transport should be connected (due to the planning of the city where there are a complex network of narrow streets and alleys and low-quality pavements). In contrast, the motorbike taxi service can offer more service stops that cover larger areas. For many people, it is also the only means of first-mile/last-mile travel.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

At present, the policies introduced by government sectors are still inconclusive and outdated. As a result, they fail to support shared micro-mobility. However, strong political leadership could otherwise make important changes to the existing problems.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

A collaboration between organizations is required to make existing innovations beneficial to commuters. New legislation should also be introduced to support the infrastructure, which has to be more adaptable (including pavements). Other measures include low-carbon policies.

Mass transit operator 's interview on June 10, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    The company has the service of the Sky Train system that serves a huge number of passengers on their everyday journeys from place to place in city centers.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We are not familiar with e-scooter-sharing and bike-sharing services. We have sometimes heard of these businesses but never used them before.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It can meet the needs of many people who travel short distances during their first-mile/last-mile journeys. This means that it can also help people to travel through the snaking network of streets and connect with main modes of transport. It proves to be a good alternative for users in the rush hour.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    It has not been successful due to the lack of proper infrastructure (pavements and lanes). Moreover, the service is not compatible with the lifestyles of people in Bangkok who usually travel in the rush hour with much baggage.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    Cooperation between sectors and organizations is needed in order to expand shared micro-mobility across larger areas. It will also lead to the overall improvement of the service, which includes availability, comfortability, a sufficient number of service points across the city and reasonable prices. The effectiveness of PR is also key to boosting public awareness and understanding of shared micro-mobility.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes
    - Public awareness of shared micro-mobility
    Measures that will help enhance the business
    - The sufficient number of service points in all essential areas
    - Cooperation between government sectors and private sectors
    - More studies and evaluations of shared micro-mobility to maximize its capacity

Failures

- The insufficient number of operating sites that cannot meet demand
- No infrastructure to support shared micro-mobility
- No study into the losses and profits of the operation

Measures to solve problems

- Well-planned schemes completed jointly by government sectors and private sectors to solve related problems
- Improvement of infrastructure to enhance shared micro-mobility

7. As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?

As motor bike taxis are everywhere, they can satisfy the needs of users who can have relatively easy access to the service. This kind of service can also facilitate first-mile/last-mile travel. Moreover, motorbike riders are able to take passengers to their destination in the space of little time during the rush hour. Fares are also reasonable.

8. What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?

Government sectors need to introduce new promising policies that can support the construction of bike lanes. The lanes should be smooth and uninterrupted to facilitate shared micro-mobility.

9. Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?

There should be schemes to build more bike lanes to facilitate journeys. They could be built around residential areas and expanded into outer zones to make the routes connect with other main modes of transport. Legislation to support shared micro-mobility and make it safer is also important.

Bike sharing operator C's interview on June 2, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   We are a bicycle rental service available in the vicinity of Property Management of Chulalongkorn University. The service can be accessed only via a mobile application. Currently, there are 20 rental stations and 100 bicycles (as of now, 30 bicycles are available for the service).

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

   We are only familiar with bicycle-sharing.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It is suitable for short-distance first-mile/last-mile travel and can be well applied in areas where it can be connected to MRT and BTS. The purpose of shared micro-mobility is for daily travel, not recreation.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   So far, it has not been successful due to the business model itself that does not focus on profits. This leads to lack of continuity and problem-solving approaches. The inappropriate locations of rent-and-return points are also not conducive to high demand for the service.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   The service has to be available in several closed areas. The routes for travel within a closed area can be fully linked and are likely to be popular among users. When this kind of service becomes a truly successful business in Bangkok, it will surely be another good choice for commuters, especially when they need to travel in the rush hour. It can be available for commuters when other modes of transport are not.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes
   - No success at all

   Measures that will help enhance the business
   - Application of law to make parking spots and use of devices available in public spaces
   - An introduction of a sandbox to enhance the efficiency of shared micro-mobility

   Failures

- Poor infrastructure of the city that does not support shared micro-mobility
- Conflicts related to the market share of competitors (motorbike taxi service)
- Conflicts among service providers of shared micro-mobility (such as parking the vehicle at the parking spot of another enterprise)

  Measures to solve problems

- Mutual agreement between service providers of shared micro-mobility to solve problems

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

   At first, the motorbike taxi service was illegal. However, its popularity among a huge number of users eventually urged the government to make it legal and improve the system to be a well-organized business, leading to its widespread popularity in the city. The motorbike taxi service is an efficient mode of transport that can provide speedy travel and privacy to passengers. It can also be easily reached and is cheap, with a lot of service points covering large essential areas.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

   There is still no particular policy for shared micro-mobility. In contrast, there are some rules and regulations that hinder the use of bicycles on public streets. There is also a complicated regulation on how to install tracking devices and GPS.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

   There should be a pilot project, like a sandbox in a closed area, to study and evaluate the success and problems of the operation and find solutions to those problems.

E-scooter sharing operator B's interview on June 15, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    Our company provides vehicle-renting services (private car, bicycle and e-scooter). There is currently a project getting underway at Chulalongkorn University. My role is to supervise the project, collect data on consumer behavior, work on sales promotion and deal with problems faced by users.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    I have never used the bike-sharing service nor the e-scooter service.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It is capable of first-mile/last-mile travel, which involves traveling through a network of narrow streets and alleys not accessible by other types of transport (such as a location by the river and far away from streets.).

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    It is not a successful business because the rent-and-return service can hardly be accessed by people. Also, vehicles and devices are not well kept and looked after properly. This has caused some service stations to close down. The service at many stations is barely used by people. In terms of the service itself, it is still inflexible to use as users have to return devices at the station where they rent them. Another problem is that the website is not up-to-date.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    It has to expand its operation and maximize its capacity in order to meet demand for first-mile/last-mile travel. The system needs to adopt an integrated payment method, which can encourage people to plan ahead and save their expenditures.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes
    - Successful PR in its initial phase
    - High-quality vehicles and devices, with low prices

    Measures that will help enhance the business
    - A set of policies that support the operation of shared micro-mobility and appeal to users

- A set of policies that encourage long-standing clients to use the service (Interesting campaigns should be proposed, such as a point collection system)

Failures

- Inflexibility of the rent-and-return system (The vehicle has to be returned only at the station where it was rented.)
- Lack of staff in charge of taking care of vehicles and devices

    Measures to solve problems

- Rent-and-return points at community malls
- One-way system of the rent-and-return service
- Installations of CCTV cameras at all service points to boost safety measures

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

This is because the motorbike taxi service can provide a large number of service points that are accessed easily by passengers. The service points are also located in areas where demand for the service is high. The speedy ride can take passengers to their destination in time during the rush hour. Also, passengers do not have to worry about vehicles and devices or trying to find a parking lot.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

There are already a few policies on transport, although they are unclear and inconclusive. For example, some policies on public transport have already been in place, but overlapping routes of transport are still a problem.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

There should be a plan for an integrated transport system (BTS, MRT, bus and shared micro-mobility). This includes an integrated payment method system that links all modes of transport. As a result, this will facilitate the ways in which people travel and make fares cheaper.

Bike sharing operator A's Bicycle User's interview on May 31, 2022

10. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    I am a passenger of public transport in Bangkok and a user of shared micro-mobility when traveling within the grounds of Thammasat University.

11. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We are familiar with the bike-sharing service, which we often use for our daily travel at Thammasat University.

    11. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok?** (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)

    It is mainly for short-distance travel and for traveling in places within reach of the city center.

12. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    There have been a lot of new services of shared micro-mobility coming and going so far. However, we have never tried any of them because their PR is not appealing and the services are not easily accessible.

13. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    A successful shared micro-mobility service has to offer numerous rent-and-return points in order to get people to access the service in an easy way. These service points need to cover all essential areas in Bangkok (not just in closed areas). Sales promotion for daily/weekly/monthly use should be encouraged. Some activities, such as a point collection system, should be initiated. There should also be an online application that can be easily accessed by people.

    14. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes

    - A huge number of users at Thammasat University
    - Measures that will help enhance the business
    - More rent-and-return points at locations where demand for the service is high (around dormitories, for example)

    Failures

    - Ready availability of the service
    - Lack of vehicles and devices during the rush hour

- High prices of e-scooters
- Theft of vehicles (bicycles) during the service

  Measures to solve problems
- Employment of staff in charge of the upkeep of vehicles and devices
- A sufficient quantity of vehicles and devices in relation to demand at each service point

15. As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?

Because this service is convenient and time-saving. It is suitable for traveling in Bangkok where a complex network of narrow streets and alleys cannot be easily accessible.

16. What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?

There is still no policy directly related to this kind of transport.

17. Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?

Government sectors should come up with some measures that support shared micro-mobility so that it can appeal to the wider public. The policy should focus on users who cannot access the service via a smartphone and introduce an authentication process via an identity card.

Motorcycle Taxi Association of Thailand's interview on June 14, 2022

1. **Please tell us about the roles you and your organization play in the field of public transport in Bangkok.**

    We lead a role in a transport service, which serves a great number of people who commute from place to place in the city. Our organization was set up by a group of motorbike riders who are in charge of our own internal management of the service. The motorbike taxi service is an important service provider. The service is mainly for passengers who travel short distances in residential areas.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle). In case you are not familiar with any types, please skip Question No.4.**

    We are not familiar with e-scooter and bicycle services.

3. **In your opinion, what roles does the motorbike taxi service play in people's commuting in Bangkok? (e.g., short-distance travel and first-mile/last-mile travel)**

    It is mainly for short-distance first-mile/last-mile travel and can be integral to a network of other main modes of transport. The service can take passengers through narrow streets and alleys and can also be one of the good alternatives for passengers who travel in the rush hour.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    -

5. **What do you think makes traveling in Bangkok successful? (Traveling without any disruptions)**

    It has to be supported by law and mobile applications. Certain rules and policies on benefits and fares should be implemented effectively (the starting fare for long-distance travel, traveling into outer zones of the city and more additional costs for more convenience during the service). An effective system of the service should also be created to make it more accessible.

6. **As motorbike taxis are widespread and popular in the city, what factors contribute to this popularity?**

    It comes down to a well-organized management and process of registration of motorbike taxi riders. This makes the service reliable. People are also likely to use the service rather than traveling on foot (convenient, fast and cheap). Furthermore, the service has long been an essential part of society and is perfectly compatible with the lifestyles of people. People also tend to be trusting of the service, and vice versa.

7. **What parts of the motorbike taxi service need improving?**

    An excessive number of riders in Bangkok, both registered and non-registered, conflicts between many different service providers through online platforms and an increase in fares that is not commensurate with the cost of living.

8. **What current government policies or measures, both in transport and other fields, affect the operation of the motorbike taxi service How? (e.g., price control and fee)**

Government sectors have a policy on price control (THB25 for the first 1-2 kilometers. Beyond 2 kilometers, the fare is negotiable between the rider and the passenger). Also, the law needs to support the registration process for riders (An agreement should be made before the registration of more new members). This approach is meant to limit the number of motorbike taxi riders.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support the motorbike taxi service? How will these policies affect the service?**

An official platform must be created in order to root out corruption. Some new policies should also be introduced to address the problem of providing the service outside designated areas.

10. **How do other businesses, such as food delivery services and ride-hailing services via online applications, affect the existing motorbike taxi service, both from the perspectives of the service itself and from riders?**

Using another service via a mobile application is favorable to passengers. However, it leads to a problem of providing the service outside designated areas, which is against the law. When such a problem occurs, people tend to use another service via a mobile application (conflicts among different service providers).

11. **Apart from the motorbike taxi service, there are also other alternatives suitable for short-distance travel, such as the bike-sharing service and the e-scooter sharing service. Do you think these services will help or hinder the motorbike taxi service? How will they affect the motorbike taxi service?**

I think other types of shared micro-mobility will not be a major rival, since their target groups are not the same as that of the motorbike taxi service. Moreover, using the motorbike taxi service is more convenient as passengers do not need to ride themselves, and that is not the case with those two services. Passengers do not need to worry about the weather. Also, those services of shared micro-mobility are still not appropriate choices in Thailand due to the unavailability of infrastructures, such as bike lanes and good pavements. They are still not safe for users.

A shared e-scooter user from e-scooter sharing operator C's interview on June 24, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    We are users of public transport. Shared micro-mobility is an important alternative when there is traffic congestion.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We are used to the services of bike sharing and e-scooter sharing.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It is mainly for short-distance travel (traveling within the grounds of universities, for example), as well as for recreational purposes and exercise. It is also suitable for first-mile/last-mile travel (an alternative to the motorbike taxi service).

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    These projects have not been well received by the public. It is because the service points do not cover all essential areas where demand for the service is high. Also, the service is quite expensive.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    Prices need to be cheaper. The service has to be accessed more easily by users of all ages and genders. Also, mobile applications should be stable and effective to facilitate the payment process, as well as the rent-and-return system.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes
    - Eco-friendly system of the service
    - Recreational purposes of the service

    Measures that will help enhance the business
    - More PR of shared micro-mobility
    - Policies on price reduction

    Failures
    - Wear and tear of equipment
    - Lack of effective maintenance of vehicles and devices

    Measures to solve problems

- A regulation on the rent-and-return system by which vehicles have to be returned at the service point where they are rented

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

It is due to a large number of motorbike taxis and numerous service points at advantageous locations. Passengers can have a speedy ride with a relatively low price. This service is also suitable for first-mile/last-mile travel.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

Riding vehicles on pavements are banned by law, leaving no vehicle lanes for shared micro-mobility.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

The government should provide specific spaces for riding small vehicles and build a network of routes in areas where the service is needed. Measures about price reduction should also be proposed.

Thailand Walking and Cycling Institute Foundation's interview on June 1, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   Our foundation was inspired by a club that has encouraged the use of bicycles. In the past 10 years, we have been propounding related public policies, subsidized by Thai Health Promotion Foundation to make these policies the national agenda. The policies are primarily about walking and using bicycles. There are also academic studies into these particular issues.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

   We are particularly familiar with the use of bicycles. It does not necessarily take the form of shared micro-mobility, however.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   Since the outbreak of Covid-19, shared micro-mobility has become another way of commuting in the city rather than a form of recreation or exercise.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   The business has not been as successful as previously expected. New users do not have easy access to the registration process and the rent-and-return process (lack of staff to provide information and advice on rules and regulations).

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   A successful service of shared micro-mobility is measured by the service provider's capability of demand forecasting, the ability to tackle the problem of disputed licenses and the development of operating areas. The successful networks of shared micro-mobility would affect the transport system of the city in positive ways. That is to say, the service will satisfy the needs of people for short-distance travel and connect many different modes of transport. It is also suitable for first-mile/last-mile travel.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes
   - Successful PR that can attract public attention
   - Government support for public transport

   Measures that will help enhance the business
   - A prolonged period of PR and campaigns to boost public awareness of shared micro-mobility

Failures

- Business model (non-profit and low demand for the service)
- No government policy and investment (infrastructures of shared micro-mobility)
- Poor service of companies in charge of shared micro-mobility (Inaccessibility of information)
  Measures to solve problems
- Incentives to increase demand in the long run
- Construction of infrastructures to improve safety and convenience of shared micro-mobility

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

It makes commuting in the city more convenient as there are a large number of motorbike taxis available at any time. It takes very little time for the service to take the passenger to the destination. It is also fairly cheap.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

There is still no tangible policy. However, there is a project called 'Pun Pun', although it is not a success as there are very few users of the service.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

The revision of law needs to be proposed to make it compatible with the application of new technologies. Other regulations include infrastructures to support the use of vehicles, tax reduction and quality control to improve safety.

Land transport regulator - interview on June 16, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   The Department of Land Transport is responsible for overseeing the whole system of land transport. The principal duties involve vehicle registration and vehicle taxation prior to usage. Related rules and regulations are applied only to normal private vehicles. For shared micro-mobility, the specific types of vehicles and devices do not fall into such a category. As a result, they are prohibited by law from riding on the streets.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

   We were familiar with e-scooter sharing when in other countries but have never used it in Thailand. We have sometimes heard of bicycle sharing.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It is mainly for short-travel and first-mile/last-mile travel. It is highly convenient and safe because users (riders themselves) can control the speed.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   This type of transport is still not a suitable one, since violations of traffic rules are still commonplace. That is why the overall operation of shared micro-mobility has not been successful.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   There must be certain lanes for riding safely. The service is intended to be another choice that can be connected to other modes of transport. Legislation is expected to prioritize people riding small vehicles and pedestrians on pavements.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes
   - No success in Thailand

   Measures that will help enhance the business
   - Good specifications and qualities of equipment (fitting and safe)

   Failures
   - The insufficient number of service points

- The process of rent-and-return system (The vehicles have to be returned at the service point where they are rented.)
- Lack of equipment safety
  Measures to solve problems
- More rent-and-return points built in locations where demand for the service is high
- Continuous and smooth lanes covering large areas

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

It is because the motorbike taxi service is legal and riders have to be registered. Service points have to be strictly regulated (controlled by law).

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

Government sectors have a law that categorizes types of vehicles, although it is inconclusive and not up-to-date. This leads to loopholes that exclude some equipment and vehicles of shared micro-mobility from being used legally.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

As of now, there is still no law that supports shared micro-mobility. The government should make it legal and demand that riders of shared micro-mobility be given official licenses. A policy on building certain lanes for riding is also needed.

Office of Insurance Commission's interview on June 16, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   Our organization's roles are to direct and support insurance businesses. A series of insurance services are developed to reduce various risks. We regularly work with private sectors and other organizations on insurance-related issues.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

   We have heard of some kinds of shared micro-mobility (bicycle, e-scooter and Segway) but never used them before.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It is mainly for short-distance travel and can connect with other modes of public transport. This means it is a good choice for first-mile/last-mile travel.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   We have not used any services of shared micro-mobility because they are still not convenient enough (qualities of vehicle lanes and pavements). Also, service points do not cover all areas (both starting point and destination). The lack of safety is still a problem due to the unavailability of the system.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   It has to be cheaper than any other mode of transport. Infrastructures of shared micro-mobility should be well-organized (proper vehicle lanes and operating areas in proportion to those of other modes of transport, including regulated lanes on streets for small vehicles). The success of shared micro-mobility should lead to a decrease in other motorized vehicles.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes

   - High demand for the service in the tourism industry
   - Service points in closed areas (safe for short-distance travel)

   Measures that will help enhance the business

   - Measures to make the service cheaper than any other mode of transport
   - More routes for riding that cover large areas

Failures

- No certain travel routes for shared micro-mobility
- Risk of parking and riding vehicles (safety issues)

Measures to solve problems

- Provision of specific vehicle lanes to enhance safety

7. As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?

The motorbike taxi service is one of the convenient ways of commuting that appeal to a huge number of passengers. It takes little travel time and can travel through many areas. Passengers do not have to ride themselves or be responsible for any rented devices. Skilled riders know areas so well that they can take passengers anywhere in the city center.

8. What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?

There is still no particular law made by government sectors to register these particular vehicles. This makes it difficult for services of shared micro-mobility to claim insurance via identification and registration processes.

9. Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?

Government sectors should set up specific organizations or delegate the responsibility to an existing department to supervise shared micro-mobility.

Office of Transport and Traffic Policy and Planning's interview on June 16, 2022

12. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

The Office of Transport and Traffic Policy and Planning is a Department under the Ministry of Transport. The principal roles are to initiate policies in order to control and direct land, water and air transport. Other roles include improving accessibility to modes of transport and making them sustainably successful.

13. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

We used to use an e-scooter sharing service abroad and never used any types of shared micro-mobility in Thailand. We have sometimes heard of bike-sharing services.

14. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

It is good for first-mile/last-mile travel and serves as an effective choice for anyone who prefers a low-carbon way of travel.

15. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

The projects are not practical. The operations seem to have been carried out just for PR purposes and they have not led to anything successful and profitable. There are also very few users of shared micro-mobility as it is thought to be less convenient than using private cars.

16. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

It has to satisfy the needs of the public. Government sectors could interfere only to facilitate the system. The networks of shared micro-mobility also have to be well-organized and smooth, with the ready availability of all infrastructures of the whole system.

17. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

Successes
- Public awareness of shared micro-mobility
- Connectivity between bikes and the Sky Train
- Policies on bike lanes
- Policies on projects of non-motorized vehicles in some certain areas (Phitsanulok)

Measures that will help enhance the business
- More routes for shared micro-mobility that cover large areas

- More PR of shared micro-mobility

  Failures

- Poor infrastructure (lack of connectivity)
- No conclusive law to support shared micro-mobility
- A small network of public transport that does not cover large areas
- Lack of safety

  Measures to solve problems

- Speed limits for vehicles of shared micro-mobility
- Modifications to vehicles and devices for legal registration
- Setups of organizations in charge of shared micro-mobility
- More service points to connect shared micro-mobility with the Sky Train

18. As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?

The motorbike taxi service can be accessed easily, by which riders can go through a complex network of narrow and long streets in the city. The average ride also takes little time. As a result, the demand for this service is high during the rush hour. Low-quality pavements and vehicle lanes also discourage other modes of transport. Also, the fares are relatively cheap when the speed of the service is considered.

19. What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?

Government sectors should support the National Master Plan and policies related to lightweight vehicles. However, the process of developing this business has been discontinuous and impractical.

20. Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?

Government sectors must stipulate the scope of the services of shared micro-mobility. For example, the idea of a Smart City should be further developed (to promote traveling without using motorized vehicles). There should also be strong cooperation between government sectors and private sectors, working together to assess public demand and find out the right measures to run the operations of shared micro-mobility. The committee should also be appointed to oversee the system as a whole.

Property Management of Chulalongkorn University (PMCU)'s interview on June 29, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   I am in charge of traffic and services of shared micro-mobility within the grounds of the Property Management of Chulalongkorn University. The work involves making traveling easier and more convenient.

   The Property Management of Chulalongkorn University is a department of the University that manages its real estate, other infrastructures, facilities and services of shared micro-mobility.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

   We are familiar with and frequent users of shared micro-mobility; bicycle (Anywheel and Co-bike) and scooter (Leafe, Beam Mobility).

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It is mainly for first-mile/last-mile travel and is capable of traveling through a broad network of routes. It can also be used for recreational purposes and exercise.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

   The business model and its overall concept are good in terms of its flexibility in different areas to meet demand and the service can offer good sales promotions. Those services of shared micro-mobility are also widely known among the public.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

   The significant factors include high demand for public transport and more choices of transport. These factors will lead to a decrease in private car use. As a result, the quality of life of commuters who use public transport can be improved, since their travel costs become cheaper and they can save more money. There will also be more high-income stores in the city, thanks to easy access to different modes of transport. The pollution will be reduced and public health will be better because of people's everyday lifestyles; walking and cycling.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

   Successes
   - High demand for shared micro-mobility
   - Great cooperation between companies and personnel

- Willingness to listen to various opinions of users
- The University's support of operating areas

  Measures that will help enhance the business
- More rent-and-return points
- More vehicles
- PR to promote the service and make it better known around the University
- Monthly and yearly sales promotions for officers working near the University

  Failures
- Disparity between the number of vehicles and the number of users
- A large sum of money for the routine maintenance of vehicles and devices
- A difficult routine procedure of changing batteries

  Measures to solve problems
- A system of rearranging vehicles by University students at service points where demand for the service is high
- Recruitment of volunteers (University students) to help reduce employment budgets

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

   It is because of the capacity of the motorbike taxi service, which is speedy. There are a great number of vehicles available for passengers. Also, it can provide a food delivery service within the University (via a mobile application).

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

   There is still no law to support shared micro-mobility. This makes vehicles and devices still illegal. It also involves problems with insurance (vehicles cannot be categorized).

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

   Government sectors should introduce a law that regulates specific areas where services of shared micro-mobility can be used legally (either on pavements or on streets). Vehicle lanes must be built for small vehicles. Punishment needs to be enforced against those who use illegal vehicles on the streets. Also, rules and regulations regarding the designs of streets and pavements need to be created (features of bike lanes).

Traffic Police's interview on July 1, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    The Traffic Police is a government division that enforces the laws associated with traffic in Bangkok.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We have never used any types of shared micro-mobility before but have seen a bike rental service in the city center of Bangkok (The Pun Pun Project).

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It is good for short-distance travel and can be used to connect with other modes of transport.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    They are not successful due to poor access to the services. The PR for shared micro-mobility is still not good enough to make it widely known.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    It has to be legalized especially e-scooter use (bicycle use is already supported by Land Traffic Act). There should also be specific vehicle lanes.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes

    - -

    Measures that will help enhance the business

    - More PR for shared micro-mobility to make it popular
    - More vehicles to meet demand

    Failures

    - No law that supports e-scooter use
    - No traffic rules and regulations on operating areas
    - Difficult access to the service

    Measures to solve problems

    - Clear and precise rules and regulations on small vehicles (area, lane, speed and helmet)

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

The service is widely used because of its ready availability. It can be easily accessed at locations where the demand is high. It also covers large areas. The riders know routes very well (they can avoid traffic congestion during the rush hour).

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

   There is still no law related to shared micro-mobility.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

   Government sectors must enforce more rules and regulations codified in the Traffic Act in order to support e-scooter use. More PR for shared micro-mobility should be carried out to advertise the advantages and drawbacks of shared micro-mobility. This can make it widely known and boost demand. Measures to reduce taxes on small vehicles can also encourage people to get easier access to shared micro-mobility.

Traffic and Transport Department's interview on June 22, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    The Traffic and Transport Department is responsible for issues related to public transport, including BTS, BRT, water transport and traffic. The Department is also in charge of security measures (CCTV cameras and Smart Mobility) in Bangkok.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We have been working on Pun Pun Project (a bike rental service in the city center of Bangkok) for 9 years. It has 50 service points. So, we are quite familiar with bike-sharing services.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It is suitable for short-distance and first-mile/last-mile travel. It can also be used for exercise.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    Services of shared micro-mobility are still unable to strike a balance between meeting public demand (limited numbers of service points and vehicles) and the safety of lives and properties of people (due to poor features of streets).

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    The success of shared micro-mobility will provide people with more travel choices. An efficient network of different modes of transport should make traveling cheaper. This is also good for public health (shared micro-mobility can be used as a way of exercising). Ultimately. It will lead to the development of the city as a whole in terms of infrastructures, especially travel routes.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes
    - Demand for the bike rental service

    Measures that will help enhance the business
    - More service points of shared micro-mobility covering large areas
    - More PR for shared micro-mobility

    Failures
    - Inappropriate locations (inadequate and not connected to other modes of transport)
    - Lack of infrastructures suitable for small vehicles (such as proper vehicle lanes)

- No specific areas for riding small vehicles (bike lanes)
- No demand for shared micro-mobility
- No improvement of technology applicable to shared micro-mobility
- No cooperation between organizations
- Users' attitudes to safety issues
  Measures to solve problems
- Road users' conscience about using streets together
- More advertisements to improve the understanding of how to use vehicles and devices
- Improvement of infrastructures
- Improvement of vehicles for safety reasons
- More state-of-the-art technologies to support the service
- Private sectors' involvement in the operation of shared micro-mobility
- Cooperation between government sectors and private sectors
- Creation of an integrated payment system

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**
    The service is popular particularly because people have no better choices.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

    Government sectors have policies associated with bike rental services run by the Traffic and Transport Department and Mass Rapid Transit Authority of Thailand. The policies are meant to encourage people to use services of shared micro-mobility. There is also a master plan for bicycle use (bike riding around tourist attractions).

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

    Government sectors must introduce the law that supports infrastructures and the safety of people who use small vehicles. Insurance should also be encouraged. Moreover, more vehicle rental services should be set up for better connectivity (BTS to MRT). More PR for shared micro-mobility is also needed to advertise the advantages of the service. The government should also be clear about policies related to travel and tourism.

Insurance company A's interview on July 6, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

   I work as a marketing assistant manager of the company, responsible for dealing with customers and partners about insurance-related matters. I am also in charge of creating new insurance products for customers.

   The main company's role associated with transport is to provide commuters with products and services that protect them from financial loss due to accidents.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

   I used to use a bike-sharing service at Thammasat University and another bike-sharing service and a scooter-sharing service in Japan.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

   It serves as a mode of transport that can connect with public transport in Bangkok. It can also be used for exercise and other recreational purposes.

4. **What roles can insurance play in achieving the success of shared micro-mobility in Bangkok? How will these roles affect the transport system of the city?**

   Insurance businesses will be a crucial factor in the success of shared micro-mobility as users can be fully insured when using the service.

5. **As motorbike taxis are widespread in Bangkok, are there any insurances that can be provided to this service?**

   For the motorbike taxi service, Type 3 of insurance can be applied. This insurance can protect the third party and their property, not the property of the service provider (the motorbike taxi).

6. **What current government policies or measures, both in transport and other fields, affect insurance for shared micro-mobility? How?**

   When new insurance products are released, they need to be authorized by the government sectors before they can be used.

7. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support insurance for shared micro-mobility?**

   At present, government sectors are responsible for stipulating conditions on how to calculate insurance payments. The government sectors should therefore allow these strict conditions to be changed in order to make them more suitable for the current business model. More insurance products have to be created for services of shared micro-mobility. There should also be cooperation between many different insurance companies to develop more insurance products.

8. **At present, What insurance products cover small vehicles (bicycle, e-sccoter, e-bike, Segway, etc.) and services of shared micro-mobility? If there are still no insurance products**

or insurance services available, what measures and criteria are needed to design new insurance products (including the calculation of insurance payment and the scope of insurance cover)?

There is already a product that can be applied for individual insurance and group insurance, both of which are expensive and hence are not appealing to customers. Creating new insurance products and services for shared micro-mobility requires retrospective statistics for the calculation of insurance payments. However, since no information on such statistics is available, comparisons with the existing insurance products and services can be useful. When the information is available, adjustments can be made to insurance products and insurance payments. Still, it is quite difficult to roll out new insurance products for shared micro-mobility, since the risks of using these particular vehicles are high and they are not expensive.

9. **As small vehicles for shared micro-mobility (bicycle, e-bicycle and e-scooter) are still not allowed to be used legally on streets (vehicles cannot be categorized), do you think this problem is a hindrance to introducing new insurance products for shared micro-mobility?**

The fact that small vehicles for shared micro-mobility cannot be officially registered is still a problem. There is no law that supports the categorization of these vehicles. As a result, it leads to some legal problems and vehicles cannot be insured when accidents occur. It is equally difficult to check whether vehicles are insured as they have no registration plates. It can lead to fraud as well.

10. **What factors will encourage insurance companies to design their insurance products for shared micro-mobility?**

A wealth of statistical information is necessary for the calculation of insurance payments and the designs of new insurance products for shared micro-mobility. The statistical information about road accidents and insurance-related data available in other countries can also be applied.

Bike sharing operator B's interview on July 6, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    Our company is the first bike-sharing business in Thailand. The service can be accessed through the registration process with an ID card. Users are charged annual rental fees for the service. The biggest running cost of the operation comes from the maintenance cost of bicycles.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    As a service provider, we are familiar with bike-sharing.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It is capable of first-mile/last-mile travel. It also plays an important role in connecting other modes of transport. People also use shared micro-mobility for exercise (some service points are adjacent to public parks).

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    It still does not live up to expectations due to strict rules and regulations by TOR. This makes it difficult to amend terms and conditions specified in the contract, which involves an online system via a mobile application, more service points and a complicated registration process for new members.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    People can use shared micro-mobility to connect with other modes of transport (service points have to be located in various places). There should be a wide range of options of vehicles and devices for users (e-bike, e-scooter). Vehicle lanes should also be available for small vehicles. GPS devices should be attached to vehicles to keep track of routes for further research.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes
    - Public recognition of shared micro-mobility
    - More frequent users of the service
    - Public awareness of pollution

    Measures that will help enhance the business
    - Bathrooms at service points

- Cooperation between private sectors and government sectors to build more rent-and-return points
- Vehicle lanes

  Failures
- No vehicle lanes
- No interest from executives of many companies in shared micro-mobility
- A complicated process of registering new users

  Measures to solve problems
- An online system via a mobile application for the registration process

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

   The service is widely available, speedy and easy to use. It is also legal.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

   There are some old contracts made by government sectors, but they cannot be changed in order to develop some new features of shared micro-mobility, such as an online application and an extension of rent-and-return points.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

   A new policy should allow more government sectors and private sectors to work together on building more service points. There should also be bathrooms at every station for users and certain lanes for small vehicles.

Consultants C's interview on June 8, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    Our company gives government sectors and private sectors some advice on a range of issues, such as zero-carbon issues, non-motorized vehicles and issues on healthcare.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We used to use services of shared micro-mobility abroad, but still have never used any kinds of them in Thailand.

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    It is a good alternative to the motorbike taxi service and can be suitable for first-mile/last-mile travel.

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    It is still not a success due to its inefficient business model.

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    It has to be used extensively by a huge number of people. A successful shared micro-mobility should be an instantly recognizable service, hence a very common way of commuting on a daily basis. However, it does not necessarily help solve traffic congestion.

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes

    - -

    Measures that will help enhance the business

    - Strict rules and regulations
    - Better infrastructures of shared micro-mobility

    Failures

    - Unavailability of vehicles and devices
    - Few users of the service
    - Lack of PR

    Measures to solve problems

    - Improvement of infrastructures

- More vehicles and devices
- More PR to make shared micro-mobility well known

7. As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?

There are many motorbike taxis that can satisfy the needs of passengers. However, there are still downsides about vehicles and prices.

8. What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?

There is still no law that supports shared micro-mobility. Also, the price-cap policy on petrol still encourages people to use private cars.

9. Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?

Government sectors should improve infrastructures and make them safer and more stable. Private sectors should also work on providing more areas for service points and supplying more vehicles and devices. People can also support shared micro-mobility by raising awareness of the importance of shared micro-mobility. The circle of academics can also develop innovative vehicles for shared micro-mobility, such as making them more durable.

E-scooter sharing operator D's interview on July 6, 2022

1. **Please tell us about the roles you and your organization play in the fields of public transport and shared micro-mobility in Bangkok.**

    We are an operator of shared micro-mobility in Asia Pacific, based in Australia, New Zealand, South Korea, Malaysia, Taiwan, Thailand and Turkiye. Indonesia and Japan are our future operating sites. As of now, we are still not operating in Bangkok but we believe we can achieve our plan in this city because there is a lot of research and investment in technology (the operation is currently the best in the Asia Pacific, with zero fatality and zero accident rate not only in Asia Pacific but globally as well). Beam Mobility is not currently operating in Bangkok but we think we can achieve our goal.

2. **What type(s) of shared micro-mobility with which are you familiar? (e.g., e-scooter and bicycle)**

    We operate 2 types of mobility vehicles; e-scooter (most popular with control speed and area for operation) and e-bike (geopositioning control, implementation of safety features, with its most popularity in Australia).

3. **In your opinion, what roles does shared micro-mobility play in people's commuting in Bangkok? (e.g., short-distance travel, first-mile/last-mile travel and use for recreational purposes and physical activities)**

    Shared micro-mobility is used to support first-mile/last-mile trips, which are particularly dependent on the infrastructure of public transport, places where the service is available and the weather. Shared micro-mobility is also used to connect with other modes of public transport or can be used through the whole journey (not for an integrated transport system). In Thailand, it is mainly used for short-distance travel around commercial areas, tourist attractions and education centers (according to user behavior, the average travel distance is 3 kilometers or less).

4. **As the operation of shared micro-mobility has been established in Bangkok for more than 10 years, with many projects and services, such as PunPun, Neuron, Ofo and Mobike, how good is the overall operation of these projects?**

    Beam Mobility was first operated in Thailand in August last year (2021). It has grown bigger thanks to high demand from tourists. The company has received positive feedbacks about the service as it is easy to use and users can use it immediately when vehicles are available (no waiting time for the service and highly convenient).

5. **What do you think makes shared micro-mobility in Bangkok successful? How will it affect the transport system of the city?**

    The shared micro-mobility market has grown bigger. The market has been well received and also has a wide range of customers (tourists and local people). The expenditures of the service are also provided. To envisage the successful future of shared micro-mobility is to improve the mobility in

    urban areas that make people's lives and transport in the city comfortable (reduction of traffic congestion, ready availability of shared micro-mobility that supports people's commuting in urban areas, affordability and reduction of carbon emissions).

6. **In executing shared micro-mobility in Bangkok, a) What are successes? What measures will help enhance the business in the future? b) What are failures? What measures will help solve problems? (e.g., service, operation, market (competitors and consumers), urban contexts, policies, and law)**

    Successes

    - Various users who use shared micro-mobility
    - High demand for the service
    - Expansion of the service in larger areas

    Measures that will help enhance the business

    - Partnerships in Thailand (working with the local government)
    - High demand from local people
    - Laws that support shared micro-mobility in Thailand

    Failures

    - Laws relating to shared micro-mobility in Thailand, which are still not clear
    - No specific law associated with shared micro-mobility in Thailand (no transparent right)
    - No tangible approach to shared micro-mobility from the government (regulatory aspects, classification of vehicles)
    - Lack of parking spaces for shared micro-mobility vehicles
    - Outdated rules and regulations in the aspect of riding vehicles of micro-mobility

    Measures to solve problems

    - Demand for the practicability of vehicles
    - Government support for new technologies of vehicles
    - Standard of vehicles for shared micro-mobility service (speed, light, break and safety (helmet, insurance)) to make the company meet requirements.
    - Pilot project (sandbox)

7. **As motorbike taxis are widespread in Bangkok, what factors contribute to this popularity?**

    In Thailand, it is pretty much the only way to support first-mile/last-mile services. Alleys are very deep and they can be accessible only by the motorbike taxi service. They can also give a speedy ride. Motorbike taxis in Thailand are in fact a huge group of public transport.

8. **What current government policies or measures, both in transport and other fields, affect the operation of shared micro-mobility? How?**

    Laws and regulations are still outdated in the aspects of classification of vehicles and compulsory components of vehicles.

9. **Apart from the aforementioned policies, are there any others that need to be initiated by government and private sectors in order to support shared micro-mobility? How will these policies affect the business?**

    The government should listen to opinions of private sectors and take an approach in a suitable way together in order to support services of shared micro-mobility. They should also launch the policy

on compulsory components of vehicles, safety (speed and helmet) and insurance for services of shared micro-mobility.

CHAPTER 7   References

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