International Transport Forum

Regulating App-based Mobility
Case Studies from Bangkok, Manila and Phnom Penh

Case-Specific Policy Analysis

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The International Transport Forum

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Executive summary

Key messages

App-based services are integral to urban mobility

App-based mobility services have become integral parts of urban transport systems across Southeast Asia, improving the efficiency and quality of pre-existing paratransit services.

A diverse regulatory landscape

The regulatory approach and governance arrangements for app-based mobility vary considerably across the countries reviewed in this report, as well as other ASEAN member states.

Achieving the right balance

Regulations and governance arrangements should enable innovation to flourish while addressing market failures and protecting the welfare of drivers, passengers, and other urban residents.

Main findings

Bangkok

Bangkok's app-based mobility landscape comprises a wide range of passenger and goods transport services. Their popularity has increased over time as a result of public dissatisfaction with existing public transport services. App-based mobility represents a significant opportunity to address transport challenges in the Thai capital by providing both efficient point-to-point services and complementing public transport on first- and last-mile trips. Coordination between central (i.e. Department of Land Transport) and local (i.e. Bangkok Metropolitan Administration) levels of governance is necessary to facilitate the integration of app-based mobility services with public transport and enable the planning of combined trips. Public authorities in Bangkok should seek a greater alignment between conventional and app-based mobility services and update regulations to allow the uptake of emerging sustainable mobility solutions.

Manila

Both four-wheeled and two-wheeled app-based mobility services have exploded in popularity across metropolitan Manila, in part due to pressure on limited, overcrowded fixed-line public transport alternatives. The Philippines has taken an iterative approach to regulation over the last decade, developing a thorough framework for four-wheeled passenger services which aligns well with conventional taxis. However significant regulatory gaps remain, particularly for motorcycle taxis and active modes, as well as some inconsistencies regarding the application of regulatory requirements to freight delivery. Public authorities should focus on filling these regulatory gaps, and liberalising operational requirements for all app-based mobility services to avoid unnecessary market inefficiencies while addressing negative externalities in a holistic, cross-departmental manner.

Phnom Penh

App-based mobility services have become an integral part of Phnom Penh's urban transport system as previously dominant conventional paratransit modes digitalised. Three-wheelers make up the majority of passenger services while motorcycles are common for freight delivery. Cambodia has taken a light-touch, free-market approach to regulation where requirements focus on business/vehicle registration and safety.

Implementation and enforcement of these regulations should be strengthened. New regulations should also be introduced which enhance the welfare of passengers and drivers through setting basic labour protections, further safety measures, and data sharing/protection requirements. Should monopolistic or oligopolistic pricing occur in the future, the Ministry of Public Works and Transport should also consider introducing regulation for a fare matrix and surge pricing. Finally, steps should be taken to streamline urban transport governance between relevant agencies to better integrate app-based mobility with public transport in Phnom Penh.

Recommendations

Detailed recommendations for Bangkok, Manila, and Phnom Penh can be found in the relevant report sections. Below are recommendations for best practice which are generally applicable to all the case study cities, as well as other ASEAN member states, based on broader research insights from this report.

Create a permissive regulatory environment to enable market forces and innovation to flourish

App-based mobility services have generated significant welfare gains for the travelling public across Southeast Asia as well as a source of employment for many. For the most part, governments should avoid interfering in market dynamics and adopt a "light-touch" approach to regulation which enables the continued evolution of these innovative business models. In practice, this means avoiding regulations which set unnecessary restrictions on pricing, vehicle numbers, or market entry, ensuring legal frameworks are in place which permit the deployment of services using different modes (particularly micromobility), streamlining licensing application and renewal processes, and regularly engaging with private sector service operators, driver representative groups, and other relevant stakeholders to monitor market developments.

Treat incumbent mobility providers and new market entrants equally, including across modes

To foster a fair and competitive landscape, regulation across both app-based as well as more traditional for-hire passenger transport services should be kept as simple and uniform as possible, including across modes (i.e. four-wheelers, three-wheelers, and two-wheelers). Where differences in regulation are necessary to correct for inherent inequities in markets (e.g. with regards to street-hailing), these should be made explicit, substantiated, and reviewed at regular frequencies. To achieve regulatory harmony, existing regulations should be reviewed as a priority to ensure a level-playing field for incumbents and new market entrants.

Establish data reporting, sharing, and analysis frameworks to support regulatory compliance

The availability of operational data for app-based mobility services presents an opportunity for the enforcement of regulations to be much more precise and efficient than what has historically been the case for the ride-hailing sector. Public authorities should establish data reporting requirements which are not overly broad but instead narrowly focussed on only the data directly linked to compliance with regulations and achievement of stated public policy outcomes. Furthermore, data shared with or between public authorities should be strictly protected to preserve personal data and commercially sensitive information, and retained only for the necessary processing time. To effectively manage and act on these data flows, governments need to build capacity within relevant public authorities, or at the very least have staff capable of specifying tasks and overseeing the satisfactory performance of contracts with trusted third-party data processing agents.

Set a minimum standard of employment protections for app-based mobility workers

As uptake of app-based mobility services have grown globally, so too have concerns regarding working conditions for drivers. Recognising that often drivers are not truly self-employed but instead in subordinate, "disguised" employment relationships with their mobility platform(s), many OECD countries have started to take steps towards affording stronger employment protections for workers. ASEAN member states should follow a similar approach, setting minimum employment standards for drivers covering key issues like; adequate financial insurance in case of work injury or sickness, access to social security schemes for housing or retirement where they exist, permitting collective bargaining, and transparency on the use of artificial intelligence algorithms for human resource management. Furthermore, ASEAN member states should seize the opportunity app-based mobility platforms present to help increase labour formality, and therefore tax revenue, through creating links between the digital identification of drivers and their activities, and relevant ministries.

Take the broader urban environment into account and target regulation at addressing clear market failures

App-based mobility services can generate both positive and negative externalities for the cities in which they operate. Regulation should focus on addressing clear market failures to improve collective wellbeing, particularly regarding transport emissions, congestion, safety, and accessibility. Regulatory design should distinguish between objectives that are appropriately pursued through sector-specific regulation and those that are more effectively addressed through broader regulatory interventions. In saying that, policy makers should consider opportunities to encourage uptake of electric vehicles, facilitate active travel, develop inter-modal linkages with public transport services, enforce safety standards, and improve accessibility for disadvantaged user groups, when regulating for app-based mobility.

Streamline governance and foster efficient cross-departmental links

Governments should set clear departmental responsibilities for policy development, regulation, and enforcement/implementation of both app-based and more traditional ride-hailing services, with strong information sharing and operational links across relevant organisations and levels of government (central, regional, and local). In principle, as few agencies as possible should be involved in governing the sector to maintain lines of accountability and ease of navigation for stakeholders outside government.

Work towards closer regulatory alignment across ASEAN member states

As it stands, a patchwork of different approaches to regulation for app-based mobility exist across ASEAN member states. This makes compliance complicated and costly for service providers seeking to operate across the region and hampers the economic development opportunities of the sector. Given many ASEAN member states face similar challenges and opportunities in governing these services, increased collaboration through a forum aimed at regularly comparing regulatory approaches and implementation experience could add significant value.

Introduction

Purpose of report

The rise of app-based mobility services in Southeast Asia has changed urban mobility and goods delivery, yet many cities still lack fit-for-purpose regulation. Building on conclusions from the ITF report "Regulating App-based Mobility Services in ASEAN" published in April 2023 which took a higher-level regional perspective, the International Transport Forum (ITF), in partnership with the Association of Southeast Asian Nations (ASEAN) Secretariat, undertook this project with the central objective of reviewing in greater detail the regulatory frameworks and governance structures for passenger and freight orientated app-based mobility services in three selected ASEAN metropolitan areas – Bangkok, Manila and Phnom Penh. The project evaluates the benefits and drawbacks of app-based mobility services from a public policy perspective and provides both case-specific recommendations as well as actionable policy insights applicable to other urban centres in the region which were not selected as case studies.

Study methodology

In considering which cities to use as case studies for this project, the ITF used criteria including the size of the city (total population, population density, geographic distribution), existing app-based mobility services in operation, current regulatory frameworks, relevant governance structures, economic conditions, access to mobile internet/online banking, and the nature of municipal transport networks. In consultation with the ASEAN Secretariat and ASEAN member states, the metropolitan areas of Bangkok, Manila, and Phnom Penh were selected as priority case studies, in part because they were seen as providing a good combination of urban profiles and types of regulatory frameworks/governance structures to enable the development of both bespoke recommendations and useful policy insights for other ASEAN metropolitan areas.

To carry out the research, the ITF undertook a detailed literature review for each city and international approaches to regulation and governance of app-based mobility, engaged expert local knowledge partners based in Bangkok, Manila and Phnom Penh to support information gathering, and held a total of 23 in-depth, hour-long interviews (some with the assistance of translators) with key stakeholders from relevant central government departments, local government agencies, major private sector operators of app-based mobility services, and leading academics in each country/city (see Annex A for the list of interviewees). Where stakeholders were not available for interview, the ITF instead received written responses to a questionnaire. ITF policy analysts then synthesised findings from these research inputs to develop policy recommendations, taking into account feedback from expert external reviewers, the ASEAN Secretariat, and ASEAN member states.

Overview of app-based mobility in Southeast Asia

This section provides a broad overview of the development and impact of app-based mobility services across Southeast Asia, as well as ASEAN member states' approach to regulation.

Determinants of growth for app-based mobility

Home to 671.6 million people, or 9% of the world's population in 2022, many Southeast Asian countries have experienced high population growth, rapid urbanisation, and rising income levels in recent decades.

Almost half of the population of ASEAN member countries is below the age of 30, and around half the population lives in cities, compared to only 22% in 1967 (ASEAN Secretariat, 2023a). This trend is expected to continue, with 66% of the population projected to live in urban areas by 2050 (see Figure 1), leading to urban passenger travel demand more than tripling between 2015 and 2050 according to ITF modelling (ITF, 2022; UN DESA, 2019).

Figure 1. Population living in urban areas in Southeast Asian countries, 1950-2050
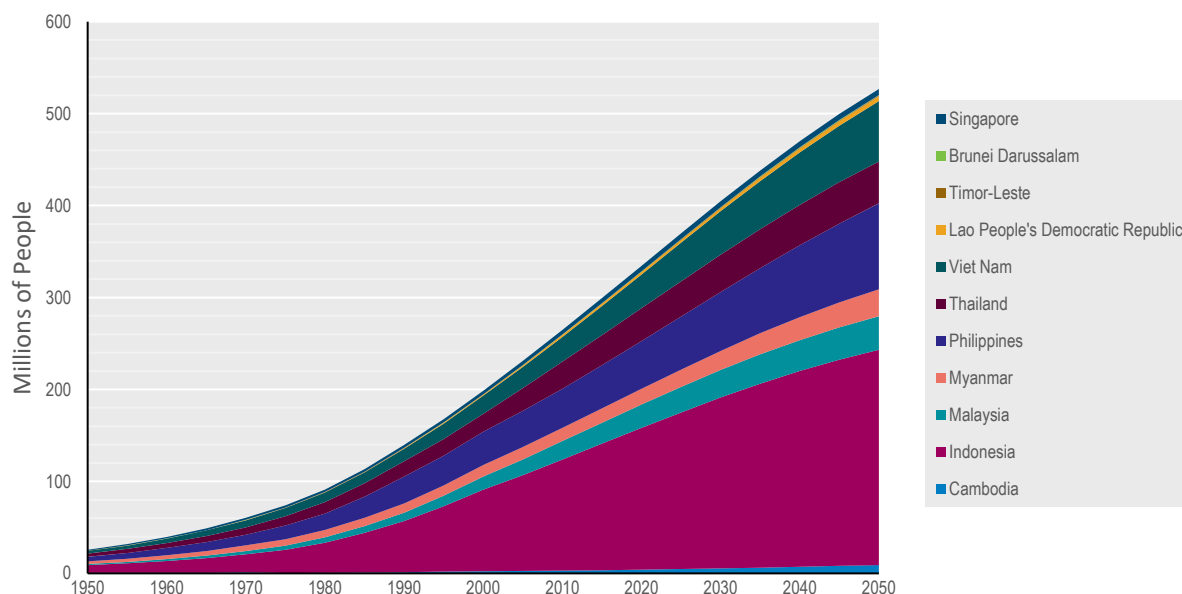
Source: Adapted from UN DESA (2018), World Urbanization Prospects: The 2018 Revision (database), https://population.un.org/wup/

Several ASEAN member states are anticipated to experience particularly rapid urbanisation in the coming years. Between 2020 and 2050, Cambodia's urban population is projected to increase significantly, from 24% to 41% of the total population, with similar growth rates in Lao PDR. Urban populations in the Philippines and Myanmar are both expected to increase by more than 70%, with Indonesia growing by over 50%. Even in Thailand, where the national population is not expected to grow, the urban population is expected to increase by 27% between 2020 and 2050 (UN DESA, 2019).

Like many regions in the Global South, public investment in transport and related infrastructure has struggled to keep pace with urban population growth, leading to most major Southeast Asian cities experiencing relatively high levels of traffic congestion, carbon and particulate air pollution emissions, as well as increasingly overcrowded and inadequate public transport networks (ADB, 2012; Chalermpong, Kato, et al., 2023). Indeed, pressure on limited public transport networks coupled with increasing per capita incomes has led to rapid motorisation as private vehicle ownership becomes increasingly attractive to a growing middle class (Mo, Kwon and Park, 2015). In many ASEAN member states, most notably Viet Nam, Indonesia, and the Philippines, this motorisation has been particularly focused on motorcycles, where its mode share is significantly larger than other types of private vehicles (Ilahi, Belgiawan, Balac and Axhausen, 2021; JICA, 2016). A high mode share of motorcycles is also evident in countries with a strong automotive industry, like Malaysia and Thailand, where the rate of car ownership is relatively high compared to other parts of the region (ASEAN Secretariat, 2023b, 2023c).

Informal transport, or paratransit, is also a prominent feature of Southeast Asian cities, where it fills accessibility gaps for certain geographic areas or user groups left by inadequate public transport networks which can only service limited segments of the population (Chalermpong, Kato, et al., 2023). Comprising motorcycle taxis, autorickshaws, passenger vans, and jeepneys among other modes, these informal transport services collectively account for a larger mode-share than formal public transport in several Southeast Asian cities (ALMEC Corporation and Oriental Consultants Global Co. Ltd, 2015; Chalermpong, Ratanawaraha and Sucharitkul, 2016; Phun, Pheng, Masui, Kato and Yai, 2020).

Population growth and urbanisation have been accompanied by strong economic growth and rising per capita income levels across Southeast Asia in recent years. In 2022, ASEAN member countries' collective nominal GDP reached USD 3.6 trillion, increasing from USD 2 trillion in 2010, representing an annual average growth rate of 4.4% during 2010-2022. ASEAN nominal GDP per capita stood at 5 395 in 2022, a notable 37.6% rise from 2015 (ASEAN Secretariat, 2023d).

Increasing wealth and urbanisation has spurred uptake of digital technologies, with internet subscriptions across the region rising on average from 66.6 in every 100 individuals in 2021, to 74.3 out of 100 in 2022 (ASEAN Secretariat, 2023d). Table 1 shows the situation at the country level, with comparative statistics illustrating how some ASEAN member states are better positioned than others to harness new digital technologies, including app-based mobility services- noting these figures obscure significant within country differences in digitalisation between urban and rural areas (ITF, 2023a).

Table 1. Contributing factors to the use of app-based mobility in ASEAN countries

	GDP per capita (purchasing power parity, current USD international)	Active mobile broadband subscriptions (per 100 people)	Individuals who own a mobile cellular telephone (% of population)	Data-only mobile broadband basket (% GNI per capita)	Individuals using the internet (% of population)	Access to a bank account or mobile money service (% of population ages 15+)	Digital skills among active population, scale of 1-7 (low-high)
Brunei Darussalam	86,445.7	119	91.8%	0.24%	99%	n.d.	4.9
Cambodia	5,624.1	99.4	71.6%	2.12%	56.7%	33.4	3.6
Indonesia	15,612.8	118	67.3%	0.24%	69.2%	51.8	4.5
Lao PDR	9,326.3	60.3	n/d	1.74%	66.2%	37.3	4.1
Malaysia	37,247.7	129	98.4%	0.24%	97.7%	88.4	5.4
Myanmar	5,905.2	109	62.3%	2.71%	48.1%	47.8	n/d
Philippines	10,755.5	73.7	78.7%	1.78%	75.2%	51.4	5.1
Singapore	141,500.2	167	98.2%	0.16%	94.3%	97.6	5.6
Thailand	23,422.9	124	88.4%	1.31%	89.5%	95.6	4.3
Viet Nam	15,194.3	99.8	83.8%	0.91%	78.1%	56.3	3.8

Source: World Bank for GDP per capita, access to a bank account or mobile money service, and digital skills among active population; International Telecommunications Union (ITU) for active mobile broadband subscriptions, individuals who own a mobile telephone, data-only mobile broadband cost, and individuals using the internet.

Taken together, strong urban population growth, strained public transport networks, increasing per capita wealth, higher rates of motorisation, and access to digital technologies have laid the ground for the emergence and rapid adoption of app-based mobility services across the region.

The vast majority of growth in app-based mobility has occurred in the ride-hailing market, where Southeast Asia is home to Grab and Gojek, two of what were initially 11 global ride-hailing "unicorns"– privately held startup companies valued at over USD 1 billion (both have since gone public) (Brail, 2022). Grab now has a market valuation of USD 12.55 billion, with GoTo (a merger of Gojek with Tokopedia) valued at USD 5.76 billion, as of February 2024 (Companiesmarketcap, 2024a, 2024b). Grab claims around 36 million

monthly users and 2.8 million drivers, while Gojek accounts for around 38 million monthly users and over 2 million drivers (Craig Smith, 2024; Ganbold, 2019; Grab, 2023).

These firms have emerged as leading global examples of "super-apps" which provide single-point, real-time access to multiple features covering ride-hailing, goods delivery, and vehicle reservation services, as well as other non-transport services, such as house cleaning, haircuts, hotel bookings, and online payment options, among others (ITF, 2023a). Indeed, the non-passenger mobility components of the super-app bouquet of services grew significantly during the Covid-19 pandemic, as food and goods delivery in particular soared in demand (Google, Temasek and Bain & Company, 2020; Grab, 2021). However, the Covid-19-induced economic downturn in the region also put additional pressure on business models that were already struggling to find profitability before the pandemic, resulting in some firms leaving the market or merging with others (ITF, 2023a). While the larger, multinational super-apps tend to dominate most markets across Southeast Asia today, there are dozens of other successful local app-based mobility companies that have significant market shares in many major cities.

An additional important part of the growth story of app-based mobility services in the region has been the enthusiasm with which large numbers of pre-existing informal transport operators have joined these digital platforms, enabling them to take advantage of a wider pool of potential clients while bypassing the need to become members of drivers' associations or cooperatives which can involve costly application processes (Frey, 2020; Jack, 2020; Ratanawaraha and Chalermpong, 2015). This dynamic may be evident in Figure 2 below, where the 2024-2028 projected revenue compound annual growth rate for ride-hailing services appears generally higher in ASEAN member states which have historically been slightly slower adopters of digitalisation, demonstrating a "catch-up effect". Figure 2 also shows relatively higher user penetration and projected market revenue in larger and more mature Southeast Asian markets for ride-hailing, as would be expected.

Figure 2. Projected ride-hailing market revenue (2024), revenue compound annual grow rate (2024-2028) and user penetration (2024) in ASEAN member states
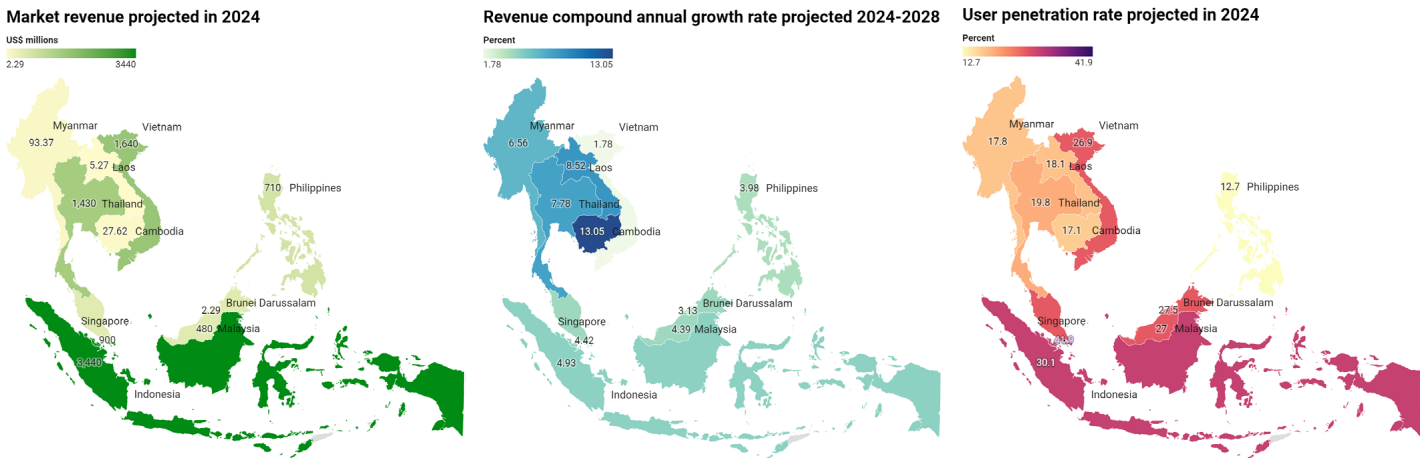
Source: Author's own elaboration based on data from Statista.com

The benefits of app-based mobility

The strong growth in app-based mobility in Southeast Asia reflects the many and varied benefits these services offer users. A 2021 survey of policy makers conducted by the ITF across all ten ASEAN member states found a widely held view that app-based mobility increased consumer welfare by providing a more convenient and higher quality travel option than conventional taxi services for users; improved availability of active modes of transport and consequent first/last mile connectivity; provided a valuable source of local employment; and strengthened the resilience of the transport system to cope with unforeseen shocks (particularly in reference to the role app-based mobility played in goods delivery during the Covid-19 pandemic) (ITF, 2023a). Some ASEAN member states, notably Singapore, also indicated the important role app-based mobility can play in complementing public transport networks and improving overall urban accessibility (ITF, 2023a). Additionally, data generated by ride-hailing trips constitute a potential resource that public authorities or other market stakeholders could use to inform their public policy actions or create new services.

These perspectives are corroborated by studies focused on user perceptions of ride-hailing applications which highlight price, reliability, personal safety and driver professionalism as key factors affecting customer satisfaction (Chalermpong, Kato, et al., 2023; Paronda, Regidor and Napalang, 2016). Furthermore, in contrast to ride-hailing in the Global North, where the main trip purpose is typically focused on social activities or recreation, ride-hailing in Southeast Asia (especially via motorcycle), is more often related to commuting to work or school with a consequentially relatively higher frequency of trips per active user, as well as helping to provide an alternative to private vehicle ownership (Chalermpong, Kato, et al., 2023; Tirachini, 2020).

The challenges of app-based mobility

However, the emergence of app-based mobility across Southeast Asia has not been without its challenges. Similar to other regions, the equity impact of these services has generated some concerns. On one hand, evidence indicates ride-hailing applications have expanded the geographical availability of services beyond areas typically served by taxis, improved access for lower-income groups through reduced trip prices, and enhanced personal safety for women. On the other, access to these services is generally predicated on access to a smartphone and online banking, thereby excluding those without. While internet access and smartphone usage are relatively high and increasing in most major Southeast Asian cities, this is not always the case in smaller regional centres further from major metropolitan areas (Chalermpong, Kato, et al., 2023; ITF, 2019). Digital platforms also create new concerns about personal data protection and security (Baker McKenzie, 2023). Security breaches can risk exposure of passengers' and drivers' personal information, reinforcing the importance of companies utilising adequate data protection frameworks.

In some places, conventional taxi drivers adopted ride-hailing applications while continuing to offer street-hailing services, whereas in others where territorial claims prevent such practices, significant conflicts over competition, including physical violence, has occurred between conventional taxi drivers and those offering their services through applications (Palevsky, 2019; Phun et al., 2018, 2020). While conflict between car-based ride-hailing drivers and conventional car-based taxi drivers has occurred sporadically, physical violence has been most common among informal transport modes, particularly motorcycle taxis and tuk-tuks (Chalermpong, Kato, et al., 2023). This has occurred in many countries, including Thailand, Indonesia,

and Cambodia, where informal transport operators often organise as parking associations and street-hailing zones become highly territorial (Jack, 2020; Palevsky, 2019; Phun, Kato and Chalermpong, 2019; Ratanawaraha and Chalermpong, 2015).

Road safety has also been a prominent concern of many policy makers, particularly as a result of the large-scale use of motorcycles and their associated high rate of accident-related injuries and fatalities in ASEAN countries (Kumphong et al., 2018; Phun et al., 2020). While independent studies on the safety of app-based mobility services in the region are limited, one survey from Viet Nam found that over 95% of ride-hailing app drivers use their mobile phone while driving, versus 64% for conventional motorcycle taxi drivers. The same study found that 10% of all motorcycle taxi drivers experienced mobile-phone related accidents, with app-based passenger and delivery drivers more likely to be involved in accidents than conventional motorcycle taxi drivers (Truong and Nguyen, 2019). A different survey, also from Viet Nam, found that 30% of app-based motorcycle taxi drivers were involved in at least one traffic accident each year (Nguyen-Phuoc, Nguyen, De Gruyter, Su and Nguyen, 2019). While the results from regional road safety studies remain inconclusive, a significant level of risk appears to be associated with the use of mobile phones by app-based motorcycle taxi drivers (Phuksuksakul, Kanitpong and Chantranuwathana, 2021).

The overall picture of the impact of app-based mobility on transport emissions in the region also remains unclear. A study focused on the Jakarta metropolitan area using a structural equation modelling technique to analyse data from 438 app-based motorcycle-taxi users found these services complemented conventional public transport (e.g. the TransJakarta BRT and commuter railways), but substituted for conventional motorcycle taxis. This study also found these trips tended to mainly cover short-distances to access rapid transit networks, supporting a similar finding on the complementarity between app-based motorcycle taxis and the Bangkok bus rapid transit system (Chalermpong and Ratanawaraha, 2019; Irawan, Belgiawan, Tarigan and Wijanarko, 2020). Other research asked car-based app users what modes of transportation they would turn to if these services were not available. In metropolitan Manila, 29% said they would switch to transit, 24% to conventional taxi, 19% to private car, and 15% to walking (Paronda et al., 2016). In Jakarta, users of app-based motorcycle taxis had previously used minibus (26%), private car (20%), private motorcycle (17%), and bus rapid transit (16%) (Suatmadi, Creutzig and Otto, 2019). These findings indicate app-based mobility may in fact act as a substitute for some public transport and active travel, with concerning implications for both traffic congestion and greenhouse gas emissions. They may also reflect that in both Manila and Jakarta, public transport services are severely overcrowded, decreasing the relative attractiveness of this mode in comparison to app-based mobility.

Despite the significant growth of app-based mobility across Southeast Asia and increasing awareness of their positive and negative externalities, many ASEAN member states still lack fit-for-purpose regulatory frameworks and governance structures. As Figure 3 illustrates, the regulatory status of different types of app-based mobility are inconsistent across ASEAN countries. For instance, in Singapore, Indonesia, and the Philippines, most types of app-based mobility services are operating and fall under some form of regulation. In other states like Viet Nam, service types which are operating are regulated whereas regulation for services which are not (yet) operating do not exist. Elsewhere, like in Brunei Darussalam, Cambodia, Myanmar, and Lao PDR, far fewer service types exist, or are regulated. In Thailand and Malaysia, several types of services operate, but go largely unregulated, falling into a "grey zone" (ITF, 2023a).

Figure 3. Regulatory status of app-based mobility services across ASEAN member countries

KEY

RSCR	Ridesourcing car
RSMM	Ridesourcing moped/motorcyle
RS3W	Ridesourcing three wheeled
PPRS	Peer-to-peer ridesharing
ODBS	On-demand buses
BICS	Bicycle sharing
EPSS	E-push scooter sharing
MTSS	Motor scooter sharing
CARS	Car sharing
PPSD	Point to point delivery of sensitive documents
PPDP	Point to point delivery of parcels
FOOD	Food delivery services
GROD	Grocery delivery
APMV	App-based moving services

SERVICES

Not operating

Operating but not regulated

Operating and regulated

Source: Authors' own elaboration based on (ITF, 2023a)

Governance structures are similarly heterogeneous across ASEAN member states, with different services (or even different aspects of the same service) being regulated and enforced by multiple different government departments in some countries. This creates a significant coordination challenge for government to maximise the benefits of app-based mobility while mitigating its downsides. As a result, government often struggles to set a clear vision of what public policy outcomes are sought, and to obtain a holistic view of the operation and impacts of existing services. The iterative feedback cycle between policy development and implementation is also significantly weakened, particularly when the experiences and perspectives of local or municipal authorities who deal with the day-to-day impacts of these services are not taken into account.

The following three sections of this report focus on detailed case studies of the state of app-based mobility in the metropolitan areas of Bangkok, Manila and Phnom Penh, as well as how the regulatory frameworks and governance structures in each case could be enhanced.

Bangkok

Understanding the city

Figures 4-9 provide selected key metrics which contextualise the development of app-based mobility services in metropolitan Bangkok.

Figure 4. Metropolitan Bangkok urban boundary, population density, major roads with typical evening peak congestion levels, and public transit network
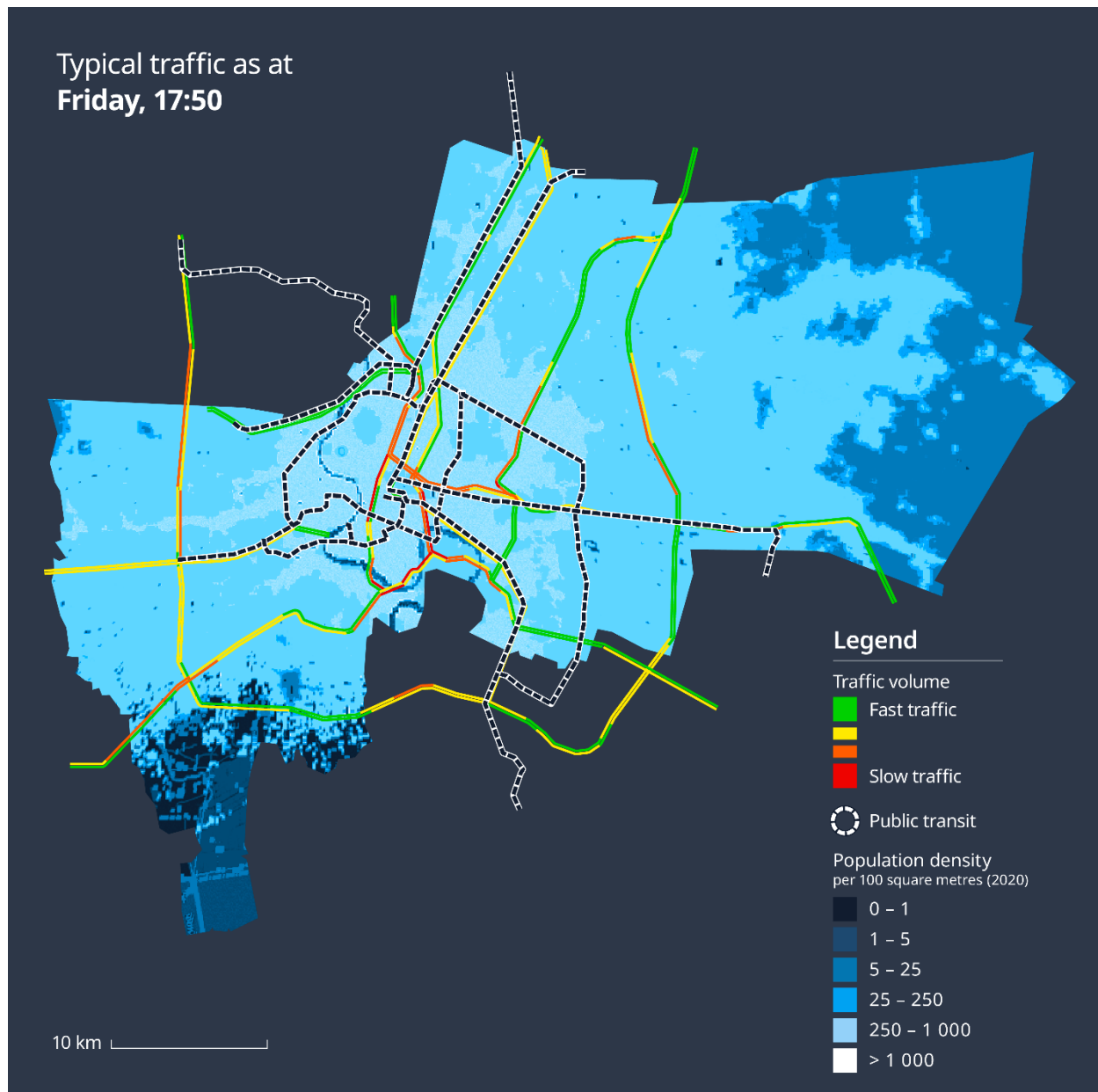
Source: Authors' own elaboration based on data from Google and WorldPop

Figure 6. Metro Bangkok mode share (% of total distance travelled in 2023)

Source:

- Automobile
- Bus
- Cycling
- Motorcycle
- On foot
- Subway
- Rail

Google Environmental Insights Explorer

65%
29%
3%
1%
1%
1%
0%
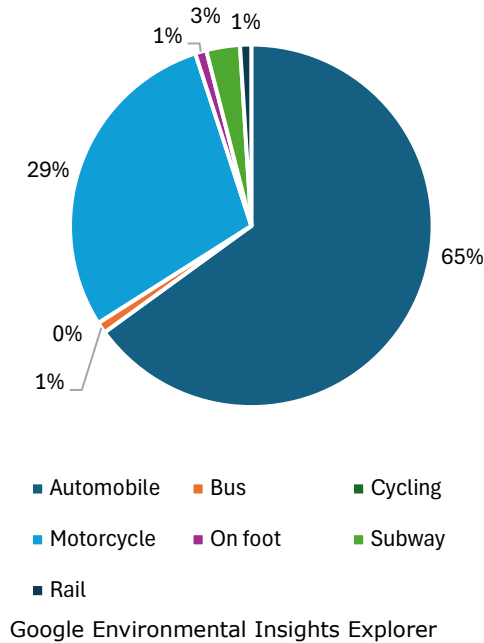
Figure 5. Bangkok emissions per mode over time (tCO2e per year)

- Automobile
- Bus
- Motorcycle
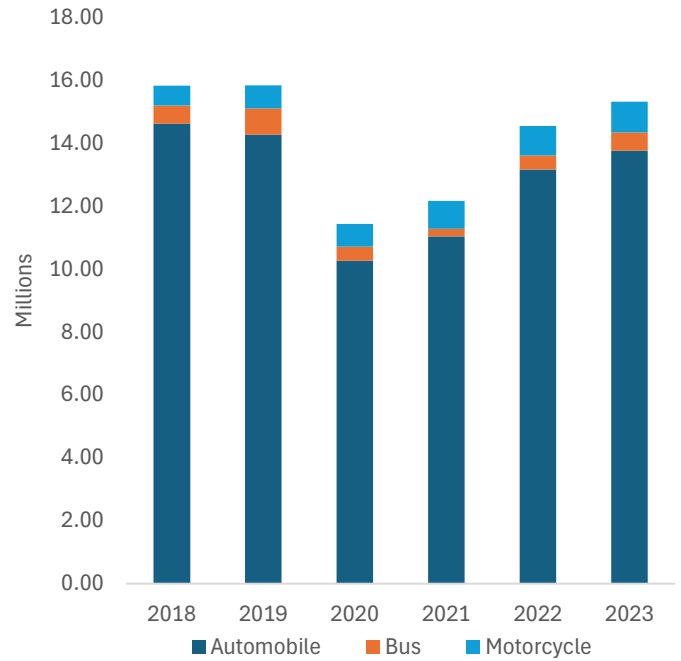
Figure 7. Population – Bangkok
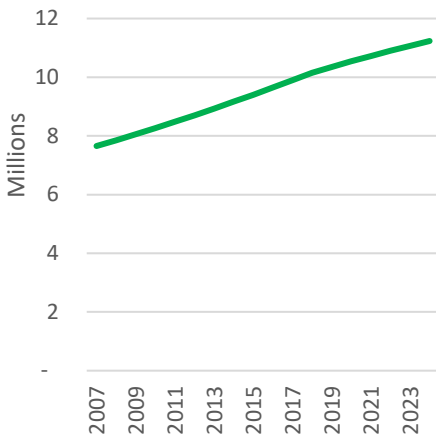
Source: World Population Review, 2024

Figure 8. Annual per capita Gross Regional Domestic Product (USD) – Bangkok
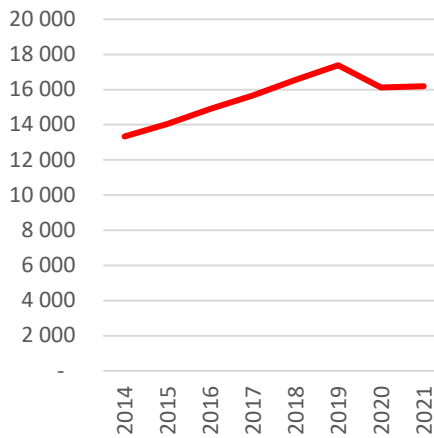
Source: Thai National Statistics Office, 2024

Figure 9. Mobile cellular subscriptions per 100 people – Thailand
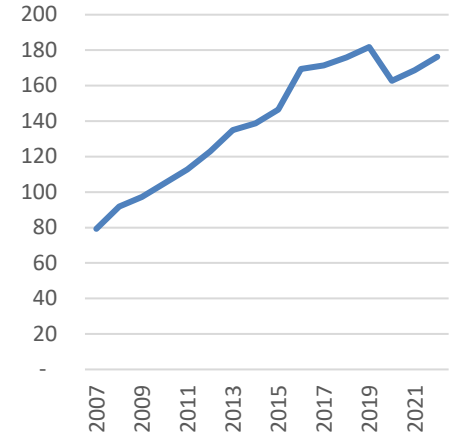
Source: World Bank, 2023

Current state of app-based mobility services

Bangkok's rapid urbanisation led to several transport-related issues in the Thai capital. The increase in urban population was associated with a fast-growing number of motorised vehicles. Private car growth boomed from 738 000 units in 1994 to 3 467 000 in 2010 (+469%), while motorcycles grew from 851 000 in 1994 to 2 446 000 units in 2010 (+287%) (Tulyasuwan, 2013). In parallel, the existing public transport network (i.e. urban rail and public buses) was unable to keep pace with Bangkok's rapid urban development, (Chalermpong, Ratanawaraha and Anuchitchanchai, 2023) with lower-density areas often not being serviced by public transport (Thaithatkul et al., 2023). Additionally, the pricing structure of conventional public transport excludes some user groups (Thaithatkul et al., 2023). These factors contributed to worsening traffic conditions across the city (Fu-Chen and Yue-Man, 1996; Marks, 2019).

Conventional on-demand transport services (i.e. taxis, motorcycle taxis, and three-wheelers) aim to compensate for the poor accessibility of certain areas (Chalermpong, Ratanawaraha, et al., 2023; Phun et al., 2019). As such, they play a crucial role in Bangkok's transport network by providing flexible and personalised transport at reasonable prices. They also act as a public transport feeder, by providing better first and last-mile connectivity. However, conventional on-demand transport services face several problems ranging from fare transparency to service denial for some users, as well as safety concerns (Thaithatkul et al., 2023).

The emergence of transport services using application-based platforms was facilitated by the increased penetration rate of smartphones (176 smartphones per 100 inhabitants in 2020) and mobile connection (98% population access to 3G or 4G in 2020) in Thailand (Chalermpong, Kato, et al., 2023). In Bangkok, the deployment of ride-hailing taxi services started in 2013 and was later complemented by motorcycle taxi services, three-wheelers and goods delivery. The emergence of these services significantly transformed the urban transport landscape (Chalermpong, Kato, et al., 2023; Sopranzetti, 2022).

From a passenger perspective, dissatisfaction with existing transport services has potentially contributed to the adoption of app-based mobility services in Bangkok. From a driver's perspective, Ratanawaraha and Chalermpong (2015) noted that app-based mobility platforms allowed drivers to access passengers directly and bypass pre-existing, and often expensive, drivers' cooperatives.

Bangkok's app-based mobility landscape comprises a wide range of services for passenger and goods transport (Chalermpong, Kato, et al., 2023; ITF, 2023a; Narupiti, 2019). It includes ridesourcing services using cars (e.g. Grab Taxi, AirAsia), motorcycles (GrabBike- Win), three-wheelers (e.g. MuvMi), carsharing (e.g. asapGO), point-to-point delivery of sensitive documents (e.g. Skootar) and parcels (e.g. Grab Express, Kerry Express), and food and grocery delivery (e.g. GrabMart).

As of December 2023, several app-based mobility services operating in Bangkok are not legally recognised (ITF, 2023a). The regulatory status of app-based mobility services in Bangkok varies, depending on the modes or types of services, as seen in Figure 10. Far from being exclusive to Bangkok, this situation is also found in other Southeast Asian countries.

Figure 10. Regulatory status of app-based mobility services in Thailand
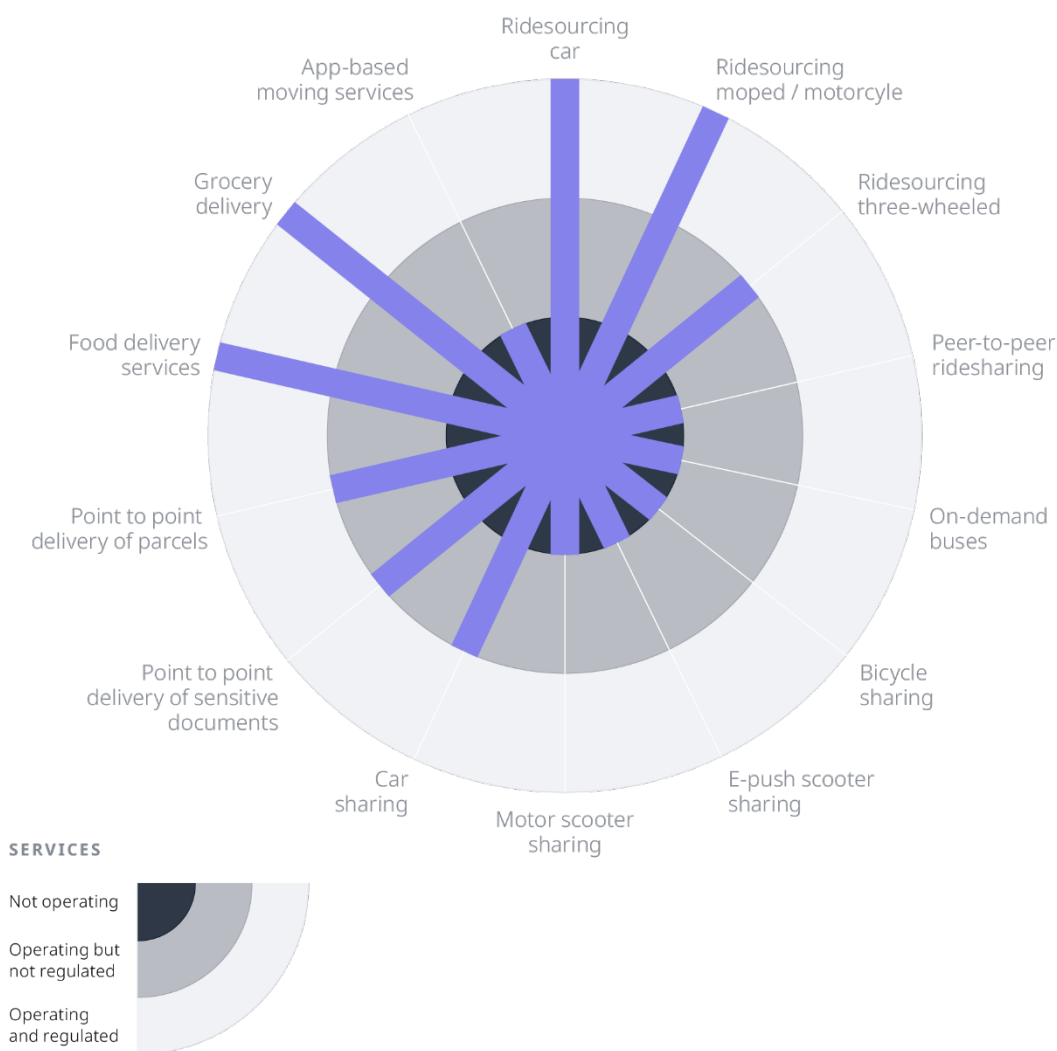
Source: authors' own elaboration based on ITF, 2023

App-based ridesourcing services using cars are among the services that are available and operate legally in Bangkok. Thailand's Department of Land Transport (DLT) defines ride-hailing cars as "vehicles for hire via an electronic system" (Royal Gazette, 2021). In 2023, the DLT actively promoted the use of ride-hailing taxi services in order to improve safety (Wechsuwanarux, Udomsuvannakul, Chueabunchai and Sombatsatapornkul, 2021). Several apps received official approval to operate in Thailand (Krisanaraj, 2023; NNT, 2023).

Some other app-based mobility services are available in Bangkok even if the regulatory framework does not legally fully recognise them, as is the case for ride-hailing motorcycle taxis. While no specific regulation is currently established for app-based services, regulation does exist for conventional, street-hailing motorcycle taxis. The Vehicle Act B.E. 2522 (1979) specifies that public motorcycles may be used to transport passengers (Vehicle Act, 1979), and so motorcycles offering app-based ride-hailing services must therefore be registered as conventional motorcycle taxis and display a yellow licence plate accordingly (The

Nation, 2018). In the absence of specific regulations regarding app-based motorcycle taxi services, conflicts between motorcycle taxi driver groups and unregistered drivers have arisen (Wantanasombut, 2023).

Discussions to amend existing laws and draft a regulation for app-based motorcycle taxi services are ongoing. Interviews conducted by the ITF with local stakeholders emphasised the need for more systematic discussions with the private sector.

Finally, some app-based mobility services present in other ASEAN economies are unavailable in Bangkok. The unavailability of the service may be related to several factors, such as the operational complexity of providing the mobility service (e.g. bike-sharing systems) or the illegal status of some modes (e.g. e-scooters).

Large-scale app-based bike-sharing services are no longer available in Bangkok. Several companies (i.e. oBike, Mobike, Ofo) deployed bicycle fleets in 2017 at Bangkok universities, however they all discontinued operations in 2019, in large part due to a lack of profitability (Kishimoto, 2019).

E-scooters are not legally recognised as part of the Vehicle Act B.E. 2522 (1979) and cannot be registered. As a consequence, e-scooters cannot be used on public roads. The Bangkok Metropolitan Administration (BMA) engaged in discussions with micromobility users in 2022 to assess how alternative modes of transport could play a role in Bangkok's transport system before considering whether to implement further policies (Voice Online, 2022).

The benefits of app-based mobility for Bangkok

Despite substantial investments in the network's expansion, Bangkok's public transport system currently does not adequately provide accessibility to certain areas and populations. It is also prone to chronic overcrowding at peak hours (Chalermpong, Kato, et al., 2023). Physical and virtual integration of app-based mobility services with public transport networks could help address this issue.

On the one hand, app-based mobility services can complement public transport patronage by improving accessibility to and from public transport stations (Ayaragarnchanakul, Creutzig, Javaid and Puttanapong, 2022; Chalermpong, Kato, et al., 2023). Ratanawaraha & Chalermpong (2015) found that nearly one out of five (19.9%) trips to a BRT bus station relied on a motorcycle taxi. The presence of dedicated infrastructure close to transit stations (e.g. park-and-ride zones, bike racks, bicycle lanes) can further improve app-based mobility services integration with public transport.

On the other hand, app-based mobility services provide an alternative mode of transport for door-to-door trips and thus decrease overcrowding on public transport (i.e. substitution) (Ayaragarnchanakul et al., 2022; ITF, 2019). Data from the Department of Land Transport show that areas with lower access to public transport were also the areas with the highest number of drivers, indicating that motorcycle taxis are potentially replacing public transport (Chalermpong, Ratanawaraha, et al., 2023). A similar replacement effect is also likely for app-based motorcycle taxi services (Chalermpong, Ratanawaraha, et al., 2023).

Improving seamlessness between modes is crucial to increasing public transport's share of Bangkok's total trips (Permana and Petchsasithon, 2019). Trip planning features can help integrate public transport services into apps or super-apps. An example of this is Grab's launch of a Trip Planner feature in 2019, integrating public transport into the app (Grab TH, 2019). To achieve such digital integration, a minimum of data sharing between public transport operators and other market stakeholders must take place.

Digital integration of public transport in Bangkok can also improve co-ordination between the different public transport networks and address the poor integration of fare structures (JICA, 2019). The current situation limits the possibility of combining trips which in turn restricts the complementarity between public transport and app-based mobility services (Ratanawaraha and Chalermpong, 2014). Work is underway to deploy a common ticketing system in Bangkok in the coming years (Bangkok Post, 2022; Thai PBS World, 2023). This harmonisation of ticketing, fare structures and data sharing of available fare products are preconditions for seamless integration between public transport and app-based mobility services.

The challenges of app-based mobility for Bangkok

ITF interviews with local stakeholders and available academic literature highlight how app-based mobility services could reinforce Bangkok's reliance on motorised vehicles, thereby further negatively impacting road safety, traffic congestion, and transport emissions. App-based mobility in Bangkok mainly relies on motorised vehicles. Light or active mode-based services, such as shared bikes and e-scooters, are unavailable (ITF, 2023b).

Road safety and accessibility

The adverse impacts of app-based services on road safety are multi-dimensional. Measures to ensure passenger safety are crucial to mitigate such adverse impacts. Several services deployed in Bangkok provide information and insurance regarding the vehicle type and the driver (i.e. identity and background checks). Most companies the ITF interviewed assess driver performance and monitor their behaviour based on vehicles' telematics data. Many apps also have emergency features to allow passengers and drivers to contact the police.

An important yet often overlooked issue is that app-based mobility services can constitute strong barriers to accessibility and safety for vulnerable road users (i.e. pedestrians, people with disabilities and cyclists). Evidence from Bangkok shows that motorcycle taxi service circulation and unsocial behaviour (i.e. driving and parking on the pavement) negatively affect both walkability and access to public transport stations (Pongprasert and Kubota, 2017). From a vehicle standpoint, this observation holds for app-based motorcycle taxi services. Additionally, unsafe and careless behaviour on the part of motorcycle taxi drivers accounts for a disproportionate 40% of total pedestrian crashes (Pongprasert and Kubota, 2017). This situation can hinder pedestrians' perception of safety.

Public authorities should ensure that app-based mobility services do not impinge the accessibility and safety of active modes. To address these issues, BMA increased the fine for riding on the pavement from 500 THB to 1 000 THB in 2014 (approximately 15 USD to 30 USD) (Wancharoen, 2019). This enforcement-based strategy has yet to show positive results. Pongprasert and Kubota (2017) note that an urban planning-based strategy could complement walkability by improving pedestrian safety. ITF interviews with BMA indicated that the local authorities engaged in efforts to reduce the impacts of parking on sidewalks by redesigning motorcycle taxi stations.

The development of app-based mobility services is also expected to impact passengers' travel preferences and vehicle purchasing behaviours (Tang, Li, Yu and Wei, 2020). Observations indicate that Bangkok's ride-hailing and travel planner services do not replace car use and purchase. Thaithatkul et al. (2023) found that

frequent app-based service users who maximise their travel options are more likely to buy a new car. This trend was significantly more pronounced among users of app-based mobility services who are younger and wealthier. This observation also suggests that previous findings indicating that the uptake of app-based mobility services might decrease private car purchases should be nuanced.

Traffic congestion

App-based mobility services led to a sharp increase in vehicles on Bangkok's roads (Thaithatkul et al., 2023). Adding vehicles might worsen the traffic situation in Bangkok, which is already one of the most congested cities in Southeast Asia. The impacts of app-based services on congestion could be mitigated through improved connections to public transport (i.e. combined ticketing, or targeted fare discounts), a view substantiated by ITF interviews with leading local researchers, including Dr. Phathinan Thaithatkul from Chulalongkorn University.

Transport emissions

Trends in other Southeast Asian urban centres suggest that motor-vehicle-based ride-hailing services (i.e. ride-hailing taxis, motorcycle taxis, and tuk-tuks) may not improve the level of transport-related CO_2 emissions and particulate air pollution (Chalermpong, Kato, et al., 2023). Several companies highlighted their efforts to introduce electric vehicles (EVs) in their fleets. Grab has set a target of 10% of all rides on its platform to be electric by 2026, as well as the development of financial loans for drivers to incentivise the purchase of EVs. Furthermore, Muvmi indicated that facilitating ridesharing could help reduce traffic volumes and decrease CO_2 emissions per passenger.

Changes in labour market activity

The advent of new mobility services has given rise to new employment opportunities. Ride-hailing and micromobility services created new types of jobs in Bangkok, unrelated to the established automotive industry (i.e., platform management) (Baker McKenzie, 2021). Concerns over drivers' working rights and conditions are becoming increasingly prominent (Bangkok Post, 2023). ITF interviews with local stakeholders highlighted that the relationship between drivers and mobility platforms was strictly related to service provision and did not provide social welfare, occupational safety and health, or employee benefits. The government should take action to ensure labour rights for the drivers of app-based mobility services are strengthened in a proportional manner, aligning with both the type of contract and the nature of the job.

Review of existing regulatory frameworks

Thailand has adopted a reactive stance to regulating app-based mobility services. Regulation should mitigate market failures; however, it may also excessively limit the market in a way that favours incumbent players. The current regulatory framework for app-based mobility services involves a combination of road sector-wide regulations, service-specific regulations, and cross-sectoral regulations (Figure 11). This section reviews the most important regulations impacting the operation of app-based mobility services in Bangkok, and Thailand more broadly.

Figure 11. The regulatory landscape for app-based mobility services in Bangkok
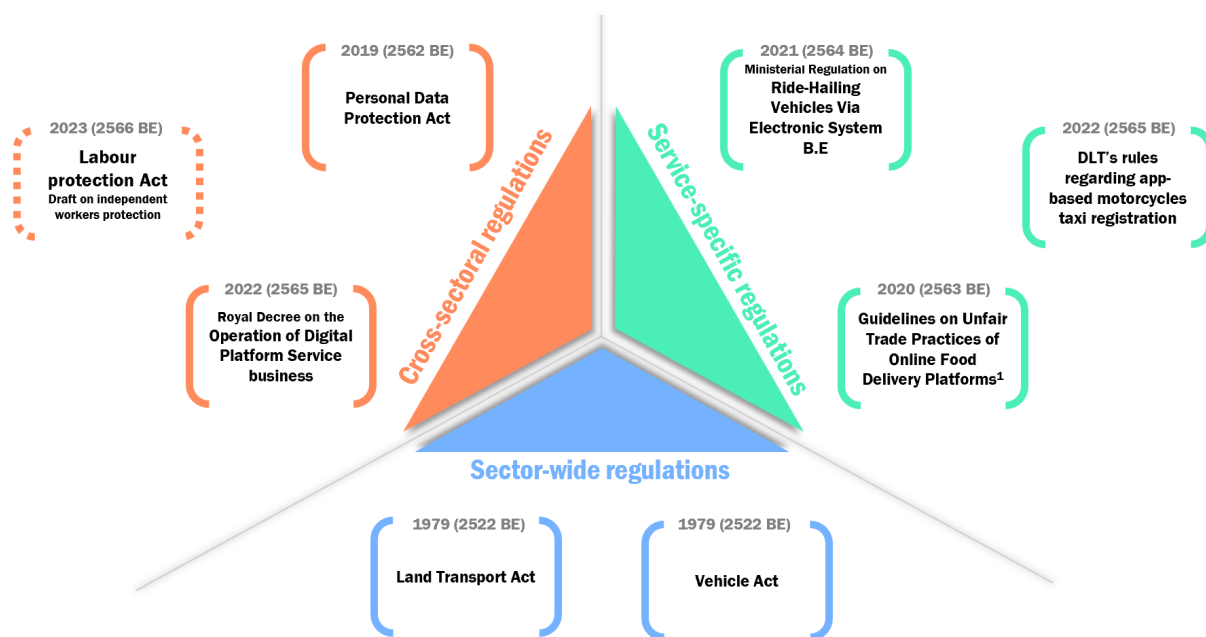
Notes: 1. The Trade Competition Commission issued sector-specific guidance. The Trade Competition Act 2017 (2550 BE) provide sector-wide recommendations on competition.

Source: Authors' own elaboration

Road-sector wide regulations

Road sector-wide regulations cover vehicle-related requirements and road traffic regulations. Like other transport services, app-based transport services are governed by the Land Transport Act (1979) and the Vehicle Act (1979). The Land Transport Act B.E. 2522 (1979) covers various aspects of road transport in Thailand, setting a wide range of provisions relating to traffic management, vehicle requirements, driving competencies, and penalties. Amendments to this regulation to date primarily reflect efforts to improve road safety.

The Vehicle Act B.E. 2522 (1979) covers vehicle registration, standards and type approval provisions. It distinguishes public and private vehicles: as opposed to private vehicles, public four-wheeler vehicles and motorcycles are defined as means of transport specifically registered to transport passengers. These documents empower the Department of Land Transport (DLT) to oversee and regulate land transport.

Thailand's regulatory framework for transport services comprises a two-tier approval system. On the one hand, the Vehicle Act (1979) specifies which vehicles can be registered. On the other hand, the services using vehicles must be licensed to be recognised as legal.

E-scooters and e-bikes are yet to be legally recognised as part of the Vehicle Act B.E. 2522 (1979) and thus cannot be registered as vehicles for public use. Updating the 1979 Vehicle Act to allow the registration of e-scooters could enable the deployment of app-based e-scooter services in Bangkok, improving the range of sustainable mobility options for residents.

Efforts to harmonise the technical requirements for vehicles are ongoing in ASEAN, based on United Nations Economic Commission for Europe (UNECE) regulations (ASEAN, 2015). These efforts should be extended to align vehicle requirements for two and three-wheelers (UNECE Category L) to facilitate the uptake of lighter electric and active app-based mobility services. From an economic perspective, vehicle standardisation in ASEAN could facilitate the deployment of app-based mobility services in other ASEAN countries and support the trade of automotive products within the region.

Service-specific regulations

The regulations presented earlier enable DLT to officially approve the operation of many app-based transport services in Thailand. However, to this day, several services are legally unable to operate in Bangkok. Service-specific regulations define the rules applicable to various categories of transport services. Recently, Thailand enacted regulations or guidelines relevant to the operation of app-based mobility services. The objectives of these regulations vary depending on the industry-specific public policy challenges that have been identified (e.g. safety, competition).

Ride-hailing taxi

Thailand introduced its first regulation governing ride-hailing services in 2021. The Ministerial Regulation on Ride-Hailing Vehicles Via Electronic System B.E. 2564 (2021) regulates ride-hailing services and aims to promote the sharing economy. The regulation covers four dimensions of service operations: the driver, the platform, the vehicle, and pricing (Bunruangthaworn, Suppakrucha and Pholphrueksa, 2022).

Drivers must be certified by DLT. They must hold a valid licence to drive a public vehicle, as defined by the Vehicle Act B.E. 2522 (1979) presented above — a DLT ordinance published in 2021 details driver registration requirements. Platform providers must be certified by the DLT. Certification is conditioned, among other requirements, by the necessity for the ride-hailing operator to be a legal entity registered in Thailand, with a minimal budget capacity of 5 million THB (approximately 140 000 USD), which raises barriers to market entry for companies with limited budgets. Vehicles must be registered with the DLT; drivers can only register one vehicle they own (Bunruangthaworn et al., 2022). Vehicles must meet specific requirements depending on their category. The decree distinguishes three categories based on the type of power train: small (from 50 to 90 kW), mid-sized (from 90 to 120 kW), and full-sized vehicles (over 120 kW). In the case of electric vehicles, maximum speed must not be less than 90 km/h. Vehicles must display a symbol indicating they operate via an electronic system. The vehicle registration is valid for nine years; after this period, a vehicle can no longer be registered as a ride-hailing vehicle. Based on ITF interviews with local stakeholders and desktop research, this regulation has had a significant impact on drivers who were operating before the regulation since most of them were leasing their vehicles, not owning them. Finally, the regulation establishes a fare system that sets a minimum price for the ride and a maximum rate that the platform can apply, depending on the vehicle size. In October 2023, DLT certified several ride-hailing services providers, including Grab, AirAsia, Bolt, Cabb, Bonku, and InDriver (Krisanaraj, 2023; Sawadsee Thailand, 2023; Jarupong, 2023).

Regulations regarding vehicles for conventional and app-based services should be aligned in order to minimize unnecessary regulatory burdens. ITF interviews with local stakeholders revealed two key non-aligned provisions limiting market participants: registration requirements and vehicle characteristics.

Registration requirements- In Bangkok, ride-hailing service drivers are obliged by law to both register and own their vehicle. Drivers cannot register a vehicle that is over nine years old (versus 12 years for conventional taxis). These provisions exclude drivers who lease their vehicles from registering them (Bunruangthaworn et al., 2022). Public authorities should update regulations to avoid unnecessarily burdening ride-hailing activities. App-based mobility drivers should be able to register leased vehicles, given that doing so may encourage faster uptake of newer, more fuel-efficient vehicles or EVs, in comparison to ownership.

Vehicle characteristics- Provisions on vehicle characteristics differ between conventional and app-based services. Complaints from taxi driver unions highlight that the Royal Decree on ride-hailing services (2021) allowed app-based service drivers to use vehicles with smaller engines (1200cc) than the minimum required engine size for taxis (1600cc) (ET Auto, 2021). Regulations regarding vehicle size and engine power could be made less stringent to allow the use of lighter vehicles for both taxis and ride-hailing vehicles, provided this does not negatively impact vehicle safety. This update would further alleviate negative externalities regarding road space consumption and CO_2 emissions (Nilrit, Sampanpanish and Bualert, 2018).

Ride-hailing motorcycle taxis

The operation of app-based motorcycle taxis is not specifically regulated. Instead, DLT requires app-based motorcycle taxis to register under the same conditions as motorcycle taxi drivers. In 2022, DLT issued new rules to resolve the ongoing conflict between traditional and app-based motorcycle taxis. These new rules aim to level the playing field between conventional and app-based motorcycle taxis. Like traditional motorcycle taxis, app-based motorcycle taxi drivers must register their vehicle as a public motorcycle, provide a public vehicle licence, use the same fare structure, and accept jobs in their registered district (The Nation, 2022). ITF interviews with central government stakeholders indicated discussions were taking place regarding the development of a specific Ministerial Regulation for app-based motorcycle taxi services.

Food Delivery

In 2020, Thailand passed its first regulation for food delivery services, the Guidelines on Unfair Trade Practices between Online Food Delivery Service Providers and Restaurant Business Operators, with the goal of maintaining a competitive environment in the food delivery market (Nagashima Ohno & Tsunematu, 2020). The guidelines provide that app-based food delivery service operators shall not adopt unfair practices towards the restaurant business. It includes, among other things, applying unfair commissions and fees or prohibiting restaurant businesses from interacting with competitors' platforms. Failure to comply with these guidelines can result in the suspension of the service by the Trade Competition Commission of Thailand (TCC). These provisions are consistent with OECD recommendations to address new forms of misconduct in digital markets (OECD, 2022).

Cross-sectoral regulations

App-based mobility services share similarities with other digital sectors of the economy such as data, labour and consumer protection. This section considers cross-sectoral regulations relevant to the app-based mobility industry. As the regulatory framework evolves, this section also explores draft regulations relevant to app-based mobility services.

The efficient operation of app-based mobility services relies on customers' data. Thailand's Personal Data Protection Act B.E. 2562 (2019) (PDPA) introduced a consolidated data protection framework (International Trade Administration, 2022). Principles regarding data protection, proportionality, purposefulness of data collection and right to portability under PDPA are relatively consistent with the EU General Data Protection Regulation (GDPR). Differences are significant to consider regarding app-based mobility services operations. For example, PPDA applies to anonymised data and does not define pseudonymised data, as opposed to GDPR (OneTrust Data Guidance, 2019).

The Royal Decree on the Operation of Digital Platform Service Businesses B.E. 2565 (2022), which entered into full effect in August 2023, regulates digital platforms including both ride-hailing specific apps and super-apps with a mobility component. The decree requires large digital platforms (i.e. more than 5 000 monthly users or 50 million THB gross revenue) to comply with consumer protection obligations and to report data regarding their operations including, among other information, transaction value, user count, gross revenue, and complaint details to the Electronic Transactions Agency (ETDA) (Baker McKenzie, 2023). Multinational ridesharing platforms with operations in Thailand must also comply with the decree. The Decree also grants enforcement powers to the ETDA.

A Notification from the Central Committee on Prices of Goods and Services (2022) introduced regulatory supervision over the operation of app-based delivery. It determines which products and services must be controlled by the Central Committee on Price of Goods and Services to prevent unfair practices (i.e. determination of price or trade conditions). Online delivery services are defined as controlled services. In addition, semi-prepared food in sealed containers and food in sealed containers must be controlled thus affecting the operation of food delivery, among other materials (MPG, 2022).

Finally, labour protection is also a key topic to consider. In 2023, Thailand approved a draft regulation that introduces basic rights, work safety guarantees, and benefits for independent workers (Somwaiya and Vorawanichar, 2023). The draft regulation aims to correct the current situation where existing labour protection regulations (i.e. Labour Protection Act B.E. 2541 - 1998) cannot provide sufficient protection to this category of workers. Although it is not service-specific as it also applies to other industries (i.e. cleaning, self-farmers, artisans), it is particularly relevant for app-based mobility services as the independent worker's category applies to ride-hailing activities and goods delivery.

Review of existing governance structures

Several ministries, central authorities and local entities are directly or indirectly involved in regulating app-based mobility services. Table 2 summarises the main entities involved and their responsibilities regarding these services.

Table 2. Governance of app-based and related mobility services in metropolitan Bangkok

Service type	Regulatory / management agencies	Scope of mandate
App-based mobility (passenger transport)	Ministry of Transport / Department of Land Transport (DLT)	• Issues and oversees vehicle registration and driver's license • Collects data from app-based mobility services
	Ministry of Transport / Office for Transport and Traffic Policy and Planning (OTP)	• Provides institutional support to other transport agencies
	Ministry of Digital Economy and Society / Electronic Transaction Development Agency (ETDA)	• Regulates digital platforms, including mobility services
	Royal Thai Police	• Enforcement of traffic rules • Processes criminal record checks on drivers
App-based mobility (freight transport)	Trade Competition Commission (TCC)	• Guidelines on unfair trade practices of food delivery platforms
	Ministry of Commerce / Central Commission on Prices of Goods and Services	• Controls online food delivery services
	Ministry of Digital Economy and Society / Electronic Transaction Development Agency (ETDA)	• Regulates digital platforms, including mobility services
	Royal Thai Police	• Enforcement of traffic rules
Conventional taxi (including motorcycle taxis)	Ministry of Transport / Department of Land Transport (DLT)	• Delivers BMA motorcycle taxi driver licences • Issues and oversees vehicle registration and driver's license
	Bangkok Metropolitan Administration (BMA) / Traffic and Transport Department (TTD)	• Sets locations and design prerequisites for motorcycle taxi stations. • Delivers certificate to drivers for registering motorcycles with DLT
	Royal Thai Police	• Enforcement of traffic rules
Formal public transport	Ministry of Transport / Office for Transport and Traffic Policy and Planning (OTP)	• Establishes policy for transport and traffic • Plans Mass transit
	Ministry of Transport / Bangkok Mass Transit Authority (BMTA)	• Operates the bus public transport network
	Ministry of Transport / Mass Rapid Transit Authority of Thailand (MRTA)	• Operates the Metropolitan Rapid Transit system
	Bangkok Metropolitan Administration (BMA) / Traffic and Transport Department (TTD)	• Provides solutions to traffic issues
Active modes	Bangkok Metropolitan Administration (BMA) / Traffic and Transport Department (TTD)	• Develops the bicycle network
	Royal Thai Police	• Enforcement of traffic rules

Alignment of app-based mobility services with public policy objectives

App-based mobility services impact urban passenger transport and goods delivery in the Bangkok Metropolitan Region. The growth of these services challenges public authorities' capacity in achieving their public policy objectives. A review of national and local public policy objectives shows that the development of app-based mobility services is partially aligned with public authorities' targets.

Thailand's National Determined Contribution (NDC) roadmap published in 2022 aims "to reduce its greenhouse gas emissions by 30% from the projected business-as-usual (BAU) level by 2030" (approximately 555MtCO$_2$e) (Thailand NDC, 2022). Within this roadmap, transport-related measures mainly rely on modal shift from road to rail and electrification. In 2022, Thailand's Electric Vehicle Board approved a multi-year plan to increase the share of EVs in total production to 30% in 2030, including buses, cars, pick-up trucks and motorcycles. The plan relies on a set of measures to deploy charging infrastructure along with financial and tax incentives in favour of EVs (i.e. trade-in scheme for car and motorcycles, EV privileges to car manufacturers) (Apisitniran, 2020; Ministry of Natural Resources and Environment, 2022). This strategy aims to reinforce Thailand's leading position among ASEAN countries in manufacturing and exporting motor vehicles (UN Environment Programme, 2020).

Electrification of the vehicle fleet is also aligned with the Bangkok Master Plan on Climate Change 2013-2023, which aims to accelerate the transition to lower-emission vehicles and the shift away from private vehicles by developing public transport networks. ITF interviews with app-based mobility service providers highlighted how app-based mobility contributes to reaching this objective through the electrification of their fleets.

The development of app-based mobility services is also aligned with Thailand's 4.0 national economic strategy, launched in 2016. The transport component of the strategy emphasises that people should be able to choose the best suited mode of transport according to their needs (JST/JICA SATREPS, 2023). App-based mobility services and super-apps can improve the seamlessness of the travel experience by consolidating multiple services in one place (e.g. banking, international trips, etc.).

Integration of app-based mobility services with the urban transport system

ITF (2019) noted that integrating app-based mobility services and public transport represents a significant opportunity to address the first and last-mile challenge. Several barriers affect the integration of app-based mobility services with public transport in Bangkok, both physical and digital. The diversity of app-based mobility services adds complexity to their regulation while separate authorities or government departments may oversee different services (ITF, 2023a).

Better coordination between a more diverse set of public authorities could improve outcomes, especially those responsible for transport operations and regulations (i.e. DLT and Bangkok Mass Transit Authority) and land use (i.e. BMA) (Manning and Babb, 2023).

From a physical integration perspective, public action should promote a modal shift from cars to public transport to reduce traffic congestion and transport emissions, in line with national policy objectives. Ayaragarnchanakul et al. (2022) note that car-based ride-hailing services and shared taxis are more likely used for door-to-door trips than app-based motorcycle taxis, which tend to serve as feeders to metro stations. Integrating app-based motorcycle taxis with mass transit stations is an efficient way to promote a modal shift from motorcycle taxis to public transport.

Similarly, the development of bike-sharing services could be facilitated by an update of the Vehicle Act (1979) – which legally recognises vehicles - and the Land Traffic Act (1979) – which regulates the use of

bicycles. The Vehicle Act (1979) should be reviewed to clarify the difference between electric bicycles from motorcycles. Section 79 of the Land Traffic Act (1979) provides that cyclists must ride in bicycle lanes, when applicable; Section 82 provides that cyclists must ride as near to the edge of the road as possible, which exposes cyclists to safety hazards. These provisions, respectively, impede the deployment of electric bike fleets and tie the development of bicycle use to the deployment of dedicated lanes.

For low-speed parts of the road network (i.e. lower than 30 km/h), the Land Traffic Act (1979) should be updated to allow cyclists to use the entire width of the road. Additionally, to promote bicycle use in Bangkok, the BMA should improve cycling safety by deploying a coherent network of bicycle lanes primarily targeted towards parts of the road network where the average speed of motorised vehicles exceeds 30 km/h (Bakker et al., 2018).

ITF interviews with local stakeholders indicate that to efficiently integrate app-based mobility services with active and public transport, regulatory alignment between national and local levels of governance is essential. BMA plays a crucial role in urban planning, especially in bicycle lane deployment and setting the location and design characteristics of motorcycle taxi stations (Thaiger, 2019).

From a digital integration perspective, policy action should aim to promote app-based mobility services for first and last-mile trips when public transport is available. Integrating public transport schedules and stop locations into trip planners constitutes a low-hanging fruit but requires data sharing between transport market stakeholders. Regulations could require public transport and app-based mobility services operators to share data on service availability and fares. App-based services' licenses could be made conditional on such data sharing and reporting requirements. Existing data-sharing requirements currently cover data regarding car drivers, pre-calculated fares, and car tracking systems, among others, which could be extended to enable the integration of app-based mobility services with the public transport offer. Narupiti (2019) notes that BMTA needs to improve its IT infrastructure and data-sharing culture. In that regard, upskilling and reskilling policies could improve data literacy and culture among public authorities in charge of transport regulation.

Recommendations

Foster regulatory alignment between conventional and app-based mobility services

To level the competitive playing field and avoid unnecessarily hindering innovation, DLT should address regulatory disparities between conventional and app-based mobility services regarding registration requirements and vehicle characteristics. For example, specific rules excluding app-based mobility services from using leased vehicles, which do not apply to conventional taxis, may hinder market participation, innovation and the shift to more fuel-efficient or electric vehicles. Similarly, regulations regarding vehicle size and engine power could be made less stringent to allow lighter vehicles to operate for both taxis and ride-hailing vehicles, provided this does not negatively impact vehicle safety. Doing so could alleviate negative externalities from the sector in terms of road space consumption and transport emissions.

Update regulations to embrace emerging sustainable mobility options

The current version of the Vehicle Act (1979) fails to legally recognise certain types of vehicles, such as e-scooters and e-bikes, which impedes their uptake. Updating relevant regulatory provisions to allow for the registration of these vehicles would pave the way for the legal and safe deployment of app-based mobility services using these modes. This could build on existing efforts to harmonise the technical requirements for motor vehicles across ASEAN member states, which should also be extended to two and three-wheelers (UNECE Category L) in order to facilitate the adoption of lighter electric and active app-based mobility options. Local (i.e. BMA) and national authorities (i.e. Ministry of Transport, Royal Thai Police) could further promote bicycle use by respectively deploying a safe and coherent bicycle network on higher-speed parts of Bangkok's road network and by amending the Land Traffic Act (1979) to allow cyclists to safely use the entire width of the road for parts of the network where motorised traffic speeds are below 30km/h.

Integrate app-based mobility services with public transport to solve first and last-mile challenges

Integration of app-based mobility services and public transport represents a significant opportunity to encourage modal shift away from private vehicle use and address first- and last-mile connectivity challenges. DLT and BMA could work together to establish minimal but sufficient data-sharing requirements between urban transport stakeholders in Bangkok to enable such integration. Current data-sharing requirements, which cover drivers, fares, and car tracking systems, could be extended to include data enabling the planning of a combined trip between app-based mobility services and conventional public transport. App-based services' licenses could be made conditional on such data-sharing requirements to aid implementation.

Manila

Understanding the city

Figures 12-17 provide selected key metrics which contextualise the development of app-based mobility services in metropolitan Manila.

Figure 12. Metropolitan Manila urban boundary, population density, major roads with typical evening peak congestion levels, and public transit network
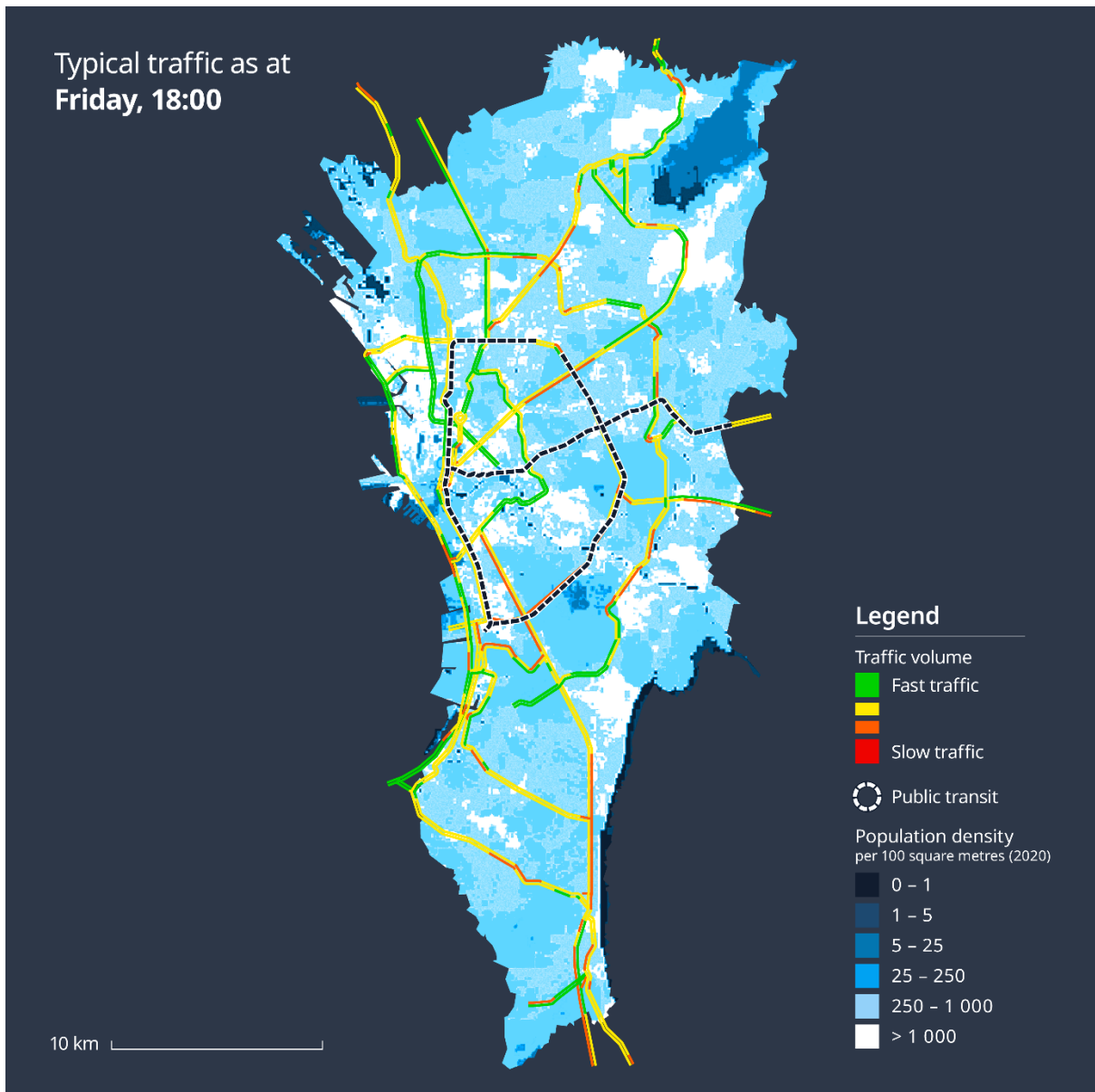
Source: Authors' own elaboration based on data from Google and WorldPop

Figure 13. Metro Manila mode share (% of total distance travelled in 2023)

- ■ Automobile
- ■ Bus
- ■ Cycling
- ■ Motorcycle
- ■ On foot
- ■ Subway
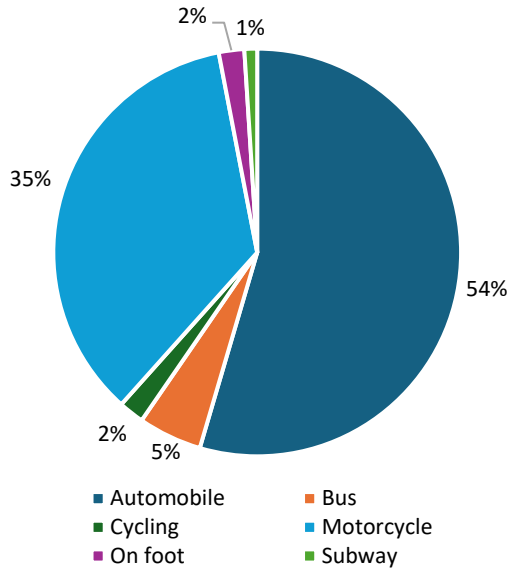
Figure 14. Metro Manila emissions per mode over time (tCO2e per year)

- ■ Automobile ■ Bus ■ Motorcycle
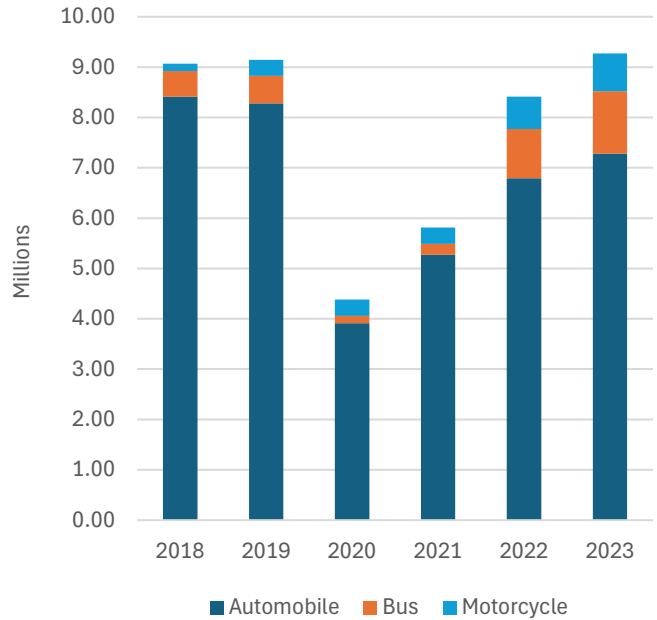
Source: Google Environmental Insights Explorer

Figure 15. Population – National Capital Region (Metro Manila)
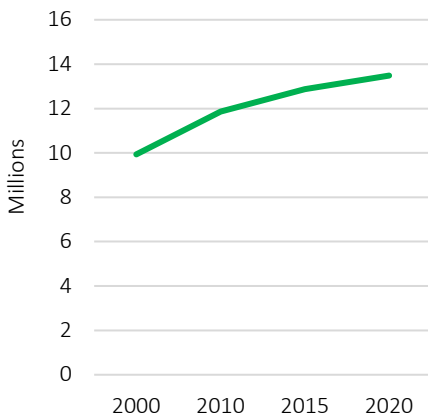
Source: Philippine Statistics Authority, 2024

Figure 16. Annual Per Capita Gross Regional Domestic Product (USD) National Capital Region (Metro Manila)
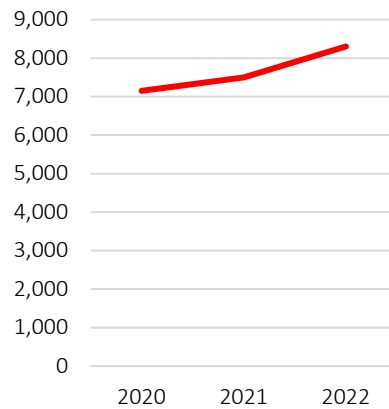
Source: Philippine Statistics Authority, 2024

Figure 17: Mobile cellular subscriptions per 100 people – Philippines
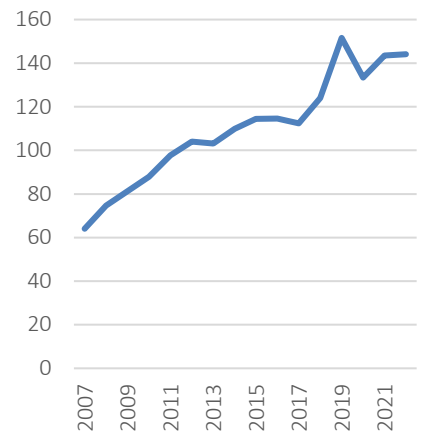
Source: World Bank, 2023

Current state of app-based mobility services

In metropolitan Manila, Grab is one of the most popular platforms for app-based mobility. Founded in Malaysia in 2012, Grab started operating in the Philippines in 2013 by introducing their ride-hailing services. Today, the application serves one out of every six Filipinos according to the reported number of Grab apps installed on mobile devices. Apart from ride-hailing services, Grab's offering has expanded over time to include parcel, food and grocery delivery, and mobile payment, among others – evolving into what is commonly known as a "super-app" (Grab, 2019).

In 2014, the US-based company, Uber, entered the Philippine market. Similar to Grab, Uber offered convenient transport services in metropolitan Manila albeit at lower costs (Time, 2015). With their growing popularity among Manila's regular commuters, traditional taxi companies registered under the Land Transportation Franchising and Regulatory Board (LTFRB) were quick to raise complaints about these new app-based ride-hailing firms in the market, particularly Uber (Rappler Philippines, 2014). In a public statement, the president of the Philippine National Taxi Operators and Quezon City Councillor at that time, Bong Suntay, enumerated how traditional taxi operators complied with stringent rules and requirements to obtain their LTFRB franchises, and were subject to heavy fines imposed for breaching government regulations. He contrasted this with Uber's partner vehicles, which operated without the need to register for an LTFRB franchise. Aside from not having a legal license to operate, traditional taxi companies were alarmed over Uber's unregulated pricing scheme and growing number of unregistered vehicles on the road. Amidst these issues, former LTFRB Chairman Winston Ginez publicly responded that Uber's partner vehicles were indeed operating illegally but that the LTFRB board was exercising tolerance by not actively reprimanding vehicles driving for Uber. What began as a point of contention between competing services spurred the creation of a new public transport category by the LTFRB dubbed 'Transport Network Vehicle Services (TNVS)' in 2015 (Rappler Philippines, 2014; LTFRB, 2015). The change meant drivers who intend to connect to passengers through ride-hailing apps must secure a TNVS franchise from the LTFRB. Similarly, Transport Network Companies (TNCs) such as Grab and Uber, are required to obtain accreditation from the LTFRB board to operate (LTFRB, 2015).

Come 2018, Grab and Uber entered a merger, with Grab acquiring all of Uber's operations in the Philippines (Rappler, 2018a). As Uber exited the country, Grab significantly increased its market share along with its prices, resulting in complaints from commuters leading to a period of monitoring by the Philippine Competition Commission (Inquirer, 2018). However, later that same year, users were presented with alternatives to Grab as the LTFRB granted accreditation to five more ride-hailing companies- namely MiCab, HirNa, Owto, Hype, and Go Lag (Rappler, 2018b).

The ubiquity of app-based passenger mobility services, especially in dense metropolitan areas like metropolitan Manila, reflects the demand for safe and convenient modes of urban transport. A relatively new entrant, Angkas, offered an alternative way to address this demand by introducing app-based motorcycle taxi services in 2016 (ABS CBN News, 2019). Seeking mobility solutions amidst the Philippine capital's notorious traffic congestion, Angkas capitalised on the motorcycle's ability to navigate through Manila's heavily congested road network. According to data published on Angkas' official website, the company has about 27 000 partner riders in their fleet and more than four million downloads since its launch. A close contender in this sector is the super-app JoyRide. Launched in 2019 as a challenger to Angkas' motorcycle taxi-hailing service, their entry into the market was well received, with the app reportedly garnering one million downloads in less than three months (GMA News, 2020a). Additionally,

JoyRide reports that its services receive a daily booking average of 150 000, hitting a peak of 500 000 during busy periods, with a fleet of over 20 000 driver partners (Joyride, 2021). Aside from ride-hailing, JoyRide offers additional services such as parcel delivery and e-commerce services, among others. In 2022, the company announced their intention to join the existing pool of TNVS operating in metropolitan Manila. Their accreditation as a TNC has been recently granted by the LTFRB (Philippine News Agency, 2022). Move It, another app-based motorcycle taxi company, is also a significant player in the market. Grab acquired Move It in 2022, with the aim of growing Move It's 1 000-strong driver partner fleet to 6 000. For Grab, the merger entails only a change in ownership for Move It, with the two brands remaining separate entities from the users' point of view (Rappler, 2022a). While the app-based motorcycle taxi market continues to grow strongly, regulations for motorcycle taxi services have yet to be fully established by the Philippine government (Senate of the Philippines, 2023).

Currently, there are five active and accredited TNCs operating in the Philippines- Grab, JoyRide, TokTokgo, OWTO, and ePickMeUp (Philippine News Agency, 2022). Grab continues to dominate with a national market share of around 91% (likely similar for metropolitan Manila), a position that looks set to be maintained as its service offering continues to grow (Blackbox, 2022). Together, these companies offer a wide range of both passenger and goods transportation services encompassing ride-hailing services using four-wheelers (e.g. GrabCar, Toktokgo, OWTO) as well as the delivery of food (e.g. GrabFood, JR Mall), groceries (e.g. ePickMeUp Pabili) and documents/parcels (e.g. GrabExpress). Figure 18 summarises the regulatory status of app-based mobility services in metropolitan Manila, and the Philippines more broadly.

Figure 18. Regulatory status of app-based mobility services in the Philippines
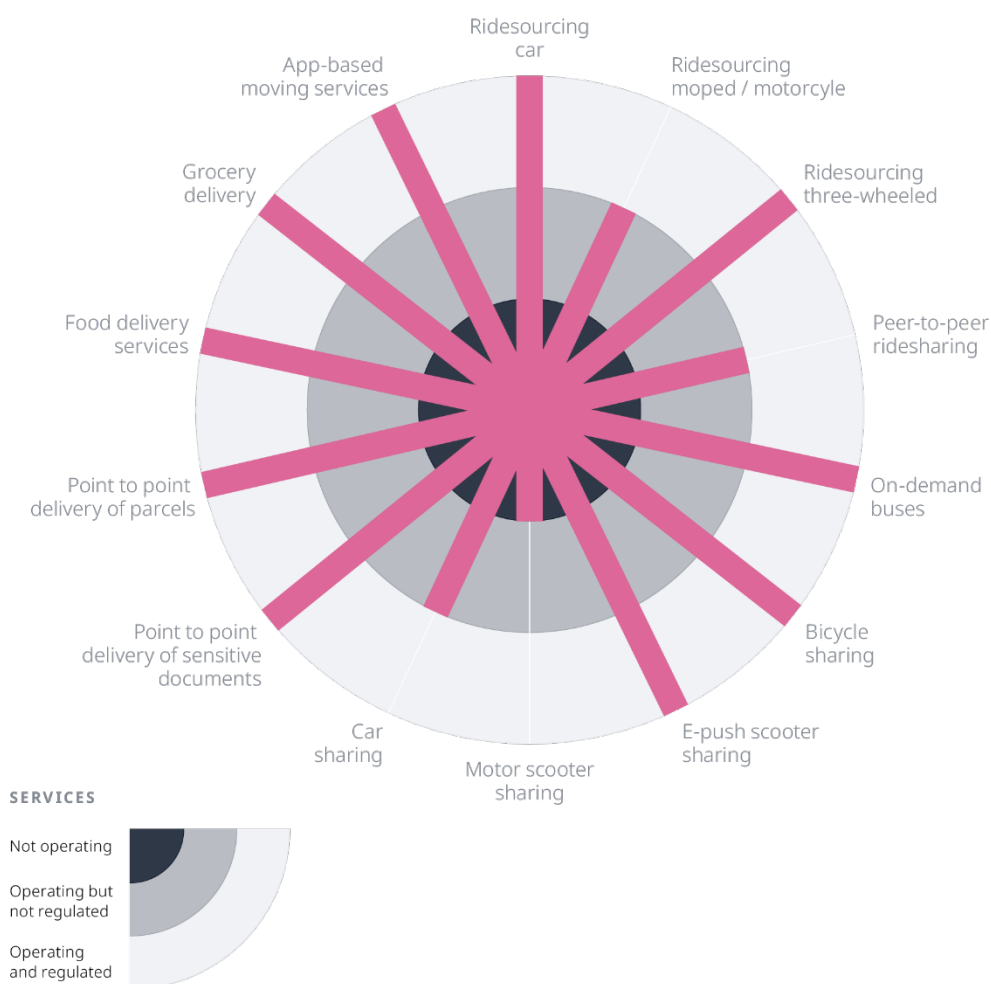
SERVICES

Not operating

Operating but not regulated

Operating and regulated

Source: Authors' own elaboration based on ITF, 2023

The benefits of app-based mobility for Manila

In 2017, a comparative analysis of TNCs and conventional taxi services in metropolitan Manila provided insights into passengers' observations and preferences in terms of reliability, convenience, service quality, fare cost, and travel time. Results showed that TNCs were perceived as faster in terms of travel time and more reliable in terms of availability. Perceived quality of service was also higher when evaluating TNCs against traditional taxi services. In general, taxi services were considered cheaper than TNCs, particularly Grab, however at the time of the study (when Uber was still operational in the country), passengers reported that Uber provided the most cost-efficient transport service of all.

In a related study comparing ride-hailing apps and conventional public transport in metropolitan Manila, qualitative evidence from in-depth interviews points towards a high frequency of negative experiences when commuting via public transport modes such as buses, trains, and jeepneys. While affordability is seen as a positive trait of conventional public transport in Manila, the overall experience by commuters is dampened by the inconveniences brought about by poor trip integration between these modes, lack of comfort, overcrowding, and personal safety concerns, among others. On the other hand, transport via ride-

hailing apps is perceived as convenient, safe, and comfortable when compared to conventional public transport, despite higher fare costs (Ramizo, 2018).

While several other external factors may affect mode choice, TNCs can become active contributors to sustainable transport in metropolitan Manila, particularly if they apply ride-sharing principles to their operations and act as a supplement to address the ever-growing demand for urban mobility instead of substituting for conventional public transport (Paronda et al., 2016).

The challenges of app-based mobility for Manila

App-based mobility creates three principal public policy challenges for metropolitan Manila concerning road safety, traffic congestion, and labour market activity.

Road safety

In metropolitan Manila, road safety regulation is under the mandate of several government agencies. These include the Land Transportation Office (LTO), which is responsible for registering motorized vehicles and issuing licenses to drive, the Metropolitan Manila Development Authority (MMDA) whose responsibilities include transport and traffic management, and the LTFRB, whose mandate covers public land transportation vehicles such as jeepneys, buses, taxicabs, and TNVS services like Grab (Rappler, 2017).

Despite collaboration between these agencies, road safety in metropolitan Manila remains a significant challenge, with 681 fatalities and 33 145 non-fatal injuries across all modes recorded in 2022 (MMDA, 2023). As Figure 19 illustrates, motorcycle safety is of particular concern, accounting for 45% of fatalities and 52% of non-fatal injuries in 2022. Indeed, despite the effect of Covid-19 pandemic social distancing measures in 2020 and 2021, motorcycle fatalities continued to increase, perhaps reflecting the role of increased demand for app-based motorcycle goods delivery services during this period.

Figure 19. Metropolitan Manila road traffic fatalities by mode (2018-2022)
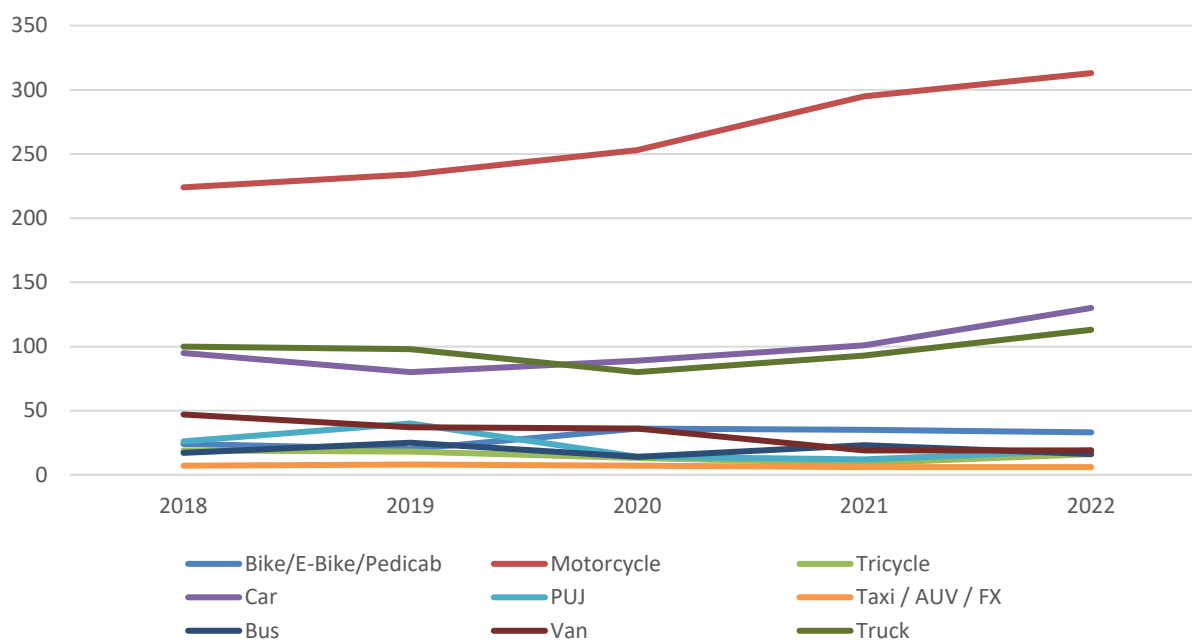
Source: MMDA, 2023

Somewhat counterintuitively when compared to data for fatalities, Figure 20 shows that non-fatal injuries for both motorcycles and cars did decline marginally in 2020 before returning to an upward trajectory in subsequent years.

Figure 20. Metropolitan Manila road traffic non-fatal injuries by mode (2018-2022)
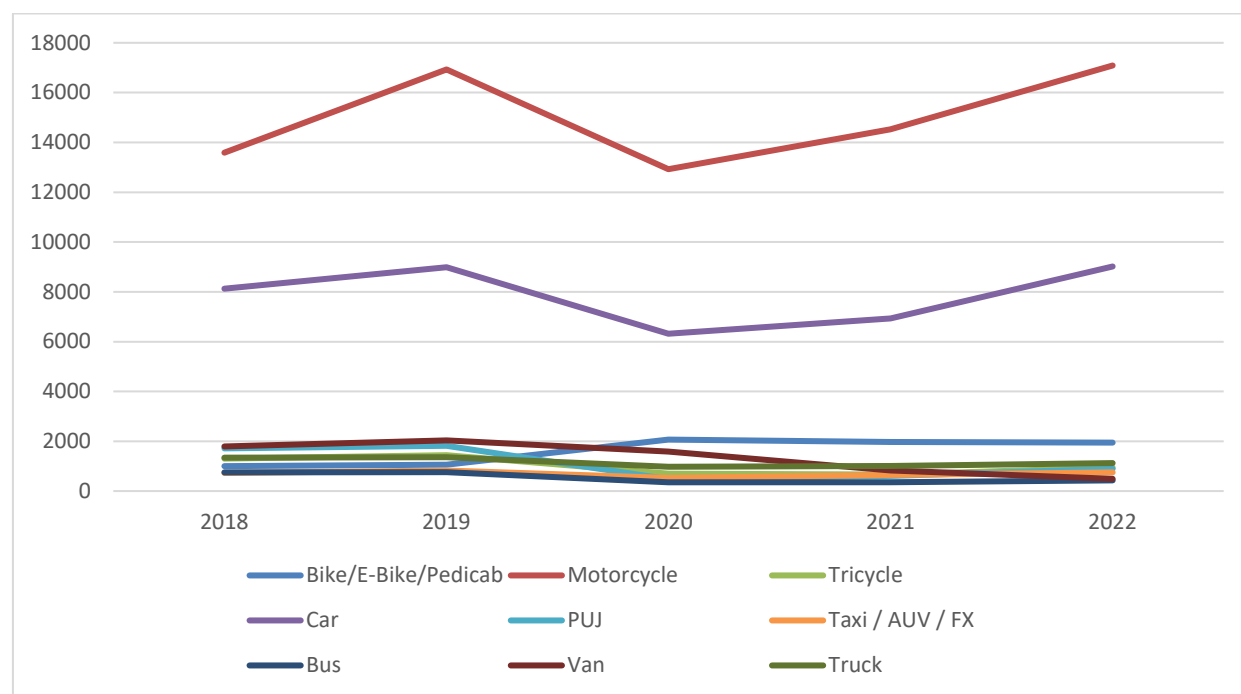
Source: MMDA, 2023

Notably, both Figure 19 and Figure 20 show that road safety for non-motorcycle and car-based passenger transport services have remained relatively consistent from 2018 to 2022.

For popular app-based ride-hailing companies such as Angkas and JoyRide whose services rely heavily on motorcycle transport, it is of crucial importance to strengthen public trust and garner continued support from the government for legalisation of motorcycle taxis. Aside from well-established driver training schemes, both Angkas and JoyRide primarily rely on roaming company marshals to monitor the road safety behaviour of partner drivers in metropolitan Manila (Manila Bulletin, 2023). Grab, whose services include both four-wheelers and motorcycles, uses rigorous driver screening and safety training as well as telematics to monitor their partner drivers' behaviour and driving skills (Manila Bulletin, 2023).

In a 2023 Senate Committee hearing on Public Services and Local Government, Angkas CEO George Royeca stated that the effectiveness of their motorcycle safety training for partner drivers resulted in a 0.003% crash rate, or around 1000 annual incidents (across fatalities, non-fatal injuries, and damage to property). In addition to this, Angkas claimed that in the event of a road crash, the company covers PHP 200 000 (USD 3 500) in medical reimbursement, and PHP 500 000 (USD 8 900) for dismemberment or death (Philippine Star, 2023b). However, these statements were disputed by one Senator at the same public hearing who claimed that Angkas drivers were involved in far more incidents, reporting 7 500 road crashes in 2022 alone, up from 3 069 crashes recorded in 2021 (Torregoza, 2023). Furthermore, Angkas riders and drivers

have complained that the promised funds to compensate for road crashes have typically been distributed very slowly (Manila Bulletin, 2023).

Similarly, Grab introduced road crash insurance for its drivers in late 2022, however many have found it challenging to avail themselves of it. Drivers have expressed frustration due to the lengthy process, which involves obtaining police reports, incident reports, and coordinating with the barangay (local administrative authority), among other requirements. Additionally, Grab drivers typically only qualify for insurance after completing 200 deliveries in 21 days and if the crash occurred while they were working with the application turned on. Some drivers involved in crashes have reported only receiving cash assistance ranging from PHP 500 (USD 9) to PHP 1 000 (USD 18) whereas others did not receive any compensation (Bulatlat, 2023; Fairwork, 2023).

Traffic congestion

According to TomTom data for 2023, metropolitan Manila ranks as the ninth most congested city in the world (TomTom, 2023). Several international studies suggest that ride-hailing platforms may contribute to urban traffic congestion (Rappler, 2018c). Indeed, in 2017, it was observed that travel time in metropolitan Manila became 5% faster following the suspension of Uber; a circumstance which suggests that the presence of TNVS on the roads contributed to increased traffic congestion (Beltran et al., 2019). A 2019 study resulted in similar conclusions, finding that TNVS significantly impacted traffic congestion in metropolitan Manila and typically competed with conventional public transport services for passenger demand, rather than complementing them (Mirandilla and Regidor, 2019). ITF interviews with central and local government agencies provided anecdotal evidence to support this substitution and traffic-inducing effect.

In response to concerns regarding traffic congestion, the LTFRB placed a cap on the number of TNVS units (four-wheeled vehicles) that TNCs can operate. In 2019, the LTFRB issued Memorandum Circular No. 2019-005 effectively increasing the common supply base for TNVS vehicles from 45 000 to 65 000 in the Manila National Capital Region. As demand for ride-hailing services continued to increase in subsequent years putting pressure on supply, the LTFRB further increased the vehicle cap by 7 000 units in 2022 (LTFRB, 2022). While motorcycle taxis are yet to be fully regulated in the Philippines, a government Technical Working Group undertaking an on-going pilot study with selected app-based services issued a similar combined cap of 45 000 vehicles for metropolitan Manila (noting the actual number of motorcycle taxis operating is likely to be much higher given many are unregistered) (GMA, 2020b).

While still significant, it is important to put the number of vehicles operating ride-hailing services in perspective with the total traffic volume of metropolitan Manila. For 2022, annual average daily traffic reported by the MMDA shows a total of 3 535 755 vehicles on metropolitan Manila's major roads and thoroughfares, of which 1 563 069 were cars and 1 573 729 motorcycles, see Table 3.

Table 3. Annual Average Metro Manila Traffic Data (2018-2022)

Year	Vehicle type									
	Car	PUJ	UV	Taxi	PUB	Truck	Trailer	Motorcycle	Tricycle	Total
2018	1 509 837	122 574	83 692	137 486	35 709	87 195	22 470	795 128	17 361	**2 811 455**
2019	1 526 667	135 417	72 168	129 720	31 620	86 976	21 553	1 065 807	18 052	**3 087 980**
2020	1 384 674	75 276	41 064	130 052	28 968	82 372	19 247	1 121 225	18 506	**2 901 384**
2021	1 399 242	73 766	25 905	130 855	24 693	84 738	18 477	1 421 642	18 455	**3 197 673**
2022	1 563 069	100 876	33 639	125 008	23 412	74 942	20 030	1 573 729	21 050	**3 535 755**

Source: MMDA, 2023a

From 2018 to 2022, reported traffic data across all modes showed an upward trend, except for 2020 when Covid-19 government-mandated community quarantine measures in the Philippines were in place. In the context of the scale of traffic and increasing rates of motorisation in metropolitan Manila, the current caps on app-based ride-hailing services for cars (72 000 or 5% of the total number of cars in 2022) and motorcycles (45 000 or 3% of the total number of motorcycles in 2022) suggest these services are only likely to play a relatively small role in overall traffic congestion (GMA, 2020b). Furthermore, evidence indicates that in some cases the regular use of ride-hailing services diminishes demand for personal vehicle ownership and can improve first and last-mile links to conventional public transport, offsetting pressure on congestion to some extent. If app-based ride-sharing services are available and widely used, this could further optimise road space and mitigate the congestion impact of increasing motorisation by increasing vehicle occupancy rates (ITF, 2016).

Given the potential upside of app-based mobility services for improving the efficiency and quality of urban transport systems if deployed appropriately, measures targeted at artificially restricting the supply of TNVS vehicles operating in metropolitan Manila may stifle innovation and the benefits these services bring to residents, while having a marginal impact on mitigating traffic congestion.

Furthermore, a policy where the government restricts supply of TNVS vehicles while simultaneously controlling the price of services, is very unlikely to be economically efficient and enable market equilibrium where supply meets demand. Depending on the level of supply and price controls, this either results in some degree of consumer surplus where the price consumers pay is less than the price they are willing to pay, negatively affecting the welfare of firms in the market (and by extension partner drivers), or it results in firms having some degree of pricing power over consumers where demand exceeds supply, driving up the market price and negatively affecting the welfare of consumers. Such an approach may also negatively impact competition in the market by increasing barriers to entry, enabling monopolistic practices by incumbent firms with a large market share.

To maximise the welfare of both consumers and firms/partner drivers while mitigating impacts on traffic congestion, a policy which permits market forces to run their course coupled with travel demand

management interventions which target all road users, rather than just TNVS vehicles, would lead to better outcomes for metropolitan Manila over the longer term. This approach has been used successfully in Singapore, as well as cities in other world regions.

Changes in labour market activity

Increasing digitalisation and access to mobile devices paved the way for the emergence of the platform-enabled "gig-economy" in metropolitan Manila. The popularity of gig work such as passenger transport, parcel, and food delivery services through mobile apps is largely due to it providing flexibility, autonomy, and the option to work anywhere at any time (Galvez, 2018).

A 2018 study of Grab and Uber drivers in metropolitan Manila revealed that the majority of full-time drivers lacked educational qualifications, which limited their ability to pursue alternative employment opportunities in the formal economy or were wary of engaging in other forms of informal work. For part-time drivers, they valued flexibility in terms of work hours and autonomy over their income inflow with net daily earnings being directly proportional to the number of hours worked (Galvez, 2018).

While TNCs provide income-generating opportunities to the able-bodied labour force in metropolitan Manila who own and can drive a vehicle, their status as "partner drivers" is equivalent to operating as an independent contractor. As such, they are unprotected by Filipino law which requires employers to co-contribute to employees' social security fund, health insurance, and home development mutual funds. Additionally, employees in the Philippines are entitled to paid vacation and sick leave, maternity and paternity leave, a "13th-month" salary bonus, and retirement benefits (Labor Code of the Philippines, P.D. 442, as amended).

Without the government-mandated workers' rights typically granted to employees in the formal sector, partner drivers who engage with TNCs are not provided ample security against unforeseen setbacks such as illnesses or road accidents. Financial stability and job security are similarly precarious (particularly during critical events like the Covid-19 pandemic), as is vulnerability to working excessively long hours across multiple platforms to earn a living wage - suggesting some regulation of minimum earnings may be warranted.

Review of existing regulatory frameworks

The Philippines has taken an iterative approach to the regulation of app-based mobility services over the last decade, developing a thorough framework for four-wheeled passenger services which aligns well with conventional taxi services and other forms of public transport. However regulatory gaps remain, particularly for motorcycle taxis and active modes, as well as some inconsistencies regarding the application of regulatory requirements for different services, such as freight delivery. This section reviews the most important regulations impacting the operation of app-based mobility services in metropolitan Manila, and the Philippines more broadly (see Figure 21).

Figure 21. The regulatory landscape of app-based mobility services in Manila
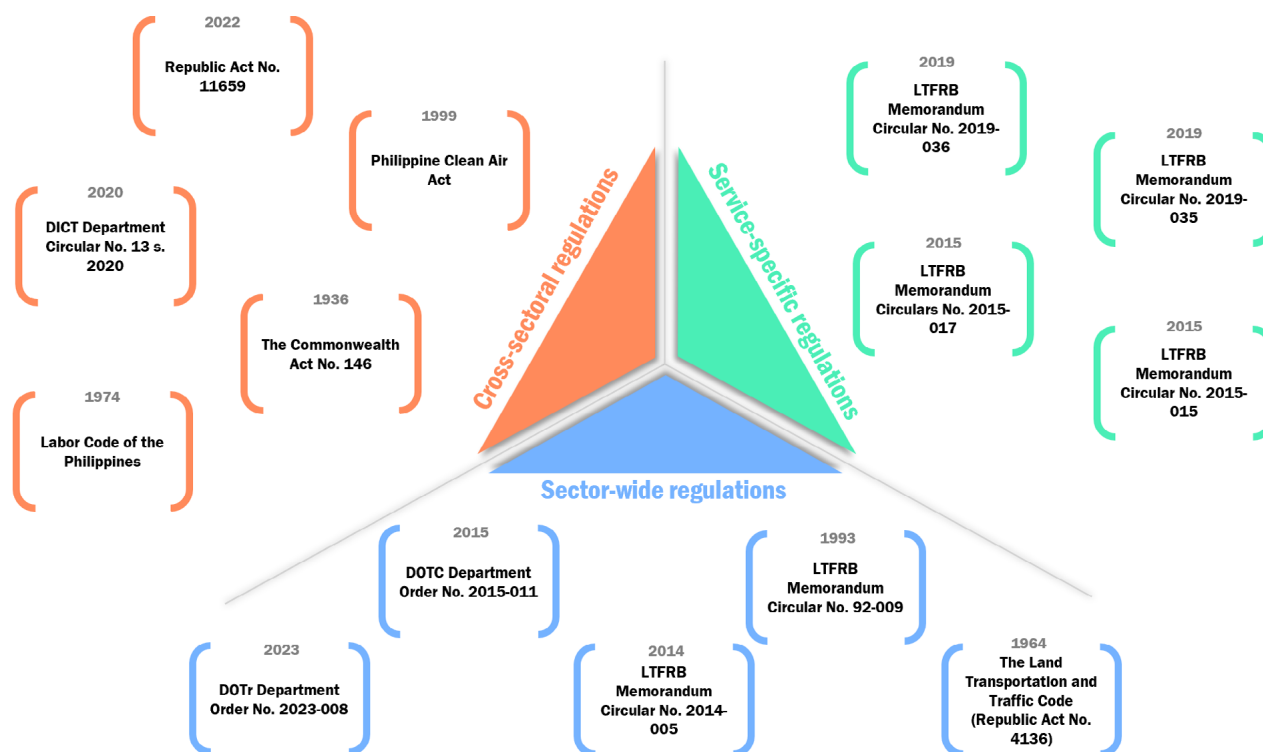
Source: Authors' own elaboration

Public transport-sector wide regulations

To operate as a passenger land transportation service (along with jeepneys, buses, and conventional taxis) app-based mobility services classified as a TNVS in the Philippines require a two-year renewable Certificate of Public Convenience from the LTFRB (a 45-day provisional certificate can also be obtained). Additionally, they must pay a filing fee of PHP 510 (USD 10) for the first two vehicles with reduced fees for each additional vehicle (LTFRB, 1993; LTFRB, 2022).

Obtaining a certificate requires the applicant to submit various documents including proof of Filipino Citizenship, professional driver's license, both National and Local Police Clearance, LTO-issued documents with details of their registered vehicle, an audited annual financial statement (or annual income tax return for operators with fewer than nine vehicles), and passenger insurance (LTFRB, 2014; LTFRB, 2018; LTFRB, 2018b; LTFRB, 2020).

Service-specific regulations

Service-specific regulations for app-based mobility centre on four-wheeler ride-hailing and food and goods delivery. Significant and ongoing work is also underway to regulate for ride-hailing motorcycle taxis.

Ride-hailing four-wheeler taxis

The Department of Transportation (DOTr) enacted the first national regulation governing TNC's in May 2015 through the issuance of Department Order No. 2015-011. The Order regulates TNCs separately from taxis and makes the distinction between platform operators and vehicles (and the drivers) that provide services.

LTFRB Memorandum Circular No. 2015-015 defines TNCs as entities that provide "pre-arranged transportation services using an internet-based technology application or digital platform technology to connect passengers with drivers using their personal vehicles" (LTFRB, 2015). TNCs do not provide a transport service but, rather, facilitate transactions between passengers and those providing actual transport services. Service providers, be they individuals or companies, are referred to as TNVS operators and fall under a separate circular (LTFRB Memorandum Circular No. 2015-017). TNVS drivers can only accept app-mediated ride requests and are prohibited from picking up street hails.

TNCs must obtain a Certificate of TNC Accreditation from the LTFRB. This certificate has a validity of two years and is non-transferrable. The TNC must pay an accreditation fee of PHP 10 000 (USD 180). In order to obtain accreditation, the TNC must also possess a valid Filipino business permit, be registered with the Bureau of Internal Revenue (BIR) and provide a proposal for the establishment of a driver's training programme (LTFRB, 2015).

As noted earlier, TNVS operators must obtain a Certificate of Public Convenience from the LTFRB and display the LTFRB-prescribed ID in clear view of the passenger (DOTC, 2015). They must also be accredited by a registered TNC to enhance accountability, and attend a public hearing accompanied by a representative of the TNC to confirm allocation of the certificate by the LTFRB.

Vehicles used to carry out TNC-brokered rides must have company-specific identifiers or "trade-dress" to match individual vehicles to the platform for which they are working (the markings may be removable but must be readable during daylight at a distance of at least 50 feet; and reflective, illuminated or clearly visible in the dark). TNVS vehicles can carry no more than seven passengers, cannot be older than seven years from the date of manufacture, must have air-conditioning, and must be of approved vehicle types (Sedan, Asian Utility Vehicle, Sports Utility Vehicle, Van, or other similar vehicles) (DOTC, 2015).

In all app-based communication with the passenger, TNCs must transmit the driver's name and photograph, the vehicle's license plate number, and the case number issued by the LTFRB on the device used to connect with the digital technology application. The passenger must clearly see the total fare, fare range, or rate by distance or time. The TNC app must contain a built-in complaint feature so that passengers can submit complaints or report lost items, as well as display the LTFRB's hotline number.

Fares are determined by TNCs within bounds set by the LTFRB's Fare Adjustment Formula as articulated through Memorandum Circular No. 2019-035. The Fare Adjustment Formula provides for the increase or decrease in fare rates in relation to demand and economic factors, including fuel prices and total operating and maintenance costs (based on surveys, studies, and investigations conducted by the LTFRB among operators, drivers, and industries in the public land transportation service) (LTFRB, 2019a).

The LTFRB also regulates "surge pricing", or the spiking of fares during peak periods due to increased demand. Following a period of unprecedented surge pricing in metropolitan Manila during Christmas 2016 where fares varied between PHP 2 000 and 28 000 (USD 35- 485), the LTFRB introduced a cap of 1.5x the actual cost of the trip (CNN Philippines, 2016). In 2019, the LTFRB issued Memorandum Circular No. 2019-036 with approved fare rates for TNVS including allowable surge pricing of 2x the trip cost, which was later updated in 2022 to reflect an increase in the "flag down rate" (the standardised base rate applied to every solicited trip) to accommodate an increase in fuel prices (Rappler, 2022). Table 4 shows the current rates for TNVS.

Table 4. 2022 Updated Fare Rates for Transportation Network Vehicle Services (TNVS)

	Car Sedan	Premium AUV / SUV	Hatchback / Sub-compact (above 1200cc)
A. Flag down	Up to PHP 45.00	Up to PHP 55.00	Up to PHP 35.00
B. Fare/km	PHP 15.00	PHP 18.00	PHP 13.00
C. Fare/minute of travel	PHP 2.00	PHP 2.00	PHP 2.00
D. Surge (on B + C)	2x	2x	2x

Source: Land Transportation Franchising & Regulatory Board (Rappler, 2022b)

During TNC-brokered rides, TNVS drivers must always use an internet-connected digital device that is connected to the TNC-provided app and their vehicle cannot use top-lights or taximeters. They must employ the most direct route to a destination unless detours are expressly approved by the passenger. Smoking and the presence of opened alcoholic beverages are prohibited in TNVS vehicles.

Upon completion of the ride, the TNC must electronically transmit a receipt to the passenger that includes information on the fare paid, point and time of departure origin, point and time of destination arrival, actual route, distance, and duration (ITF, 2016).

Ride-hailing motorcycle taxis

Before the emergence and popularity of ride-hailing apps, motorcycle taxis (locally referred to as "habal-habal"), have long been in operation in metropolitan Manila to address demand stemming from a lack of adequate alternative public transport modes (Guillen, 2004). These services are classified as informal public transport in the Philippines, a situation which technically remains the case despite the emergence and widespread uptake of ride-hailing motorcycle taxi apps like Angkas, Joyride, and Move It (Philippine Star, 2023a).

Recognising both the popularity of these services and the potential negative externalities they generate, in 2019 the Philippine Congress authorised the commencement of a pilot study to inform the development of regulation to legalise app-based motorcycle taxis. A Technical Working Group was established to carry

out the pilot, comprised of representatives from the DOTr, LTO, LTFRB, Philippine National Police – Highway Patrol Group (PNP-HPG), MMDA, Senate, House of Representatives, commuter welfare groups, road safety advocates, motorcycle manufacturers, motorcycle organisations, and law schools (DOTR, 2018). Three firms were granted provisional authority to operate in metropolitan Manila, metropolitan Cebu, and Cagayan De Oro City- Angkas, JoyRide, and Move It (Inquirer, 2023a). A cap of 45 000 drivers was set for metropolitan Manila (9 000 each for metropolitan Cebu and Cagayan De Oro City), with allocated permits divided evenly between participating firms.

The Technical Working Group set guidelines for the operation of these app-based services, which closely mirrored regulation for TNCs (app-based ride-hailing four-wheeler taxis), covering the following areas.

- **Safety** – motorcycles must be 100-155 cubic centimetres (cc) conventional engine displacement and models (no sport, off-road or enduro bikes), pillion seat and foot pegs must be in good condition, exhaust pipe insulated, and any modifications in line with LTO vehicle standards. The driver must comply with safety gear laws including wearing a good quality helmet, a reflectorised vest with firm branding and appropriate clothing, ID card with number provided by LTFRB, and a belt-based strap with at least four handles for passenger stability. The driver must also be in good health, drive no faster than 60 km/h (even if speed limits are higher), abide by all relevant traffic rules, ensure their motorcycle is routinely maintained, and work a maximum of ten hours per day. Passengers must be provided with a reflectorised helmet and sit facing forwards, and ride-hailing firms must hold sufficient insurance in the event of a passenger accident. Furthermore, passengers under the influence of drugs or alcohol or who cannot hold on safely are prevented from using these services, as are children and pregnant women.

- **Security** – participating ride-hailing firms must require their drivers to hold a professional driver's license, undergo a criminal record check (both National Police Clearance and Local Police Clearance), take a pillion-ferrying skills assessment, sit a traffic rules and regulations written exam, complete training on customer relations (including regarding sexual harassment and discrimination), and hold proof of registration, ownership, or use for the motorcycle being driven.

- **Data sharing** – participating ride-hailing firms must give access to their back-office databases to the Technical Working Group for validation and verification including a list of all drivers registered on the platform, all participating drivers must submit their details to the LTFRB, and ride-hailing firms must provide an online mechanism to receive feedback from drivers and passengers. Furthermore, on a monthly basis, ride-hailing firms must submit raw data to the Technical Working Group on road crashes, service feedback from passengers, trip characteristics, kilometres travelled, fares collected, as well as any modifications or updates to their mobile apps.

- **Fare matrix** – in metropolitan Manila, set rates are PHP 50 (USD 0.90) for first 2km, PHP 10 (USD 0.20) per km up to 7km, and PHP 15 (USD 0.30) for succeeding kms. No surge pricing is permitted, unlike four-wheeler app-based mobility services where a clear framework is established.

The guidelines also set out an approach to monitoring and evaluation, whereby the Technical Working Group members convene on a monthly basis to review and validate the data provided by participating ride-hailing firms, reports from relevant government agencies, system operations of the mobile apps, and feedback from drivers and passengers. Three main KPIs are identified for assessing outcomes from the pilot study, centred on a road crash threshold, traffic rules violations, and passenger feedback.

Initially, the pilot was intended to last for three months (from December 2019 to March 2020), with the possibility of a three-month extension. However, due to the Covid-19 pandemic, the pilot was suspended in 2020, only being reconstituted in November 2022 (Laurena, 2023). Further delays in concluding the study ensued, causing legislative efforts to stall despite multiple draft bills pending in the House of Representatives (Marasigan, 2023). In 2023, the LTFRB expressed its ambition to conclude and present the final findings of the pilot study by the end of that year, but as of early 2024, this has yet to occur (Laurena, 2023). As a result, the number of "habal-habal" rides (or motorcycle taxis operating outside of the pilot study's regulatory guidelines and safety standards), have continued to increase given strong growth in demand, and supply of vehicles participating in the pilot being limited to 45 000 in metropolitan Manila (Quismorio, 2023). ITF interviews with app-based mobility firms operating in metropolitan Manila corroborated the view that the current vehicle cap is too low to meet demand from passengers.

Food and goods delivery

Department Circular No. 13 s. 2020 of the Department of Information and Communications Technology (DICT) sets out measures to enhance and strengthen the regulation of the postal delivery services industry and those engaged in domestic postal commerce (DICT, 2020). Private Express and/or Messengerial Delivery Services (PEMEDES), otherwise known as Courier Service Providers, are granted authority to operate by the DICT. Should the operator violate any relevant order, rule, or regulation, DICT has the power to impose fines, as well as amend, suspend, or cancel PEMEDES authorisation (DICT, 2020).

Unlike app-based passenger transportation services, there is no cap on the number of vehicles that are permitted to operate under PEMEDES authorisation, and there is no pricing regulation (DICT, 2022). Grab Express is the most prominent example of an app-based delivery service in metropolitan Manila and is a registered PEMEDES with DICT (DICT, 2023).

Cross-sectoral regulations

Cross-sectoral regulations which affect app-based mobility principally concern labour market issues and transport emissions.

Labour

TNVS drivers are not legally considered to be employees of TNCs, and therefore do not qualify for workers' benefits and rights as set out in the Labor Code of the Philippines, P.D. 442.

For app-based passenger transport services, the only government regulations in place with regards to remuneration are the fees TNVS are allowed to charge in order to protect passengers from unfair pricing. However, such regulations may also prevent TNCs from ensuring that their partner drivers earn at least the local living wage without working overtime (Fairwork, 2022). In metropolitan Manila, where the daily minimum wage is around PHP 540 (USD 9), some drivers may only reach this threshold when they work beyond a typical 40-hour week, given drivers' remuneration is directly proportional to the number and length of trips completed (Fairwork, 2022). To attract partner drivers, Grab is said to offer bonuses and legal assistance of up to PHP 10 000 (USD 170) for applicants with six-seater vehicles, and up to PHP 6 000 (USD 104) for those with four-seater vehicles (Philippine Star, 2023c).

Transport emissions

To address growing concerns about increasing air pollution emitted by various sources, the Philippine Government enacted policies to control air pollution through the Philippine Clean Air Act 1999. With regards to transport, this law requires both newly manufactured/assembled/imported, and in-use vehicles to undergo emissions testing prior to registration, or renewal of registration, with the LTO (DENR, 2000). In 2023, the DOTr enacted new policies for Private Emission Testing Centres (PETCs) and Private Motor Vehicle Inspection Centres (PMVICs) as per its Department Order No. 2023- 008. The intention was to modernize and streamline the process of ensuring vehicles are road-worthy and meet emissions standards (DOTr, 2023). As motor vehicle inspection is a necessary step prior to being registered with the LTO, and because LTO vehicle registration is a prerequisite for TNVS application, all vehicles operating as TNVS units should comply with the government's policies on reducing harmful transport emissions.

Review of existing governance structures

This section sets out the key agencies involved in the governance of app-based mobility and related public transport services, and their legal basis for doing so.

The Commonwealth Act No. 146 (1936), otherwise known as the Public Service Act, is the fundamental law on which all regulations in the public transportation sector in the Philippines are anchored. These regulations are designed to ensure that operations of the "public service proposed, and the authorization to do business, will promote the public interest in a proper and suitable manner"(National Assembly of the Philippines, 1936).

In Republic Act No. 11659 (2022), otherwise known as the Amendments to the Public Service Act, Section 3 recognises the transfer of jurisdiction, powers, and duties and all references pertaining to the Public Service Commission in Commonwealth Act No 146 to various Administrative Agencies. In the case of public transportation, the Department of Transportation (DOTr), the Land Transportation Franchising and Regulatory Board (LTFRB), the Land Transportation Office (LTO), and the Office of Transportation Cooperatives (OTC) are listed among the responsible agencies (National Economic and Development Authority, 2023).

The LTFRB is a line agency under the DOTr and is tasked with economic regulatory functions for road public transport services by virtue of Commonwealth Act No. 146 which was later amended to R.A. 1169. By virtue of the mandate of the Public Service Act as stated in Section 4 of R.A. 1169 and as stipulated in Section 5 of Executive Order No. 202, s. 1987 which created the LTFRB. The LTFRB has authority over public land transport services with regards to:

- Route/area of operation prescription and regulation in terms of viable route capacities;

- Issuance of Certificate of Public Convenience (or franchise) to entities worthy to be public transport operators with corresponding franchising terms and conditions;

- Amendment, suspension and cancellation of franchise based on proven facts;

- Prescription of fares/charges on public transport services;

- Promulgation and enforcement of rules and regulations pertaining to public transport service operations; and,

- Inter-agency coordination on matters relevant to public transport services (Official Gazette, 1987).

Additionally, the LTFRB shares in the responsibility of ensuring the safety and roadworthiness of vehicles utilized for public convenience, as outlined in Section VIII of the LTFRB Memorandum Circular No. 92-009. (LTFRB, 1993).

The LTO, also a line agency of DOTr, is responsible for the safety regulation of vehicle operations. The basic functions of the agency are based on the Land Transportation and Traffic Code, under R.A. 4136 and EO 546, s. 1979. The LTO is tasked with performing the following regulatory and enforcement functions:

- Registration of motor vehicles (subject to a vehicle safety inspection);

- Operation of motor vehicles, particularly on licensing to drive motor vehicles, use of license plates, carriage of passengers and freight and motor vehicle accessories; and,

- Enforcement of traffic rules (Official Gazette, 1964).

The OTC, another line agency of DOTr, is mandated to "promulgate and implement rules and regulations that will govern the promotion, organization, registration (accreditation), regulation, supervision and development of Transport Cooperatives" (Section 2, Executive Order No. 898, s. 1983). The OTC is the lead agency in efforts to consolidate public transportation operations, particularly of public utility jeepneys (Official Gazette, 1983).

Historically, regulations for freight delivery services were under the mandate of the Commission on Information and Communications Technology (CICT) under the Office of the President. Founded in 2004, the CICT's powers and functions involve policy, planning, coordinating, implementing, regulating, and administration that aims to promote, develop, and regulate reliable and cost-efficient communication facilities and services. The CICT was also empowered to establish and prescribe rules and regulations for the operation and maintenance of a nationwide postal system, including mail processing, delivery services, and money order services (EO No. 269, s. 2004). In 2011 the CICT was renamed to the Information and Communications Technology Office, which was later abolished in 2015, with all its powers and functions transferred to the Department of Information and Communications Technology (Official Gazette, 2016).

Local government units have no formal role in the regulation of public transport services in the Philippines, with the exception of tricycles which fall under their jurisdiction. However, they have an important enabling role in managing the implementation and operations of public transport, including the impacts of app-based mobility services on urban transport systems. This includes responsibility for development of a Local Public Transport Route Plan which details the route network, modes of service, and required number of units per mode for delivering public transport services. This plan also serves as the basis for the issuance of the Certificate of Public Convenience by the LTFRB. In the case of metropolitan Manila, the Metropolitan Manila Development Authority (MMDA) oversees and coordinates public transport and app-based mobility issues across the 16 cities and one independent municipality which make up the National Capital Region.

Table 5 sets out the key organisations involved in both the governance of app-based mobility services and related public transport modes.

Table 5. Governance of app-based and related mobility services in metropolitan Manila

Service type	Regulatory / management agencies	Scope of mandate
App-based mobility (passenger transport)	Department of Transportation (DOTr)	• Sets primary legislation
	Land Transportation Franchising and Regulatory Board (LTFRB)	• Grants authority to operate • Sets operational licensing requirements • Pricing regulation
	Land Transportation Office (LTO)	• Vehicle registration • Enforcement of traffic rules
	Metropolitan Manila Development Authority (MMDA)	• Managing the impacts of services on the urban transport system
	Traffic police	• Enforcement of traffic rules
App-based mobility (freight transport)	Department of Information and Communications Technology (DICT)	• Grants authority to operate
	Land Transportation Office (LTO)	• Vehicle registration • Enforcement of traffic rules
	Metropolitan Manila Development Authority (MMDA)	• Managing the impacts of services on the urban transport system
	Traffic police	• Enforcement of traffic rules
Conventional taxi	Department of Transportation (DOTr)	• Sets primary legislation
	Land Transportation Franchising and Regulatory Board (LTFRB)	• Grants authority to operate • Sets operational licensing requirements • Pricing regulation
	Land Transportation Office (LTO)	• Vehicle registration • Enforcement of traffic rules
	Metropolitan Manila Development Authority (MMDA)	• Managing the impacts of services on the urban transport system
	Traffic police	• Enforcement of traffic rules
Formal public transport	Department of Transportation (DOTr)	• Sets primary legislation
	Land Transportation Franchising and Regulatory Board (LTFRB)	• Grants authority to operate • Sets operational licensing requirements • Pricing regulation
	Land Transportation Office (LTO)	• Vehicle registration • Enforcement of traffic rules
	The Office of Transportation Cooperatives (OTC)	• Governance of transport cooperatives, including public utility jeepneys
	Metropolitan Manila Development Authority (MMDA)	• Managing the impacts of services on the urban transport system
Tricycles	Local Government Units / Metropolitan Manila Development Authority (MMDA)	• Grants authority to operate • Sets operational licensing requirements • Pricing regulation
	Traffic police	• Enforcement of traffic rules
Informal paratransit (unregulated)	Traffic police	• Enforcement of traffic rules

Streamlining and modernising licensing

ITF interviews with app-based mobility stakeholders identified significant inefficiencies related to the licencing application process in order to operate public transportation services. As it stands, an applicant first needs to obtain private vehicle plate registration from the LTO, before applying for a Certificate of Public Convenience from the LTFRB. Once the LTFRB franchise has been granted, the operator then needs to submit another application to the LTO to change their vehicle registration from private to public usage. Furthermore, this process is entirely paper-based which contributes to delays in granting licenses, creates barriers to compliance for operators, and enables a lack of transparency leading to inconsistent application costs being applied.

To improve this situation, the LTFRB and LTO should work together to streamline licensing, while moving from an exclusively paper-based to digital application process. Doing so would benefit not only app-based mobility operators, but also other public transport services, like buses and jeepneys.

Governance of Super-apps

As super-apps like Grab continue to expand their service offering and gain in popularity in the Philippines, the need for a more holistic approach to governance has become increasingly urgent. Currently, different government agencies are responsible for regulating different aspects of these firms' operations. With regards to transport, the LTFRB is largely responsible for passenger services, while DICT is responsible for freight services. However, super-apps' operations often extend to other domains, particularly finance – the regulatory responsibility of the Bangko Sentral ng Pilipinas (BSP), the Philippine Central Bank – and touch many facets of digital regulation under DICT. Furthermore, as these super-app firms take increasingly dominant positions in multiple markets, both competition regulation (under the Philippine Competition Commission), and labour issues (under the Bureau of Labor Relations) become more prominent.

ITF interviews with app-based mobility stakeholders revealed a lack of coordination between relevant government agencies with regards to regulating super-apps, resulting in a lack of oversight which may be detrimental to the public over time given the scale of market power involved. To address this challenge, an inter-agency taskforce could be established to explore ways to improve operational links between parts of government, and take a more strategic approach to governing these firms.

Recommendations

Liberalise supply-related regulation for four-wheeler app-based mobility while addressing externalities holistically

Current restrictions on the supply of TNVS vehicle licenses in metropolitan Manila and simultaneous controls on prices generate market inefficiencies which can negatively affect the welfare of firms, drivers, and passengers. To better enable supply to meet demand, restrictions on the number of TNVS vehicle licenses should be lifted, with government instead focusing on addressing any induced traffic congestion or air pollution through holistic travel demand policies which target all road users and improve the attractiveness of high-capacity public transport services as well as active travel. In the longer term, consideration could also be given to assessing the roadworthiness of vehicles through a periodic vehicle inspection process, rather than by imposing a seven-year age limit for TNVS.

Fill regulatory gaps for other types of app-based mobility services in a consistent manner

Draft regulations for the legalisation of app-based motorcycle taxi services rightly focus on road safety and are broadly aligned with the regulatory approach adopted for four-wheeler TNVS. Efforts to finalise and implement these regulations should be expedited given ongoing delays results in the proliferation of less safe, informal "habal-habal" rides as demand for these services continues to grow. Like four-wheeler TNVS, supply caps on the number of motorcycle taxis permitted to operate in metropolitan Manila should be removed to avoid market inefficiencies and maximise uptake of safety regulations. As is the case for TNVS, surge-pricing within clearly set bounds should also be permitted. The LTFRB should be the responsible agency for administering regulations for motorcycle taxis to take advantage of synergies with its existing mandate, and post-implementation, continue to work closely with operators to review and enhance safety initiatives – including moving over time towards a robust approach to issuing test-based motorcycle drivers' licenses. Finally, efforts should be made to ensure the regulatory approach to app-based freight delivery services (the responsibility of DICT) is consistent with passenger services (the responsibility of LTFRB) where relevant, and a regulatorily permissive environment is fostered to spur deployment and uptake of app-based services for active travel.

Address inefficiencies in licensing processes and improve cross-departmental coordination on super-apps

The LTFRB and LTO should work together to review and streamline the application process by which four-wheeled app-based mobility providers obtain a license to operate public transportation services, and transition from an exclusively paper-based to digital application process. Doing so could also benefit other public transport services, like buses and jeepneys, as well as app-based motorcycle taxi services (once legalised). Relevant government agencies (including but not limited to the DOTr, LTFRB, DICT, BSP, Philippine Competition Commission, and Bureau of Labor Relations), should also consider establishing an inter-agency taskforce to explore how best to improve oversight and regulation of super-apps as their market power continues to increase.

Phnom Penh

Understanding the city

Figures 22-27 provide selected key metrics which contextualise the development of app-based mobility services in metropolitan Phnom Penh.

Figure 22: Metropolitan Phnom Penh urban boundary, population density, and major roads with typical evening peak congestion levels (no fixed-line public transit network present)
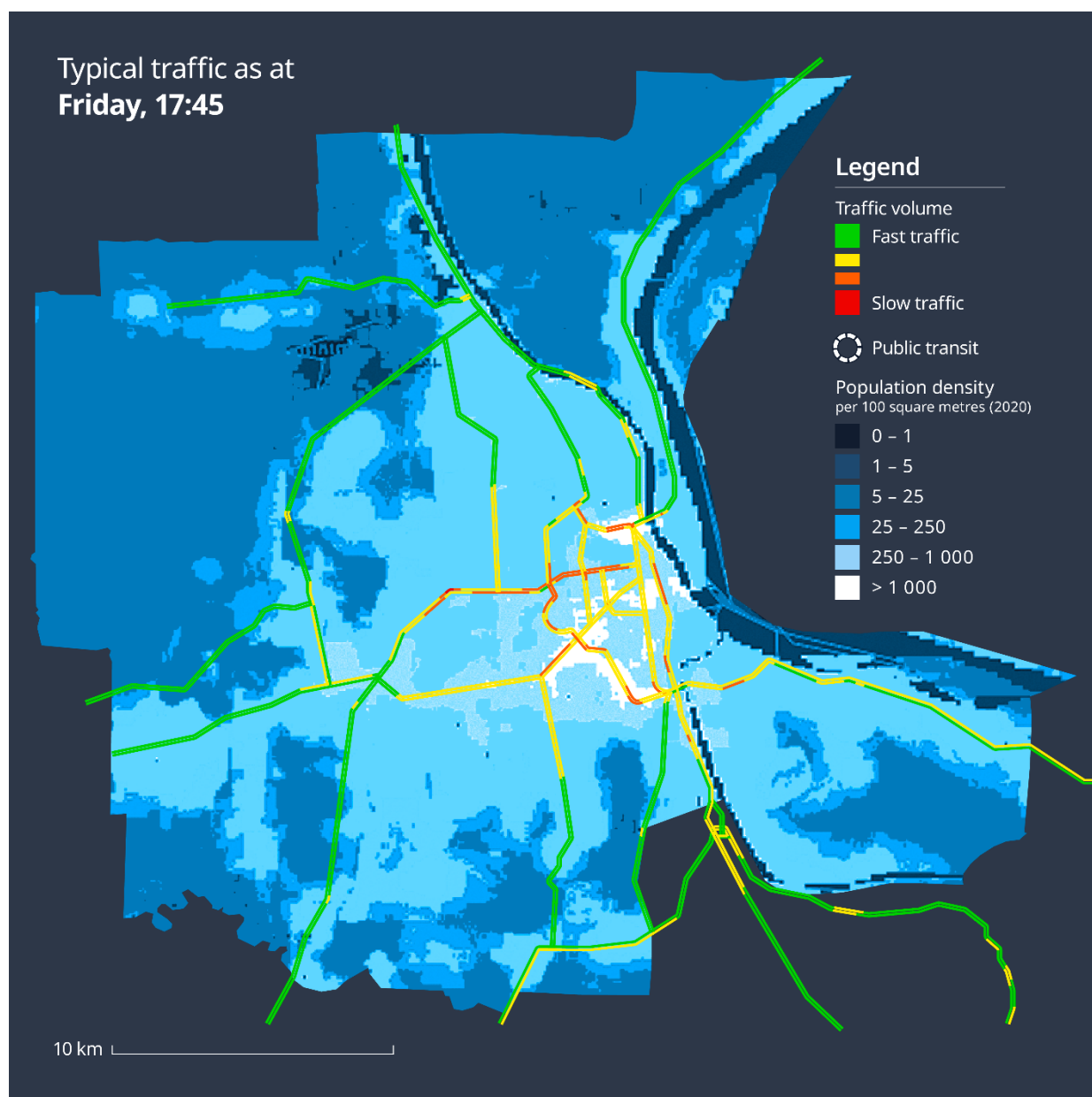
Source: Authors' own elaboration based on data from Google and WorldPop

Figure 23: Phnom Penh mode share (% of total distance travelled in 2023)

- Automobile
- Cycling
- Motorcycle
- On foot
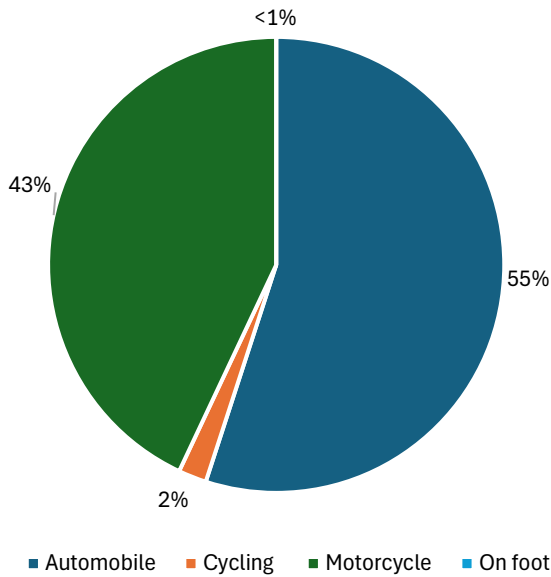
Figure 24: Phnom Penh emissions per mode over time (tCO2e per year)

- Automobile
- Bus
- Motorcycle
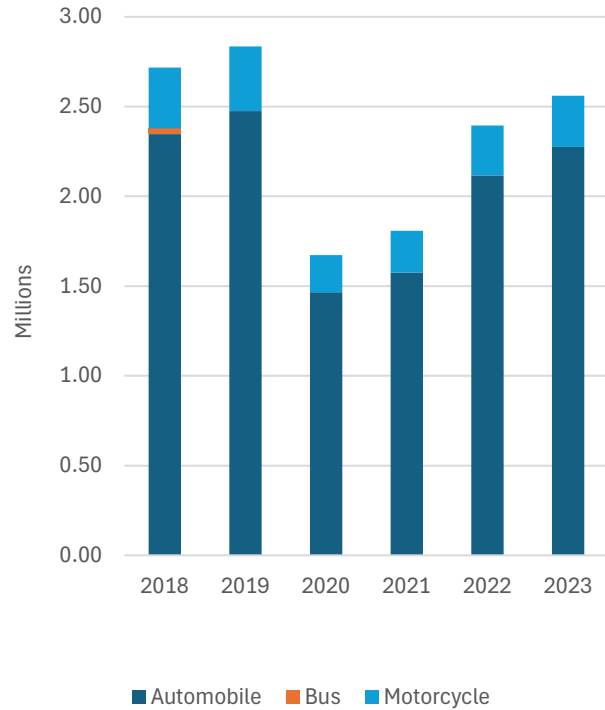
Source: Google Environmental Insights Explorer

Figure 25. Population – Phnom Penh
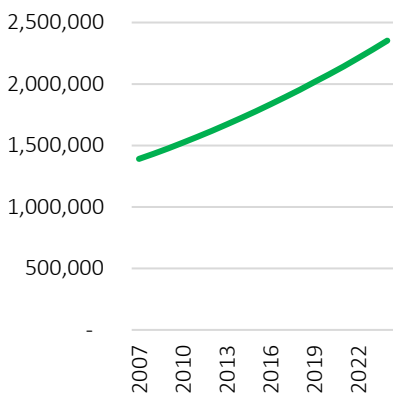
Source: World Population Review, 2024

Figure 26. GDP per capita (USD) – Cambodia
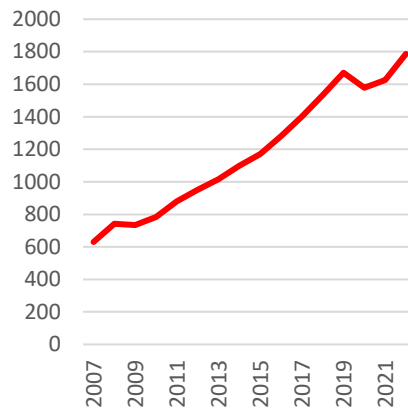
Source: World Bank 2023

Figure 27. Mobile cellular subscriptions per 100 people – Cambodia
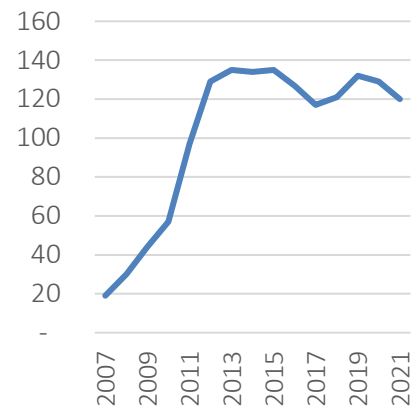
Source: World Bank 2023

Current state of app-based mobility services

Phnom Penh has experienced rapid population growth in recent decades, having increased from 1.3 million inhabitants in 2004 to 2.4 million in 2024 – an 85% increase in 20 years (World Population Review, 2024a). This growth is driven by Phnom Penh's relative importance in comparison to other urban centres in Cambodia with regards to employment and educational opportunities (JICA, 2023). Indeed, Phnom Penh accounts for the highest share of the country's population at a provincial level with 14% in 2024 (World Population Review, 2024b). As a result, the population density in Phnom Penh is the highest in the country, at 3 361 persons per km^2, in comparison to 87 persons per km^2 for the whole country (JICA, 2023). Within Phnom Penh, population growth rates vary, with the central business district (CBD), which has the highest population density, in fact decreasing at CAGR -3.82% while the population outside the CBD is increasing at CAGR 2.43%. Between 2008 and 2019, the CBD's share of the total population dropped from 38% to 23%. This trend is expected to continue, with growth particularly in the North, South, and West directions from the CBD (JICA, 2023). Cambodian GDP per capita has also increased significantly in recent years, growing from USD 973 in 2012 to USD 1 694 in 2019 (Cambodian Ministry of Planning, 2021). Along with this, Cambodia has a very high rate of mobile phone subscriptions at 120% in 2021, in line with other ASEAN countries (World Bank, 2023).

Despite this rapid growth, Phnom Penh does not as yet have a fixed-line mass transit system. A rail shuttle service using the existing track between the central station and international airport was opened in 2018, but discontinued in 2020 due to low patronage stemming from poor service quality (JICA, 2023). An urban public bus network was introduced in 2014, and from 2017 was expanded to ten routes for a total length of 148km. While public buses should play a vital role, their appeal to many inhabitants is limited in part because of their slow speed (approximately 10km/h) due to operating in increasingly congested mixed traffic as motorization increases, poor accessibility to bus stops (related to sidewalks, weather conditions, safety and security), and uncertain waiting times (Phun et al., 2018). Instead, many people in Phnom Penh have historically relied – and continue to rely – on door-to-door paratransit services.

Paratransit modes in Phnom Penh include Motodop, Auto-rickshaws, and Cyclo. Motodop refers to motorcycle taxis, Auto-rickshaws include Remorks (a rickshaw towed by a motorcycle) and Bajaj (motorized three-wheelers imported from India, often referred to as Tuktuks elsewhere), and Cylos (pedal-driven three-wheelers), see Figure 28 (Phun, Kato and Yai, 2017; Phun et al., 2018).

Figure 28. A Bajaj with Grab (left) and a Remork with PassApp (right)

The precise number of Motodops is unknown as there are no official controls, regulations, or records regarding their operations, however, independent survey data suggest their numbers have drastically

decreased since 2012. Cyclos are typically only used by tourists or shoppers around local markets for short trips, and their numbers have also decreased significantly over time (JICA, 2023). Registration of auto-rickshaws started in 2009, and their numbers have been increasing steadily since. According to the Department of Public Works and Transport, by 2018 there were 18 032 auto-rickshaws registered in Phnom Penh split between 10 091 Remorks, 3 282 Bajajs, and 4 659 Chinese motorized tricycles, however many auto-rickshaws are thought to be unregistered (Phun et al., 2018).

It is in this context of rapid urbanization, increasing GDP per capita, increasing access to mobile internet, and an urban transport system dominated by paratransit that app-based mobility services have exploded in popularity in Phnom Penh. Some have termed this phenomenon "LAMAT" (Locally Adapted, Modified, and Advanced Transport), referring to indigenous paratransit modes in developing regions of Asia that have evolved in the context of availability of new technologies – particularly digital technologies (Phun and Yai, 2016). Indeed, app-based ride hailing services are now becoming dominant in Phnom Penh, replacing traditional paratransit modes – especially Motodops, Remorks, and four-wheel metered taxis (which were only introduced in Cambodia in 2008) (Eung and Choocharukul, 2018; JICA, 2023).

Since the launch of the first app-based ride-hailing service in 2016 by ExNet, many local start-up companies have entered the market, with around 20-30 firms competing for passengers in subsequent years. The intense competition led to many of these firms ceasing operations due to a lack of passengers as network effects favoured the emergence of a few, larger services. As the market matured, two firms took a dominant position in Phnom Penh – PassApp (headquartered in Cambodia), and Grab (following its merger with Uber in 2018). Table 6 sets out results from three different surveys undertaken in 2018, 2021, and 2023 to estimate the proportion of Bajaj drivers using various apps, noting that in Cambodia there are no restrictions for drivers using multiple apps concurrently – e.g. 2023 saw 79.2% of the sample using PassApp and 70% of the sample using Grab.

Table 6. Proportion of Bajaj drivers in Phnom Penh using various app-based mobility platforms

Ride-hailing apps	Jan 2018 (n = 182)	Jan 2021 (n=239)	Jun 2023 (n = 120)
PassApp	68.7	91.2	79.2
WeGo	25.3	16.7	1.7
UGO711	20.9		
iTsumo	11.0		
EXNET	2.7		
CAMGO	1.1		
FastGo	1.1		
Tostov	0.5		
Grab		39.7	70.0
TADA		10.9	23.3
Nham24			3.3
Source:	Phun et al. (2018)	Panha et al. (2023)	Prak and Sun (2023)

Unlike many other countries, ride-hailing services in Phnom Penh predominantly use three-wheel Bajajs (or Tuktuks), with far fewer Remorks or cars, and only a small number of motorcycles. Indeed, the number of ride-hailing Bajajs in operation is thought to have increased from around 20 000 in 2014, to over 30 000 by 2017 (JICA, 2023). Possible reasons for the relative popularity of Bajajs include their standardization, faster speed, and being LPG powered (making trip cost lower than Remorks which consume gasoline and are slower) (Phun et al., 2020).

The app-based food and freight delivery market is more fragmented than that of passenger services in Phnom Penh, with several firms actively competing for market share. These include both Cambodian firms like Nham 24, L192, Wingmall, VET Express, and GOODTOGO, and multinational firms like Food Panda, E-Gets, WowNow, and Grab (see Figure 29). Another point of difference with passenger services is that motorcycles are the dominant mode used for delivery. Figure 30 summarises the types of app-based mobility services currently operating in Cambodia, and their regulatory status.

In contrast to some other markets in Southeast Asia, mobility apps operating in Phnom Penh have yet to transition towards the "super-app" model, where non-transport related products are offered alongside ride-hailing and freight delivery. ITF interviews with private sector stakeholders indicated that one major player is considering introducing financial services covering digital payment and lending in the coming years.

Figure 29. App-based motorcycle food/freight delivery firms

Note: from left to right - Wingmail, Nham24, FoodPanda

Figure 30. Regulatory status of app-based mobility services in Cambodia
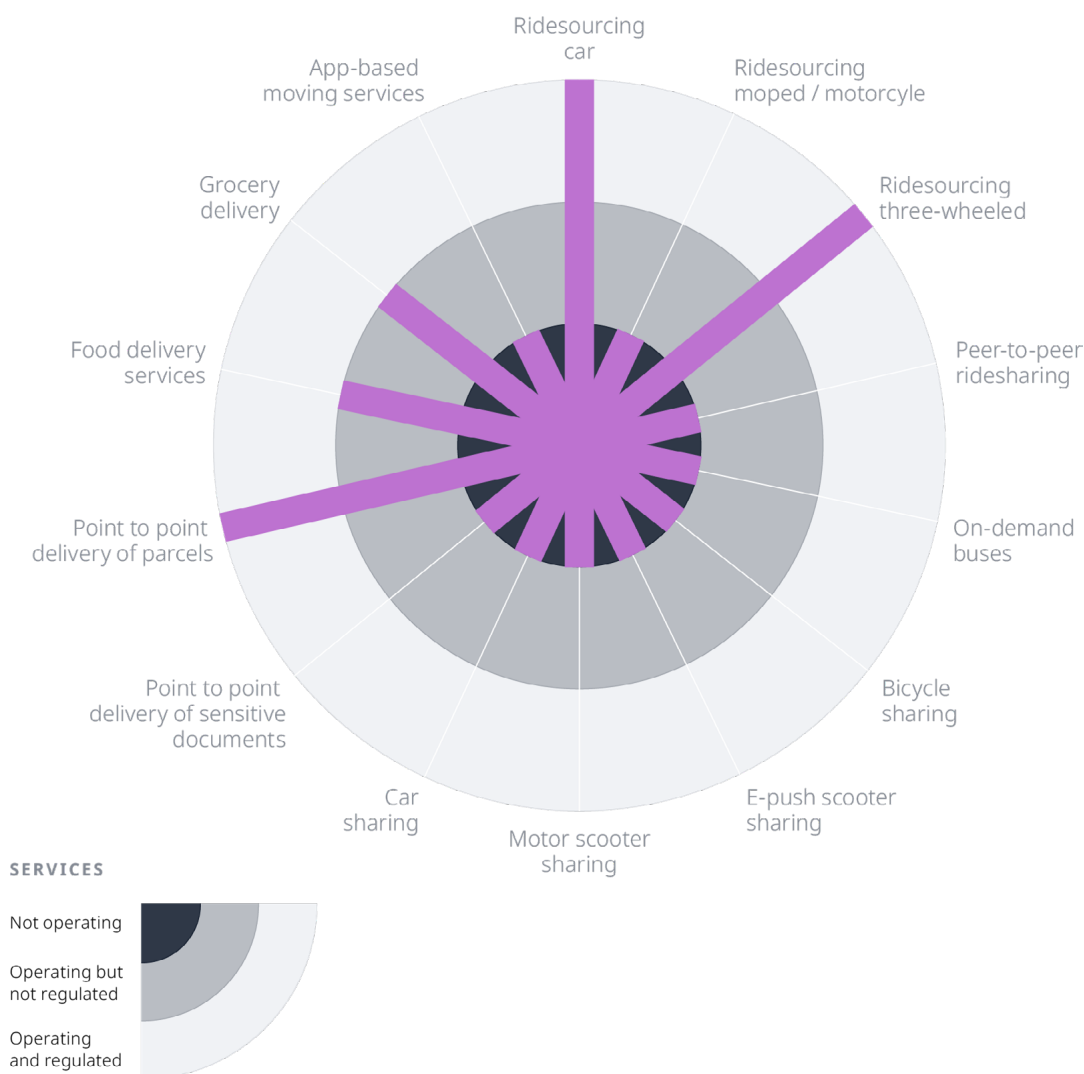
Source: Authors' own elaboration based on ITF, 2023

The benefits of app-based mobility for Phnom Penh

ITF interviews with both central and local government stakeholders indicated that the arrival of app-based mobility in Phnom Penh is generally perceived to have improved the quality of passenger transport services in comparison to the pre-existing paratransit offering (and in the context of a lack of adequate conventional public transport). Features which are particularly popular with users include a standardized fare which avoids the need for negotiation between passenger and driver, convenient booking via smartphones, shorter wait times, and GPS tracking via an interactive map. App-based delivery services, particularly for food, are popular for similar reasons and enjoyed rapid uptake during Covid-19 pandemic social distancing restrictions. A 2022 survey of app-based ride-hailing users in Phnom Penh found that their main reasons for using these services over other options pertained to affordability, ease of booking, and not needing to walk to access them, see Figure 31. Indeed, a survey of the Phnom Penh travelling public indicated over 75% of respondents use ride-hailing services at least once per week (JICA, 2023).

Figure 31. Major reasons for passengers using app-based ride-hailing services in Phnom Penh
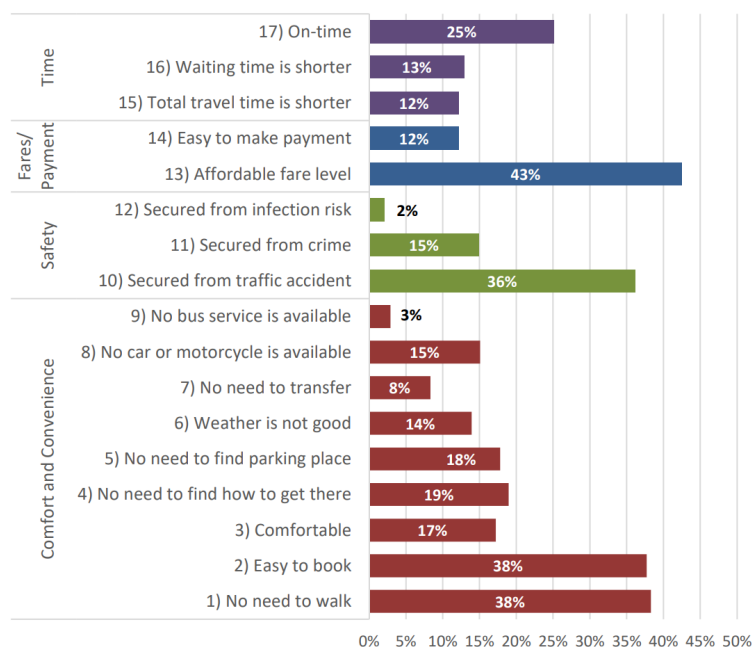
Note: Multiple answers are permitted, therefore the total percentage of share exceeds 100%.

Source: JICA (2023)

App-based mobility services have also brought several benefits to drivers. A 2018 survey of 182 Bajaj drivers in Phnom Penh found that around 80% of respondents thought that ride-hailing apps facilitated access to more customers and higher revenue. Some also reported that ride-hailing apps helped them to save time (5.9%) and avoid fare negotiation (4.6%), as well as appreciating safety and navigation features as key positives (9.6%). The same survey also asked drivers about negative aspects regarding the use of ride-hailing apps, with 38% of drivers citing high commission fees charged by network companies, 34% technical errors with the app, and 15% issues with customers. In addition, the study examined changes in operational patterns of drivers who had moved from conventional paratransit to using app-based ride hailing platforms. It found daily working hours increased by 8% (to around 10 hours per day), accompanied by a 63% increase in the number of daily trips and customers. As a result, drivers' monthly revenue increased by 46%. Drivers typically earnt between USD 75 and 1 000 per month, with an average of USD 430.8 (not including monthly expenses which averaged USD 128.6) (Phun et al., 2018).

Another questionnaire asked drivers subjective questions related to their satisfaction with using ride-hailing apps based on a five-point scale. It found respondents agreed strongly (scores of 4 or 5 out of 5) that they were satisfied with using ride-hailing apps (97%), that they improved paratransit services (95%), improved safety and security (86%), and improved drivers' living conditions (95%). Among interviewed Bajaj drivers in Phnom Penh, around 40% were former paratransit drivers who had adopted ride-hailing apps (sometimes accompanied by upgrading their vehicles from Remorks). The remaining 60% were new drivers, indicating that the emergence of app-based mobility has indeed generated additional jobs, particularly for low-income and less-skilled workers (Phun et al., 2018). Overall, available evidence indicates app-based mobility services have improved both the efficiency and quality of paratransit services in Phnom Penh, as well as generating significant employment opportunities (Phun et al., 2020).

The challenges of app-based mobility for Phnom Penh

App-based mobility creates two main public policy challenges for metropolitan Phnom Penh- road safety and the risk of excessive motorisation.

Road safety

One of the main challenges brought about by the rapid uptake of app-based mobility in Phnom Penh is road safety, as highlighted by several different studies. Table 7 shows ride-hailing customer complaints attributed to different causes, with driving speeds and traffic violations accounting for nearly 70% of issues.

Table 7. Phnom Penh ride-hailing customer complaints as reported by Bajaj drivers

Customer complaint	Percentage share (%)
Driving speed	56.5
Navigation	20.6
Traffic violation	12.2
Price	6.9
Hygiene	3.8

Note: n = 120
Source: Prak & Sun, 2023

A separate survey of customers found that 32% of respondents considered the driving behaviours of ride-hailing services to be very problematic or sometimes problematic. Of these respondents, the foremost concerns cited involved ignoring traffic lights (60%), dangerous lane changes (54%), and using smartphones while driving (36%) (JICA, 2023).

A similar picture emerges for app-based delivery services, where self-reported survey data from 154 drivers in Phnom Penh indicate 20% have experienced at least one road crash, 56% admit to breaking the speed-limit, and 51% to disobeying traffic signals. The same study found only 18% of drivers held a driving license, and less than 1% had vehicle insurance (Chhiev, Phun, Yen and Yai, 2021). Other surveys of ride-hailing Bajaj drivers gave slightly higher but still relatively low rates of holding a driving license (29%) and vehicle insurance (6%) (Phun et al., 2018). ITF interviews with both central government and private sector stakeholders suggested perceptions of around 70% of Bajaj drivers holding driving licenses.

While the dominance of light three-wheel vehicles is likely to offer some road safety benefits over other common forms of app-based passenger mobility services in the region, particularly motorcycles, it is clear that low barriers to entry for drivers lacking basic driving skills and insurance, as well as light-handed enforcement measures, are leading to unsafe behaviour which increases the risk of road crashes (Phun et al., 2020). Indeed, even 25% of Bajaj drivers themselves think stricter enforcement of road traffic laws would improve the industry (Prak and Sun, 2023).

Risk of excessive motorization and mitigating negative externalities

Phnom Penh's population is expected to continue to grow quickly, increasing from around 2.4 million in 2024 to around 3.1 million by 2034 (World Population Review, 2024a). While there are some plans in place to improve public transport infrastructure over this period, significant finance and implementation

challenges exist (JICA, 2023). If this additional population is not adequately accommodated through robust land-use and public transport planning integration (as well as measures to improve active mobility), there is a strong risk that Phnom Penh could become locked into a private-vehicle orientated development path, with associated negative externalities including increased traffic congestion, particulate air pollution, and greenhouse gas emissions.

As noted previously, currently Phnom Penh's sole conventional high-capacity public transport service is bus operated by the Phnom Penh City Bus Authority (CBA). Since 2021, CBA owns around 180 buses and operates several routes across the city. However, the service offering is unattractive to many travellers who single out the buses' relative discomfort compared to private modes (car and motorcycle), slow speed, distant bus stops from origin/destination, and their limited routes (JICA, 2023).

As a result, paratransit services (both app-based and conventional) compete with bus services for patronage. Indeed, ITF interviews with local government stakeholders confirmed that on occasion, paratransit drivers have been known to pick up passengers from near CBA bus stops. Comparing CBA bus routes, Figure 32, with GPS data on operating routes of app-based ride-hailing services, Figure 33, shows both the overlap in coverage and wider range of paratransit services.

Figure 32. Phnom Penh bus routes and terminals as of January 2020	Figure 33. GPS data from 2018 showing operational routes of passenger Bajaj drivers in Phnom Penh
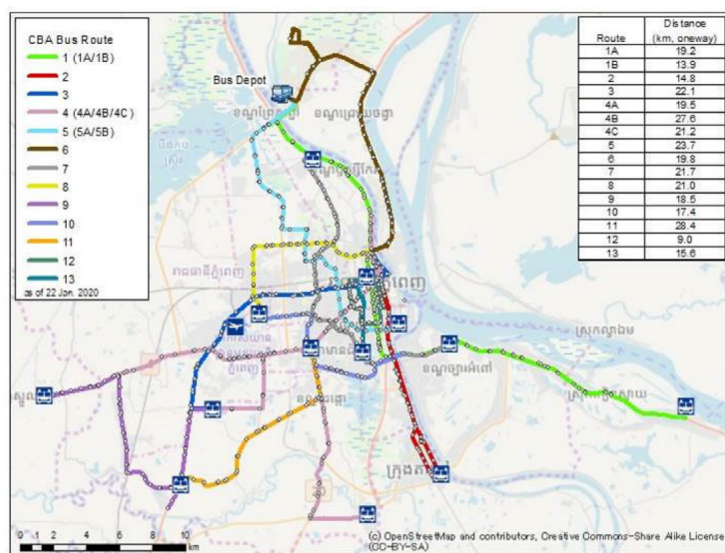
Source: JICA (2023)
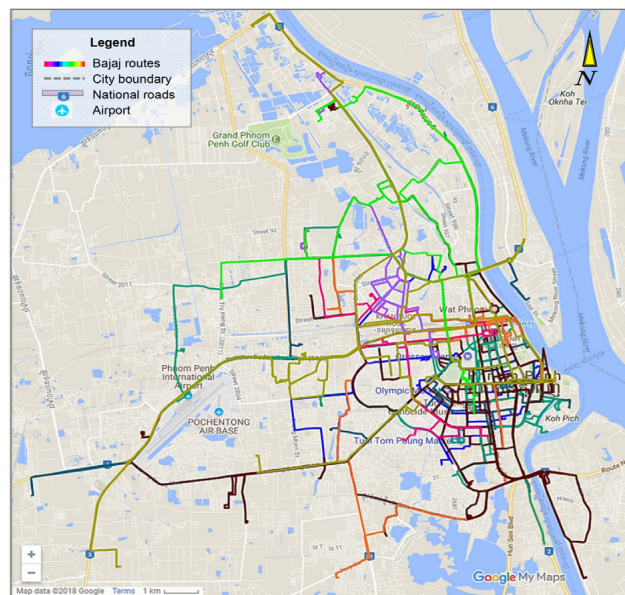
Note : n = 11 Source: Phun et al. (2018)

The ride-hailing GPS data also reveals the majority of trips start and end in and around the city centre. Indeed, this highlights that these services often provide geographically biased supply as most drivers aim to serve more densely populated areas to maximize earnings, leaving those living in peripheral areas with a lack of access (Phun et al., 2018).

One option to address competition between buses and ride-hailing services and improve the overall public transport offer is to better integrate their respective operations. Various measures have been proposed including integration of payment, booking, or route search, discounts for mixed use of each mode, and

improving transfer points (JICA, 2023). Furthermore, ITF interviews with local government stakeholders indicate plans have been considered to prohibit ride-hailing services from operating on main thoroughfare roads to avoid overlap with bus services and encourage their use as first and last mile connectors.

Another complementary option, given the current lack of fixed public transport infrastructure, is to consider strategically moving towards an ambitious shared mobility model for urban transport in Phnom Penh over the medium to long-term. ITF interviews with central government stakeholders indicated there is interest in the potential for app-based mobility to substitute for private vehicle ownership.

Previous ITF studies have developed detailed computer models of several cities to examine "what if" scenarios for shared mobility – what if all trips in private vehicles were replaced by trips in shared vehicles (the configurations tested included on-demand self-driving shared vehicles, electric vehicles, six-seater shared taxis and eight and sixteen-seater taxi-buses). The first such study focused on data from Lisbon (Portugal), where modelling results showed only 10% or less of the number of vehicles were needed to get citizens where they wanted when they wanted. In this scenario, congestion disappeared, transport emissions fell by one third, and on-street parking space was no longer needed (ITF, 2015). These initial findings have since been confirmed in simulations with data from other cities, including Helsinki (Finland), Auckland (New Zealand), Dublin (Ireland), and Lyon (France). These studies showed that shared mobility can dramatically improve equality of access to jobs, health services, education and other opportunities (ITF, 2017a, 2017b, 2018, 2020a). Phnom Penh could similarly explore the potential of moving towards an ambitious shared mobility system given app-based paratransit services already account for a large volume of travel in the city, and its relatively early stage of public transport infrastructure development.

Review of existing regulatory frameworks

Cambodia has a relatively light-touch regulatory framework which favours a free-market approach to app-based mobility services. Only recently, in 2021, was bespoke regulation introduced for these services – which largely focused on registration of companies and vehicles. Implementation of these regulations remains a challenge, and several aspects of the operation of app-based mobility services remain completely unregulated. This section reviews the most important regulations impacting the operation of app-based mobility services in Phnom Penh, and Cambodia more broadly (see Figure 34).

Figure 34. The regulatory landscape for app-based mobility services in Phnom Penh
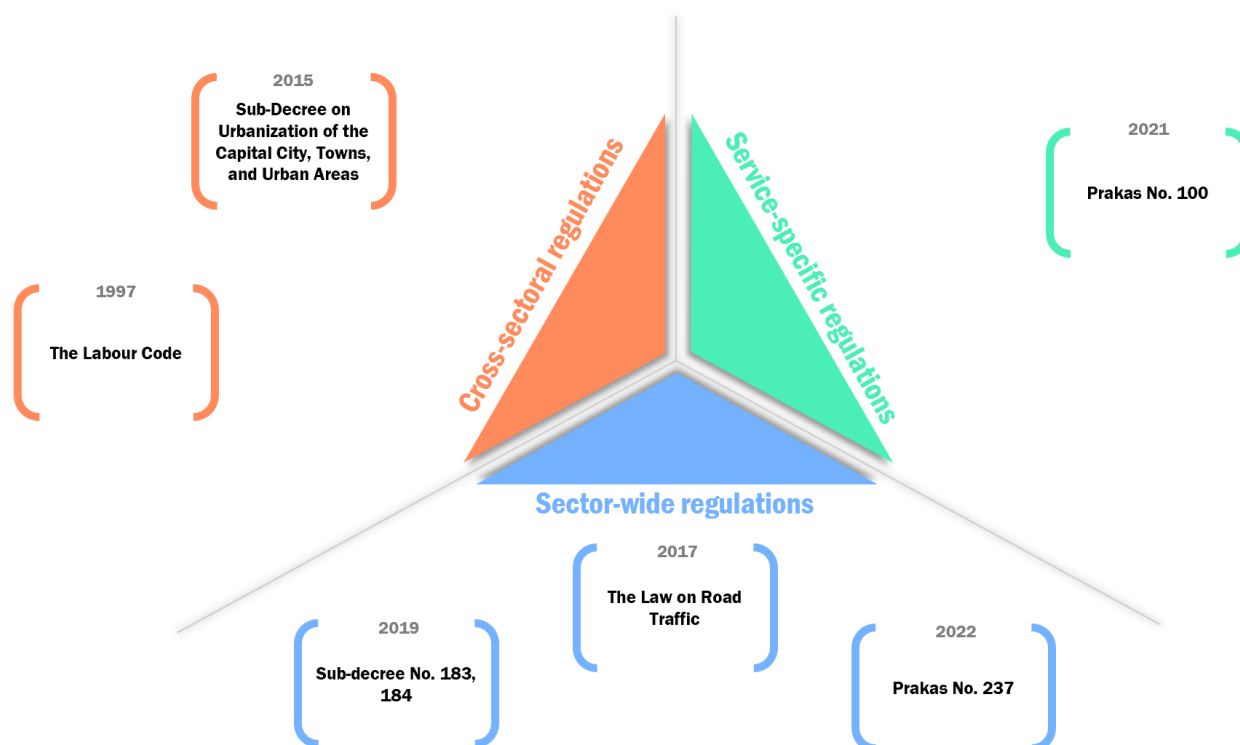
Source: Authors' own elaboration

Sector-wide regulations

The Law on Road Traffic is the most relevant road sector-wide piece of legislation that affects the operations of app-based mobility services. It was adopted by the National Assembly and approved by the Senate in December 2014 then promulgated by PREAH REACH KRAM NS/KRAM/0115/001 in January 2015, coming into full effect in 2017. It sets out requirements for road users, penalties for non-compliance, and related governance arrangements. Following the executive decision to remove the requirement to hold driving licenses for operating motorcycles smaller than 125cc, and subsequent uptick in road crashes, the Law on Road Traffic was revised and updated in 2020 to amend certain rules and increase fines to enhance road safety. The penalty for drink driving now stands at KHR 250 000-800 000 (USD 60-200), for motorcycle or tuk-tuk drivers and motorcycle passengers who fail to wear helmets or wear them incorrectly at KHR 60 000 (USD 15), and talking on mobile phones while driving at KHR 120 000 (USD 30) (MPWT, 2017).

With regards to vehicle registration, number plates for three-wheelers and motorcycles are issued by districts of the provinces (i.e., Khans) under Sub-decree No. 183, 184, while license plates for cars are issued by the Department of Public Works and Transport (DPWT).

Prakas No. 238 and Prakas No.237 dated 1 June 2022 set requirements and procedures for the license of companies which carry out domestic land transport business. Prakas No. 238 does not apply to ride-hailing firms, whereas No.237 does.

Service-specific regulations

App-based mobility service-specific regulations are currently limited in scope and inconsistently implemented resulting in many regulatory gaps.

Existing regulations for app-based mobility are focused on registration and safety

Following the rapid increase in the popularity of app-based mobility services in Phnom Penh, and across other urban centres in Cambodia more generally, the Ministry of Public Works and Transport (MPWT) developed Prakas No. 100, dated 21 June 2021, which aims to regulate companies that provide hailing services via digital platforms for road transport. It sets out the conditions and procedures for the registration of companies providing these services with the MPWT and for the granting of a permit to operate the business. In Article 4 and 5 of the Prakas, companies that provide digital technology services for road transport in Cambodia must have the following registration certificates and business license:

- registration certificate at Ministry of Commerce (MOC)

- registration certificate at Ministry of Post and Telecommunications (MPTC)

- registration certificate at MPWT, and

- business license issued by MPWT.

MPWT issues the business license to app-based mobility companies and requires them to submit a list of vehicles registered under the company or branch. Individual drivers of app-based mobility services are not required to register with MPWT.

After registering and obtaining the license and certificates, Article 9 of Prakas No. 100, sets out requirements that the companies providing digital technology services and their local branches must comply with, including:

- training drivers on the Law on Road Traffic, driving skills, customer service, and moral and ethical behaviour

- requiring all drivers to hold a valid Cambodian driving licence, vehicle ID Card, valid number plates, Certificate of Vehicle Technical Inspection (except for motorcycles), Certificate of Domestic Transport Operation (except for motorcycles, three-wheelers, and Remorks), and display their company's logo on operating vehicles as well as staff ID card issued by the company

- ensure customer security by: 1) allowing the customer to see the driver's photo and to share their location with relatives, friends or the competent authority in case of emergency via mobile app; and 2) taking serious action against drivers reported to have been driving under the influence of alcohol or drugs, or committing violent acts or sexual harassment.

Furthermore, according to Article 10 of Prakas No. 100, the companies and their branches must participate in the implementation of action plans on road safety and the national environment in order to reduce congestion, traffic accidents, and greenhouse gas emissions. In addition to these requirements, MPWT announced that the companies should provide a safety training course to partner drivers every six months.

With regards to monitoring and data sharing, Article 11 of Prakas No. 100 requires companies to submit a report to MPWT every month which includes proof of ongoing valid company registration and the number and type of vehicles operating, with associated identification markers (Sethalay Law Office, 2021).

Challenges remain for the effective implementation of existing regulations

While the existing regulatory framework focuses on registration for operating app-based mobility companies and vehicles, implementation to date has been inconsistent. For example, in early 2018 DPWT, in cooperation with the traffic police, undertook an enforcement campaign to ban unregistered Bajaj drivers from operating in Phnom Penh. During this period, around 200-300 unregistered Bajajs were identified every week, with the majority of controlled drivers being new to the industry (78% worked as drivers for less than one year), and young (80% were under 40 years old) (Phun et al., 2018, 2020).

The regulations require that companies ensure drivers hold a valid driving license and have sufficient driving skill to operate passenger services. However, no mechanism currently exists for authorities to verify whether this is indeed the case. Given app-based mobility companies have an incentive to quickly onboard new drivers to keep pace in a highly competitive, rapidly growing market, a risk exists that verification of driving licenses and skills does not take place as it should. Similarly, questions remain about the quality and effectiveness of the driver training programmes that companies are required to carry out under the regulations. ITF interviews with local stakeholders in Phnom Penh also indicated that the poor digital literacy of some new drivers means they struggle to operate the ride-hailing apps and digital wayfinding products, resulting in traffic violations, road crashes, and complaints from customers. Other ITF interviews with private sector stakeholders raised inefficiencies with the process for drivers obtaining three-wheeler driving licences, which may partly account for many active drivers operating without one. Moving the current paper-based system to a more streamlined digitalised approach could help improve driver compliance.

Many aspects of app-based mobility are not regulated

Unlike many other countries in Southeast Asia, Cambodia does not regulate pricing for app-based mobility services. No fare matrix or surge pricing parameters are set by law. Companies are free to set their own pricing schedule taking into account fares set by competitors, demand from customers, supply from drivers, and any other relevant factors. There are also no regulations setting limits on the quantity of permissible vehicles that can operate as app-based mobility services. With regards to drivers, there are no limits on the number of different app-based mobility platforms that can be used simultaneously to acquire customers. However, in practice, most ride-hailing platforms enforce the requirement for their registered drivers to attach prominent company logo stickers on their vehicles and sometimes wear uniforms (JICA, 2023).

In part due to the evolution of conventional, unregulated, paratransit services being incorporated into app-based mobility platforms, there are also no regulations concerning minimum wage or other remuneration requirements for drivers in Cambodia. Similarly, there are no requirements for app-based mobility platforms to provide any employment protections, benefits, or rights to drivers – such as adequate financial insurance in the case of work injury or sickness, access to social security schemes for housing or retirement where they exist, permitting collective bargaining, and transparency on the use of artificial intelligence algorithms for human resource management.

Furthermore, existing regulations for app-based mobility are focused on passenger services, with no specific regulatory framework for freight delivery (aside from a requirement to obtain a license from the Ministry of Post and Telecommunications), despite this segment accounting for a large share of total activity, and no specific regulatory approach to "super-apps" (which provide multiple transport and non-transport related services via a single platform).

Cambodia's light-touch approach to regulating app-based mobility has several benefits. It has allowed an innovative market for these new services to flourish in a relatively short amount of time, attracting both

domestic and international companies to offer better quality paratransit services to inhabitants of Phnom Penh, and enable supply to meet demand in an unconstrained way. While difficult for some pre-existing paratransit and taxi operators, this free-market approach has also facilitated the rapid upgrade of legacy modes of passenger transport (e.g. Motodops, Remorks, and metered taxis) to more efficient, environmentally friendly, and arguably safer modes (e.g. LPG powered Bajajs, which have the potential to be electrified in the future). The existing regulatory framework is also relatively clear and simple, in that broadly the same requirements apply to all modes of app-based mobility.

However, as the popularity of these services continues to increase, the Cambodian government should consider setting minimum requirements to safeguard the welfare of drivers, and by extension, of passengers. This can be achieved through establishing basic labour protections, benefits, and rights (including moving where feasible to "formalise" this type of employment), enhancing safety regulations (for example setting and enforcing maximum permissible working hours and carrying out criminal record background checks), and establishing robust data regulations (both with regards to companies sharing relevant data with regulators, and for personal data protection). While not apparently a problem yet, the lack of fare regulation also presents a significant risk of monopolistic or oligopolistic pricing by app-based mobility companies in the future, given network effects are a feature of the market.

Cross-sectoral regulations

While various cross-sectoral regulations are tangentially relevant to the operations and future development of app-based mobility services in Phnom Penh, two are particularly important.

The Labour Code (1997) governs relations between employers and workers when employment contracts are performed within Cambodia, regardless of where the contract was made and what the nationality and residences of the contracted parties are. Article 9 of the Code distinguishes between "regular workers" who perform a job on a permanent basis, and "casual workers" whose work is typically completed within a short period of time and on a temporary, intermittent, or seasonal basis. Article 10 states that casual workers are subject to the same rules and obligations and enjoy the same rights as regular workers, except for some limited specific circumstances. With reference to these provisions of The Labour Code (1997), consideration should be given to the legal status of drivers working through app-based mobility platforms to ensure their employment rights are respected (Kingdom of Cambodia, 1997).

In 2015, the Government issued the Sub-decree No.42 on Urbanization of the Capital, Municipalities and Urban Areas, in order to regulate urbanization within Phnom Penh as well as other municipalities and urban areas in Cambodia. According to the Sub-decree, local authorities are required to prepare the following three plans: 1) Land Use Master plan, 2) Land Use Plan, and 3) Urban Detailed Plan. The basic contents of these plans are guided by provisions of the Sub-decree. As Phnom Penh's population continues to grow rapidly and its urban form develops, the approach taken to land use planning and public transport infrastructure provision will fundamentally affect demand for app-based mobility services (JICA, 2023). As noted in the previous section of this report, focusing on better integration with fixed-line public transport and harnessing the potential of shared mobility, could help maximise the benefits app-based passenger and freight mobility services while mitigating their negative externalities.

Review of existing governance structures

This section sets out the key agencies involved in the governance of app-based mobility and related public transport services as well as their legal basis for doing so in Phnom Penh, as summarised in Table 8.

Table 8. Governance of app-based and related mobility services in metropolitan Phnom Penh

Service type	Regulatory / management agencies	Scope of mandate
App-based mobility (passenger transport)	General Department of Land Transport, Ministry of Public Works and Transport (MPWT)	• Sets primary legislation • Grants authority to operate (registration certificate and business license) • Sets operational licensing requirements • Enforcement of traffic rules
	Ministry of Commerce (MOC)	• Grants authority to operate (registration certificate)
	Ministry of Post and Telecommunications (MPTC)	• Grants authority to operate (registration certificate)
	Department of Public Works and Transport (DPWT) of the Phnom Penh Capital Administration (PPCA)	• Vehicle registration
	Traffic police	• Enforcement of traffic rules
App-based mobility (freight transport)	Ministry of Post and Telecommunications (MPTC)	• Grants authority to operate (registration certificate)
	Department of Public Works and Transport (DPWT) of the Phnom Penh Capital Administration (PPCA)	• Vehicle registration
	Traffic police	• Enforcement of traffic rules
Conventional taxi	General Department of Land Transport, Ministry of Public Works and Transport (MPWT)	• Sets primary legislation • Grants authority to operate • Sets operational licensing requirements • Enforcement of traffic rules
	Traffic police	• Enforcement of traffic rules
Formal public transport	General Department of Land Transport, Ministry of Public Works and Transport (MPWT)	• Oversight of DPWT • Enforcement of traffic rules
	The Phnom Penh City Bus Authority (CBA)	• Planning and operating the bus service
	Department of Public Works and Transport (DPWT) of the Phnom Penh Capital Administration (PPCA)	• Governance of CBA • Planning and operating the water taxi service
Informal paratransit (unregulated)	General Department of Land Transport, Ministry of Public Works and Transport (MPWT)	• Enforcement of traffic rules
	Traffic police	• Enforcement of traffic rules

The General Department of Land Transport in the Ministry of Public Works and Transport (MPWT) is the principal agency responsible for regulating app-based mobility services in Cambodia, as well as other transport related legislative matters. MPWT has several other functions, for instance the General Department of Public Works is responsible for construction and rehabilitation of national roads and bridges. Provincial roads are maintained by the local organisations of MPWT, namely the Provincial

Department of Public Works and Transport and the Municipal Department of Public Works and Transport on behalf of state and municipal governments. Enforcement of regulations for app-based mobility services, as well as general traffic laws, are under the dual responsibility of MPWT and relevant police or royal gendarmerie units (JICA, 2023).

At the local level, the Department of Public Works and Transport (DPWT) of the Phnom Penh Capital Administration (PPCA) is responsible for road infrastructure and development projects in Phnom Penh under the oversight of the Governor of Phnom Penh. DPWT was established in 2001 and is led by a Director with the support of six Deputy Directors. The staff of DPWT are technically part of MPWT and their salaries are provided by MPWT. However, positions more junior than Director, including Deputy Directors, are assigned by the PPCA. The Director is assigned based on agreement between PPCA and MPWT. Road construction and maintenance investment comes from PPCA's budget following discussion and agreement between the Vice Governor of PPCA and Ministry of Economy and Finance (MEF) at the national level. Following MEF's review, the PPCA's budget is approved and granted by the Council of Ministers.

The Phnom Penh City Bus Authority (CBA) is responsible for running the only municipal public transport service. CBA is also responsible for developing plans for the enhancement of bus services, which are then reviewed and approved by PPCA at the local level and MEF at the national level.

Governance responsibilities for Phnom Penh's urban transport system is scattered between MPWT, DPWT, PPCA, CBA, and traffic police. This creates or exacerbates several institutional and organisational challenges, among which include:

- the absence of an agreed vision, strategic plan, and action program (while the Phnom Penh Urban Transport Master Plan (PPUTMP) is a comprehensive plan for the city, the strategic plan and action program in PPUTMP are not officially included in the long-term budgetary plan of PPCA)

- difficulties in adequate resource allocation for traffic police enforcement activities (particularly in the context of the rapid increase in the number of app-based mobility vehicles in circulation)

- the absence of effective data sharing between different agencies (e.g. for city bus operators, real-time traffic count, real-time app-based mobility services), and consequent use to inform planning, management and monitoring of urban transport activities

- the absence of ongoing urban transport management training for policy makers, planners, and operators (JICA, 2023).

To address these challenges, and better integrate increasingly prominent app-based mobility services with existing bus services while taking a more holistic approach to traffic management and the interaction between land use and transport infrastructure investment, MPWT could consider reforming Phnom Penh's urban governance system to better align planning and funding responsibilities within a single agency. Such an approach has proved successful in several cities around the world. Furthermore, stronger links between transport agencies and those responsible for digital regulation (e.g. The Ministry of Post and Telecommunications) and competition (e.g. Competition Commission of Cambodia) should be fostered, particularly given the trend towards "super-apps" which concern both mobility and other sectors of the economy.

Recommendations

Improve implementation and enforcement of existing regulations for app-based mobility services

MPWT and the traffic police should work together to strengthen implementation and enforcement of existing regulatory requirements including for vehicles to be registered, for drivers to hold valid Cambodian driving licences, and for drivers to complete driving training programmes which materially improve driving skills. Furthermore, given the significant increase in the number of app-based mobility vehicles in circulation in Phnom Penh, the traffic police should be resourced appropriately to enhance enforcement of traffic rules. Finally, MPWT could consider streamlining the process for obtaining a driving licence to improve driver compliance while strengthening the testing procedure.

Introduce new regulatory measures focused on safeguarding the welfare of passengers and drivers

The MPWT should consider setting minimum requirements to safeguard the welfare of drivers, and by extension passengers, through basic labour protections, benefits, and rights (including moving where feasible to "formalise" this type of employment), enhancing safety regulations (for example setting and enforcing maximum permissible working hours and carrying out criminal record background checks), and establishing robust data regulations (both with regards to companies sharing relevant data with regulators, and for personal data protection). While not yet a problem, the lack of fare regulation also presents a significant risk of monopolistic or oligopolistic pricing by app-based mobility companies in the future, given network effects is a feature of the market. MPWT should monitor pricing closely, and consider setting a fare matrix and surge pricing parameters if predatory pricing occurs.

Streamline urban transport governance to better integrate app-based mobility with public transport

To better integrate increasingly prominent app-based mobility services with existing bus services while taking a more holistic approach to traffic management and the interaction between land use and transport infrastructure investment, MPWT could consider reforming Phnom Penh's urban governance system to better align planning and funding responsibilities within a single agency. Such an approach has proved successful in several cities around the world. Furthermore, stronger links between transport agencies and those responsible for digital regulation (e.g. The Ministry of Post and Telecommunications) and competition (e.g. Competition Commission of Cambodia) should be fostered, particularly given the regional trend towards "super-apps" which traverse both mobility and other sectors of the economy.

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Annex A. List of stakeholder interviews

Bangkok case study
Central government
Department of Land Transport
Office of Transport and Traffic Policy and Planning
Local government
Bangkok Metropolitan Administration
Private sector
Grab Thailand
Muvmi
AirAsia
Other
Dr. Sorawit Narupiti, Chulalongkorn University
Dr. Phathinan Thaithatkul, Chulalongkorn University

Manila case study
Central government
Department of Transportation
Land Transportation Franchising and Regulatory Board
Local government
Pasig City
Quezon City
Private sector
Grab Philippines
Move It
Angkas
Other
Attorney Winston Ginez

Phnom Penh case study
Central government
General Department of Land Transport, Ministry of Public Works and Transport
General Department of Planning and Policy, Ministry of Public Works and Transport
Local government
Phnom Penh City Bus Authority
Department of Public Works and Transport - Phnom Penh Capital Administration
Private sector
Grab Cambodia
Nham24

Other
Central government
Land Transport Authority – Singapore

International Transport Forum

Regulating App-based Mobility
Case Studies from Bangkok, Manila and Phnom Penh

The rise of app-based mobility services in Southeast Asia has changed urban mobility and goods delivery, yet many cities still lack fit-for-purpose regulation. This project reviews the regulatory frameworks and governance structures for app-based mobility services in three Southeast Asian cities: Bangkok, Manila and Phnom Penh.

The project evaluates the benefits and challenges of these services from a public policy perspective and provides city-specific recommendations as well as insights applicable to other urban centres in the region. The work is carried out in collaboration with local knowledge partners and uses in-depth interviews with key stakeholders across the public and private sectors in each city to inform findings, building on conclusions from the ITF 'Regulating App-based Mobility Services in ASEAN' report.

This project is funded by the Ministry of Foreign Affairs of the Republic of Korea and delivered in collaboration with the Association of Southeast Asian Nations (ASEAN).

OECD