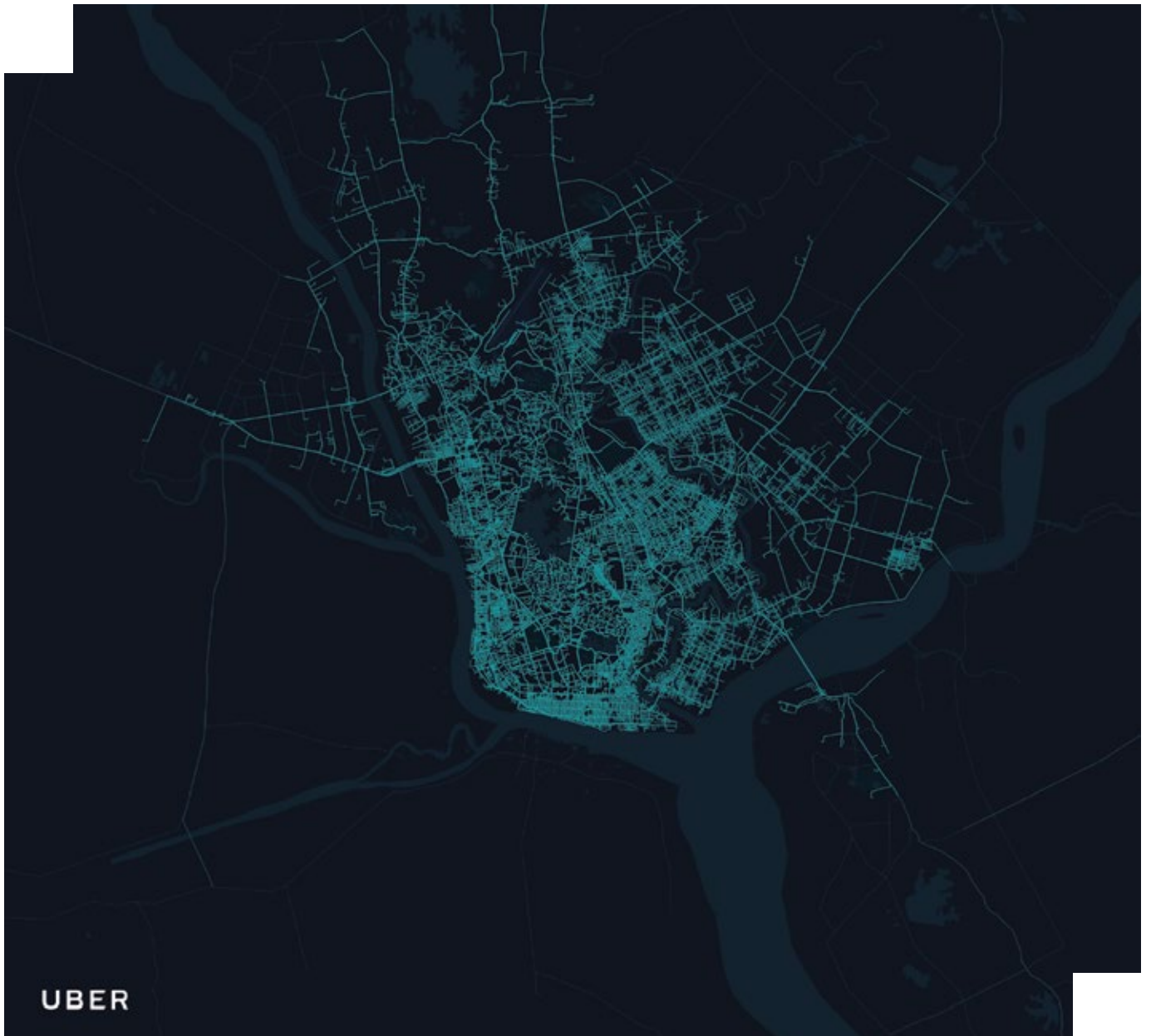


UBER



**LEAPFROGGING AHEAD:
BENEFITS OF RIDESHARING
FOR MOBILITY IN MYANMAR**



UBER



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01

Executive summary



Myanmar is one of the fastest growing economies in the world. In recent years, significant structural reforms have been introduced, contributing to the increase in openness and competitiveness of the country. Industry and services have been mostly driving the booming economy, resulting in overwhelming migration from rural to urban areas. Major cities such as Yangon, the commercial capital, have seen a significant increase in demand for urban transportation services and a rise in car ownership. New challenges have risen: high traffic congestion, ineffective public transportation, and inadequate infrastructure to cope with the increased demand.

Capitalising on the increasing need of transportation services, as well as the rising technology sophistication and usage of the population, new innovative mobility models such as ridesharing have been introduced. Two foreign and two local ridesharing companies are currently serving Myanmar's growing transportation demands. With the usage of smartphones, ridesharing technologies make it easier for riders to get car rides and easier for drivers to find riders. For participants in ridesharing, the advantages are twofold: first, riders can order an on-demand car ride whenever and wherever they wish, receiving superior service levels. Second, on-demand car drivers can decide when they wish to drive and which customers will work best for them, supported by ridesharing technologies that maximises the trips with riders and minimising idle time, leading to increased economic benefits.

To further improve the quality of the overall mobility sector of the country, the next key step for Myanmar is to extend ridesharing models from just taxis to private vehicles. This would increase the overall on-demand car supply to meet the increasing public transportation needs and would ensure higher demand responsiveness.

By doing this, ridesharing technologies can bring significant benefits to the city, consumers, and drivers.

- 1) Firstly, ridesharing technologies will generate positive impact on the whole city, improving the welfare of the citizens. In the short-term, ridesharing may reduce the average number of vehicles in circulation per day in Yangon by around 45,000 (~16% of vehicles in circulation per day), significantly reducing traffic congestion. In the long-term, ridesharing technology may reduce the stock of private cars by ~ 46,000 cars by 2022 (~13% of stock of projected private cars in 2022) in Yangon.

Reduction in vehicles in circulation per day in the short-term translates into a potential reduction in annual CO2 emissions by approximately 423 million kg, equivalent to burning 160,000 tonnes of coal. Furthermore, the land area freed up from the reduction in need for parking spaces for private cars can be used to plant additional 230,000 trees in Yangon, helping improve the level of greenery and vegetation in the city.

- 2) Secondly, ridesharing technologies can help overcome major issues of consumers with existing taxis. In Yangon, almost 85% of users consider reliability and accessibility of ridesharing services better than incumbent modes of transport, due to superior technologies that enables high-quality responsiveness to the level of demand at any location and time. Waiting time for on-demand riders can be reduced by 47% on average through ridesharing technologies.

In addition, almost 90% of riders in Yangon consider ridesharing safer and of higher quality, due to the initial driver and car screening, and the constant feedback mechanisms between riders, drivers and ridesharing firms. Financial inclusion is also promoted due to the usage of cashless payment methods, with an expected increase of 5 percentage points in banking penetration and 3 percentage points in mobile money penetration in Yangon.

- 3) Lastly, ridesharing offers a flexible and attractive economic opportunity to drivers. In Yangon, 24% of private car owners would be interested in driving for a ridesharing company, 20% in Mandalay, and 50% in Nay Pyi Taw. Due to the app's technology, it is more convenient and easier for drivers to find riders with 18% less time required on average, and a 55% increase in average number of trips per hour in Yangon.

The increase in car utilisation allows drivers to generate higher income as stated by 97% of taxi drivers using ridesharing apps, with daily revenues ranging from MMK 3,000-7,000 for up to 3 hours of part-time driving to around MMK 40,000 for over 12 hours of driving. This would help recover the full purchase cost of a private car within roughly 3 to 5 years, for an average driver on the road for 10 hours a day, who drives around 300 days a year. Financial inclusion is also promoted for drivers given that a bank account is required to drive for a ridesharing company. Additional 30% of currently unbanked private car drivers and 28% of currently unbanked taxi drivers may be brought into the financial system.

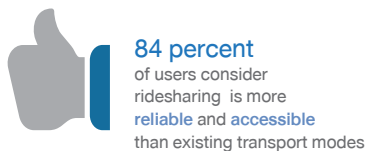
Myanmar, and in particular Yangon, is now in a unique position to leapfrog transportation systems of other Southeast Asian peer countries. Given the limitations of current transport system and the availability of innovative mobility models such as ridesharing, Myanmar can advance from its current suboptimal state of mobility, directly to a smart integrated multi-modal transport system.

In other comparable countries, ridesharing has already achieved high penetration in very short time, demonstrating the successful adoption by both riders and drivers despite existing challenges. With appropriate policies and regulatory measures, Myanmar, and especially Yangon, must leverage the wide benefits of ridesharing technologies to improve its mobility issues to enable opportunities for its people.

It is recommended that:

- 1) government take a demand-driven view of transport, and avoid restrictions on vehicle supply and fares,
- 2) private vehicles be allowed to participate in ridesharing, and
- 3) quality standards of leading ridesharing companies are leveraged by the government. By doing this, Myanmar can directly develop a smart and advanced transport policy,

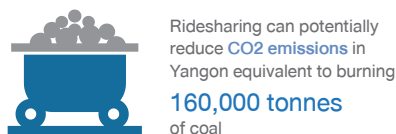
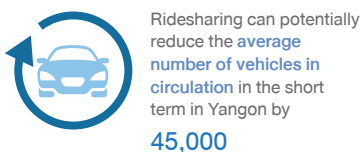
To consumers



To drivers



To the city





chapter

02

Myanmar's economy and mobility landscape

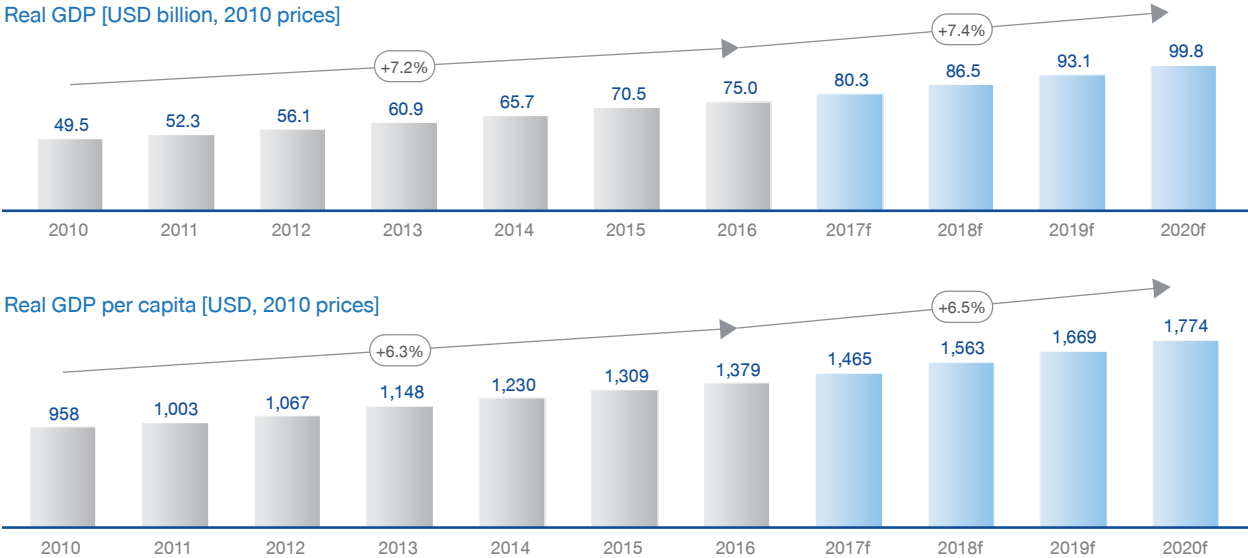


Myanmar, a fast growing Southeast Asian economy with a population of over 50 million, is one of the world's last frontier markets. Economic growth has been strong in recent years and is expected to remain strong for the years to come. In addition, more and more people are moving from rural areas to cities. Economic growth and urbanisation have resulted in growing demands for urban transportation services and a rise in car ownership, creating new opportunities but also mobility challenges. Furthermore, the liberalisation of the telecom industry has led to a boom in smartphone and internet users, enabling new business opportunities. Capitalising on the increasing need of transportation services and on the rising technology use by the population, ridesharing mobility companies have launched their apps, creating new innovative mobility models. Two foreign and two local ridesharing companies are currently serving Myanmar's growing transportation demands.

2.1 Macroeconomic trends: a new urban middle class driving growth

Strong economic growth

Figure 2.1: Myanmar economic growth



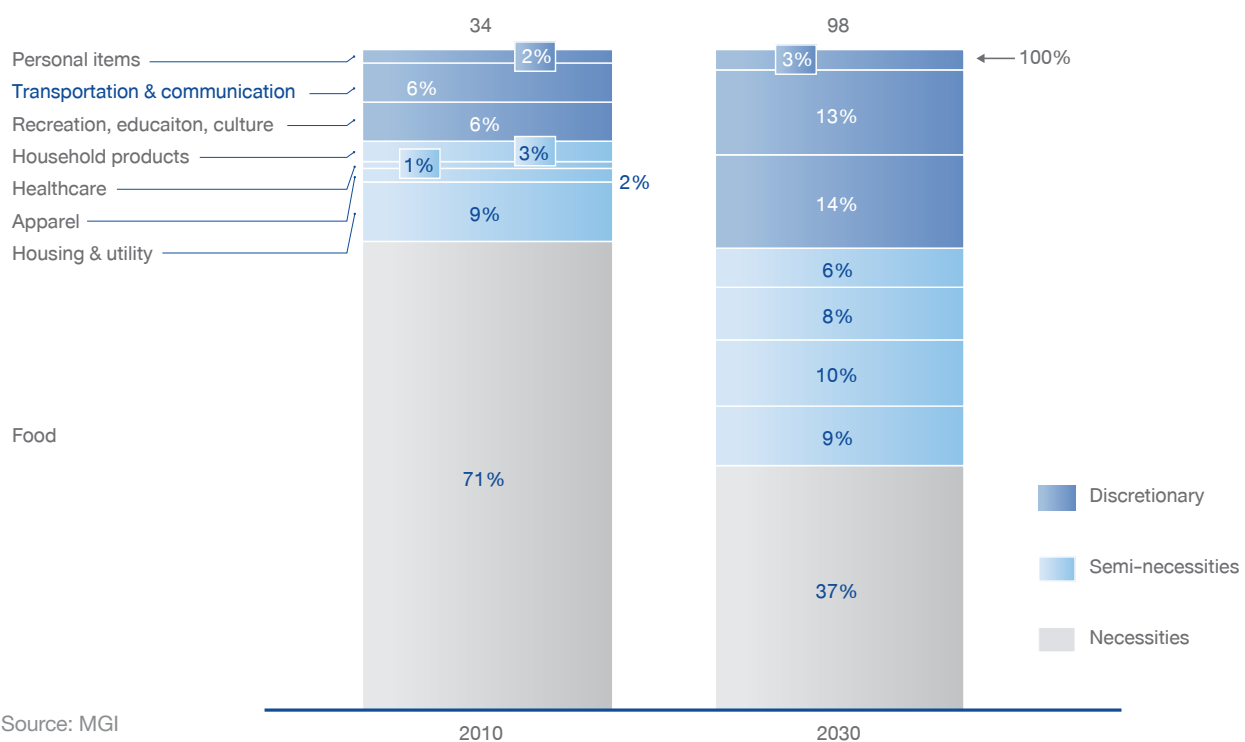
Source: Oxford Economics

Myanmar's real GDP and real GDP per capita have grown by around 6-7% annually over the last few years. The annual growth rate is expected to rise to around 7-8% in the coming years. Growth began to take off thanks to the political reforms launched from 2010 onwards and to the reengagement of Myanmar with the international community. In 2016, the new National League for Democracy government published a 12-point economic policy aimed at further strengthening future economic development. The policy covers a broad range of topics relevant for Myanmar, from promoting a transparent financial system to ensuring job creation for the population.



Rising middle class

Figure 2.2: Myanmar total consumer spending by expenditure type [USD billion, 2010 prices]



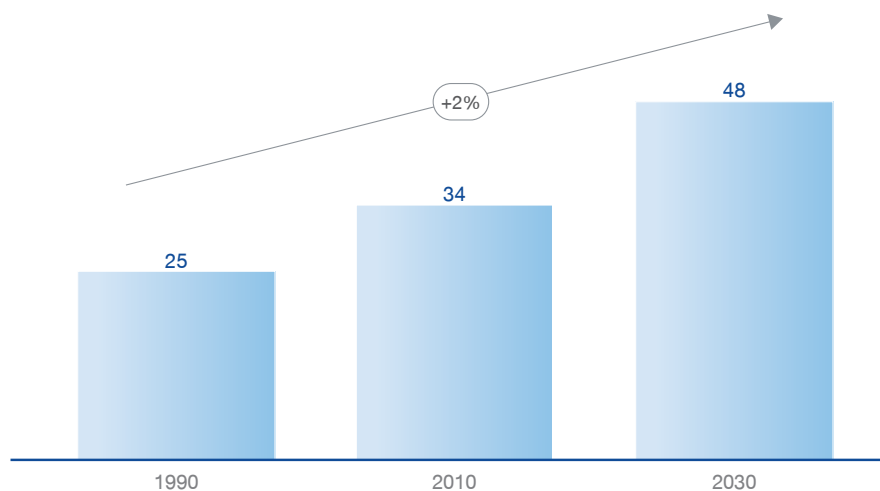
Source: MGI

With strong economic growth, a sizeable consumer class has emerged. The consumer class (i.e., those with USD 10 and above of daily income) are expected to increase by around 7 times from today, totaling 19 million people by 2030. Total consumer spending is expected to almost triple from USD 34 billion in 2010 to USD 98 billion by 2030. As disposable income rises, a larger percentage of income is spent on discretionary and semi-necessities, as opposed to solely on necessities. This implies a larger spending proportion on higher quality transportation services as well.



Increasing urbanisation

Figure 2.3: Myanmar population living in urban areas [% of total population]



Source: ADB

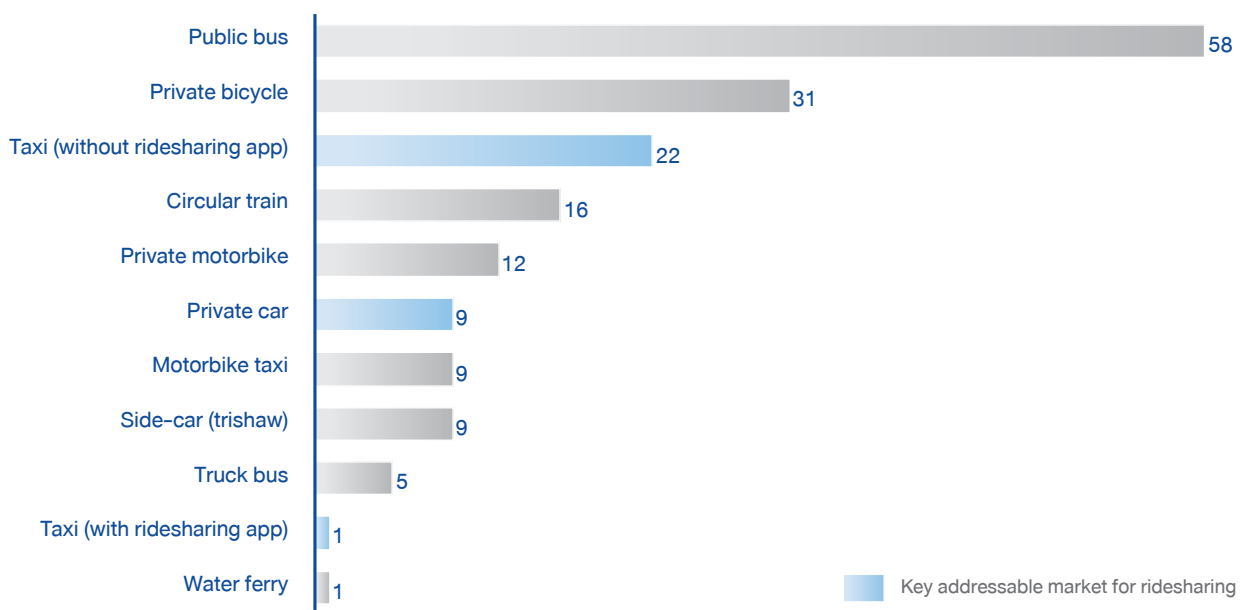
Long term economic growth in Myanmar has been spurred by the strong development of the industrial and service sectors. More and more people are incentivised to move from rural areas to cities as new job opportunities are available in industrial and service sectors, with salaries that are higher than agricultural jobs. Improved road networks and wider transport options have also facilitated the increase of urbanisation level. Back in 1990, roughly only a quarter of the population lived in urban areas. By 2030, it is projected that roughly half the population will be living in urban areas (from 19 million people today to 30 million people in 2030, taking into account the expected increase of Myanmar population over the next years). Continuously improving economic conditions and increasing urbanization – especially increasing concentration in large cities – will result in higher urban transportation demand across all modes of transport.

2.2 Traffic landscape: congested but still moving forward

Overview of mobility options

Myanmar has different transportation modes. The popularity of each mode varies significantly across geographic regions, and between urban and rural areas. For example, in the commercial capital, Yangon, buses, taxis, and private cars are the most common transportation methods while motorbikes are officially banned. In Myanmar's second largest city, Mandalay, motorbikes are most common due to its availability and affordability. In rural areas and villages, motorbikes are also often used due to affordability and the lack of paved roads.

Figure 2.4: Percentage of general public using a transport mode at least 3 days per week in Yangon [% of general public]



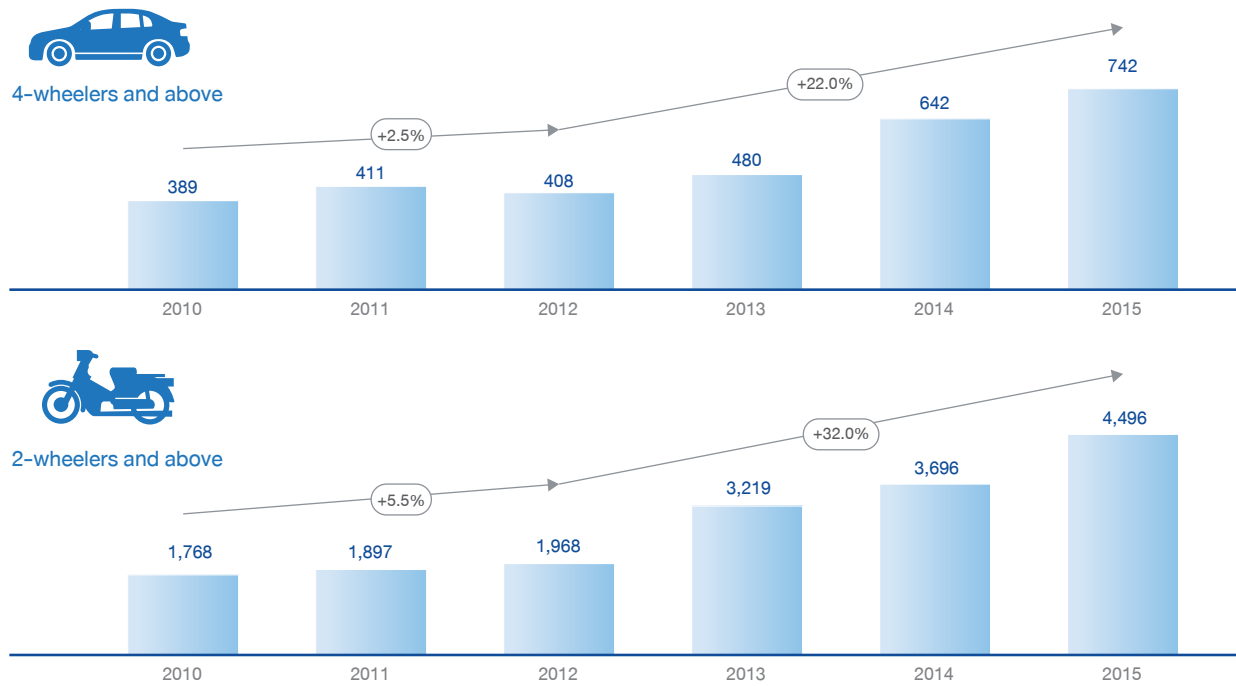
Source: Field survey

In Yangon, buses are the most popular transport mode with more than half the population using it at least 3 days per week. This is mainly due to affordability and relatively extensive route coverage. For short trips, bicycles are also used mostly in the suburbs, with almost a third of the population using it at least 3 days per week. For the middle class and beyond, taxis are preferred given its nature as a point-to-point transport and its additional comfort. Those who can afford one will use their own private car to get around the city. The use of taxis with ridesharing apps is currently limited, as the concept is still new to Yangon.

Given the increase of mobility complexity, the government has already taken few key steps to simplify and provide a better experience to citizens. One of the key initiatives recently undertaken by the Yangon Region Government is the reform of the Yangon Bus System (YBS). The objective is to reduce the number of incidents, improve behaviour of bus conductors, replace old buses, and reduce bus traffic congestion. The Yangon Regional Transport Authority (YRTA) was established to enforce strict discipline and provide training to bus drivers under the YBS. Bus driver salaries are now fixed, whereas previously, they had a commission component based on the number of riders. The number of bus routes are now streamlined and dysfunctional buses are being replaced with new modern coaches. Furthermore, the government aims to introduce cashless payment options in the future (e.g., mobile money, "tap and go" cards).

Growth in motor vehicles

Figure 2.5: Number of registered motor vehicles by type in Myanmar ['000]

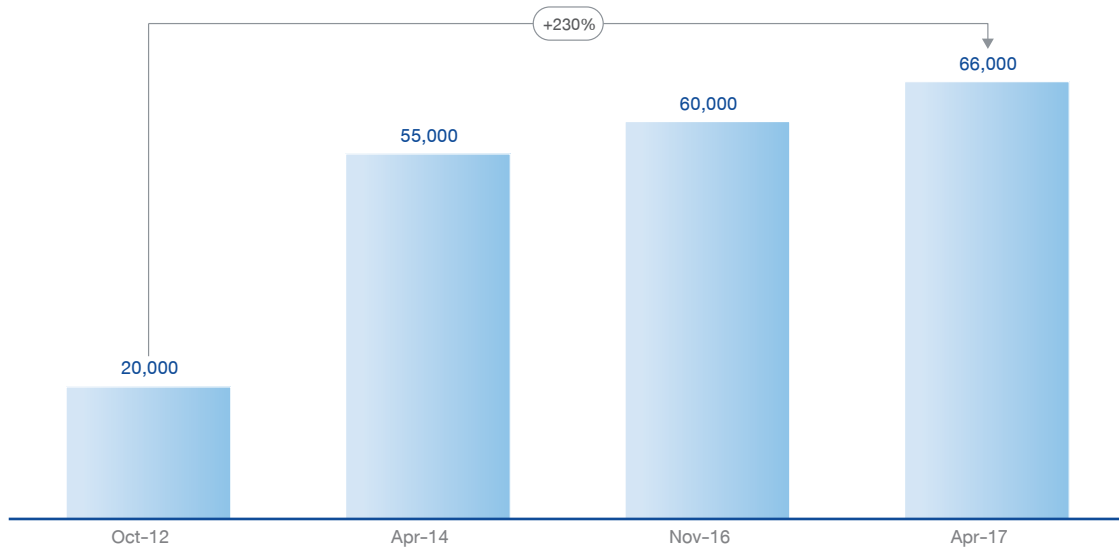


Source: ADB

Strong economic growth, rising middle class and increased urbanisation have resulted in growing transportation demand. Hence, the number of motor vehicles in circulation has significantly grown across Myanmar. Since 2012-'13, the number of registered 4-wheelers and above had been increasing by 22% each year until 2015. A relaxation of import regulations in 2012 also contributed to the increase of vehicles. Prior to that, importing a vehicle was significantly more expensive (roughly 3 to 4 times) and only few had the permit to do so.

Motorbikes represent the largest share of motor vehicles. This can largely be explained by their affordability and versatility for usage on paved or unpaved roads and through narrow streets. Only about a quarter of roads are paved in Myanmar. Passenger cars still form a relatively small proportion of motor vehicles, accounting for less than 10%. Yangon, being the commercial capital, accounts for roughly 70% of all passenger cars. Moreover, motorbikes are officially banned in Yangon, which explains why they are rarely seen, especially in the downtown area.

Figure 2.6: Number of registered taxis in Yangon



Source: Press releases



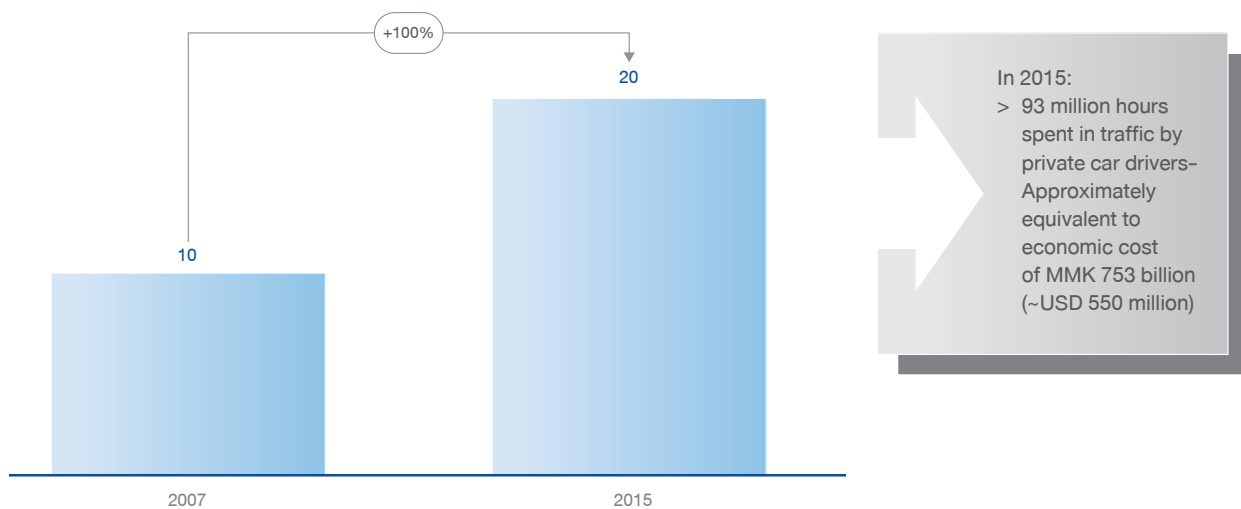
Furthermore, the number of registered taxis in Yangon has more than tripled since 2012. Three main reasons have spurred the growth. First, the growing middle class has fueled the demand for taxis. Despite its high cost (a short 15-20 minute taxi journey could cost MMK 2,000-2,500, whereas most bus rides cost only MMK 200), the rising disposable income of the middle class has accelerated the demand for taxi rides. Second, a significant number of private vehicles (“black plate”) were converted into taxis (“red plate”). Third, the relaxation of import regulations for the whole motor vehicle industry also contributed to the increase of taxis in circulation.

Yangon has a clear issue of taxi oversupply. Singapore, a city with similar population size as Yangon and a robust public transport system, is served by only 28,000 taxis. This is less than half of taxis currently circulating in Yangon, by only looking at the officially registered taxis. Due to the oversupply of taxis, Yangon Region Government has instructed the Road Transport Administration Department (RTAD) to halt the conversion of private vehicles (“black plate”) into taxis (“red plate”) for Yangon. As demonstrated by Singapore, a key requirement to optimise the number of taxis in a city is to implement an effective public transportation system, which also includes innovative mobility models.



Worsening of traffic congestion

Figure 2.7: Average time required to travel 5 km by car in Yangon [minutes]



Source: ADB, Roland Berger analysis

With the growth in registered motor vehicles in Yangon, traffic congestion has significantly worsened in recent years. The average time required to travel 5 km by car doubled from 2007 to 2015. In addition to the growth of motor vehicles, extensive street side parking and inappropriate driving habits (e.g., taxis stalled at sidewalks of shopping malls) have also contributed to Yangon’s growing traffic congestion. In 2015, private car drivers spent roughly 93 million hours in traffic, equivalent to an economic cost of approximately MMK 753 billion (~ USD 550 million). Further details of the calculations are explained in Appendix A.

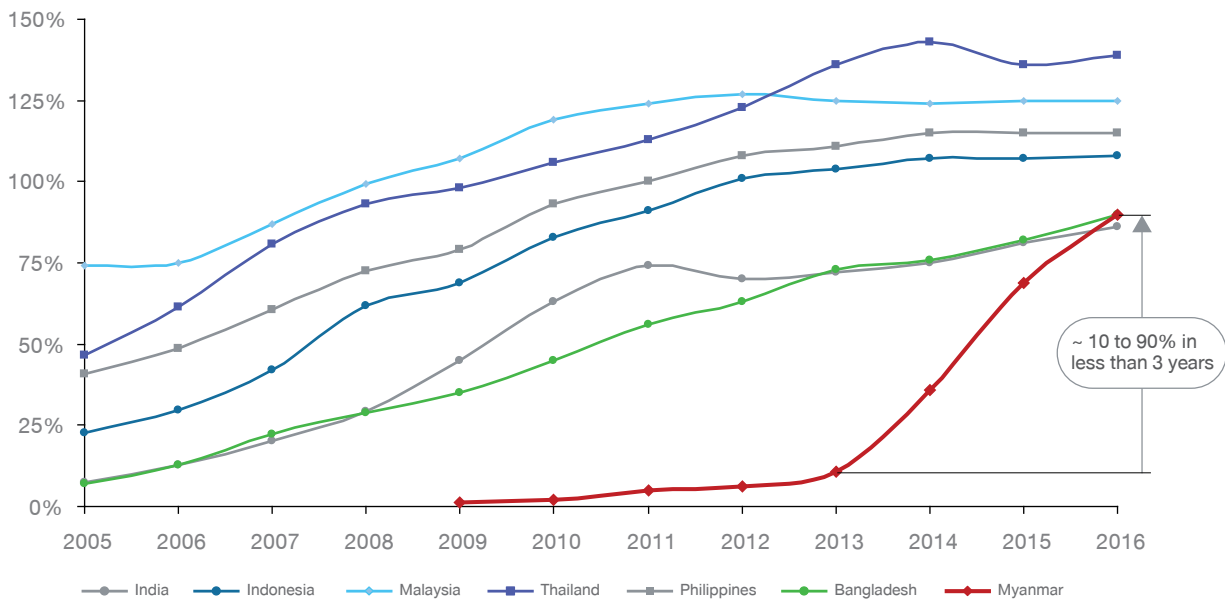
In light of growing traffic issues, Yangon Region Government has instructed RTAD to halt the registration of new imported vehicles in Yangon. This applies to both private passenger vehicles and taxis. There are only two ways to register a new car in Yangon. First is to purchase a car that is domestically manufactured or assembled. Second is to return an imported vehicle registered in Yangon, which is over 20 years old (from production date); or a domestically assembled vehicle registered in Yangon which is over 10 years old (from production date); in an exchange for a “slip” that permits an import of a vehicle that can be registered in Yangon. However, a few cars registered in Bago and other cities have been observed to be flowing into Yangon.

2.3 Technology trends: new innovative companies enabled by telecommunications boom

Telecommunications boom

In 2013, Myanmar government decided to liberalise the telecommunications industry to enhance competitiveness, improve coverage, and provide better services to the population. Two additional telecom operator licenses were awarded to Telenor and Ooredoo after a structured and transparent selection process, allowing them to compete with the incumbent operator MPT - who partnered with KDDI and Sumitomo. With the open market competition and the removal of monopolistic barriers, prices of mobile SIM cards fell to MMK 1,500 in 2014 (from ~ MMK 2 million in earlier years), making it accessible for the mass population. This resulted in Myanmar becoming the fastest growing telecommunications market in the world, with mobile penetration growing from 10% to 90% in less than 3 years.

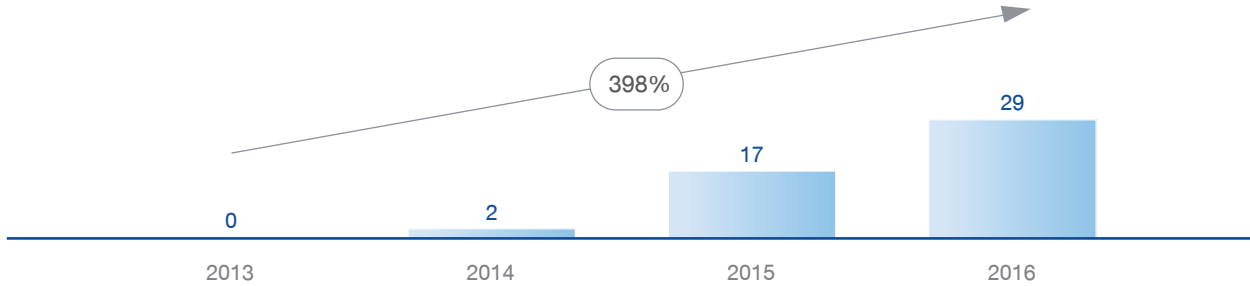
Figure 2.8 Mobile phone penetration across selected countries [% of population]



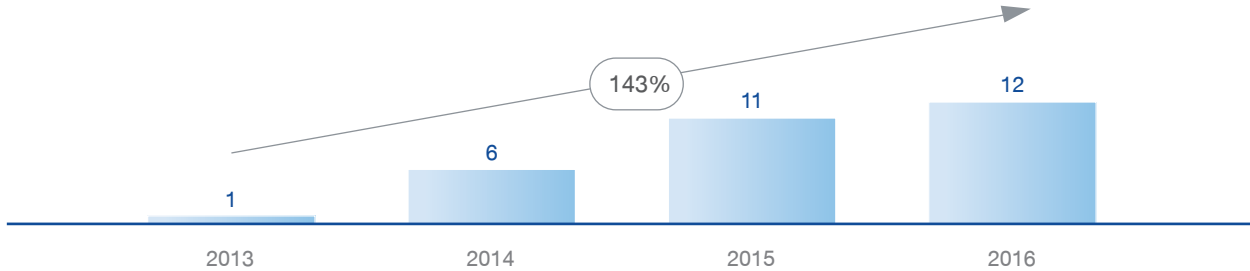
Source: Roland Berger analysis

Figure 2.9: Myanmar telecommunications trends

Number of smartphone connections [million]



Number of internet users [million]



Source: WCIS, Euromonitor

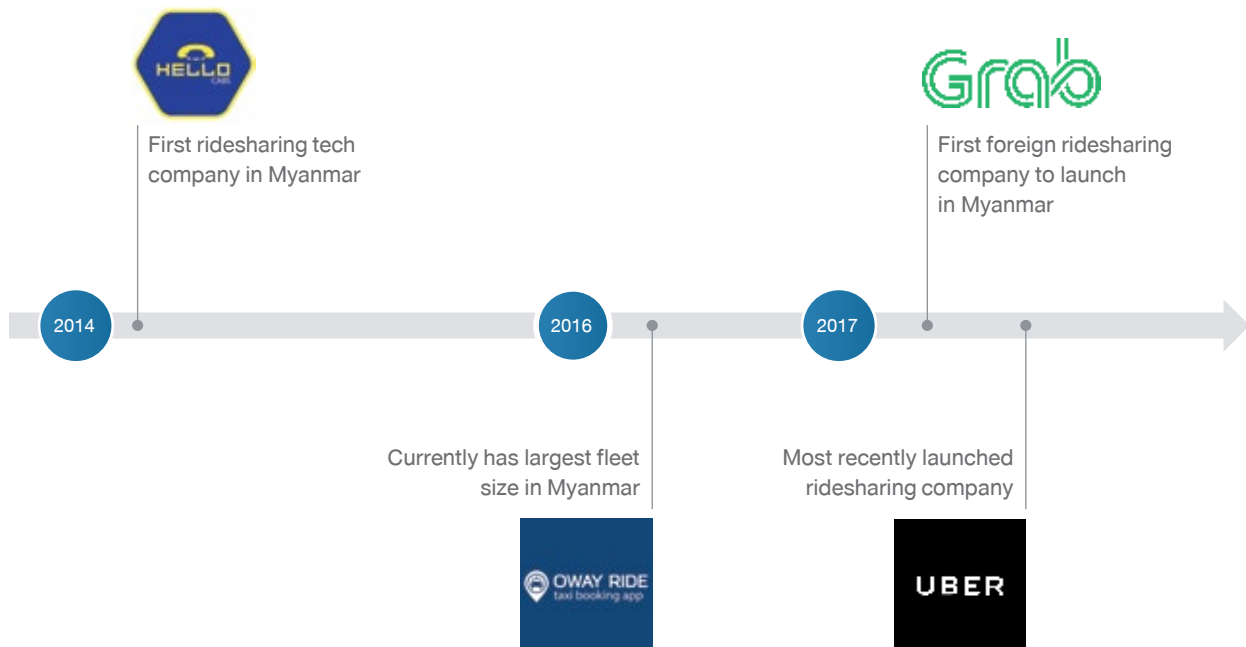
In addition, Myanmar leapfrogged from having a virtually non-existent mobile phone market directly to a smartphone dominant country. Number of smartphone connections grew by almost 400% between 2013 and 2016. Even when compared to some Southeast Asian peers, Myanmar’s smartphone penetration is estimated to exceed the levels of Thailand and Malaysia already by the end of 2017.

Furthermore, the liberalisation of the telecom sector has improved the affordability and availability of reliable mobile internet. The number of internet users has grown by over 140% between 2013 and 2016. The wide active base of internet connected smartphones has therefore enabled numerous new business ventures that are becoming successful in Myanmar.



Arrival of ridesharing technology companies

Figure 2.10: Timeline of arrival of ridesharing tech companies in Myanmar



Source: Press releases

With growing transportation demands and advancements in mobile technologies, the stage was set for the arrival of ridesharing technology companies. Currently, ridesharing companies do not own vehicles, but work exclusively with taxi drivers. In 2014, Hello Cabs became the first ridesharing tech company to be established in Myanmar. It currently operates in Yangon, Mandalay, and Nay Pyi Taw. In 2016, Oway Ride entered by launching operations in Yangon. Since then, it has also expanded to Mandalay, and currently boasts the largest number of drivers with over 3,500 taxis. In March 2017, Grab became the first foreign ridesharing company to enter Myanmar. Uber is the most recent international entrant in this industry, officially launched in May 2017 in Yangon. Both Uber and Grab currently work only with registered taxis, in line with existing regulations, a different model from other countries where they primarily operate with private car owners, in addition to taxi drivers.

The arrival of ridesharing apps has shown promise in improving the overall mobility landscape of Myanmar providing better transportation options to the population. Ridesharing mobility technologies and model will be described in detail in the following chapter.



chapter

03

Ridesharing technologies and model



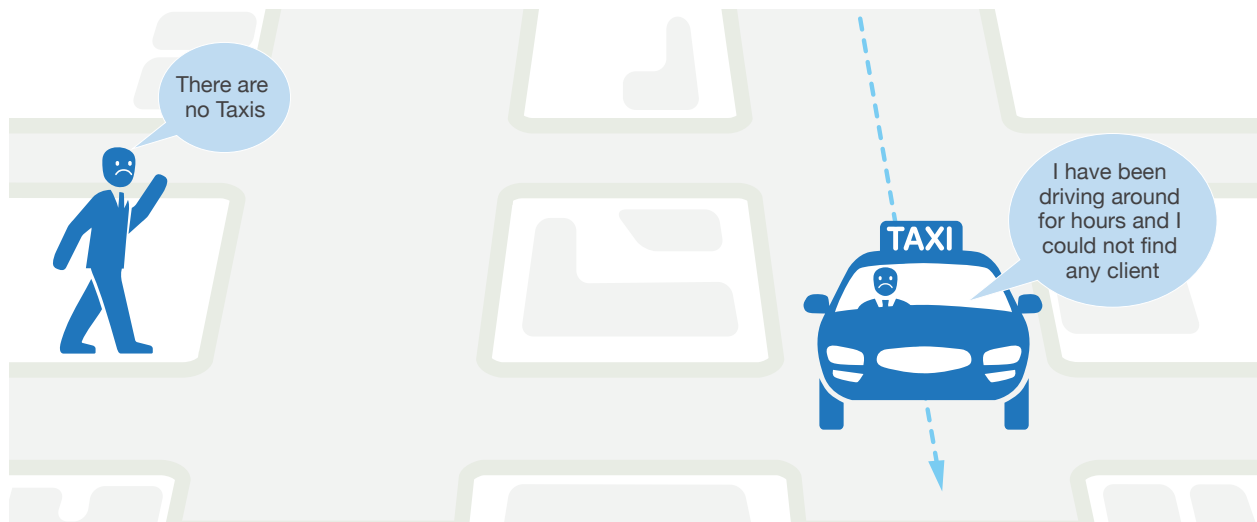
3.1 Evolution of point-to-point transportation: the arrival of ridesharing mobility

Until a few years ago, when a person wanted to take a taxi, the only option available was to stand by the side of a road and hail a taxi. The person did not know whether a taxi was on the way. It was not possible to know the expected time of pick-up and to know whether a taxi would have potentially passed by at all. Only booking a taxi by phone would have ensured the ride.

In addition, for the taxi driver, the system was not the most effective either. Drivers had to drive around the city looking for potential riders. The decision of going towards one area of the city with higher demand for taxis, rather than to another with less potential clients was purely based on the taxi driver's experience, developed over years of driving.

Therefore, the traditional hailing mechanism had and still has significant limitations that do not always allow a positive experience both for riders and taxi drivers.

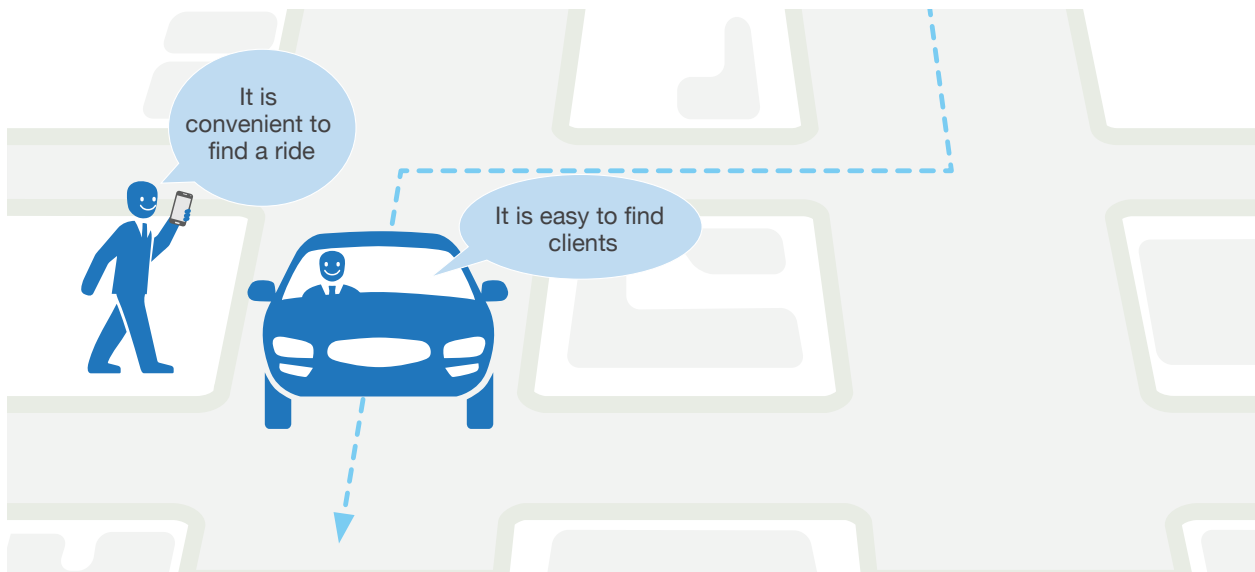
Figure 3.1: Challenges of normal taxi hailing



With the introduction of ridesharing technologies, the experience for both riders and drivers has been significantly improved. Ridesharing mobility extends the supply of on-demand car service to private cars, to increase the options available for transportation. It is based on a concept of matching private car drivers and riders who need a ride through a mobile application. Anyone with a smartphone and internet connection can download and use a range of ridesharing apps. The mobile app is used to order an on-demand car ride whenever and wherever the rider wishes.

Overall, the key concept of ridesharing mobility is simple but at the same time important: it is easier for riders to get an on-demand car ride and it is easier for on-demand car drivers to find a rider.

Figure 3.2: Convenience of ridesharing mobility



The process to get a ride with a ridesharing application is straightforward. Firstly, the rider downloads the ridesharing app on their smartphone. This gives the rider access to the ridesharing service, allowing them to order a car ride whenever and wherever they want. The steps are very simple and immediate as described in the following box (as reference, the process for Uber is illustrated but it can be extended to other ridesharing apps as well).

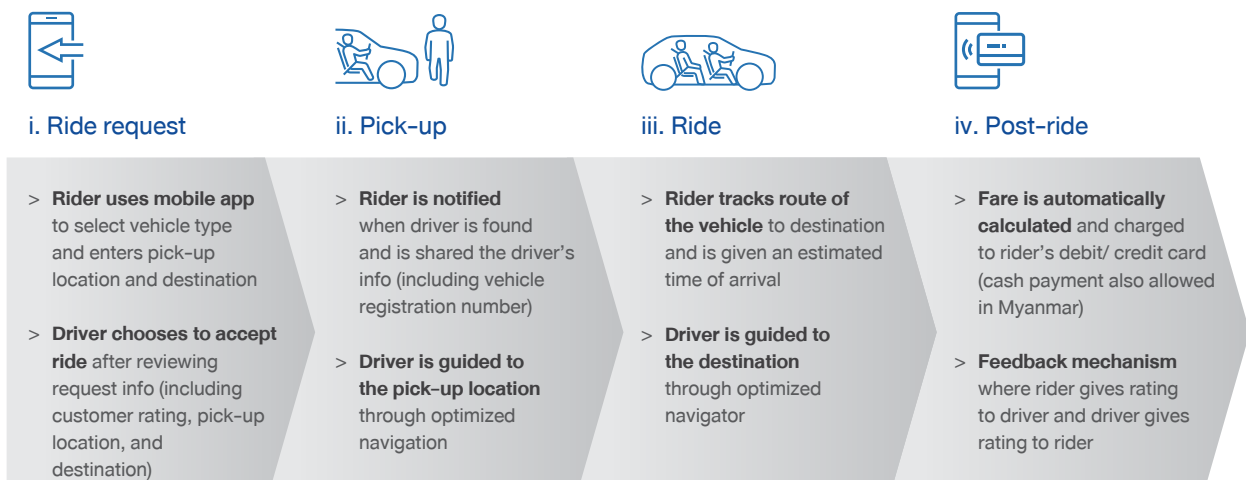
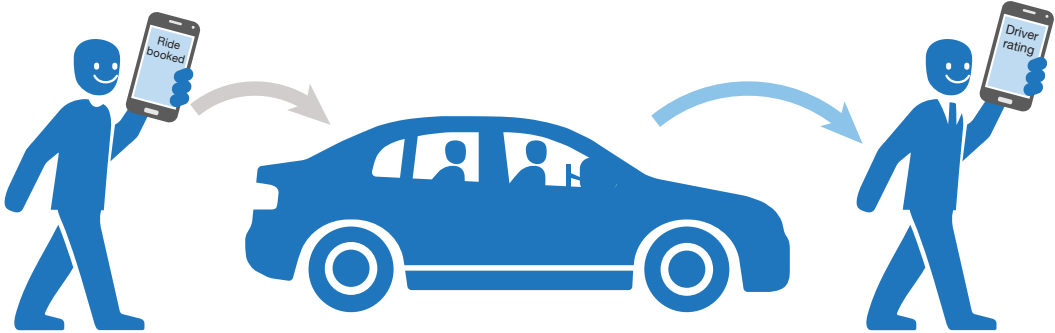


Figure 3.3: Trip with ridesharing app



It is important to observe that the fare for ridesharing is automatically calculated based on three components.

- i** Distance travelled: Ridesharing apps leverage mapping and navigation technologies to identify the optimal route and calculate the fare based on the distance to reach the destination
- ii** Travel time: Ridesharing apps estimate the total time required to reach destination, considering traffic data (wherever available) to optimise the time estimation, and apply a time component to the fare
- iii** Levels of demand: In periods of high demand, ridesharing apps can apply surge multipliers to the above fare components with the aim to balance supply of on-demand vehicles and demand of rides at a higher fare

As an example³, an 8 km ride is expected to take 30 minutes. The ridesharing app may calculate the fare as follows.

Distance travelled (using the price per km of MMK 800)	: 8 km x MMK 800 = MMK 6,400
Travel time (using the price per minute of MMK 50)	: 30 minutes x MMK 50 = MMK 1,500
Subtotal	: MMK 6,400 + MMK 1,500 = MMK 7,900
Surge pricing (assuming a multiplier of 1.5 times)	: MMK 7,900 x 1.5 = MMK 11,850
Total	: MMK 11,850

The surge pricing is an important fare adjustment to ensure an effective balance between rider demand and driver supply. During peak hours, inclement weather, public holidays, or other unusual events, the demand for rides is typically higher than the driver supply. A pricing multiplier is applied in such events, hence fares are adjusted accordingly. The result is that the dynamic pricing mechanism incentivises more drivers to get on the road, and on the other hand, ensures a ride to a rider that really needs it (i.e. a rider that urgently needs to go to destination will be willing to pay a premium on the fare and therefore will be ensured the trip).

In addition, the demand for rides is stabilised and evened out during peak times because surge pricing mechanisms modify riders' behaviours. During these periods of intense demand, taxi availability decreases while ridesharing cars apply a dynamic pricing that considers spikes in ride requests. Some riders would be willing to pay more or wait for taxis to be available, while other riders would modify their behaviour by planning their trips earlier or later. Therefore, surge pricing reduces traffic congestion at peak times by spreading out demand.

³ Numbers used in the example are indicatives for illustrative purpose




Several key advantages of ridesharing technologies with private vehicles compared to the more traditional taxi models can be identified. These can be grouped across three major areas: i) Safety, ii) Reliability, and iii) Efficiency.

Firstly, vehicles used for ridesharing ensure a higher safety, not only to the rider, but also to the driver. In fact, the car quality is screened by ridesharing companies, data on riders and drivers are recorded, riders are tracked through pickup and destination, and the service provided is constantly monitored using feedback mechanisms between rider and driver. Contrarily, normal taxis have very minimum requirements for car quality and there is practically no monitoring of service quality.

Secondly, ridesharing offers a better service reliability for riders as the technology guides drivers where the demand is. Contrarily, taxi drivers are not supported by technology to identify areas where there is demand, at any specific point of time.

Lastly, ridesharing ensures higher efficiencies, as the technology incentivises drivers to drive only when there is sufficient demand. Contrarily, normal taxis mostly work based on a fixed schedule, regardless the actual demand. Further detailed descriptions and analyses on ridesharing benefits with on-demand cars are provided in chapter 4.

Figure 3.4: Key advantages of ridesharing smartphone technology over normal taxi hailing

	Ridesharing services	Normal taxis
Safety 	<ul style="list-style-type: none"> Ridesharing companies screen vehicles before enabling them with ridesharing technology Ridesharing technology records data on drivers and passengers, tracks rides with GPS, and incorporates feed back mechanism between driver and passenger <p>- Higher safety of passengers and drivers</p>	<ul style="list-style-type: none"> No initial screening and very minimum requirements for vehicles used as taxis No records of data on drivers and passengers, no GPS tracking of rides, no feedback mechanism on quality of rides or on passenger behavior <p>- Safety standards not ensured</p>
Reliability 	<ul style="list-style-type: none"> Ridesharing technology directs driver to locations where the demand is and optimizes driving directions based on traffic congestion <p>- Improvement of demand responsiveness - Improvement of vehicle utilization</p>	<ul style="list-style-type: none"> Taxi drivers drive around the city looking for potential riders based on their experience and many not serve areas where demand is concentrated at certain times <p>- Low demand responsiveness - Low vehicle utilization</p>
Efficiency 	<ul style="list-style-type: none"> Ridesharing technology incentivizes drivers to get on the road only when there is sufficient demand <p>- Reduction of number of vehicles in circulation during non-peak hours - Improvement of availability of on-demand car rides, in particular during peak hours</p>	<ul style="list-style-type: none"> Normal taxis are on the road regardless of actual demand as they have fixed schedules <p>- Unnecessarily high number of vehicles in circulation even during non-peak hours - Lower on-demand car availability for riders during peak hours</p>

Source: Roland Berger analysis

3.2 Next step for Myanmar's mobility: using private cars to meet public transportation demand

In Myanmar, currently, only taxi drivers are entitled to leverage on ridesharing technologies to offer superior levels of service to the customers. To further improve the quality of the overall mobility sector of the country, the next key step is to extend ridesharing models to private car drivers, bringing significant advantages over ridesharing with just taxis.

- 1) Firstly, the city as a whole can obtain significant benefits through extension of ridesharing to private cars. For instance, the flexible working hours will enable private car drivers to drive part-time and maximise their time on the road only when there is sufficient demand, hence minimising driving time without customers. The impact is an overall reduction of vehicles in circulation, especially during non-peak hours, therefore less traffic congestion overall. On the contrary, taxi drivers are typically in circulation regardless of the demand level, as they seek to maximise their revenues based on number of trips, rather than profitability of rides.

Additionally, the introduction of ridesharing services with private cars can put downward pressure on car ownership, reducing the number of registered private vehicles for two reasons. With an extension of on-demand transport services by private cars, ridesharing cars are more easily available to consumers and therefore more convenient (i.e. increased availability). Additionally, given that it is cheaper to use ridesharing services than owning a private car, due to high upfront and recurring costs, consumers who would have otherwise bought private cars, may choose ridesharing services as an alternative (i.e. affordability). Therefore, consumers would use more ridesharing services with private cars and forgo car ownership, creating the conditions for overall reduction in vehicles numbers.

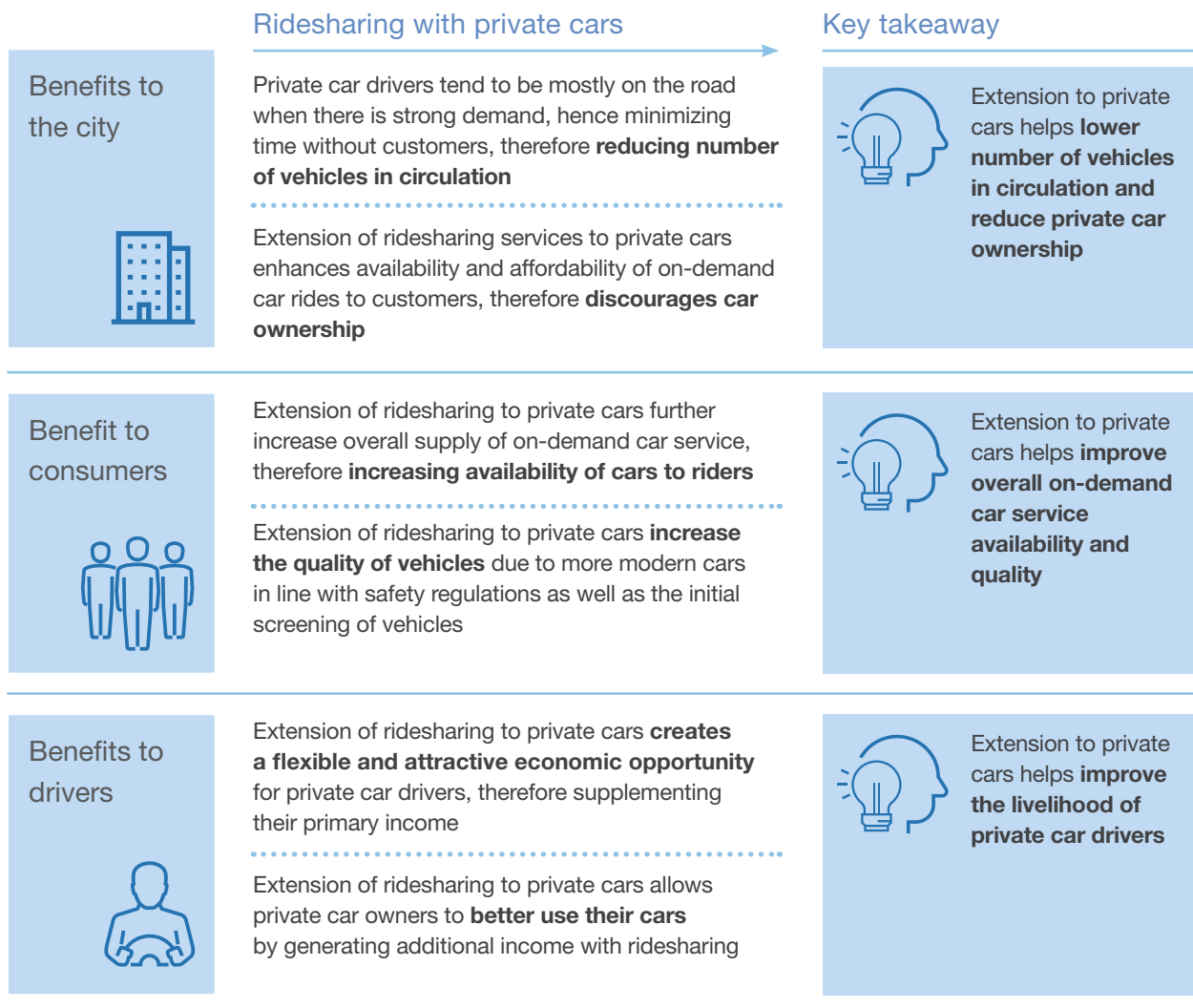
- 2) Secondly, ridesharing with private cars offer significant benefits to consumers. In fact, the usage of private vehicles for ridesharing would further increase the overall supply of on-demand car service, therefore increasing availability of cars to riders. This increase of supply happens in a calculated way, following demand patterns. In fact, customers will experience a higher availability of on-demand vehicles during periods when they need transport the most. On the contrary, limiting the supply of on-demand vehicles only to taxi would limit the availability of cars to riders, especially when they are most needed.

In addition, with the introduction of ridesharing with private cars, the quality of vehicles available to the riders is higher. Private cars are newer than taxis and are compliant with safety requirements; they also have to satisfy the stringent initial screening by ridesharing companies. On the contrary, vehicles used as taxis are typically old, without proper initial screening and requirements to be satisfied. For Myanmar, the most popular car used as taxi is the Toyota 'Pro box', in its early 2002 version. This model is based on a dated interior design that significantly impacts on the riding experience of the rider.

- 3) Lastly, the positive impact of extending ridesharing mobility to private cars is not only confined to consumers, but also extends to drivers. Ridesharing provides private car owners with flexible earning opportunities. Private car owners who pass a set of prerequisites defined by the ridesharing company (usually differs by city/country) can become drivers for that ridesharing company whenever they wish. Therefore, ridesharing models offer the opportunity to private car drivers to supplement their income for their livelihood, due to the flexible working hours allowed by the concept. This flexibility is typically not granted to taxi drivers that have more rigid schedules. In exchange, drivers pay a small commission of the fare to the ridesharing company.

Moreover, private car drivers can also better utilise their vehicles by generating additional income with ridesharing. In fact, during periods when the vehicle would have been idle, private cars can now be utilised for on-demand transport service by the owner or be leased to other drivers to participate in ridesharing services.

Figure 3.5: Key benefits of ridesharing with private cars over ridesharing with only normal taxis



Source: Roland Berger analysis

Consequently, the introduction of ridesharing with private cars will play a significant role in the overall improvement of Myanmar's mobility sector. In summary, it will significant enhance demand responsiveness with the final objective to reduce vehicles in circulation and therefore traffic congestion, the major transportation issue currently face by cities like Yangon. Further detailed descriptions and analyses on ridesharing benefits with on-demand cars are provided in chapter 4.

Additional value-added services

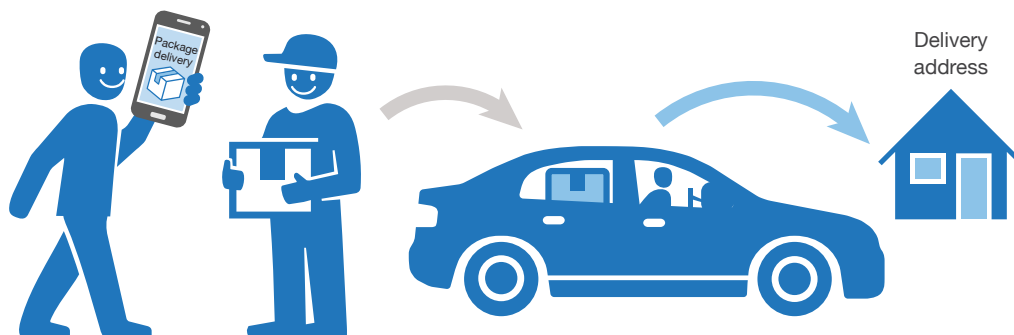
In selected cities, ridesharing companies such as Uber also enable other sectors such as restaurants or parcel delivery services to leverage on its network of drivers as a distribution channel.

One service is the on-demand food delivery, UberEats. Customers can order food from selected restaurants directly using the UberEats app. An Uber driver or bike rider then picks up the food at the restaurant and delivers to the customer.

Figure 3.6: Food delivery via ridesharing app



Figure 3.7: Package delivery via ridesharing app



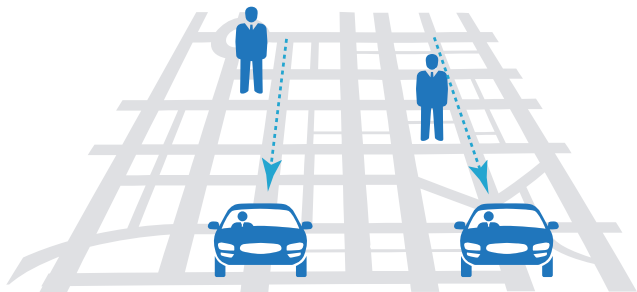
These Uber services provide examples on how ridesharing mechanism can also facilitate superior value added services, which bring additional benefits customers (e.g. frees up their time through on-demand courier services instead delivering packages themselves), to the drivers (e.g. increases car utilisation and gains source of income) and to third party businesses (e.g. expands addressable market for restaurants).

In addition, Uber has introduced a ride pooling feature called UberPool in selected cities. This feature allows riders to share a ride with one or more other riders who are travelling from and to similar locations. The advantage of choosing this option for riders is a reduced fare for the trip. Pooling is a very popular service in congested cities, for example, in New York City. UberPool makes up for roughly a quarter of the overall Uber rides.

In 2017, UberPool has been further developed in selected cities (especially those with heavy congestion) to minimise detours when picking up multiple riders. Instead of picking up riders from their exact location, riders are told to walk to the closest corner or intersection for more convenient pick-ups. The same goes for the drop-off.

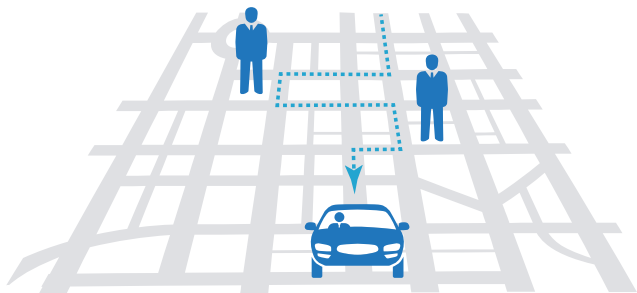
Figure 3.8: Enhancement of ride pooling mechanism

Usual hailing



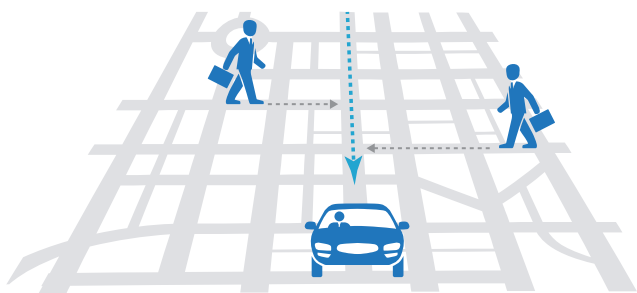
One rider per car, multiple cars

UberPOOL



Multiple riders in one car, picked up at their location by the driver

Enhanced UberPOOL



Multiple riders in one car, asked to walk to mutually convenient pick-up points, reducing drive time and distance for car



chapter

04

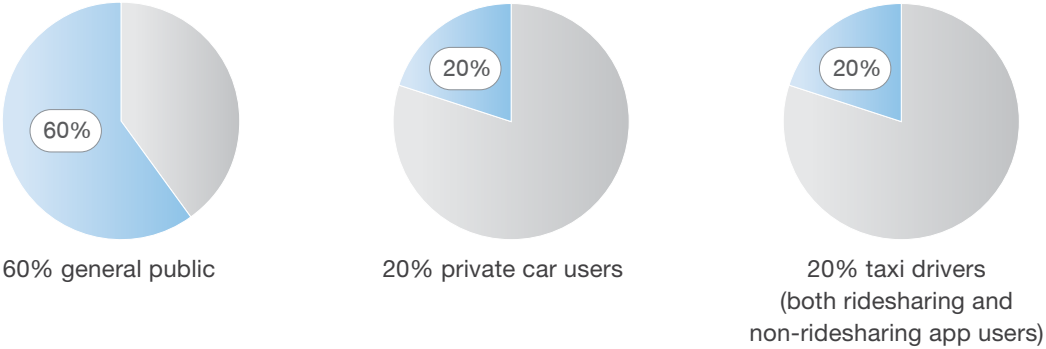
Benefits of ridesharing



The introduction of ridesharing models has and will continue to generate benefits to the city as a whole, to consumers, and to drivers. For the city, ridesharing can reduce traffic congestion, lessen parking space needs, and improve general health and environment. For consumers, benefits range from improved transport safety and quality to greater financial inclusion. Lastly, for drivers, ridesharing offers a flexible and attractive economic opportunity, and also promotes financial inclusion.

Survey methodology

In order to derive fact-based insights for this report, two main surveys were conducted: 1) field survey for general public, private car drivers, and taxi drivers, and 2) online survey for Uber riders and drivers. The field survey consisted of a total sample size of 700 participants; 500 in Yangon, 100 in Mandalay, and 100 in Nay Pyi Taw. For each city, the sample was split as follows:



Random sampling was conducted across multiple points of each city (e.g., shopping malls, bus stops, etc.). Face-to-face computer assisted personal interviewing (CAPI) tablets were used for the interviews. This helped track the number of interviews for each sample category, and eliminated human data entry and processing errors.

Each interview was voice recorded. This allowed monitoring of the interview quality and consistency. Frequent checks were performed to discover errors and inconsistency as soon as possible.

GPS tracking was enabled to ensure that field workers followed the routes given. Together with the CAPI approach, interview voice recording and frequent monitoring, data integrity was ensured throughout the survey.

The online survey consisted of a total sample size of 3,670 Uber riders and 476 Uber drivers in Yangon. Any Uber rider or driver could choose to participate in the online survey. Incentives were provided to encourage participation.

4.1 Benefits to the city



Ridesharing can potentially reduce the average number of vehicles in circulation in the short term in Yangon by **45,000** (16% of total in 5 years)



19 %
Of private car drivers in Yangon Potentially would have not bought a Car had they had access to **affordable ridesharing**



Ridesharing can potentially reduce the stock of private vehicles in Yangon over 5 years by **46,000** (13% of total in 5 years)



Ridesharing can potentially reduce CO2 emissions in Yangon equivalent to burning **160,000 tonnes** of coal



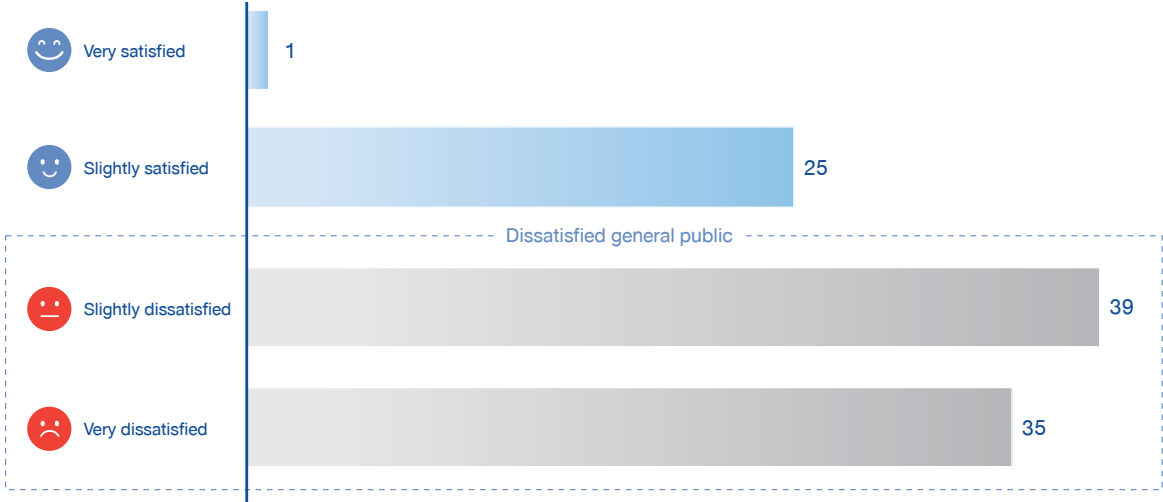
Ridesharing can potentially reduce parking land area needed in Yangon by **1,380,000 square meters**



Ridesharing can potentially free up land in Yangon to plant an additional **230,000 trees**



Figure 4.1: Public level of satisfaction with level of traffic congestion [% of general public, Yangon]



Source: Field survey

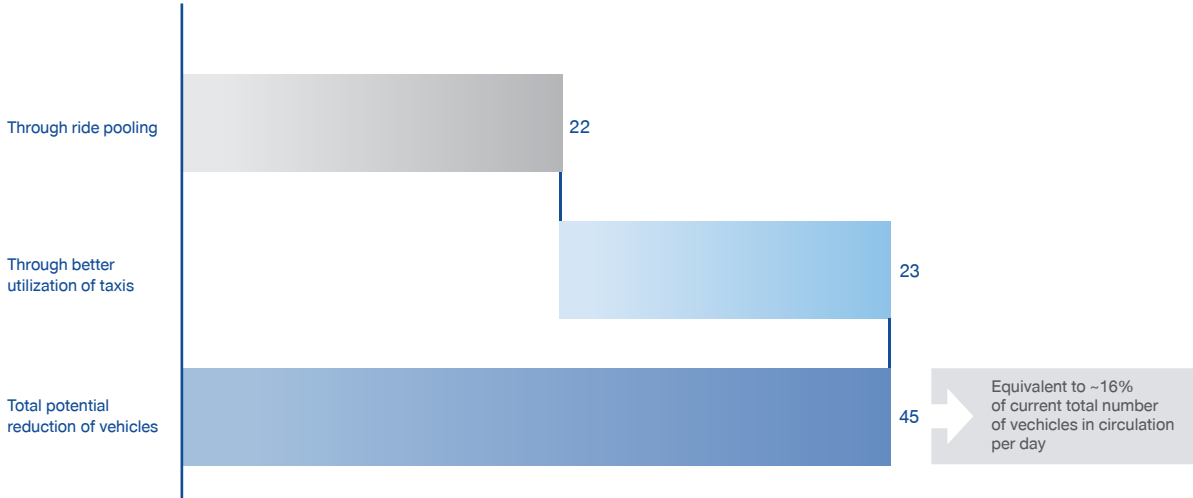
Traffic congestion has become a serious issue for the city of Yangon. Survey results show that three-quarters of the general public is dissatisfied with the level of traffic congestion in Yangon. Therefore, there is significant room for improvement in traffic congestion levels. Ridesharing can help reduce traffic congestion by

- 1) reducing the number of vehicles in circulation in the short term, and
- 2) reducing private vehicle ownership in the long-term.

These benefits are described hereafter.

Benefit #1: Ridesharing helps reduce the number of vehicles in circulation in the short-term

Figure 4.2: Potential reduction of vehicles in circulation per day due to ridesharing [‘000 vehicles, Yangon]



Source: Field survey, Roland Berger analysis



Ridesharing mobility can help alleviate traffic congestion by reducing vehicles in circulation, mainly via i) improved vehicle utilisation and ii) ride pooling.

Analyses of the survey results show that ridesharing can help potentially reduce the average number of vehicles in circulation per day by roughly 45,000 in Yangon, equivalent to 16% of current total number of vehicles in circulation per day. There are two key factors for this reduction.

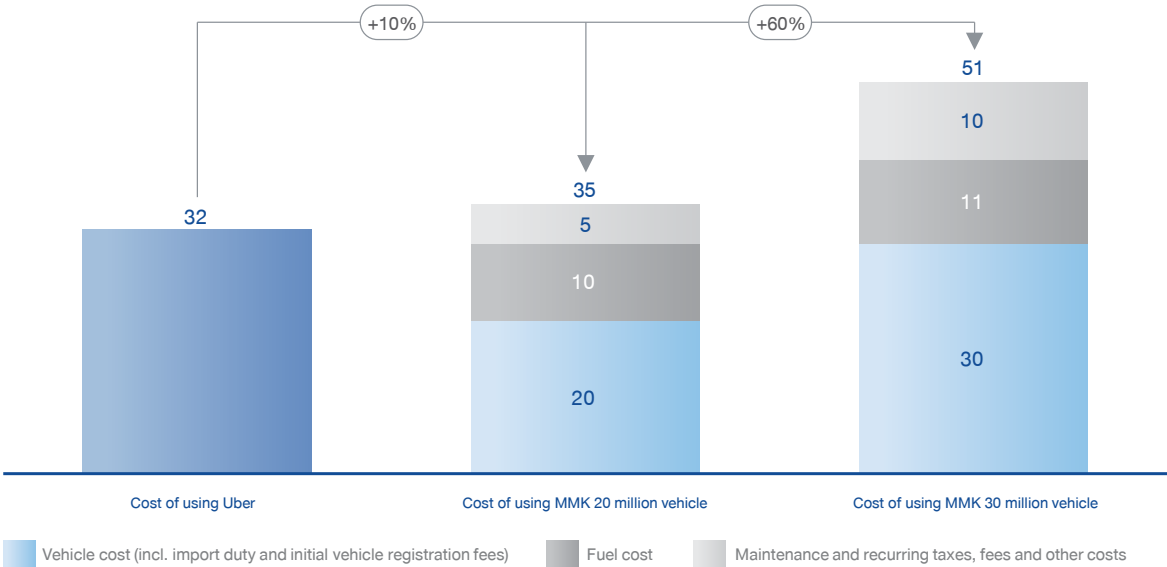
First, ridesharing can improve the utilisation of on-demand vehicles (i.e., increases in number of trips per hour). This reduces the number of vehicles needed on the street on an average day to provide the same number of trips. Analyses of the survey results show that an improvement in number of trips per hour of 55%, with the use of ridesharing apps, could reduce the average number of vehicles in circulation per day by approximately 9,000 in Yangon. In addition, the introduction of private vehicles could result in part-time drivers who go on the road only during peak hours when there is a surge in fares. This reduces the need of full-time on-demand car drivers (e.g. taxis) on the road during non-peak hours, hence reducing the overall number of vehicles in circulation during non-peak hours. Further details on the calculations are explained in Appendix B.

Secondly, ridesharing apps can facilitate ride pooling services. Through the sharing of vehicles, the same number of person-trips can be satisfied with a reduced number of car trips. For example, if two people completed a trip with two separate vehicles, two separate car trips would have been required. However, if the two people shared a vehicle instead (travelling to and from a similar location), only one vehicle-trip would have been required, therefore reducing the number of vehicles on the streets. Similar logic can be applied to pooled trips with more than 2 riders in a vehicle. Analyses of the survey results show that there is already a strong interest in the use of ride pooling services in Yangon; about 20% of the general public is interested in and willing to pay for such services. This can be translated into a potential further reduction of the average number of vehicles in circulation per day by approximately 23,000 in Yangon. Further details on the calculations are explained in Appendix B.

Overall, in the short-term, there is potential for the average number of vehicles in circulation per day to fall in Yangon by around 45,000, equivalent to 16% of current total number of vehicles in circulation per day. This would help alleviate traffic congestion in Yangon.

Benefit #2: Ridesharing helps reduce private vehicle ownership in the long-term

Figure 4.3: Total Cost of Ownership of private vehicle vs. cost of using ridesharing for 10 years [MMK million, Yangon]

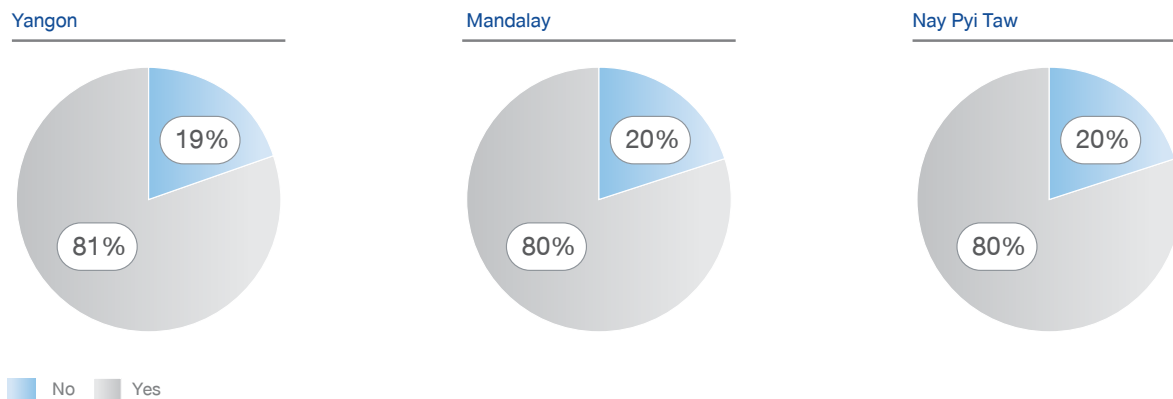


Source: Field survey, Roland Berger analysis

Furthermore, ridesharing provides a suitable alternative to private vehicle ownership, hence it can deter future private vehicle ownership. Numerical analyses that compare the total Cost of Ownership of private vehicles and the cost of using ridesharing over 10 years was conducted based on survey results. It is estimated that by using ridesharing, an average private car owner would spend approximately MMK 32 million over 10 years to complete the trips they currently run. By accounting for the vehicle cost, fuel cost, maintenance, taxes, fees, and other recurring costs, it is estimated that the total cost of ownership of a private vehicle range from MMK 35 to MMK 51 million, depending on the type of vehicle. Ultimately, this translates to a total cost which is 10-60% higher than using ridesharing. The difference would even be larger if the time value of money is taken into account, given the upfront investment costs of owning a private vehicle. Further details on the calculations are provided in Appendix C.

Given the significant cost savings from using ridesharing services, it can be concluded that ridesharing mobility provide an attractive alternative to private vehicle ownership.

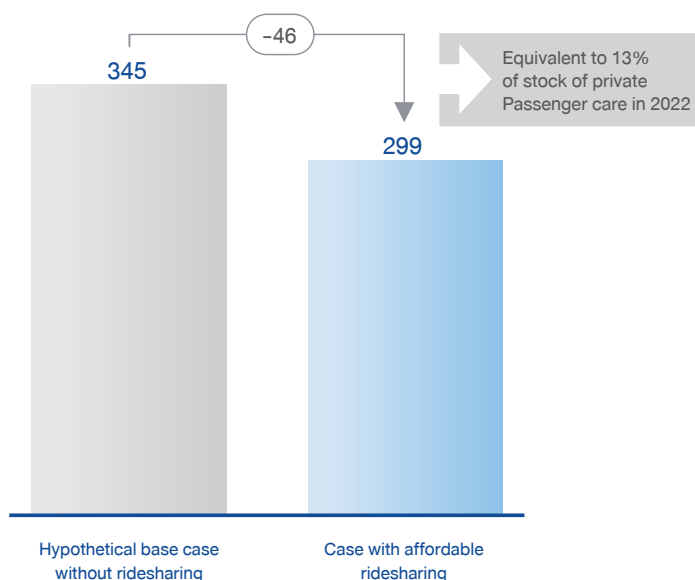
Figure 4.4: Whether car owners would have bought a car had they had access to affordable ridesharing services [% of private car drivers]



Source: Field survey

In fact, survey results show that across Yangon, Mandalay and Nay Pyi Taw, about a fifth of current private car drivers would potentially have not bought a car had they had access to affordable ridesharing services before. These findings further reinforce that ridesharing is an attractive alternative to private car ownership. The introduction of private vehicles into ridesharing would improve affordability of ridesharing services, as it would put downward pressure on fares for riders. Such affordability is crucial to deter the general public from purchasing a private car in the future, and instead use ridesharing services.

Figure 4.5: Projected number of private passenger cars in Yangon in 2022 ['000]



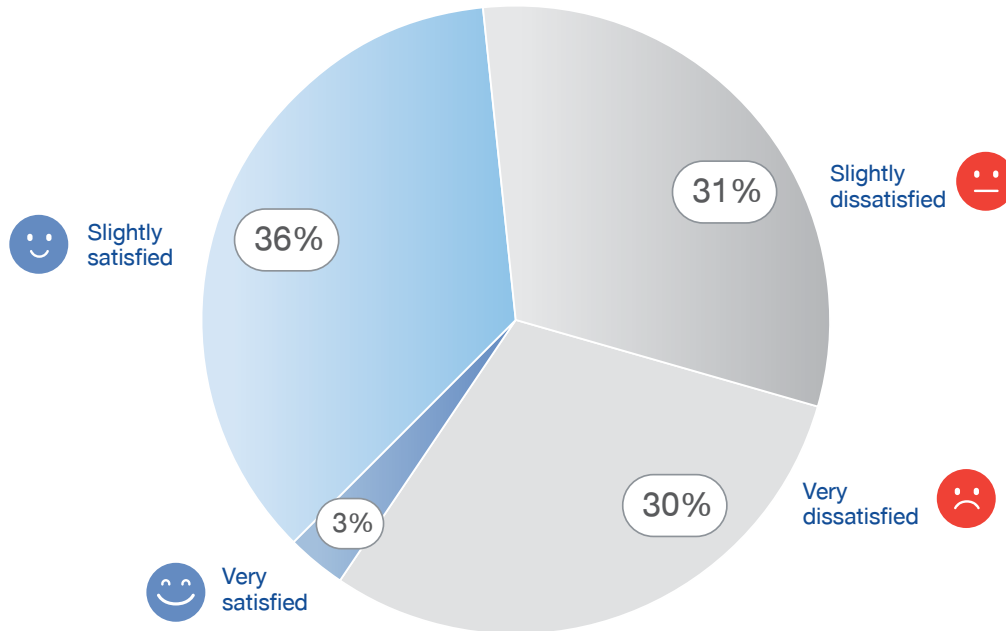
Source: Field survey, Roland Berger analysis

The impact of higher total Cost of Ownership for private cars against using ridesharing puts downward pressure on future private car ownership (i.e. deterring future private car ownership). Taking into account that 19% of current private car drivers in Yangon would potentially have not bought a car had they had access to affordable ridesharing services and assuming the average road lifetime of a car as 10 years, numerical analyses demonstrate that a potential stock of roughly 46,000 private passenger cars could be reduced through availability of affordable ridesharing services by 2022 in Yangon.⁵ Considering the current stock of roughly 263,000 private vehicles, this means an increase of only 36,000 private vehicles, compared to an increase of 82,000 private vehicles in Yangon. To reach this significant result, it is crucial to extend participation of private vehicles into ridesharing mobility to improve convenience and affordability of these services over owning a private car. Further details on the assumptions and calculations are provided in Appendix D.

⁵ Assuming restrictions on new Yangon vehicle licenses will remain until 2018, but a gradual relaxation of import and licensing restrictions from 2018 onwards

Benefit #3: Ridesharing helps reduce pollution

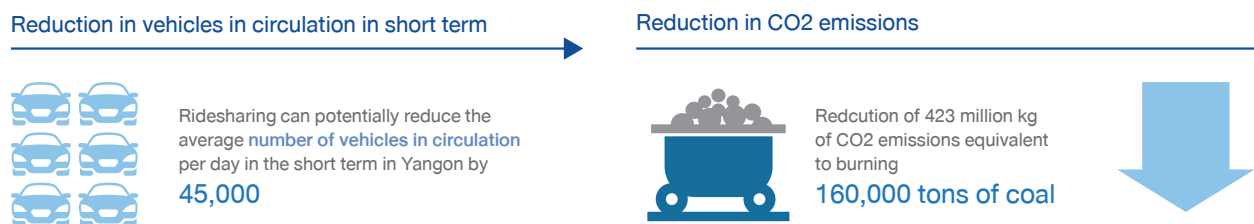
Figure 4.6: Public level of satisfaction with level of pollution [% of general public, Yangon]



Source: Field survey, Roland Berger analysis

Currently, there is some dissatisfaction among the general public about the level of pollution in Yangon. 61% of the general public is dissatisfied about the level of pollution. Ridesharing can help reduce the level of pollution in Yangon.

Figure 4.7: Reduction in CO2 emissions in Yangon]

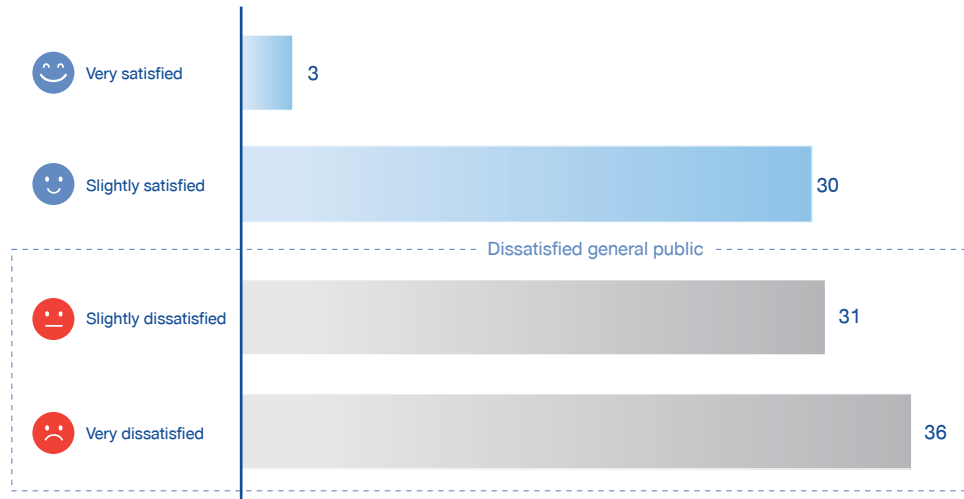


Source: Field survey

Reduction in the average daily number of vehicles in circulation by 45,000 would result in a reduction in CO₂ emissions. Numerical analyses show that the potential reduction in daily CO₂ emissions in Yangon from the reduction in vehicles in circulation in the short-term is approximately 1,158,300 kg. This translates into an annual figure of roughly 423 million kg, which is equivalent to burning 160,000 tonnes of coal. Further details on the calculations are explained in Appendix E.

Benefit #4: Ridesharing helps reduce parking space needs and improve greenery

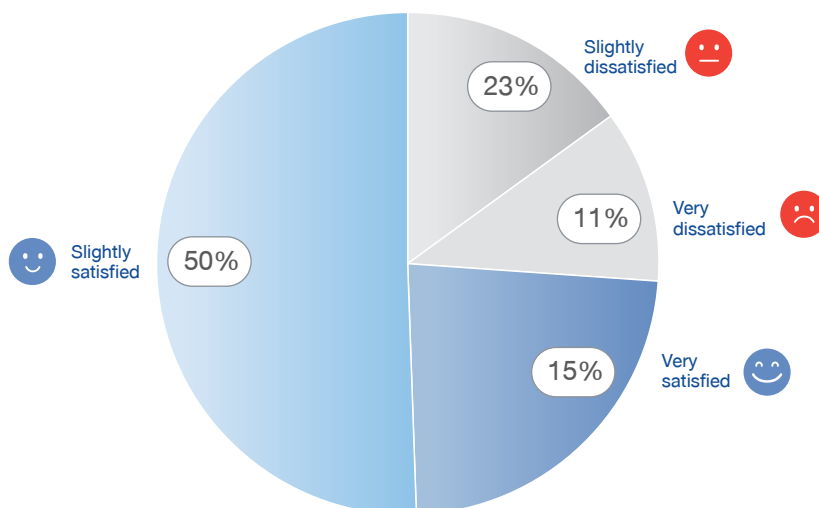
Figure 4.8: Private car driver level of satisfaction with ease of finding parking space [% of private car drivers, Yangon]



Source: Field survey

With the growing number of vehicles and limited land area, availability of parking space is a key issue in Yangon. Survey results show that two-thirds of private car drivers are dissatisfied with the ease of finding a parking space. For example, it is common to take a significant amount of time to find a parking space at popular shopping malls during peak periods (such as on weekends).

Figure 4.9: Public level of satisfaction with level of greenery [% of general public, Yangon]



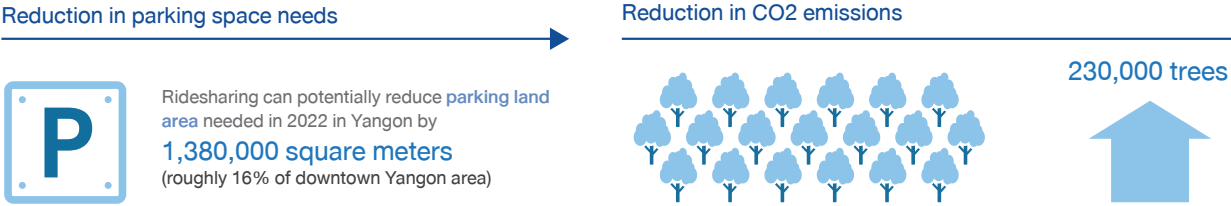
Source: Field survey, Roland Berger analysis

In addition, there is some dissatisfaction among the general public about the level of pollution in Yangon. 34% of the general public is dissatisfied about the level of greenery.

Ridesharing can reduce the need for parking space and therefore, allow more greenery in Yangon.



Figure 4.10: Reduction in parking space needs and improvement in greenery in Yangon



Source: Field survey

The reduction in stock of vehicles would reduce the strains on parking needs in Yangon. As previously demonstrated, the availability of affordable ridesharing services with private vehicles can reduce the stock of private passenger cars by 46,000 by 2022. Given that land area required for parking per vehicle is approximately 30 square meters (including land for access lanes and landscaping), this implies a reduction of around 1,380,000 square meters of land area needed for parking, equivalent to roughly 16% of downtown Yangon area. Further details on the calculations are explained in Appendix F.

Consequently, the land area potentially freed up from the reduction in need for parking can be used to plant additional trees in Yangon. This would help improve the level of greenery and vegetation in the city. Numerical analyses show that an additional 230,000 trees could be potentially planted from the freed up land area. Further details on the calculations are explained in Appendix G.

4.2 Benefits to the consumers



84 percent of users consider ridesharing is more **reliable and accessible** than existing transport modes



89 percent of users consider ridesharing **safer** and of higher quality than other transportation modes



Average waiting time for On-demand car services in Yangon is **47 percent** lower when a ridesharing app is used



71 percent of Uber riders consider ridesharing services to be **more convenient** than normal taxis

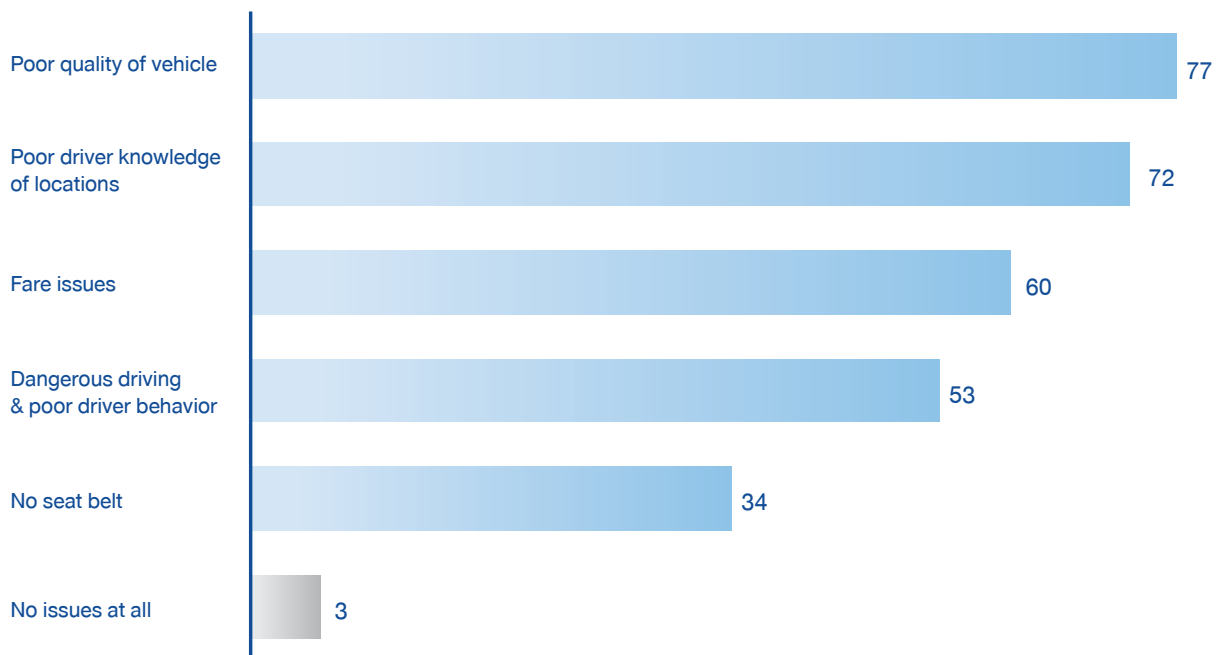


Ridesharing can potentially increase **banking penetration** in Yangon by **5 percentage points**



Ridesharing can potentially increase **mobile money penetration** in Yangon by **3 percentage points**

Figure 4.11: Issues faced using normal taxis without a ridesharing app [% of normal taxi users, Yangon]



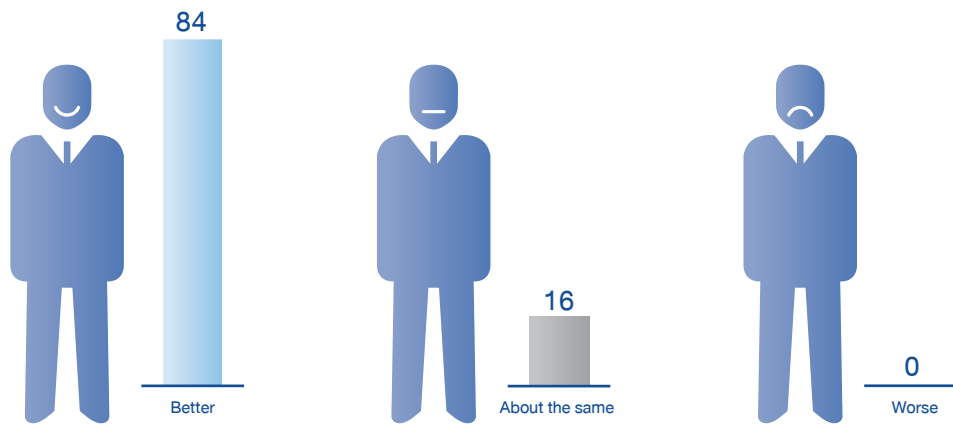
Source: Field survey, Roland Berger analysis

The quality of normal taxi services is currently poor in Yangon. As shown by survey results, the majority of normal taxi users have faced a number of issues. Poor quality of vehicles tops the list of issues. It was common for taxi users to find vehicles with non-existent or dysfunctional air-cons, or cars which had not been cleaned regularly. Only 3% of normal taxi users have not encountered any significant issues in Yangon. In Mandalay, similar issues were faced as well with normal taxis.

Ridesharing apps, technologies and processes can help overcome these issues, therefore improving mobility experience for consumers. The key benefits are described hereafter.

Benefit #5: Ridesharing improves transport reliability and accessibility

Figure 4.12: Perception of the reliability and accessibility of ridesharing compared to other transport modes [% of ridesharing users, Yangon]



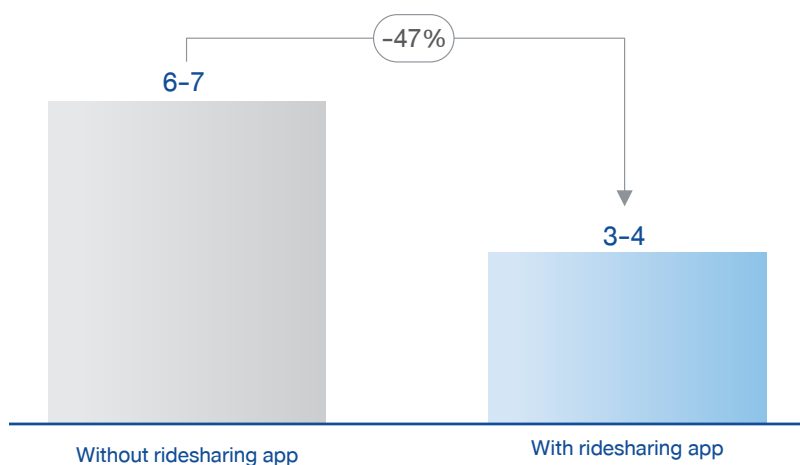
Source: Field survey

As shown by survey results, the general perception of the reliability and accessibility of ridesharing services has been positive in Yangon; almost 85% of the users think it is better than other transport modes. Not a single respondent mentioned it is worse.

The superior reliability and accessibility of ridesharing services can be attributed to their constantly updated technology and the additional supply of on-demand vehicles given the participation of private cars. Ridesharing technologies enable high responsiveness during peak-level demands at any location and time. Therefore, with the aid of such technologies, on-demand vehicles can be supplied in areas and at times of day where and when current transport systems cannot sufficiently do so. This improves the availability of transportation services in areas which are unserved or underserved by other transport modes.

Benefit #5: Ridesharing improves transport reliability and accessibility

Figure 4.13: Average waiting time for an on-demand car ride from home with and without a ridesharing app [minutes, Yangon]⁶



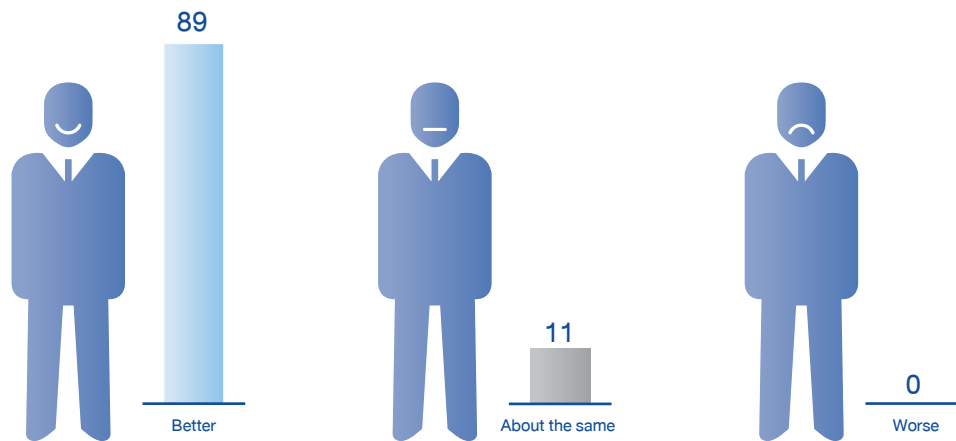
Source: Field survey, Uber

⁶ Uber Yangon benchmark used for waiting time with ridesharing app

The improvement of demand responsiveness is observed from the survey results: the average waiting time for a ride from home can be halved through the use of ridesharing apps, from 6-7 minutes to 3-4 minutes. This improvement is particularly crucial for users who are in a rush to travel to certain destinations.

Benefit #6: Ridesharing improves transport safety and quality

Figure 4.14: Perception of the safety and quality of ridesharing compared to other transport modes [% of ridesharing users, Yangon]



Source: Field survey

The general perception of the safety and quality of ridesharing services in Yangon is very positive; almost 90% of users think it is better than other transport modes. Not a single respondent mentioned that it is worse.

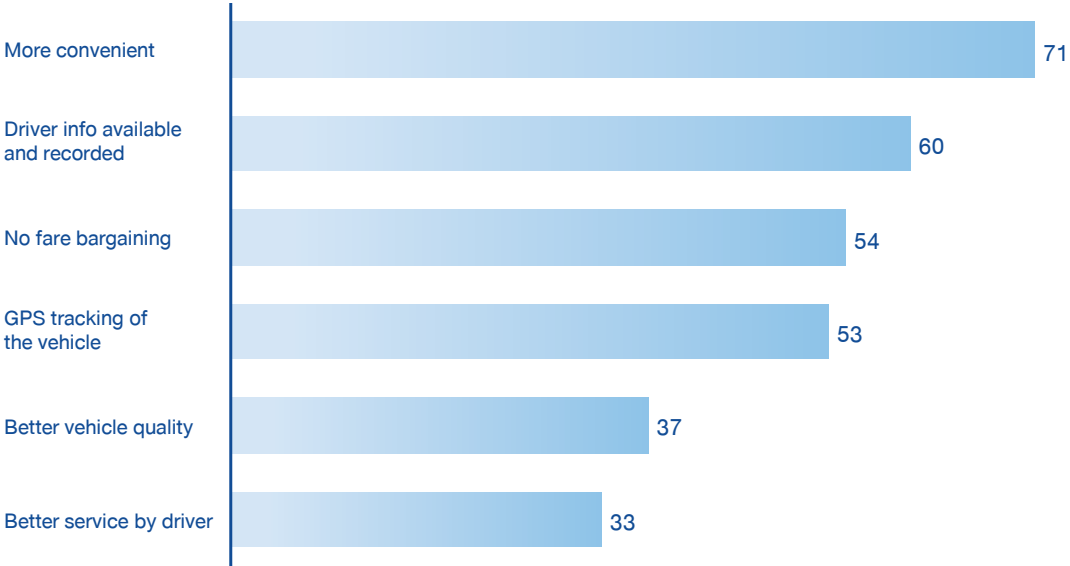
There are several efforts made by ridesharing companies to drive this perception improved safety and quality.

First, ridesharing companies undertake rigorous assessment of the driver (e.g. possession of valid driving license) and the vehicle (e.g. vehicle roadworthiness). It is also common for ridesharing companies to give detailed onboarding sessions to drivers during driver recruitment. These processes help ensure that drivers are well informed and educated, and vehicles are suitable for use on the road.

Second, once a trip is confirmed, the driver information is shared with the rider, and recorded in the central system. This information not only improves transparency, but also can be used to trace back missing items that riders may have accidentally left in the car after a trip. Vehicle tracking is also enabled through a GPS system. In the survey, 95% of ridesharing users in Yangon responded that they feel safer with the driver information and GPS tracking of vehicles.

At the end of a trip, an automatic fare calculation is processed. Some ridesharing companies also provide the fare calculation or an estimated fare calculation before the start of a trip. These automatic calculations – communicated upfront – remove the need for fare negotiations and bargaining. In addition, after the trip is concluded, some ridesharing apps enable mutual feedback between the driver and rider, through a “star rating” scheme. This incentivises both the driver and rider to behave appropriately and encourages mutual respect. Some ridesharing companies give strong incentives to drivers to aspire for “high ratings” (e.g. bonuses, awards).

Figure 4.15: Reasons for using Uber instead of normal taxis [% of Uber riders, Yangon] ⁷



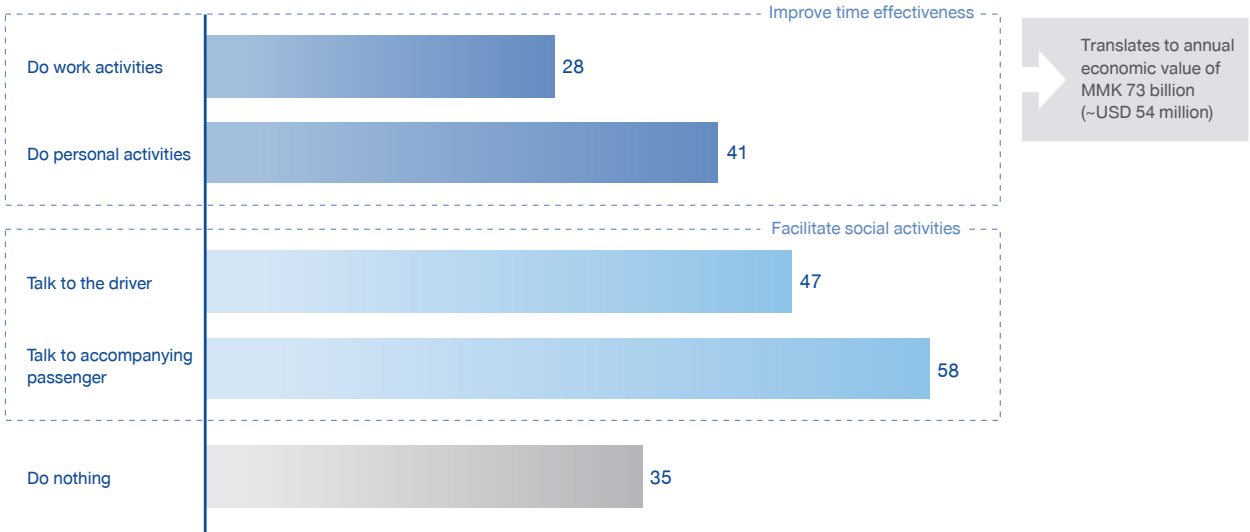
Source: Uber drivers survey

⁷ Excluding specific promotional activities during the launch of Uber

In summary, there are many advantages of using ridesharing services for the general public. For the case of Uber, the most important reasons for using a ridesharing app over hailing a taxi on the street include 1) increased convenience, 2) availability and recording of driver and rider information and 3) absence of fare bargaining.

Benefit #7: Ridesharing improves time effectiveness of commuters

Figure 4.16: Common activities when using on-demand transport [% of on-demand car transport users, Yangon]



Source: Field survey, Roland Berger analysis

Ridesharing services can facilitate other activities for riders while on transit. Survey results show that 28% and 41% of on-demand car users do work activities and personal activities respectively during a ride. These activities are not possible while consumers drive their own car, and are less convenient to perform while using other public transport modes (e.g. buses). Therefore ridesharing can improve the time effectiveness of commuters by allowing useful activities which may otherwise not be possible to conduct during travels.

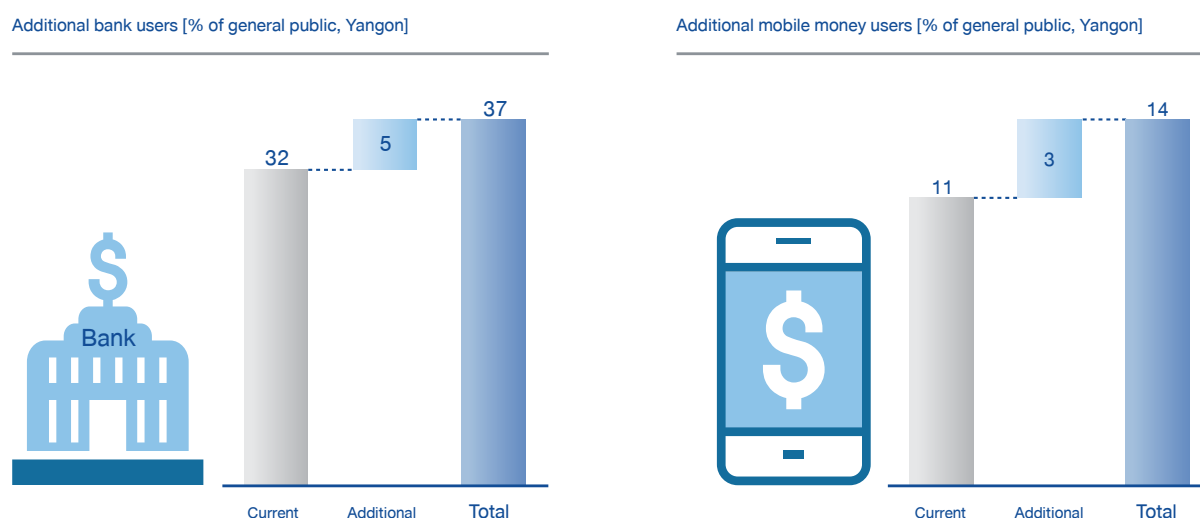
Taking MMK 5,000 as the average economic value of working per hour, the annual economic value of work activities done during travels with on-demand cars translates into approximately MMK 73 billion (~ USD 54 million). Further details of the calculations are explained in Appendix H.

By introducing private cars for ridesharing, the affordability of ridesharing services can be improved, therefore further encouraging the workforce to use ridesharing services. The use of ridesharing services opens the possibility to work during travels, hence generates additional economic value for the city.

Benefit #8: Ridesharing promotes financial inclusion for consumers

Ridesharing services are typically paid through cashless payment methods, including debit and credit cards, and mobile money channels. At the moment in Myanmar, these services can also be paid by cash given the limited penetration of cashless payment instruments.

Figure 4.17: Impact of ridesharing mobility on financial inclusion]



⁸ Based on average monthly salary of MMK 800,000 and 160 hours of work per month.

Ridesharing mobility can promote financial inclusion of consumers. For Yangon, survey results show that only 32% of the population is currently banked. Out of the currently unbanked population, almost 250,000 consumers are interested using and paying for ridesharing services through debit and credit cards or mobile banking. This translates to 5% of the Yangon population, therefore potentially increasing the proportion of the banked population to 37%. Further details on the calculations are provided in Appendix I.

In addition to the increase in bank account holders, ridesharing services can also encourage the use of mobile money services. For Yangon, survey results show that a mere 11% of the population currently has a mobile money account. Out of those who currently don't use mobile money, almost 120,000 consumers are interested in using and paying for ridesharing services through mobile money. This translates to 3% of the Yangon population, therefore potentially increasing the proportion of mobile money users to 14%. Further details on the calculations are provided in Appendix I.

In summary, ridesharing services can facilitate the rise in the banked population and use of cashless payment methods. The increased familiarity and usage of cashless payment methods will not only be confined to the ridesharing sector, but also create a positive impact other sectors in Myanmar's economy.

4.3 Benefits to the drivers

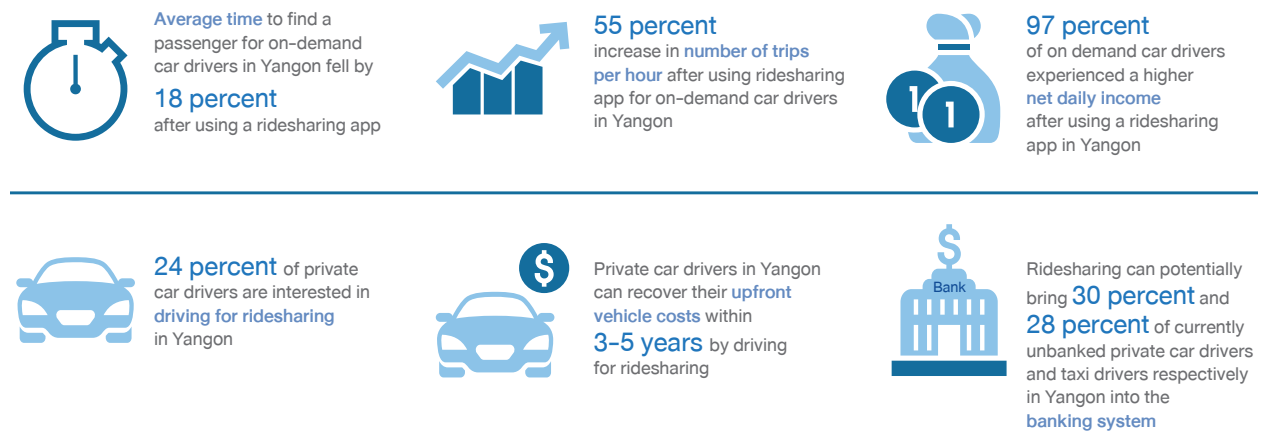
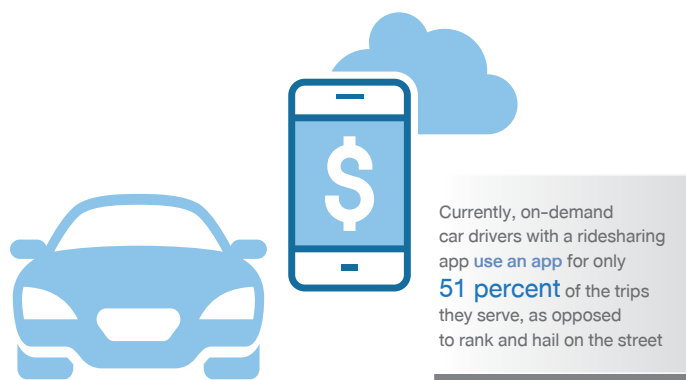


Figure 4.18: Usage of ridesharing app by ridesharing drivers [% of trips taken by ridesharing drivers, Yangon]

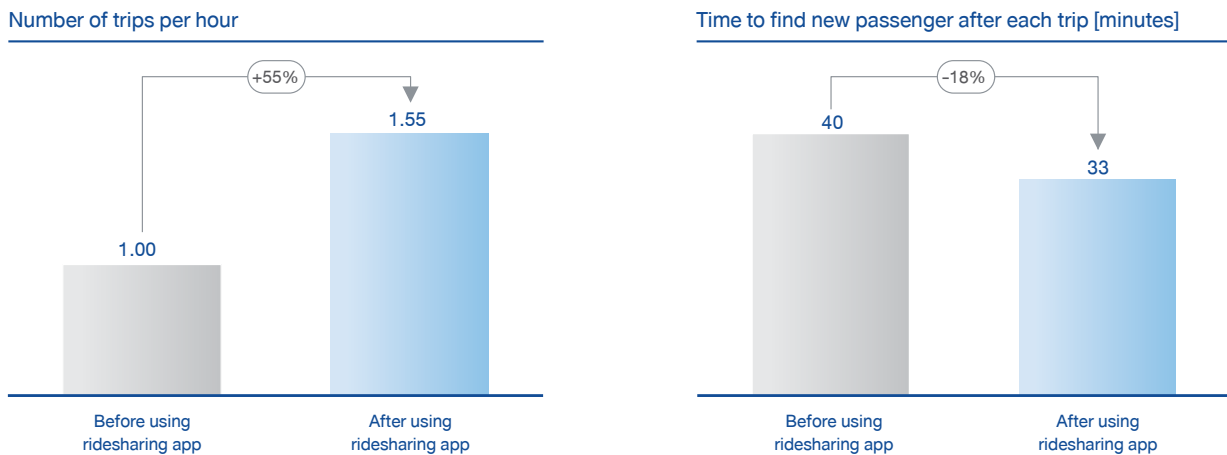


Source: Uber drivers survey

Currently, among the taxi drivers who are registered with a ridesharing company, the usage of the app is still relatively low: only 51% of their trips are through an app, as opposed to hail on the street. By extending ridesharing vehicles to private vehicles, there are significant opportunities increase the proportion of ridesharing trips for the entire ecosystem of drivers – private vehicles as well as taxis – and deliver the overall benefits of ridesharing to a larger population. Detailed explanation on how on-demand car drivers can benefit from ridesharing technology is provided hereafter.

Benefit #9: Ridesharing improves demand responsiveness and vehicle utilisation

Figure 4.19: Improved utilisation of and demand responsiveness of on-demand cars in Yangon



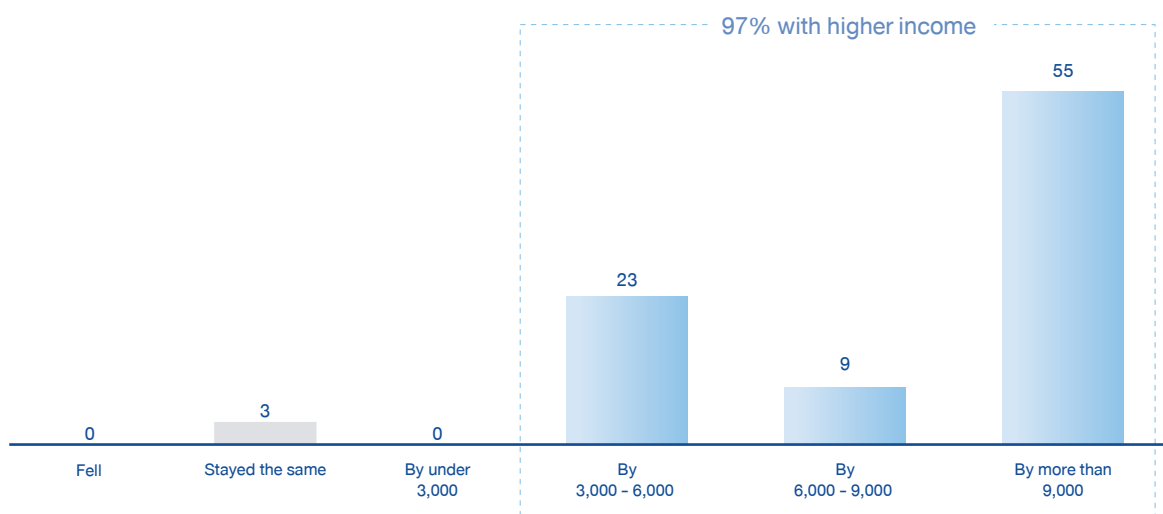
Source: Field survey, Uber

Ridesharing significantly improves utilisation of vehicles and increases demand responsiveness. In fact, ridesharing technologies can direct drivers to where the demand is at any given time of the day, making it more convenient and easier for drivers to find riders. Survey results show that ridesharing technology can improve the number of trips per hour for drivers by 55% and reduce the time it takes to find a new rider after the end of each trip by 18%.

As the network of ridesharing riders and private car drivers develop further in the future, the utilization of vehicles is likely to improve further, bringing even higher positive impact to the transportation sector. In addition, the surge pricing mechanism further improves vehicles utilisation by incentivising on-demand car drivers to drive when there is a strong need, limiting the number of vehicles in circulation when there is minimal demand.

Benefit #10: Ridesharing offers an attractive economic opportunity

Figure 4.20: Increase in net income [MMK] per day after driving with ridesharing app [% of drivers using ridesharing app, Yangon]



Source: Field survey

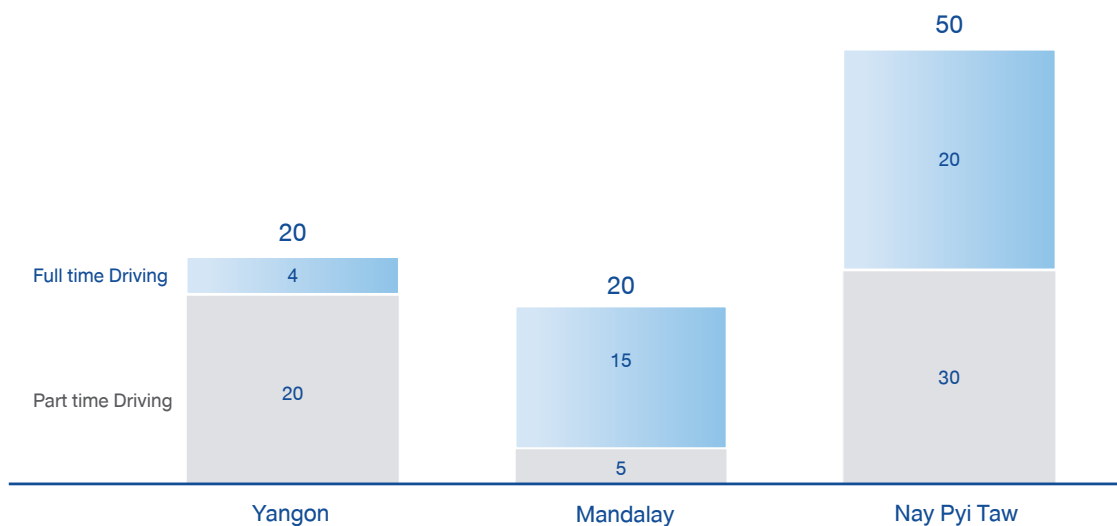
The ultimate effect that ridesharing companies can generate on car drivers is an increase in net income. Survey results show that 97% of on-demand car drivers experienced a rise in daily net income after driving with a ridesharing app. This positive impact can be further multiplied as ridesharing continues to develop in Yangon and the rest of Myanmar.



Benefit #11: Ridesharing offers a flexible job opportunity to private car drivers

Ridesharing offers a new job opportunities to private car drivers. In fact, private car drivers can choose to drive whenever and wherever they wish with income generated for each trip, contrary to taxi drivers that have more fixed working hours. Private car drivers can therefore supplement their primary income with additional income from driving for a ridesharing company.

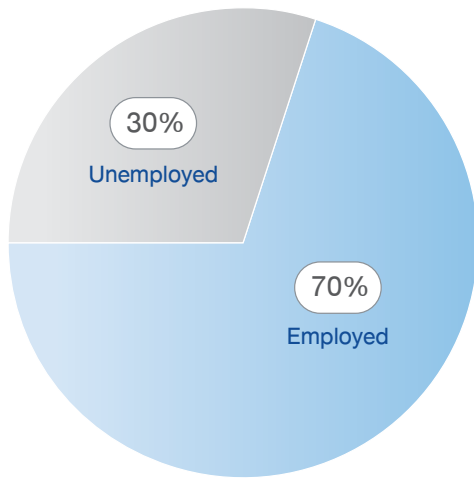
Figure 4.21: Private car driver interest in driving for ridesharing [% of private car drivers]



Source: Field survey

Overall, there is significant interest among private car drivers to drive for ridesharing companies. In Yangon, survey results show that 24% of private car drivers are interested in driving for ridesharing. In Mandalay, the interest of private car drivers to drive for ridesharing companies is 20% while for Nay Pyi Taw it reaches the significant value of 50%.

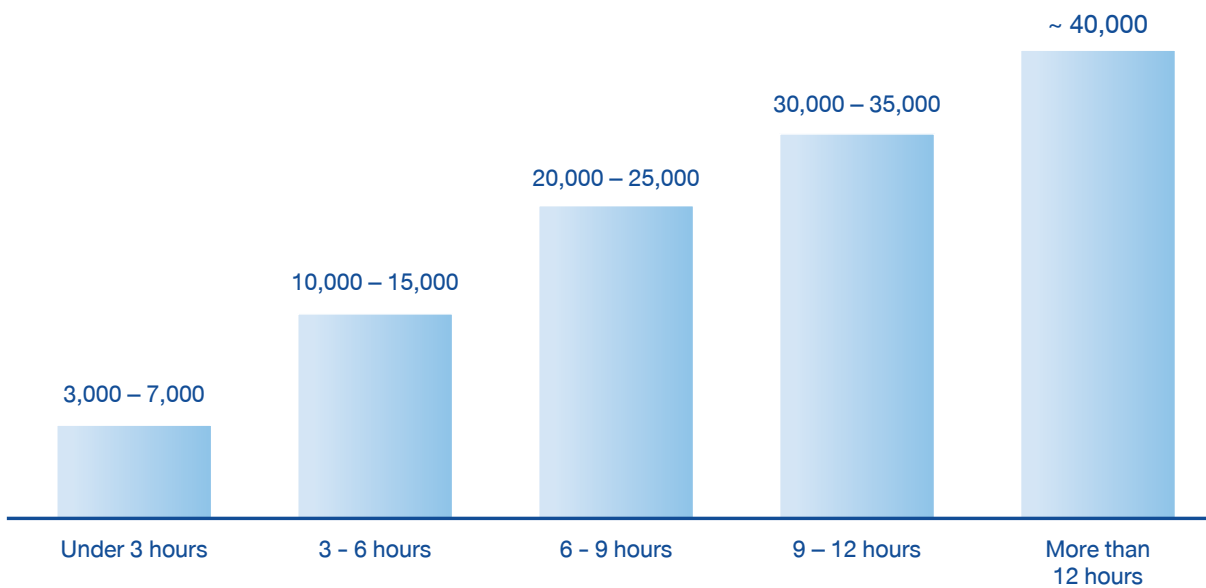
Figure 4.22: Employment status of private car drivers interested in driving for ridesharing in Yangon]



Survey results show that 70% of private car drivers interested in driving for ridesharing in Yangon are currently employed. Due to the flexibility of driving for ridesharing, these drivers can earn additional income by driving for ridesharing companies, supplementing what they earn from their current jobs. In addition, 30% of private car drivers interested in driving for ridesharing in Yangon are currently unemployed. Therefore, ridesharing could provide them with an income stream to support their livelihoods.

Source: Field survey

Figure 4.23: Daily net income based on hours driven by drivers with ridesharing app [MMK, Yangon]



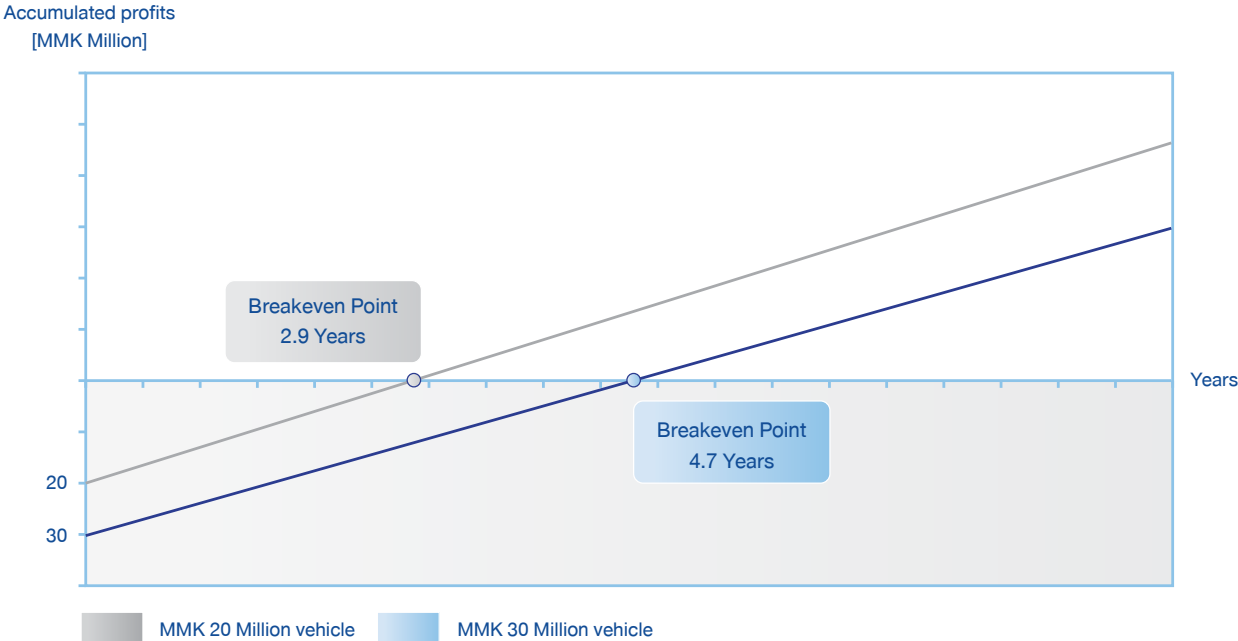
Source: Field survey, In-depth interviews

Daily net income can vary greatly by the number of hours driven with a ridesharing app in Yangon. A ridesharing driver driving for up to 3 hours may earn around MMK 3,000-7,000, whereas a ridesharing driver driving for over 12 hours can earn around MMK 40,000. On average, a net income of around MMK 3,000 is generated per hour of driving. Therefore, private car drivers who choose to drive full time for ridesharing can expect to earn significantly larger sums than those who drive only part time.

Benefit #12: Ridesharing helps better utilise private cars for drivers

Owning a private car involves a high upfront investment and incurs recurring annual maintenance, taxes and other similar fees. By driving for ridesharing, private car drivers can recover these costs through the fares they earn.

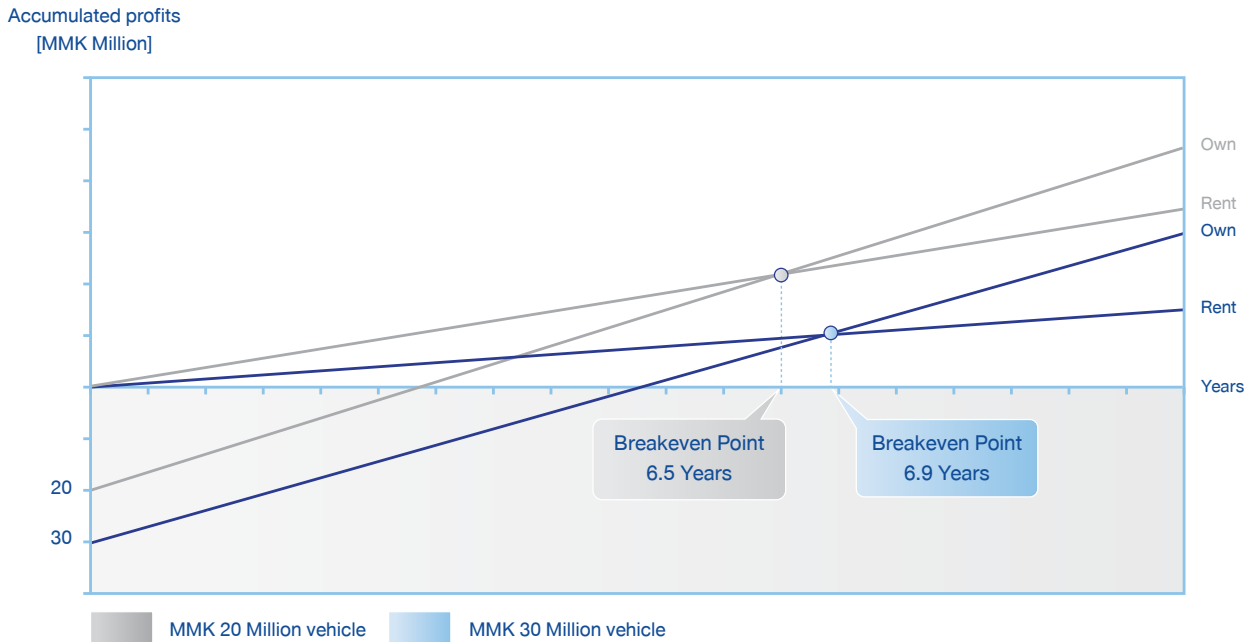
Figure 4.24: Recovery of purchase cost of private vehicle by driving for ridesharing in Yangon



Source: Field survey, Roland Berger analysis

Numerical analyses demonstrate that the initial cost of a vehicle could be recovered by driving for ridesharing within 3 to 5 years, depending on the type of vehicle. In these analyses, it is considered that drivers drive for approximately 300 days in a year and drive around 10 hours on days they drive. The time to breakeven takes longer for higher end vehicles due to the higher upfront cost of vehicle, higher maintenance, taxes, and other recurring fees. Further details of the calculations are explained in Appendix J.

Figure 4.25: Comparison of the accumulated profits of renting and owning a private vehicle when driving for ridesharing in Yangon



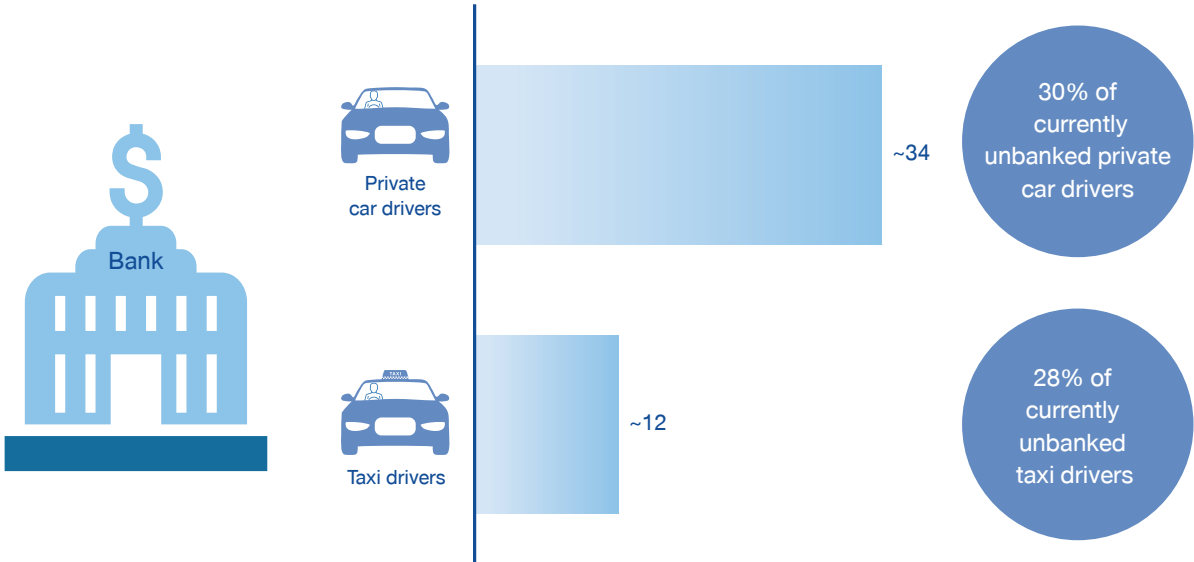
Source: Field survey, Roland Berger analysis

Drivers who choose to drive for ridesharing with private cars can either own or rent the car they use. Numerical analyses show that within 6-7 years, it can be more profitable to own rather than to rent a car when driving for ridesharing companies. In summary, if a driver intends to drive for ridesharing for the short term, renting a car is more profitable, whereas if a driver intends to drive for ridesharing for the long term, owning a car is more profitable. Further details of the calculations are explained in Appendix J.

Benefit #13: Ridesharing promotes financial inclusion for drivers

To enable payments to drivers, setting up a bank account is typically required to drive for a ridesharing company. The process of setting up a bank account is also aided by ridesharing companies, if needed.

Figure 4.26: Additional number of drivers to be brought into banking system through ridesharing [‘000 of drivers, Yangon]



Source: Field survey, Roland Berger analysis

Therefore, in addition to consumers, ridesharing mobility can also promote financial inclusion for drivers.

Out of the unbanked private car drivers, about 30% are interested in driving for ridesharing and willing to set up a bank account as part of the requirement. This translates to an additional 34,000 private car drivers to be potentially brought into the banking system through ridesharing.

Out of the unbanked taxi drivers, about 28% are interested in driving for ridesharing and willing to set up a bank account as part of the requirement. This translates to an additional 12,000 taxi drivers to be potentially brought into the banking system through ridesharing. Further details of the calculations are explained in Appendix K.



chapter

05

Bridging the gap in mobility

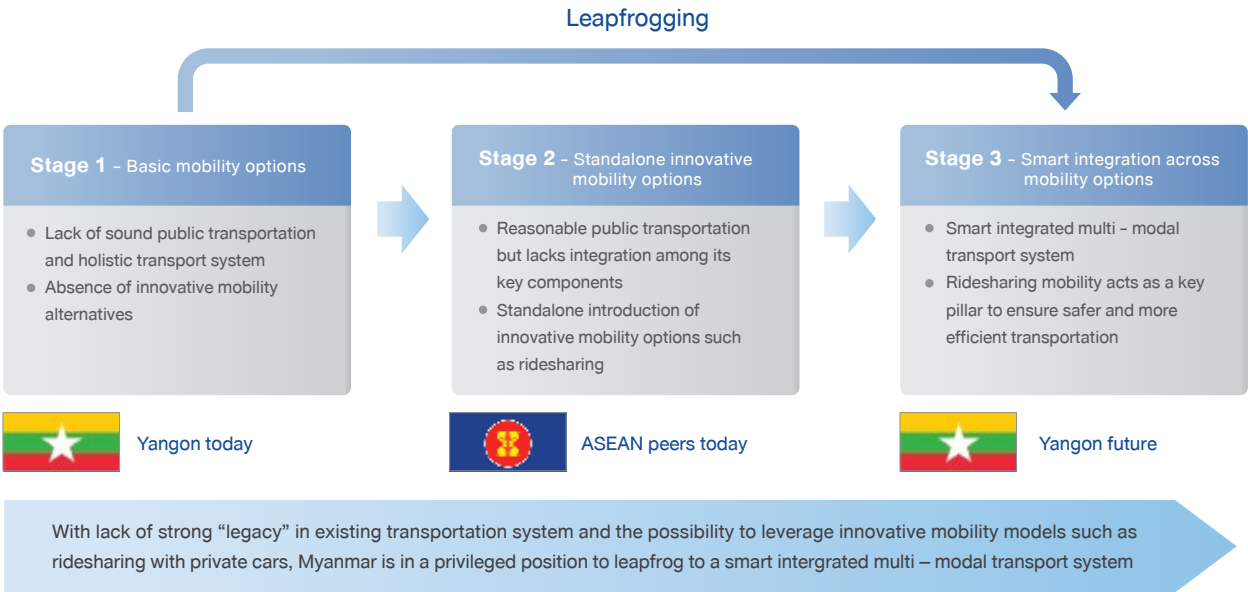


5.1 Opportunity for Myanmar to leapfrog

Myanmar, and in particular Yangon, is in a unique position to leapfrog other Southeast Asian peer countries when it comes to mobility. The vehicle import market was liberalised in 2012, leading to a sharp increase of cars on the roads. Despite the recent toughening of the car import regulation and the efforts to improve public transportation, the level of traffic congestion and the quality of the overall transportation system still remain inadequate.

However, due to the lack of a strong legacy in the existing transportation system and the availability of innovative mobility models such as ridesharing with private cars, Myanmar is now in a privileged position to leapfrog from the current suboptimal state for mobility directly to a smart integrated multi-modal transport system. Myanmar can therefore build on this nascent stage and leverage on the right instruments to ensure effective mobility development, contrary to what happened to other Southeast Asian countries that have pursued unsustainable evolutions, creating strong legacy conditions that are difficult to fix and reverse.

Figure 5.1: Yangon leapfrogging in city transport system

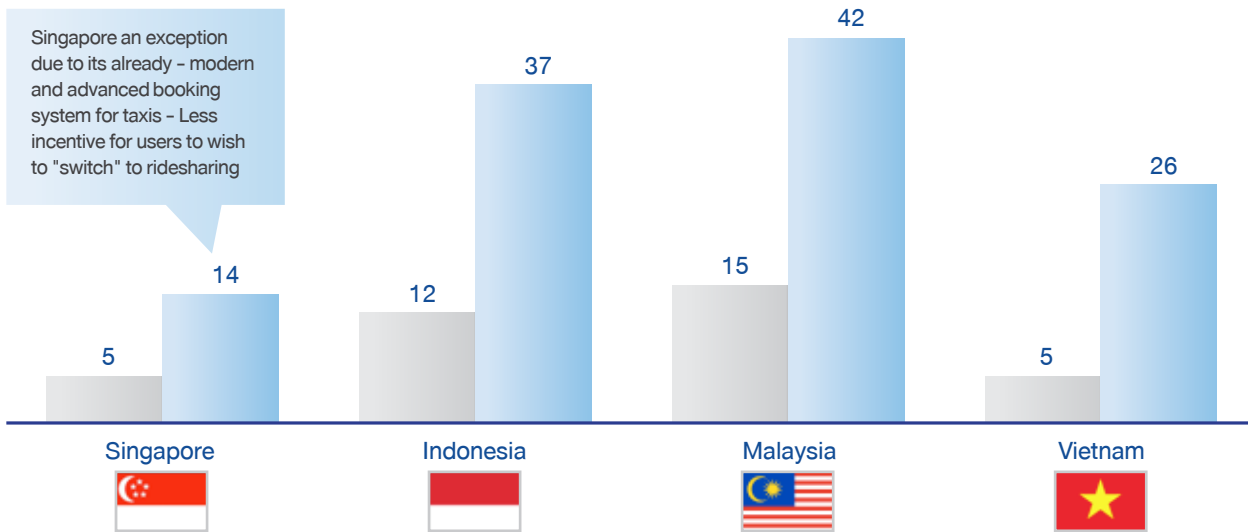


Ridesharing models play a very important role in ensuring effective mobility leapfrog for Myanmar. The vast majority of other Southeast Asian countries has already understood the potential of these innovative models and has integrated ridesharing with private cars in their transportation systems. The success of ridesharing is demonstrated by the significant penetration achieved by the model in very short time frames. In other comparable countries, ridesharing with on-demand cars accounts for up to 42% of all for-hire 4-wheeler trips just after 2 years of its launch (e.g. Malaysia). With appropriate policies and regulatory measures, Myanmar, and in particular Yangon, will be able to leverage on the wide benefits of ridesharing models with private cars to improve its mobility issues at this early stage. Myanmar can therefore directly develop into a smart integrated multi-modal transport system, becoming a successful example to be followed by other countries.



Figure 5.2: Ridesharing as a percentage of all for-hire⁹ 4-wheeler trips [%] in selected countries





















For-hire : Licensed taxis + Private cars



Source: Expert interviews, Roland Berger analysis

⁹ Includes both licensed taxis and private cars

Approach to ridesharing mobility: comparison across key Southeast Asian cities

	Singapore 	Kuala Lumpur 	Bangkok 	Jakarta 
Level of traffic congestion	 <ul style="list-style-type: none"> Road traffic not dense outside peak hours due to extensive public transport, including taxis and ridesharing Very high barriers to car ownership due to high fees, taxes, and duties (e.g., COE – Certificate of Entitlement) 	 <ul style="list-style-type: none"> Downtown and peak hour traffic very high due to high car ownership and suboptimal road network (e.g., narrow roads) Public transport not very dense 	 <ul style="list-style-type: none"> Very high traffic congestion throughout the day due to explosion in car ownership and few large roads Fair public transport but not extensive Taxis often without passengers Motorcycle taxis for short distance trips 	 <ul style="list-style-type: none"> Very high traffic congestion throughout the day due to explosion in population and income growth No mass public transport alternatives to buses Private motorcycle and motorcycle taxis widely used due to high traffic density
Acceptance of ridesharing	 <ul style="list-style-type: none"> Taxis allowed for ridesharing Shared services are widely promoted in transport sector and beyond Seeks to develop innovative mobility options 	 <ul style="list-style-type: none"> Taxis allowed for ridesharing Ridesharing with private vehicles officially legalized by government in July 2017 Some hostility from taxi drivers against ridesharing with private vehicles 	 <ul style="list-style-type: none"> Taxis allowed for ridesharing Government has officially banned use of private vehicles for ridesharing Strong hostility from taxi drivers against ridesharing with private vehicles 	 <ul style="list-style-type: none"> Taxis allowed for ridesharing Government has imposed significant restrictions on ridesharing companies Strong hostility from taxi drivers against ridesharing with private vehicles
Presence of policy & regulations for ridesharing	 <ul style="list-style-type: none"> Ridesharing companies have to be registered with government Vocational license required for private-hire car drivers Regulations protecting consumers in place 	 <ul style="list-style-type: none"> Ridesharing companies must have intermediation business license to operate Drivers must undergo health checks, scheduled vehicle inspections and have insurance coverage 	 <ul style="list-style-type: none"> Law banning the use of private vehicles for commercial services (including ridesharing) in place 	 <ul style="list-style-type: none"> Ministry of Transport given authority over regulation of ridesharing services Significant restrictions in place (e.g., vehicle requirements, fleet and fare quotas, vehicle ownership by cooperatives)
Suitability of policy & regulations for ridesharing	 <ul style="list-style-type: none"> Appropriate policy in place to encourage use of ridesharing services However, vocational license for private-hire car drivers create some barrier to entry for part time drivers 	 <ul style="list-style-type: none"> Ridesharing services with both private cars and taxis are legalized However, stringent regulations for drivers create some barrier to entry for part time drivers 	 <ul style="list-style-type: none"> Complete ban on the use of private vehicles for ridesharing services is not efficient nor sustainable for the development of an integrated multi-modal transport system 	 <ul style="list-style-type: none"> Restrictions have resulted in inability for free market mechanism to operate for efficient matching and balancing of demand and supply Regulations have created significant barriers to entry for drivers

 Very low

 Very high

Source: Desktop research, Press releases, Roland Berger analysis

The key reasons that will enable Myanmar, and in particular Yangon, to leapfrog are hereafter described in more detail.

Reason #1: Limited pre-existing “legacy” transport systems

Buses are the main mode of transportation for most Yangon residents. Taxis are also popular, but there is no centralised taxi operator. Other public transportation modes such as trains and water ferries exist, but their coverage is not extensive. In addition, major laws on mobility are quite outdated, therefore offering the opportunity to be redesigned considering the recent advancements and innovations in transportation. Current transport systems are limiting, but make it simpler for ridesharing services to be implemented and form a key component of a multi-modal transport system.

Reason #2: No barriers from taxi drivers

In Myanmar there are no taxi unions, contrary to most foreign cities. This makes it easier to introduce new transportation models such as ridesharing, which can also be used as a best practice example for other major cities. Ridesharing with private cars and taxi transport can coexist, since they are complementary services, typically catering to different segments of users. Taxi drivers may also be on-boarded in ridesharing models to further expand their service reach and improve their utilisation. In Yangon, for instance, taxi drivers have already understood the potential allowed by new technologies and are gradually adopting ridesharing technologies.

Reason #3: Eminent growth in transportation demand

Strong economic growth, rising middle class, and steady urbanisation are bound to fuel growth and sophistication in transportation demand. More and more people are increasing their transportation demand, both in quantity and in quality. Satisfying these demands will require a significant transformation in the overall transport system and cannot be achieved through only gradual improvements. Innovative mobility models such as ridesharing would enable achieving a significant and drastic enhancement of the transport sector in Myanmar.

Reason #4: Government fostering innovation

The Myanmar Government, both at Union and Regional level, including the Yangon Regional Government, is open to introducing and supporting innovation across all industries, in order to foster economic growth, improve competitiveness, and enhance day-to-day life of the population. One key example is the telecommunication sector, which was liberalised in 2013, allowing foreign companies to enter the market and to bring new technologies. Innovative models in the transportation sector, such as ridesharing, would also create a broad range of positive economic and social impact, for instance; a better mobility system; reduction of traffic congestion; and an additional source of income for car drivers.

Reason #5: Innovation spillover to other transport modes

Ridesharing companies bring the latest technology innovations to enrich user experience through broader perspectives. Innovative ideas in ridesharing may also be transferable to other transport modes. For example, demand monitoring can be introduced in bus systems to identify peak rider volumes at various locations. GPS tracking of buses can be implemented to predict bus arrival times at stations. Cashless payment methods can also be introduced to improve rider convenience. Therefore, the broader transportation sector benefits from the introduction of innovative mobility models such as ridesharing.

Reason #6: Astonishing smartphone penetration

Smartphones serve as a key enabling infrastructure for new mobility models. Ridesharing apps run on internet connected smartphones. Myanmar has a very high penetration and usage of smartphones that exceed some of its Southeast Asian peers, including Thailand and Malaysia. This offers a unique opportunity to Myanmar not only to improve its mobility sector, but also to create a broader transportation ecosystem based on adoption of new technologies and terminals such as smartphones since this early stage of development.



5.2 Regulatory directions for effective ridesharing mobility with private cars

Appropriate policy directions are needed to support mobility leapfrogging in Myanmar, leveraging on innovative models such as ridesharing. Regulators should consider the following three key recommendations in a holistic manner when developing new policies.

Recommendation #1: Don't enforce restrictions on vehicle supply, fares and driver operating hours

It is crucial to allow a free market mechanism to determine the market equilibrium between supply and demand for rides. Therefore, it is recommended that limits on ridesharing vehicle supply are not introduced but rather have the level of supply decided by a free market mechanism. The same applies to the fare calculation. It is suggested that fares are defined freely by the market to allow an efficient supply-demand matching. Finally, flexible operating hours for drivers are recommended to encourage more drivers to get on the road only when it is needed and required by the demand (e.g. to cover peak times of the day) as well as to create potential for new part-time job opportunities. Introducing caps on the natural market development of ridesharing mobility with private cars is not recommended, as it limits the full impact of ridesharing benefits, such as the increase of demand responsiveness. It additionally prevents ridesharing from reaching a critical dimension to enable ride pooling.




Recommendation #2: Allow participation of private vehicles in ridesharing

Allowing private vehicle participation would help expand vehicle supply for ridesharing services without necessarily increasing the number of vehicles in the city. As demonstrated by the analysis, with the full introduction of ridesharing models, roughly 28,000 vehicles in circulation per day may be reduced from the streets of Yangon in the short-term. This would not only help extend multiple transportation alternatives to consumers, but also keep fares affordable. It would also create a flexible economic opportunity for private car owners, who can generate additional income for their families. Moreover, the utilisation of existing private vehicles would be improved. Therefore, the rising transportation demand would be satisfied without necessarily adding new vehicles, but by better utilizing the existing ones.

Recommendation #3: Capitalise on safety and quality standards of leading ridesharing companies

Regulators can capitalise on the sophisticated policies and procedures of ridesharing companies to derive regulations for the broader Myanmar transportation sector. For instance, the stringent initial checklist on the cars to ensure that safety and quality standards are met is constantly improved by the ridesharing companies. Regulators can take advantage of the research and development of these companies by considering their policies and integrating them in broader mobility requirements (e.g. enhancing the mandatory periodical car check including other key safety elements such as more sophisticated engine checks, tire conditions, correct functioning of seat belts).

Figure 5.3: Key policy recommendations to enable leapfrogging

<p>1</p>		<p>Do not enforce restrictions on <u>vehicle supply, fares and driver operating hours</u></p>	<ul style="list-style-type: none">• Suggested to allow free market mechanism to efficiently determine market equilibrium between supply and demand for rides• Flexible operating hours encourages more drivers to get on the roads (e.g., part time private car drivers during peak hours)
<p>2</p>		<p>Allow <u>participation of private vehicles</u> in ridesharing</p>	<ul style="list-style-type: none">• Helps expand supply for ridesharing services without necessarily increasing the stock of vehicles• Also creates flexible and attractive job opportunity for private car drivers
<p>3</p>		<p>Capitalize on <u>safety and quality standards</u> of leading ridesharing companies</p>	<ul style="list-style-type: none">• Government can leverage the knowledge and processes for safety and quality standards of ridesharing companies to derive regulations for the broader Myanmar transportation sector• Can introduce international best practices

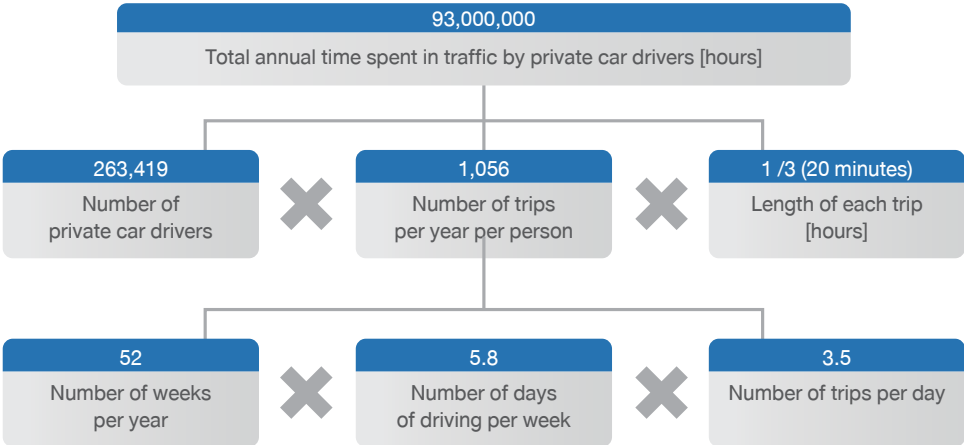
Appendix



Appendix A. Annual economic cost of time spent in traffic by private car drivers in Yangon

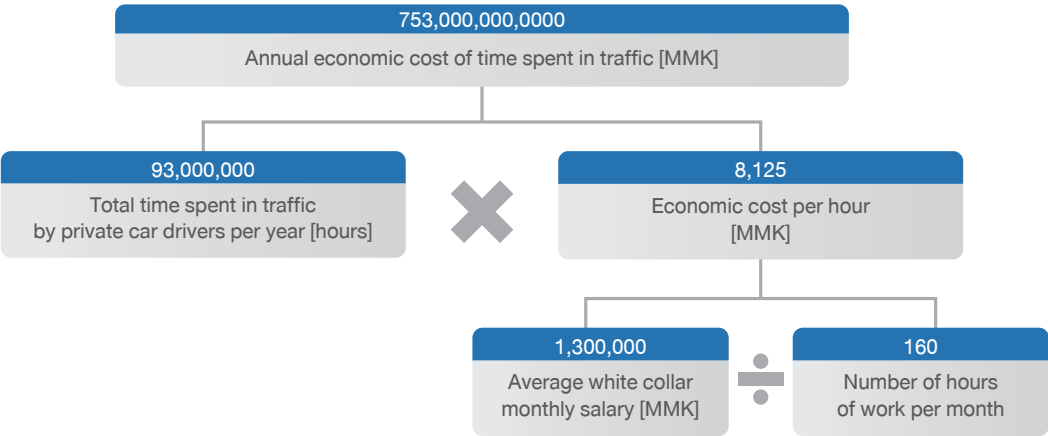
1. Calculation of the total annual time spent in traffic by private car drivers

Appendix A-1 Total annual time spent in traffic by private car drivers



2. Calculation of the annual economic cost of time spent in traffic by private car drivers

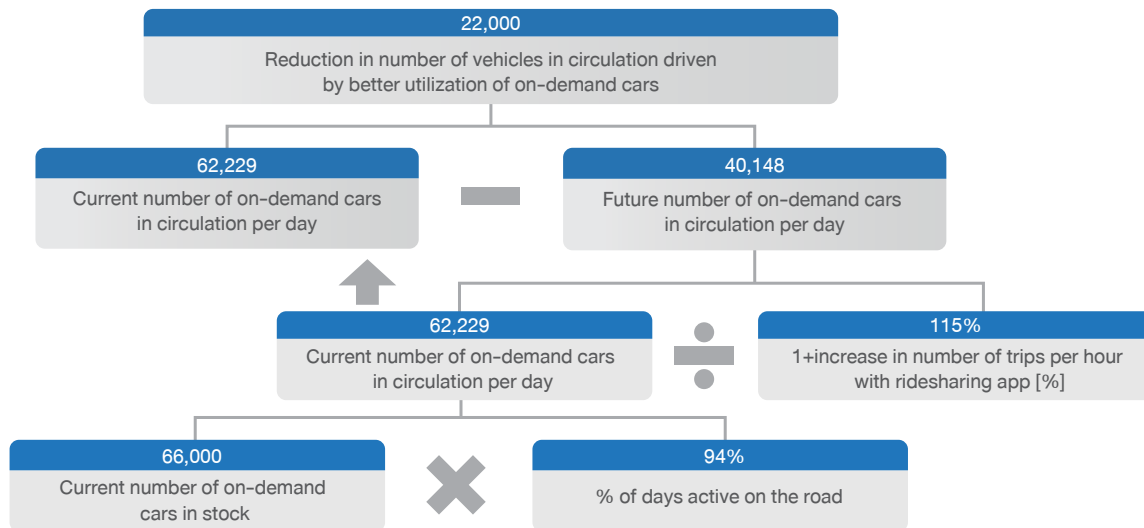
Appendix A-2 Annual economic cost of time spent in traffic by private car drivers



Appendix B. Reduction in number of vehicles in circulation in Yangon in the short term due to ridesharing

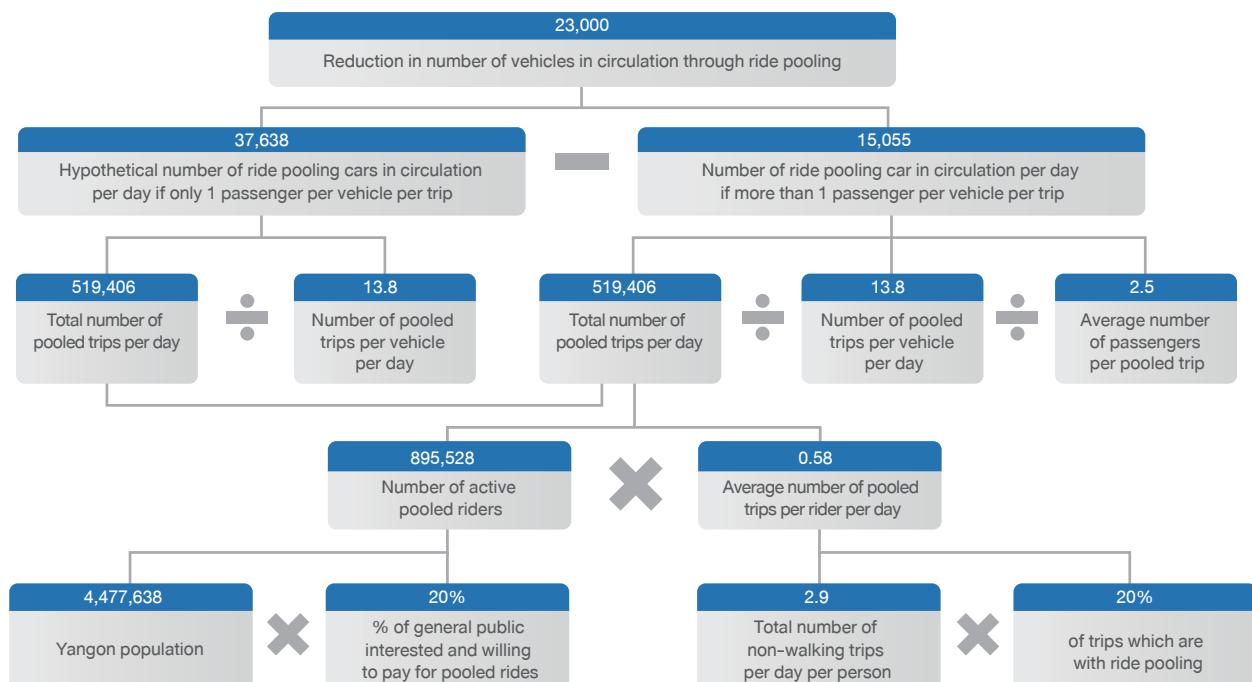
1. Calculation of the reduction in number of vehicles in circulation through better utilisation of on-demand cars

Appendix B-1 Reduction in number of vehicles in circulation through better utilization of on-demands cars



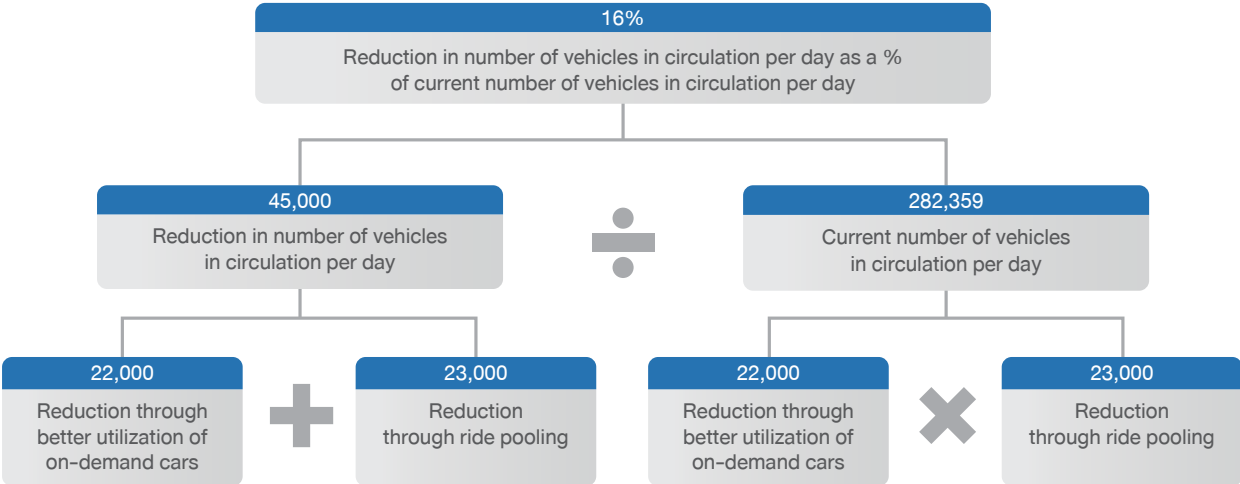
2. Calculation of the reduction in number of vehicles in circulation through ride pooling

Appendix B-2 Reduction in number of vehicles in circulation through ride pooling



3. Calculation of the total reduction in number of vehicles in circulation per day as a % of current number of vehicles in circulation per day

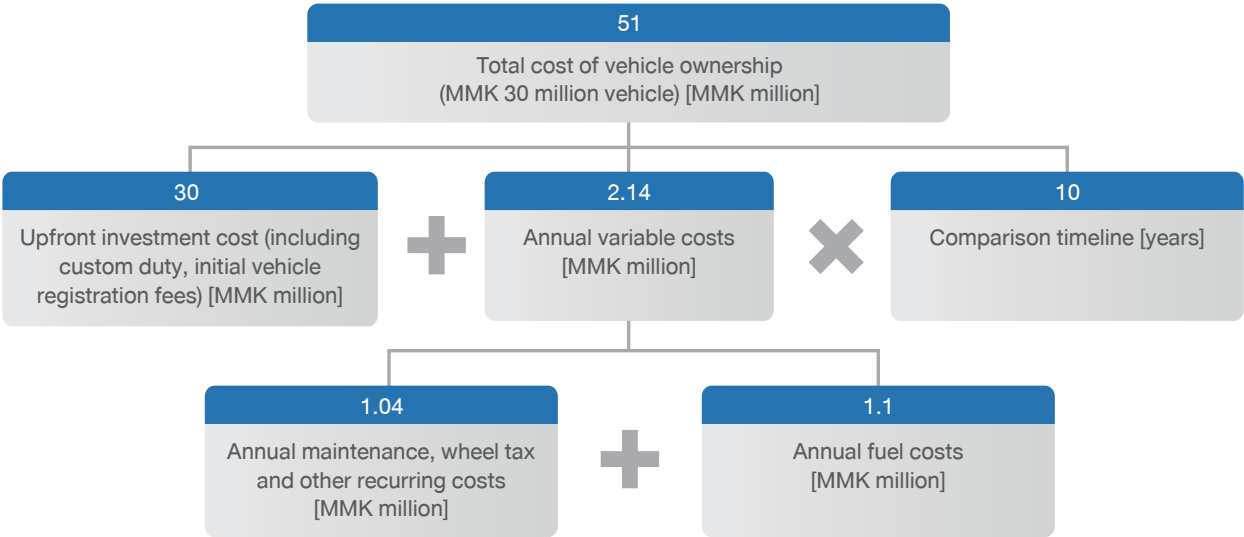
Appendix B-3 Total reduction in number of vehicles in circulation per day as a % of current number of vehicles in circulation per day



Appendix C. Comparison of the total cost of vehicle ownership and using ridesharing services in Yangon

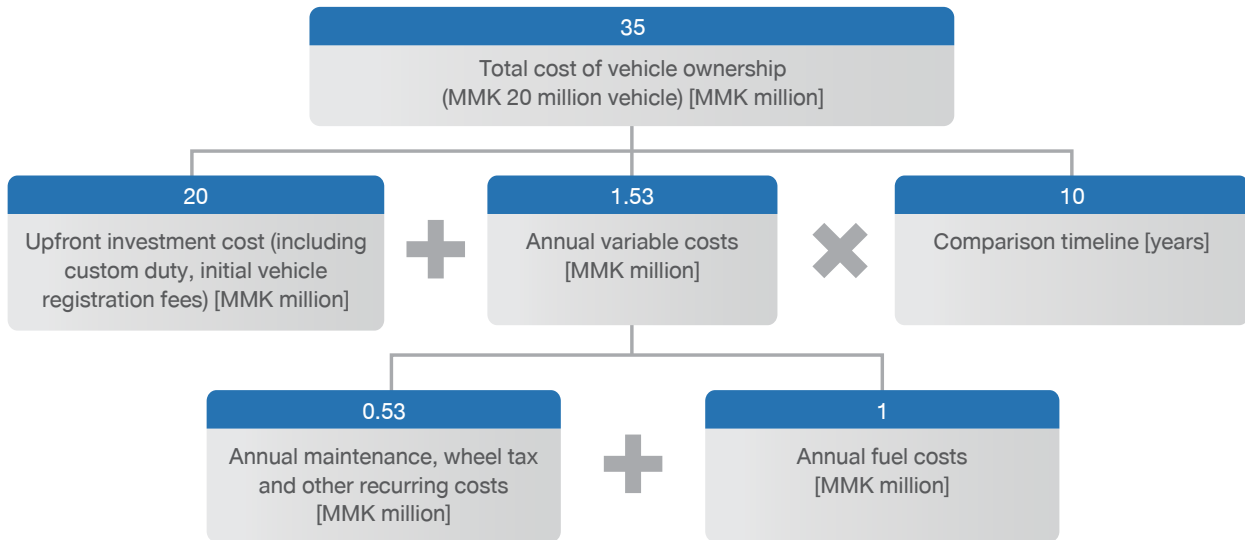
1. Calculation of the total cost of vehicle ownership (MMK 30 million vehicle)

Appendix C-1 Total cost of vehicle ownership (MMK 30 million vehicle)



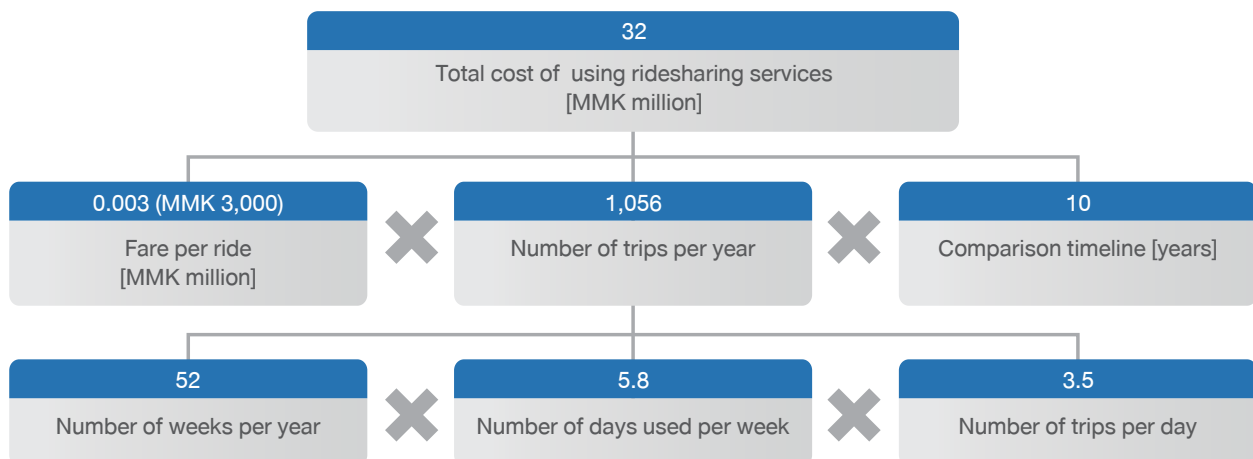
2. Calculation of the total cost of vehicle ownership (MMK 20 million vehicle)

Appendix C-2 Total cost of vehicle ownership (MMK 20 million vehicle)



3. Calculation of the cost of using ridesharing services

Appendix C-3 Total cost of using ridesharing services



Appendix D. Projected number of private passenger cars in Yangon until 2022

1. Calculation of the hypothetical base case without ridesharing

Row	Data description	Units	Data	Calculation/ assumption
A	Annual growth rate of stock of vehicles from 2018 – 19 onwards	% of existing car stock	7%	Assumption; same as real GDP growth
B	2017 stock of cars	Number of cars ('000)	263.4	Market info
C	2018 stock of cars	Number of cars ('000)	263.4	Same as 2017 due to government restrictions
D	2019 stock of cars	Number of cars ('000)	281.9	$D + A * D$
E	2020 stock of cars	Number of cars ('000)	301.6	$E + A * E$
F	2021 stock of cars	Number of cars ('000)	322.7	$F + A * F$
G	2022 stock of cars	Number of cars ('000)	345.3	$G + A * G$

2. Calculation of the case with affordable ridesharing services

Row	Data description	Units	Data	Calculation/ assumption
H	Reduction in purchase of vehicles per year	% of new cars brought in	19%	Field survey; drivers who would potentially have not bought a car had they had access to affordable ridesharing
I	Average car lifetime on road	Years	10	Market intelligence
J	2017 stock of cars	Number of cars ('000)	263.4	Market info
K	2017 – 2018 hypothetical inflow of new cars if no ridesharing	Number of cars ('000)	26.3	$J * (1 + 0) + (J / I)$; assumed 0 growth rate in stock of vehicles in hypothetical base case without ridesharing due to existing government restrictions
L	2018 stock of cars	Number of cars ('000)	258.4	$J + (1 - H) * K - (J / I)$
M	2018 – 2019 hypothetical inflow of new cars if no ridesharing	Number of cars ('000)	43.9	$L * (1 + A) + (L / I)$

Row	Data description	Units	Data	Calculation/ assumption
N	2019 stock of cars	Number of cars ('000)	268.2	$L + (1 - H) * M - (L / I)$
O	2019 – 2020 hypothetical inflow of new cars if no ridesharing	Number of cars ('000)	45.6	$N * (1 + A) + (N / I)$
P	2020 stock of cars	Number of cars ('000)	278.3	$N + (1 - H) * O - (N / I)$
Q	2020 – 2021 hypothetical inflow of new cars if no ridesharing	Number of cars ('000)	47.3	$P * (1 + A) + (P / I)$
R	2021 stock of cars	Number of cars ('000)	288.8	$P + (1 - H) * Q - (P / I)$
S	2021 – 2022 hypothetical inflow of new cars if no ridesharing	Number of cars ('000)	49.1	$R * (1 + A) + (R / I)$
T	2022 stock of cars	Number of cars ('000)	299.6	$R + (1 - H) * S - (R / I)$

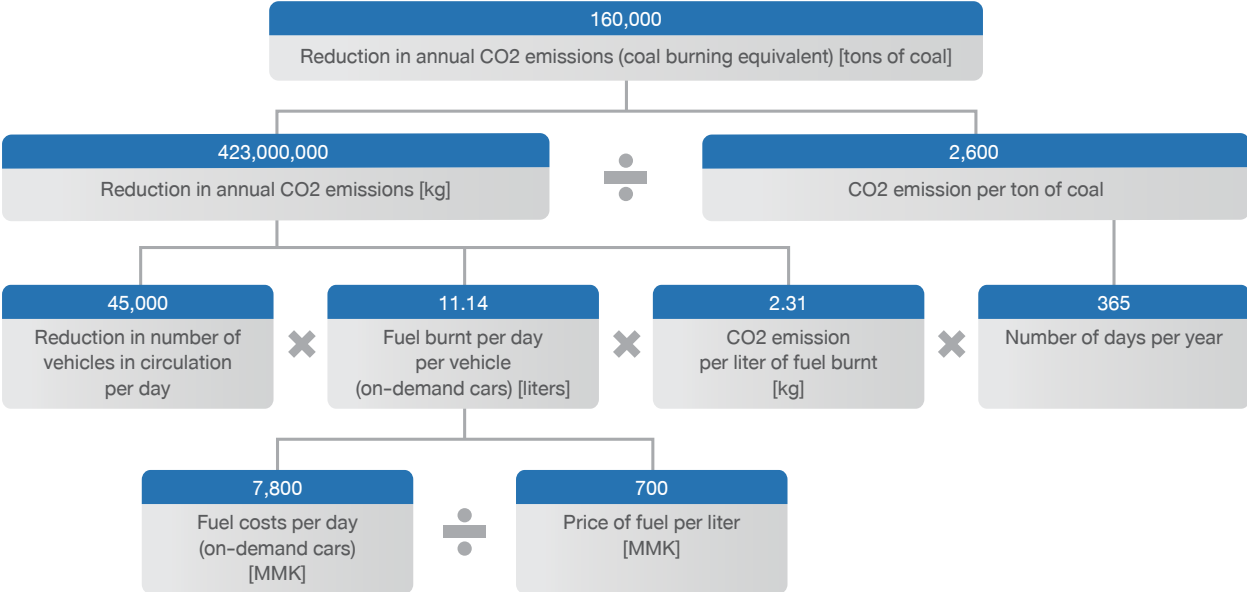
3. Calculation of the overall reduction in private cars until 2022

Row	Data description	Units	Data	Calculation/ assumption
P	Total reduction in private passenger cars	Number of cars ('000)	46	$G - T$

Appendix E. Potential reduction in annual CO₂ emissions in Yangon due to ridesharing

1. Calculation of the potential reduction in annual CO₂ emissions

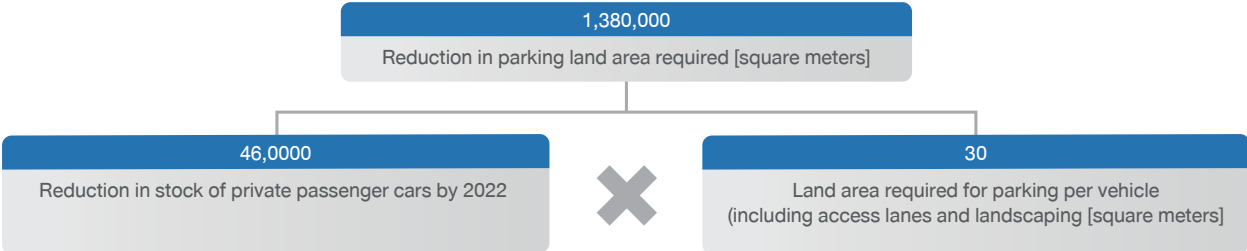
Appendix E-1 Potential reduction in annual CO₂ emissions



Appendix F. Potential reduction in parking land area required in Yangon due to ridesharing

1. Calculation of the potential reduction in parking land area required

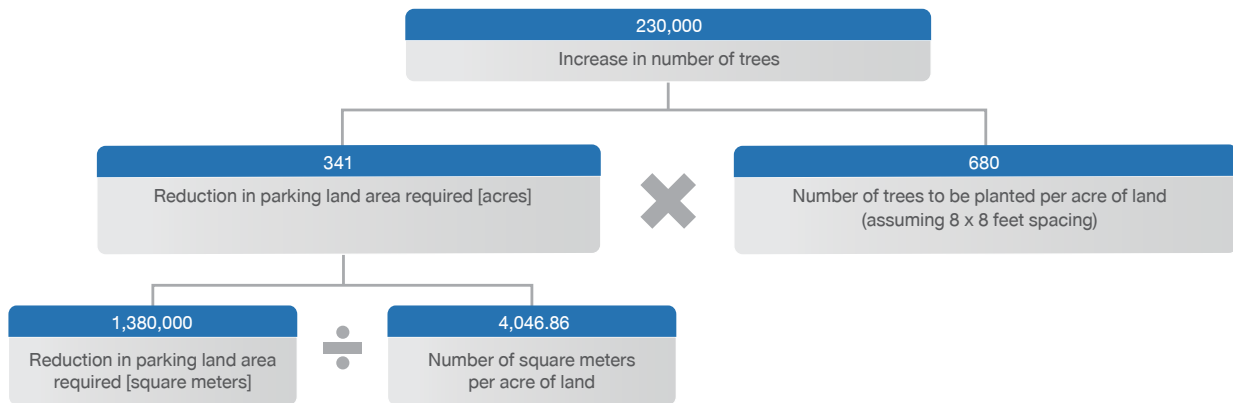
Appendix F-1 Potential reduction in parking land area required



Appendix G. Potential increase in number of trees in Yangon due to ridesharing

1. Calculation of the potential increase in number of trees

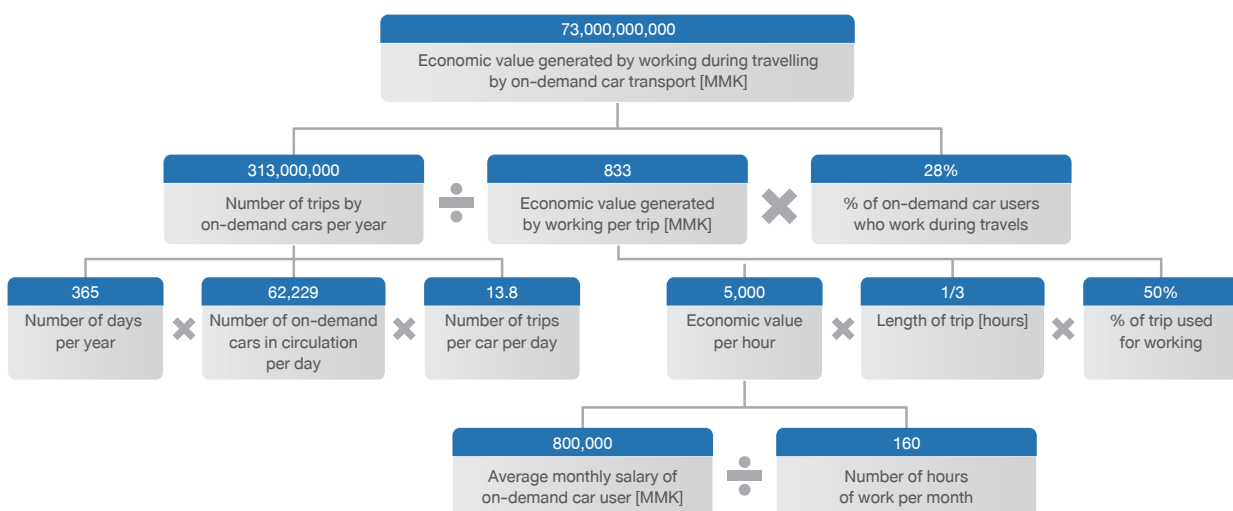
Appendix G-1 Potential increase in number of trees



Appendix H. Economic value of working during travelling by on-demand car transport in Yangon

1. Calculation of the economic value generated by working during travelling by on-demand car transport

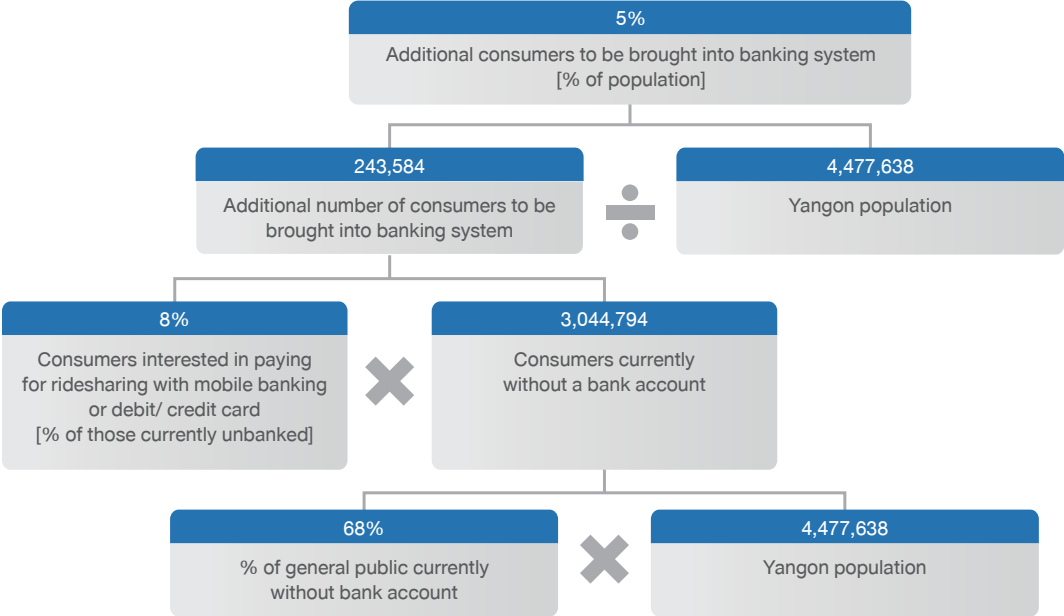
Appendix H-1 Economic value generated by working during traveling by on-demand car transport



Appendix I. Improvement in financial inclusion for consumers in Yangon due to ridesharing

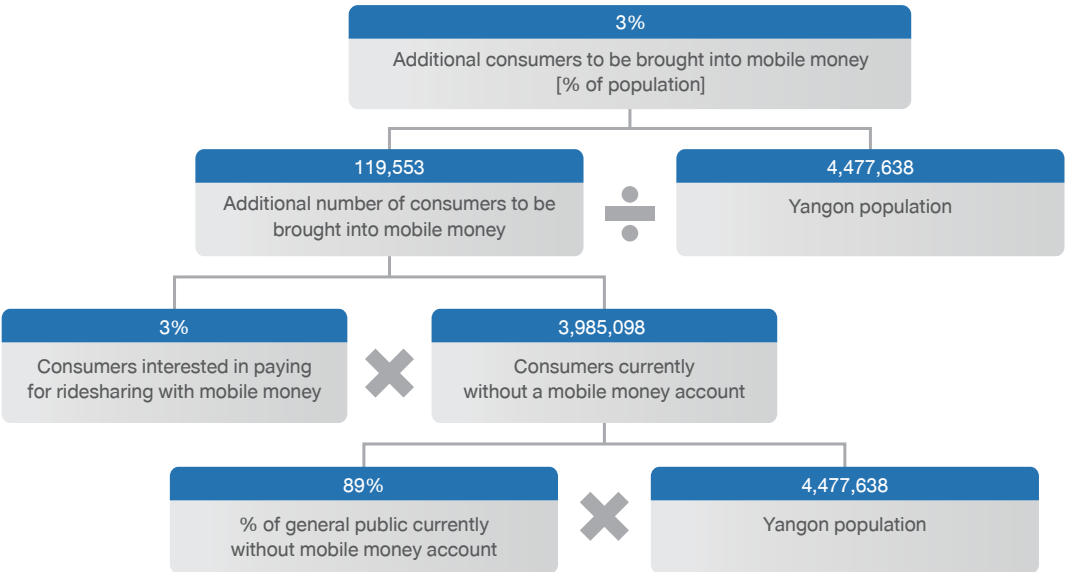
1. Calculation of the additional consumers to be brought into banking system

Appendix I-1 Additional consumers to be brought into banking system



2. Calculation of the additional consumers to be brought into mobile money

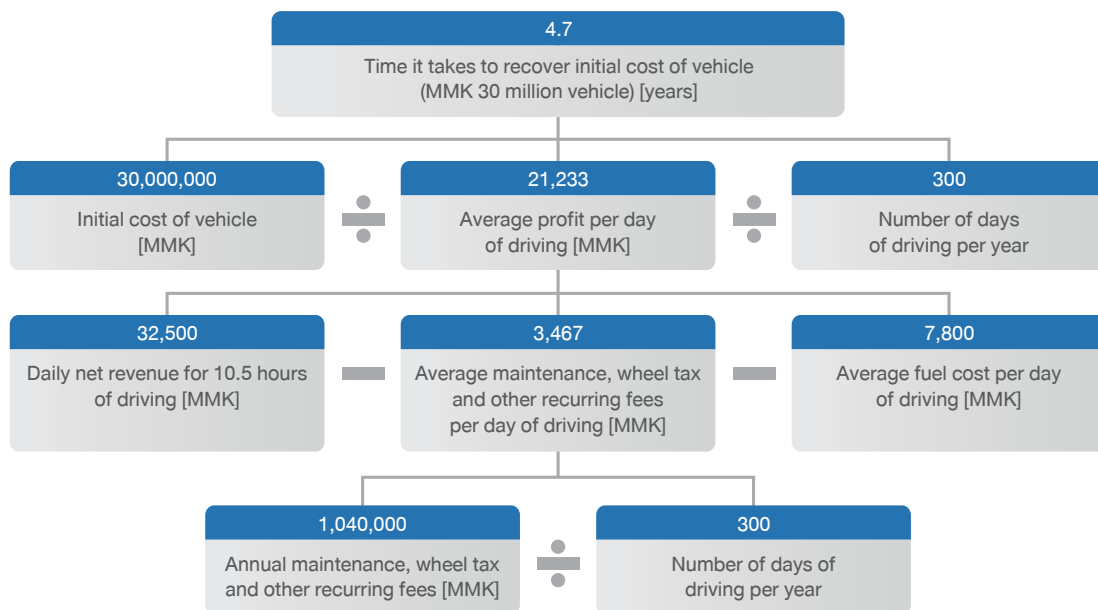
Appendix I-2 Additional consumers to be brought into mobile money



Appendix J. Purchase cost recovery of cars for private car drivers by driving for ridesharing in Yangon

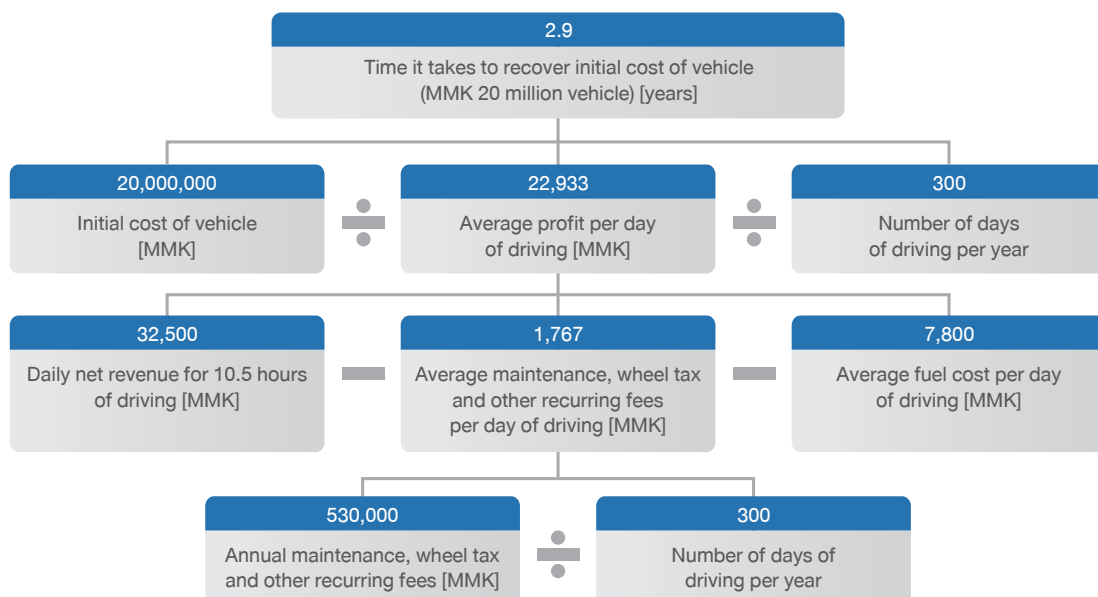
1. Calculation of the time it takes to recover initial cost of vehicle (MMK 30 million vehicle)

Appendix J-1 Time it takes to recover initial cost of vehicle (MMK 30 million vehicle)



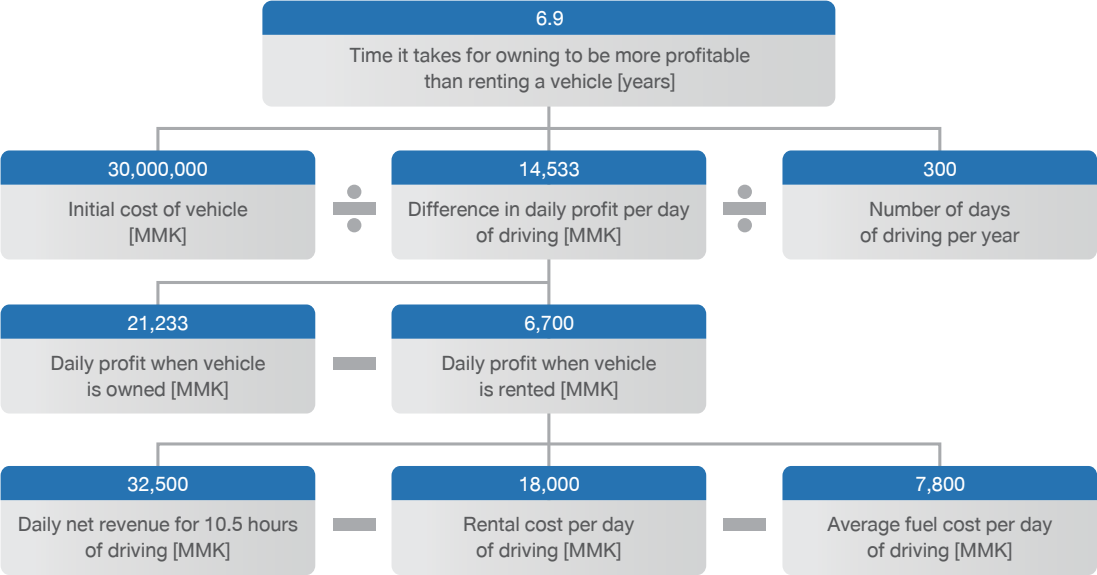
2. Calculation of the time it takes to recover initial cost of vehicle (MMK 20 million vehicle)

Appendix J-2 Time it takes to recover initial cost of vehicle (MMK 20 million vehicle)



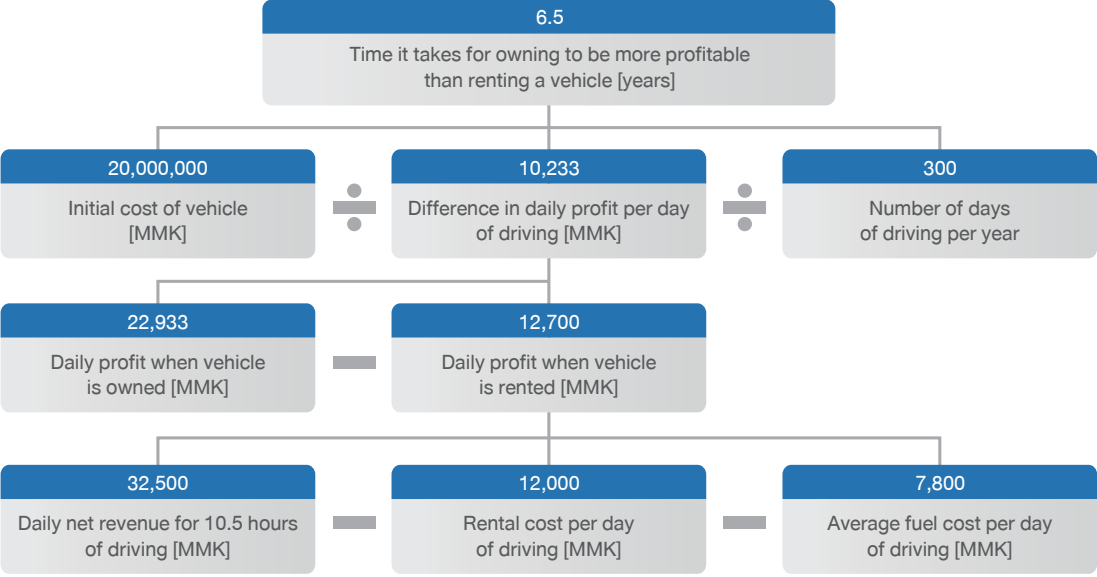
3. Calculation of the time it takes for owning to be more profitable than renting a vehicle (MMK 30 million vehicle)

Appendix J-3 Time it takes for owning to be more profitable than renting a vehicle (MMK 30 million vehicle)



4. Calculation of the time it takes for owning to be more profitable than renting a vehicle (MMK 20 million vehicle)

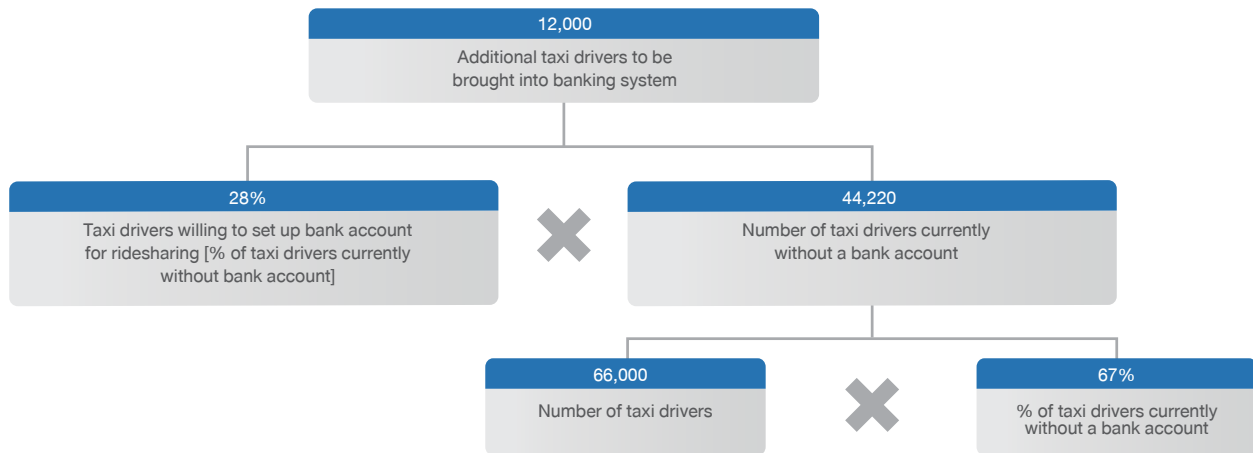
Appendix J-4 Time it takes for owning to be more profitable than renting a vehicle (MMK 20 million vehicle)



Appendix K. Improvement in financial inclusion for drivers in Yangon due to ridesharing

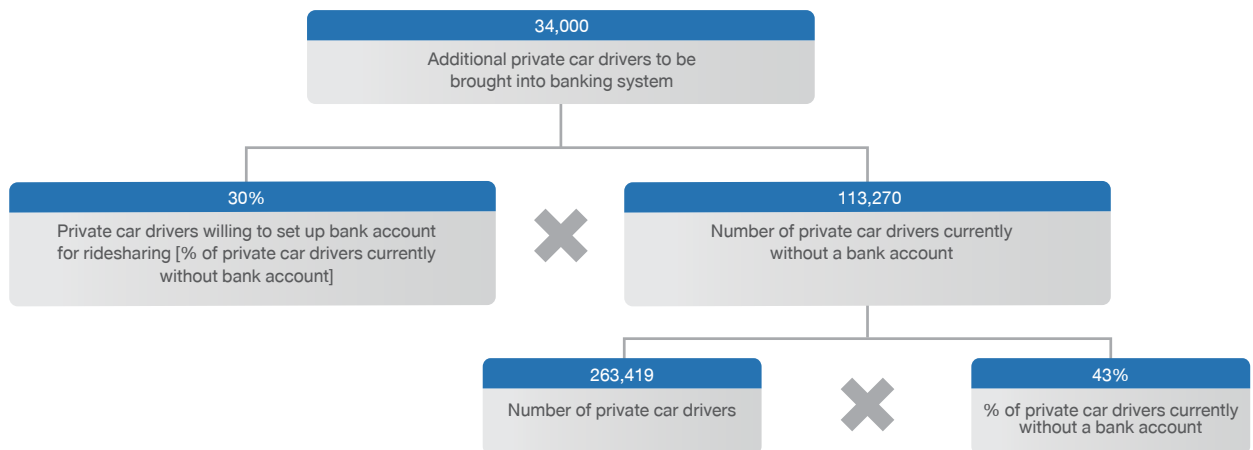
1. Calculation of the additional taxi drivers to be brought into banking system

Appendix K-1 Additional taxi drivers to be brought into banking system



2. Calculation of the additional private car drivers to be brought into banking system

Appendix K-2 Additional private car drivers to be brought into banking system



UBER

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FOR:

