



Blueprint for Mobility as a Service in Klang Valley, Malaysia

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Abstract

Integration of Mobility as a service (Maas) into Klang Valley may improve the traffic conditions in the city. If a MaaS operator is successful in collaborating with the municipality councils and mobility service providers, a convenient transportation journey experience is a reality for the end users. Furthermore, this might alleviate pressure on public transport operators and city councils, while allowing private car vehicles to be a part of a more sustainable transportation landscape.

However, what characteristics of a Maas company will result in success in Klang Valley and what existing supporting infrastructure is needed for the aforementioned integration to be feasible?

A review of literature is done to understand what is a MaaS platform (both in terms of how it works and its business case), identifying the pre requisites needed for a MaaS platform to exist in a city and how to establish it. The pre requisites are used to govern the analysis of the case studies evaluated (WHIM, UBIGO and ZIPSTER) and the blueprint for a MaaS company in Klang Valley

A MaaS platform is viable to be established in Klang Valley but not in its current transport infrastructure state. Three milestones must be achieved before establishing a MaaS company. First, the city must have an extensive and reliable transport infrastructure. Second, transport operators need to be persuaded and helped to improve data collection capabilities and allow for the MaaS company to have access to it. Finally, there has to be more policies against private vehicles and pro multimodal transport modes. This will support the cause of MaaS. After all factors are satisfied only then MaaS may be viable in Klang Valley.

Introduction

Mobility as a Service (MaaS) integrates various forms of transport services into a single mobility service accessible on demand. A MaaS operator facilitates a diverse menu of transport options to meet a customer's request, be they public transport, ride-, car- or bike-sharing, taxi or car rental/lease, or a combination thereof. For the user, MaaS can offer added value by using a single application to provide access to mobility with a single payment channel instead of multiple ticketing and payment operations

The catalyst for the development of this proposed blueprint is to potentially understand and take proactive measures to create and regulate a successful business and infrastructure landscape for the creation of a Mobility as a Service (MaaS) company in Klang Valley.

The evaluation parameters will be selected or developed through investigation of different MaaS companies around the world, literature review of the topic and suiting it to the local business and regulatory landscape in Klang Valley Malaysia.

The thesis will be structured as follows.

Firstly, an extensive literature research will be carried out to explain the concept of MaaS. Furthermore, the different classifications of levels of MaaS implementation will also be analysed and explained.

Secondly the 5 indicators that will guide the blueprint development and govern the analysis of the case studies will be identified through literature research of what are the important factors that influences the creation and operation of a MaaS platform. The significance of those metrics will be justified.

The local context of Klang Valley will be introduced and all of its significant characteristics which makes it a potential MaaS market will be explained.

An in-depth analysis on WHIM; a successful MaaS company operating in Helsinki, Finland, UbiGo; a successful MaaS company operating in Gothenburg, Sweden and Zipster; a MaaS application operating in Singapore which closed its operations in the year of 2021 will be done. Lessons learnt from the success and failures of the case studies, accompanied with reviews of all companies will contribute to the creation of the blueprint.

Finally, the blueprint for MaaS in Klang Valley will be developed centred around the aforementioned governing parameters and the local context of Klang Valley.

Method

The 5 indicators that will guide the blueprint development are as follows:

1. Transport operators' openness and data sharing: The extent to which transport operators share data and make API's available to third parties. This includes whether data and API's are made 'open' (i.e. freely available to use, redistribute and alter). MaaS relies heavily on availability of data from the transport operators to launch any meaningful features on the MaaS platform. Features such as booking process and payment settlement, Scheduling integration, live delay detection and route guidance requires accurate and abundant data. Furthermore, integration amongst multiple mobility service providers and data providers, data interoperability is such a critical point. Hence it requires participation of data sharing from all operator, otherwise any features on the MaaS platform will be incomplete.

2. Policy, regulation and legislation: The extent to which key policies, regulations and laws which support MaaS are in place. These may be at a city level or a national level. There is a need for assistance in the operation of a MaaS platform through key policies, regulations and laws either at city or national level. Data portability; the right for customers to transfer their data from one system to another is also another aspect that is extremely important for MaaS. there has to be a regulation that allows for third party ticket sales of all transport service providers. Subsidisation structure of the public transport modes participating or even the MaaS platform has to be clear,

3. Citizen familiarity and willingness: The extent to which citizens lifestyles and behaviour aligns with a MaaS model of transport provision. This includes travel behaviour and use of MaaS related technologies. There are two main factors that can affect potential customers perception towards MaaS. First, it is familiarity towards smart technology. MaaS platforms will primarily be operated on mobile devices and having a high smartphone penetration rate in the location of operation will be important. Second factor is potential customers travel behaviour. Hence radical changes to the potential modal split are not that high.

4. ICT infrastructure: Looks at the penetration of MaaS enabling technologies. This includes internet access and smart ticketing infrastructure. Since operation of MaaS will be on smart devices, there are some notable infrastructures needed to access the MaaS platform. Firstly, it will be high wifi access and mobile network coverage within the operation area, Secondly, the move towards smart ticketing is also a consideration for MaaS.

5. Transport services and infrastructure: Looks at how ready the current transport system is for MaaS. This includes the variety of modes available, the density of services, the frequency of services and the integration of services. MaaS cannot rely solely on public transport as the only modal choice. User preference has stated that other forms are preferred (cars) and the concept of a 'door to door' journey for MaaS supports having modes that can take users from main public transportation stops to and from places of interests. There also needs to be an acceptable density for modes such as rail, bus, taxi, bike sharing and car sharing, this will allow for users to use any mixture of transport modes to satisfy their booked journey.

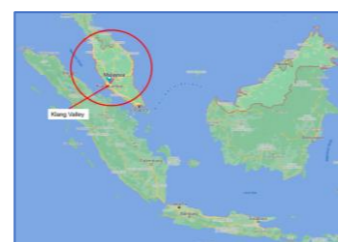


Figure 1. Location of Klang Valley.

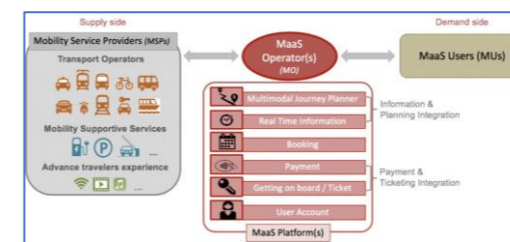


Figure 1. The MaaS Concept Overview.

Discussion

The blueprint for Klang Valley is discussed below

1. Transport operators' openness and data sharing: Best iteration for a MaaS company at the current state is to be owned by the government. This will allow for in the context of Malaysia, the Ministry of Finance to spark the initial efforts of prioritising data collection and sharing Through APAD (Transport Authority). So that a MaaS can have access to the critical data needed for operation.

2. Policy, regulation and legislation: Prior to conceptualising the MaaS company, there needs to be lobbying for regulation that will support the use of public transport in Malaysia. There must be stricter regulations against private cars in order to push citizens towards a different modal split.

3. Citizen familiarity and willingness: The safest iteration would be to follow in the steps of UbiGo. Regardless of planning lobbying and support from the government and key investors, there is always a risk that the citizens just do not become potential customers. This was apparent in the case of Zipster in Singapore. Hence, selecting a few locations for an extensive case study, primarily around business districts or universities will allow for an initial pilot MaaS project that will also have a customer demographic that is younger which will boost the acceptance towards substituting private vehicle ownership with a MaaS subscription.

4. ICT infrastructure: The best iteration of a MaaS company in Klang Valley will be, firstly to partner up with all the different payment options in Malaysia. Visa, Mastercard, Touch n Go e wallet and all the other options. This is not an avenue to go into any exclusive deal because it will cut a section of your customer base. Second is to ensure that the application itself is able to operate in offline mode, there will be cases where customers lose internet connection, this should not be the case why they are no longer guided whilst still using the MaaS application. Furthermore, being able to locate drop spots in cellular service might be useful information for the government, an added value service the MaaS company can provide through data collection, or in this case lack of collection.

5. Transport services and infrastructure: The only way a MaaS company can partake is to lobby for better transport infrastructure prior to setting up the operation. In the meantime, establish a market share for the mobile application by providing other features such as map services. This will allow for a roll out of the MaaS service as a feature provided by the company at a later date, once there is proper infrastructure and hopefully there will be enough traction on the mobile application to have the initial wave of customers.

Conclusions

MaaS is potentially a new successful way of organising transportation. It allows for integration for all the different modes in availability and any future modes to come into fruition. Although still a relatively new service product it has shown viability in cities all over the world.

It puts the user at the centre of it all. Letting them experience a seamless mobility experience from the pre departure actions to the journey itself (including any changes in the journey) and to the payment and customer support. This convenience for the users is what builds the foundation all great products in recent years.

The challenge is to coerce the numerous stakeholders to collaborate to create a landscape in which a MaaS platform can exist. The infrastructure and mobility service providers have to be set into place in the network of the city, then standards have to be set as policy for all stakeholders to adhere to. Then, backend operations need to be satisfied by companies in these fields, namely, dynamic multiservice journey planners, ICT infrastructure, payment solutions and ticketing solutions. Only then will a MaaS platform be able to start developing in a city. Throughout the operations educating the public, advertising, adoption and future collaboration with non-mobility companies are all important to value add to the experience of the MaaS platform. This can then lead to a viable MaaS level 3 platform.

In the context of Klang Valley with the current state of infrastructure the summary of the ideal MaaS company development will be as follows. A government owned MaaS company that ensures it partners with all available payment vendors operating in Klang Valley. They have to set up a foothold via having an app that is used by the citizens and conducting a small-scale pilot MaaS project in order to understand the customer base better. Furthermore, with the help of the government three milestones must be achieved before establishing the MaaS side of the company. First, the city must have an extensive and reliable transport infrastructure. Second, transport operators need to be persuaded and helped to improve data collection capabilities and allow for the MaaS company to have access to it. Finally, there has to be more policies against private vehicles and pro multimodal transport modes. This will support the cause of MaaS. After all factors are satisfied only then MaaS may be viable in Klang Valley.

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