

Greater Manchester Future Mobility Zone

Final Proposal – September 2019

Annex B – Logic Maps and Supporting Commentary

This Annex to the GM FMZ final proposal presents supporting, explanatory information for the logic maps.

Logic maps have been produced for the following projects or groups of projects contained within the GM FMZ programme:

1. Mobility as a Service
2. MaaS (mobility) credits
3. Mobility Hubs
4. Dynamic Kerbside
5. eDRT
6. Car Share Clubs
7. E-Bike Share
8. eCAV
9. Micro-consolidation centres and e-cargo bikes
10. Open access parcel lockers
11. MaaS Marketplace – other shares modes
12. MaaS Support
13. MaaS and e-mobility exhibitions

The logic maps themselves are presented in Appendix 1 of this Annex.

1. Mobility as a Service

Logic Map Components

- **Outputs:** Mobility as a Service is an integrated digital platform, via a smartphone app and website, through which users plan, book and pay for travel via a range of mobility services. Individuals have accounts through which they pay periodically (e.g. weekly or monthly) for bundles of mobility services, with prices varying by which services they include in their bundles. Mobility services may include: train, bus, Metrolink, taxi, DRT, ride share, car club, cycle hire, e-bikes, e-scooters.

MaaS for Business: Provides a MaaS solution for businesses enabling business travel to be booked through the MaaS system and for business to support their sustainable travel policies by encouraging non-car modes of travel. In addition, the wider MaaS benefits identified in the previous bullet point will be applicable to business users who plan, book and pay for mobility services through the system. It will also enable businesses, if they wish, to operate their own mobility credits system to support their own travel plan and staff reward policies.

MaaS Market Place: Provides a space for commercial mobility service operators to integrate their offerings into the MaaS system, providing competition between operators.

Mobility Credits: MaaS provides a space for providing mobility credits to influence better travel choices and provide support to disadvantaged groups.

- **Activities:** The direct activities and changes in behaviour as a result of implementing MaaS can be summarised as improving the planning, managing, budgeting, payment

and tracking of and for travel by both individuals and businesses making travel by non-car modes easier, more affordable and more convenient. In addition, the system provides opportunities for new business start-ups and for reducing the cost of travel through discounting and mobility credits.

- **Direct Outcomes:** There are various direct outcomes from the changes in activities including mode shift to sustainable modes, increased use of electrified modes and increase access for users.
- **Indirect Outcomes:** These direct outputs are intended to lead to several indirect outcomes such as improved productivity, reduced carbon emissions, improved air quality, better health and wellbeing, supported by improved and more equal access to people's needs.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on several examples of the flow of logic through a selected number of connections made in the logic map:

- The provision of the MaaS system, MaaS Market Place and MaaS for Business provides an opportunity for mobility start-ups to enter the market, or for SMEs to grow their offer, leading towards the long-term impact of supporting sustainable economic growth. The eco-system would enable start-ups to enter a major geographical market, providing services through the Market Place by either being procured or offering to link their service into the MaaS system and competing with established mobility industry players.
- As part of MaaS for Business, businesses will book their travel through the system, for a range of modes of travel, improving the planning and budget control related to travel by using a 'one-stop-shop', leading to reduced costs and therefore higher productivity, which supports sustainable economic growth. The eco-system would provide budgetary and monitoring information for businesses and set limitation on travel to provide greater visibility of travel expenditure and enabling businesses to control what travel is booked.
- The MaaS Eco-system including MaaS for Business will provide easier access to journey planning and live travel information, making travel by sustainable modes easier to plan and undertake resulting in more trips by sustainable modes and fewer short car trips, reducing CO2 emissions and improving air quality resulting in a better protected environment.

Evidence

Evidence

UBIGO, Sweden

Offers access to public transport, carpool and hire car, taxi and bike in one app launched in Stockholm March 2019 after Gothenburg pilot. 2014 Gothenburg pilot involved 70 paying households for 6 months who paid for transport costs upfront and earned bonus for making sustainable choices. During the trial there was increases in bicycle, car sharing, bus, tram and train use and reduction in private car and walk/run.

Note that before the pilot, UbiGo participants were incentivised to relinquish (one of) their car(s) during the trial, receiving a financial compensation (mainly for the loss of value to the car). 25% of the households chose to accept the challenge, of which 88% were single-vehicle households, and none changed their minds during the 6-month trial (Karlsson et al., 2016).

At the end of the trial, 97% of the participants wanted to continue as UbiGo customers.

https://www.uitp.org/sites/default/files/cck-focus-papers-files/Report_MaaS_final.pdf

<https://www.sciencedirect.com/science/article/pii/S2352146516302794>

<https://trimis.ec.europa.eu/sites/default/files/project/documents/mobility-as-a-serviceandchangesintravelpreferencesandtravelbehaviour.pdf>

NaviGoGo, Scotland

NaviGoGo, is Scotland's first MaaS pilot which ran with 98 young people in Dundee and North-East Fife from October 2017 to March 2018. Pilot participants were given access to streamlined and personalised information and payment (where available) for trains, taxis, bike schemes, buses, car clubs and walking via a WebApp.

2,000 journeys planned and 480 paid for. 39% said that journey options presented in the NaviGoGo app changed their travel. 84% said that NaviGoGo made PT more attractive.

<https://www.the-espgroup.com/project/navigogo/>

<https://travelspirit.foundation/wp-content/uploads/2017/10/MaaS-Global-travelspirit-.pdf>

https://ramboll.com/-/media/files/rfi/publications/Ramboll_whimpact-2019.pdf

Assumptions and Externalities

- Sufficient take-up of MaaS by operators.
- Sufficient level of support and data shared by transport operators for MaaS.
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Public awareness of MaaS (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up of MaaS,
- Procurement arrangements promoting innovation are in place (contracts are signed; suppliers are selected) and implemented promptly without affecting the delivery of MaaS and discouraging new suppliers to come forward.
- Creation of the platform will attract SMEs and new enablers (developers) start using it.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

With all aspects of the FMZ, monitoring of delivery will be key to understanding how users react to the programme as a whole and its component parts. For the MaaS system, the key risk is that individuals and business users do not participate and this will be mitigated through the comprehensive range of the offer and mix of traditional and new modes and

services. In the event of failure, for whatever reason, there is a feedback loop into traditional 'products' to allow those to be improved, that way the whole system improves.

Secondary to this there could be potential failures in component parts of the MaaS Ecosystem such as MaaS for business or mobility credits. These elements are not mission critical to the overall delivery of the MaaS system, rather they expand its reach into harder to reach groups and the large business travel market. The impact of failure at this level will be less but the learning from those elements may be equally less important than delivering a successful MaaS system overall.

Risk management will also need to be in place to consider risks, and mitigation, such as MaaS generating market instability and skewing the market place. There could also be upside risks around demand for the system outstripping supply or capacity. Where this is the case, TfGM may need to consider expanding the system.

2. MaaS (mobility) credits

Logic Map Components

- **Outputs:**
An account based system to encourage the utilisation of a mobility service, and a shift away from conventionally fuelled private cars. Credits will be provided to selected demographic segments to encourage behaviour change and improved access to their needs.
- **Activities:** The direct activities and changes in behaviour as a result of mobility credits include the uptake of MaaS, the use of sustainable modes, the reduced usage of more polluting vehicles and to financially support excluded groups in accessing their needs via the mobility market. This could lead to demand management to encourage travel outside of peak periods, making travel by sustainable travel more affordable including reducing the cost of mobility for excluded groups.
- **Direct Outcomes:** The direct outcomes include more trips by public transport, walking, cycling and electrified modes and increased access to sustainable transport.
- **Indirect Outcomes:** These direct outputs are intended to lead to a number of indirect outcomes such as shorter and more reliable journey times, reduced CO2 emissions, improved health and wellbeing and improved, equal access to people's daily needs.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- Mobility credits will be provided to excluded groups reducing the cost of mobility increasing access to sustainable transport, equal access to people's daily needs including employment and education and improving quality of life for all and supporting sustainable economic growth.

- Mobility credits, irrespective of which demographic segment they are focussed on, will encourage the use of sustainable modes, this could enable demand management by altering the credit system to encourage travel on less congested routes or services which would make journeys shorter and more reliable through reduced congestion, supporting sustainable economic growth.
- More polluting vehicles could be traded in for mobility credits focussing on sustainable travel, making such travel more affordable, resulting in fewer short car trips, more trips by public transport, walking and cycling, generating reductions in CO₂, improved air quality and improved health and wellbeing. These will lead to a better protected environment and improved quality of life.

Evidence

Evidence
<p>Sacramento 'Clean Cars 4 All', California USA Traditional vehicle 'Scrap & Replace' grant program design for low income participants however has a unique element - an Alternative Transportation Option (ATO). 'Scrap & forget' allows participant to opt out of receiving a replacement vehicle and instead receive a VISA card loaded with up to \$7,500 to access public, private and shared mobility options. Will include on-demand micro transit, car and bike sharing, Uber/Lyft and public transit options. Soft launch Q4 2019 and full deployment Q1 2020. http://www.airquality.org/MobileSources/Documents/Clean%20Cars%204%20All%20Factsheet.pdf</p>
<p>Cardiff Free Bike Hire Prescriptions 6 months of NextBike membership for people who need to do more exercise or lose weight available to patients at two surgeries. Paid for by NextBike https://www.bbc.co.uk/news/uk-wales-48189829</p>
<p>Rome Mobility Credit for Plastic, Italy Plastics-for-credits scheme is a 1year trials that exchanges plastic wastes for credit towards metro & bus rides in Rome. Commuters receive €0.05 for each plastic bottle donated. https://www.springwise.com/sustainability-innovation/transport/rome-metro-plastic-bottles</p>

Assumptions and Externalities

- The MaaS system functionality supports the delivery of mobility credits
- The availability of mobility services is sufficient in each locality for individuals to use mobility credits
- Public awareness of mobility credits (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up,
- Mobility credits provide an attractive proposition for target demographics
- Effective user feedback and research processes are in place in order to continuously update and refine the mobility credit system
- User feedback and research helps to develop and refine the credit system
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

The key risk for mobility credits is the lack of revenue funding from the DfT FMZ fund. If funding becomes insufficient, TfGM or partners may need to step in. This will be a relatively compact trial of mobility credits and therefore control of the budget will be strong, however, where demand for credits, particularly where the project has delivered real, measurable

benefits, grows beyond the initial budget allowed, further financial support may need to be sought.

Monitoring and evaluation will be key to this project to ensure that the credit approach is delivering real benefits to individuals and makes long-term and permanent improvements to lives rather than only temporary support during the course of the funding. Working closely with other public sector organisations will be central to this.

3. Mobility Hubs

Logic Map Components

- **Outputs:** A physical focal point in the transportation network that seamlessly integrates different modes (personal and freight) with multi-modal supportive infrastructure and place-making facilities to maximise first mile/last mile connectivity. May include a range of modes as well as local and community facilities, shops and parcel lockers. May include (modes):
 - Rail;
 - Bus;
 - Metrolink;
 - eDRT;
 - e-bike;
 - e-scooter;
 - e-cargo bikes; and,
 - Local and community, facilities, shops, delivery lockers
- **Activities:** The direct activities and changes in behaviour as a result of mobility hubs would be integration of freight modes, better information on journeys and modes, information in one place, integration of mobility with local facilities and more accessible hub locations by focusing mobility into key locations.
- **Direct Outcomes:** The direct outcomes as a result of these activities would include more sustainable movement of goods and fewer short trips by large goods vehicles, increased use of electrified modes, increased walking and cycling and increase access to sustainable transport for all.
- **Indirect Outcomes:** The resulting indirect outcomes would be improved productivity due to reduced congestion, reduced CO2 emissions, improved air quality, improved health and wellbeing and improved, equal access to people's daily needs.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- Mobility hubs provide an opportunity to integrate freight modes which results in fewer short trips being made by large goods vehicles and more sustainable movement of goods and resources. This can lead to shorter and more reliable journey times,

improved access to resources and improved productivity which all support sustainable economic growth.

- Mobility hubs can be located in accessible locations which then increases access to sustainable transport for all, leading to equal access to daily needs and improved quality of life.
- If mobility hubs are integrated with local and community facilities, fewer short trips may be made by car resulting in reduced CO2 emissions and improved air quality – protecting the environment.

Evidence

Evidence
<p>Austin Community Mobility Hub, USA</p> <p>Improvements to the site included: addition of two carsharing parking spots, a planned charging hub for JUMP's electric bikes, more Lime and Bird electric scooters, discounted Lyft rides to and/or from the area and urban space improvements intended to enhance the experience of accessing services and using the space around them e.g. shading, trees, a variety of plants and food trucks to transform a space that largely had been dedicated to personal vehicles.</p> <p>The team observed a 25 percent increase in walk trips; a more than doubling of "dwell time" (the amount of time people chose to spend in the area); a 39 percent decrease in automobile use; a decrease in reported transportation challenges in the area; and an improvement in mobility service user experience. The Community Mobility Hub launch also coincided with a citywide increase in use of shared e-scooters and bikes. https://www.greenbiz.com/article/reimagining-urban-form-what-austins-community-mobility-hub-means-cities</p>
<p>Bremen Multi-Modal Transit Hub (Bremen, Germany)</p> <p>"Mobil.punkt" stations offer car sharing vehicles, accessible cycling and walking infrastructure, and public transport across the city. The prominent service of these stations is car sharing which is offered on public street spaces. The stations implement the concept of mobility hubs on a smaller scale, however, are highly accessible across inner-city neighbourhoods with a station being available at approximately every 300m. Smartcards are used as the main way to access the services offered at mobil.punkt stations. These smartcards unlock the car sharing vehicle and provide access to bike storage facilities. https://sustain.ubc.ca/sites/default/files/Sustainability%20Scholars/2018_Sustainability_Scholars/Reports/2018-71%20Identifying%20Best%20Practices%20for%20Mobility%20Hubs_Aono.pdf</p>

Assumptions and Externalities

- The MaaS system functionality supports the delivery of mobility hubs
- Sufficient level of support and data shared by transport operators for the Hubs.
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Locations identified are suitable for development and integration of services
- The availability of mobility services is sufficient in each locality to provide the appropriate level of integration
- Procurement arrangements promoting innovation are in place (contracts are signed; suppliers are selected) and implemented promptly without affecting the delivery of mobility hubs and discouraging new suppliers to come forward.
- Private sector providers find the concept attractive enough to integrate their services e.g. retail, delivery lockers, shared mobility services, etc
- Public awareness of mobility hubs (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up,
- Effective user feedback and research processes are in place in order to continuously update and refine the mobility credit system
- User feedback and research helps to develop and refine the mobility hub concept

- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.

Outcome Risk Management

A major risk to mobility hubs is that they do not lead to a level of increased integration that attracts more people onto public transport. Key to mitigating this risk is ensuring that the correct mix of infrastructure and services are included in each hub relative and appropriate to its scale and location. In doing this, the offer to service providers needs to be sufficiently attractive to gain their buy-in, at very least during the operation of the FMZ. The monitoring and evaluation work will also be key in enabling understanding of this to be gained over the course of the programme and changes made where appropriate.

4. Dynamic Kerbside

Logic Map Components

- **Outputs:** Digitisation of kerbside including TROs, typically including installation of sensors to allow users (private, public, transport, commercial, freight car clubs etc) to book slots for parking and deliveries.
- **Activities:** The direct activities and changes in behaviour as a result of the project are pre-booking of parking spaces leading to a guaranteed parking space for drivers and certainty for delivery drivers, improved live management of the kerbside and better information, reducing the need to look for spaces as well as live and periodic management information.
- **Direct Outcomes:** The direct outcome from dynamic kerbside is the improved utilisation of existing transport infrastructure and assets
- **Indirect Outcomes:** These direct outputs are intended to lead to a number of indirect outcomes such as improved access for businesses resulting in improved productivity, shorter and more reliable journey times with reduced CO2 emissions and improved air quality.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- Pre-booking of kerbside parking spaces can provide greater certainty for deliveries which means improved utilisation of existing infrastructure and improved access for businesses to markets. This, in turn, results in improved productivity and supports sustainable economic growth.
- Live management on kerbsides and information for drivers reduces the need to circulate in search of a space, leading to shorter and more reliable journey times and

improved access to people's daily needs. Consequently supporting economic growth and improving the quality of life for all.

Evidence

Evidence
<p>Kerb</p> <p>An Intelligent Kerbside Management platform which provides SMART solutions to freight logistics in order to maximize efficiency, and thus, reduce both congestion and pollution. Kerb gives commercial vehicles the ability to book a virtual loading bay on previously restricted kerb space in the city or extend loading in areas where loading is allowed but time limited. Live deployments expected throughout 2020. Services include:</p> <ul style="list-style-type: none">• Virtual Loading Bays (VLBs) – the size of the bay can be altered, and the bay is bookable.• Virtual Loading Extensions (VLEs) – permission can be granted to extend the legal period.• Freight Traffic Control System – a system to ensure that space on a restricted construction site is optimised.• Construction Holding Areas – helps facilitate better 'just in time' delivery by calling freight when it is required.• Automatic Notification of Imminent Arrival (ANIA) – allows a user to notify a service provider of their proximity.• Flexible Kerb Space – bays that can be utilised by service and maintenance vehicles to reduce circling time looking to park.• Clean Air Zones – the creation of differential charging with price preference for low carbon vehicles. <p>https://kerbuk.com</p>

Assumptions and Externalities

- The MaaS system functionality supports the delivery of dynamic kerbside
- Local authorities partner with TfGM to deliver dynamic kerbside and there is acceptance from local residents and businesses
- All commercial and legal arrangements are in place (data sharing and service level agreements, TROs) to achieve the expected outcomes and impacts.
- Public and business awareness of dynamic kerbside (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up of the system,
- Procurement arrangements promoting innovation are in place (contracts are signed; suppliers are selected) and implemented promptly without affecting the delivery of dynamic kerbside and discouraging new suppliers to come forward.
- Creation of the platform will attract SMEs and new enablers (developers) start using it.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

Key risks for this project are that drivers do not use the system or drivers ignore it, or it pushes parking, and associated issues, to areas on the external periphery of the locations chosen to trial the system. This will require very careful selection of the specific locations for

the trial but may also require additional resources to enforce the system, particularly in the immediate period post launch.

Monitoring and evaluation, including via enforcement teams, will be required to continuously review the operation and impacts of the system.

5. eDRT

Logic Map Components

- **Outputs:** An on-demand transport system using high-quality mini-buses. Passengers can book 'A to B' journeys via phone or app. Routes are flexible so vehicles can alter them dependent on passenger demand, and can carry multiple passengers on different A to B journeys. Used to fill gaps in the fixed route public transport network. Provides live information to users.
- **Activities:** The direct activities and changes in behaviour as a result of eDRT will be people making direct journeys without the need to interchange, the provision of high quality vehicles and real time information and monitoring leading to DRT becoming an attractive mode of transport. Increased access for all communities providing greater travel choice. All of these activities would result in increased public transport in areas where fixed route transport is not available for journeys where fixed routes do not provide an attractive alternative.
- **Direct Outcomes:** The direct outcomes would include fewer short trips by car and more by public transport, greater use of electric vehicles and great travel choice for people without access to a private car.
- **Indirect Outcomes:** These direct outputs are intended to lead to a number of indirect outcomes such as improved access for businesses to employees, shorter and more reliable journey times, reduced CO2 emissions and improved air quality, increased electrification of mobility, improved, equal access to people's daily needs and improved health and wellbeing.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- eDRT will provide direct journeys without the need to interchange which makes it a more attractive mode and encourages trips by public transport, this increases public transport journeys reducing CO2 which protects the environment
- eDRT will be available in all areas (where provided) giving greater choice for people without access to a private car increasing sustainable transport for all and improving quality of life through increasing access to daily needs.

Evidence

Evidence

ArrivaClick, UK

Arriva Click is a flexible minibus service that takes multiple passengers heading in the same direction operating in Kent, Liverpool & Leicester. Users register their desired trips using an app and pay on account via pre-approved payment methods. The service, which initially launched in 2017 in Sittingbourne Kent, reported that 52% of customers switched from private motor transport (inclusive of own car, taxi and passenger in car) to the service and 40% of customers in Liverpool have switched from sole ridership cars/taxis. <https://www.intelligenttransport.com/transport-news/87896/research-shows-arrivaclick-is-increasing-public-transport-use/>

GoSutton, TfL Demand Responsive Bus Trial

12-month 'on-demand' bus trial using mobile and predictive technology launched in May in Sutton due to high car use and been difficult to serve in the past with traditional public transport (relatively low housing density and its historic development planned around people using private transport, it has not always been practical to run a dedicated bus service in certain areas).

Similar service launched in Ealing. <https://tfl.gov.uk/info-for/media/press-releases/2019/may/trial-of-on-demand-bus-service-gosutton-launches-today>

PickMeUp Oxford

Enables passengers to request a minibus pick-up within 15 minutes at selected locations using a mobile phone app within a 12.2 square mile radius around Oxford. 140,000 rides in first year, carrying now on average of 4,000 passengers per week. <https://www.oxfordmail.co.uk/news/17727502.pickmeup-passengers-enjoy-first-year-of-citys-app-based-buses/>

Assumptions and Externalities

- The MaaS system functionality supports the delivery of the delivery of mobility eDRT
- An operator/s can be procured
- Public awareness of eDRT (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up,
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

Key risks associated with the eDRT are:

- The lack of revenue budget to support the operation of the system
- The potential for the eDRT to extract demand from other existing public transport services
- It does not support sufficient fare-paying demand to support its long-term financial sustainability
- It becomes too successful and demand exceeds supply without generating sufficient revenue to support expansion
- The system takes longer than the period of the FMZ to become financially sustainable
- The system does not provide sufficient coverage to meet the needs of those with greatest need for the service leading to limited delivery of outcomes.

Key to mitigating these risks will be selecting the most appropriate locations to trial the system which provide operational sustainability in the form of demand for the services

offered, whilst also limiting competition with existing services and supporting those most in need of greater levels of accessibility offered.

6. Car Share Clubs

Logic Map Components

- **Outputs:** Provided through the MaaS system, at mobility hubs and at other locations. Individuals and businesses have access to a fleet of cars without needing to own them
- **Activities:** The direct activities and changes in behaviour as a result of car share clubs will be a fleet of cars available to businesses when needed, the reduced need to own a car or multiple cars, integration with mobility hubs, increased car availability to low income groups, increase in sustainable mode use when cars are not absolutely needed and increased electrification when clubs are electrified.
- **Direct Outcomes:** There are various direct outcome expected from the provision of car clubs including better utilisation of infrastructure, fewer short car trips, more public transport trips, increased access to sustainable transport for all and potentially greater electrification of transport.
- **Indirect Outcomes:** These direct outputs are intended to lead to a number of indirect outcomes such as improved access for businesses to employees, improved productivity, shorter and more reliable journey times, reduced CO2 emissions and improved air quality and improved equal access to people's daily needs.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- Car share clubs may result in a reduced need to own a second car meaning people are more likely to use sustainable travel modes which can lead to fewer trips by car and more trips by public transport. This could lead to improved air quality, reduced CO2 emissions and reduced congestion, therefore improving quality of life and protecting the environment.
- There is potential to include electric vehicles in car clubs, allowing users to try electric vehicles, which may lead to greater electric vehicle use resulting in increasing the electrification of mobility and the development of an innovative city region.
- Locating car share clubs at mobility hubs encourages interchange with other modes such as bus and rail which can lead to more trips by public transport. This can then improve access to people's daily needs and improve quality of life for all.

Evidence

Evidence

Zipcar, UK

Zipcar is a service which provides a wide range of vehicles which are available to rent by the hour, day or week and has over 2000 cars & vans parked on-street in the UK. Zipcar offers users either a Roundtrip trip journey option in which the vehicle must be returned to the same dedicated bay, or Flex one-way trips where the vehicle can be dropped off at any bay within a Zipzone (available in London).

BlueCity, London

Only 100% electric car sharing scheme in the city offering point-to-point service
<https://www.blue-city.co.uk/how-it-works>

Enterprise Car Club

1000+ self-service car sharing vehicles in cities across the UK
<https://www.enterpriseclub.co.uk/gb/en/home.html>

Assumptions and Externalities

- The MaaS system functionality supports the delivery of car share clubs
- Sufficient take-up by users
- Delivery by private sector on either a procured or commercial basis
- Procurement arrangements are in place (contracts are signed; suppliers are selected)
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Public awareness of Car Share Clubs (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up;
- Creation of the platform will attract SMEs and new enablers (developers) start using it.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

Key to meeting outcomes of reduced car ownership while increasing public transport use and improving accessibility will be ensuring the car clubs within the MaaS system have a financially attractive proposition, support the level of demand required and are available in convenient locations.

7. E-Bike Share

Logic Map Components

- Outputs: Provision of docked e-bikes at mobility hubs and other locations accessed by individuals and business via MaaS system.
- Activities: The direct activities and changes in behaviour as a result of e-bike share will be bikes available for business travel, access to e-bikes without the need to own

one and integration with mobility hubs encourages integration with other modes and improved first mile/last mile access.

- **Direct Outcomes:** The direct outcomes include fewer short car trips, more trips by cycling, walking and public transport and increased access to sustainable transport for all.
- **Indirect Outcomes:** Indirect outcomes include improved air quality and reduced carbon emissions, improved health and wellbeing, and improved, equal access to people's daily needs.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- e-Bike sharing can facilitate access to an e-bike without the need to own one, allowing those with low incomes to utilise them as a mode of transport and may encourage people considering buying an e-bike to purchase one for themselves. This could result in fewer short trips by car, greater use of electric vehicles and increased access to sustainable transport for all, increasing levels of walking and cycling. This may lead to improved air quality, reduced CO2 emissions and improved health and wellbeing, resulting in an improved quality of life for all whilst also protecting the environment and developing an innovative city region.
- If e-bike share schemes are located at mobility hubs, this can encourage interchanges with other modes leading to more trips by public transport. This can result in improved, equal access to people's daily needs therefore improving the quality of life for all.

Evidence

Evidence
<p>Exeter's Co-Bikes UK first fully electric city-wide model. Some results from 2018 co-bikes members survey: 30% of respondents reported using their car less after signing up to Co-Bikes. 40% of the respondents of the members survey outlined no dock within close proximity to their home as their main barrier to usage. 62% of users were male which is slightly higher than the average of 55% which was recorded across 11 UK electric bike share projects (Bike Plus, 2016), but is still considerably lower than the 75% for traditional cycling (DfT, 2017). https://tps.org.uk/public/downloads/FqIRG/TPM%202019%20Best%20Paper-%20Lessons%20learnt%20from%20the%20first%20fully%20electric%20bike%20share%20scheme%20in%20the%20UK.pdf</p>
<p>Cross regional electric bike scheme (Falkirk, Clackmannanshire & NHS Fort Valley) https://www.stirling.gov.uk/news/2019/june-2019/stirling-plugs-in-to-the-uk-s-first-cross-regional-electric-bike-scheme/</p>
<p>OxonBike Mixed fleet of 80 bikes (22 of which are electric) at 14 docking stations across Oxford) https://como.org.uk/project/oxonbike-oxford/</p>

Assumptions and Externalities

- The MaaS system functionality supports the delivery of e-bikes
- Sufficient take-up by users
- Delivery by private sector on either a procured or commercial basis
- Procurement arrangements are in place (contracts are signed; suppliers are selected)
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Public awareness of e-bike share (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up;
- Creation of the platform will attract SMEs and new enablers (developers) start using it.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

Key to meeting outcomes will be ensuring the offer within the MaaS system has a financially attractive proposition, supports the level of demand required and provides availability in convenient locations.

8. eCAVs

Logic Map Components

- **Outputs:**
Autonomous connected electric and shared vehicles providing first mile/last mile connectivity between large mobility interchange and key destinations in town centres. Shuttles would operate on a fixed route to a frequent timetable.
- **Activities:** The direct activities and changes in behaviour as a result of eCAVs include driverless operation of vehicles, improved first mile/last mile connectivity making trips by public transport more convenient and increasing accessibility to key destinations, and electrification of mobility.
- **Direct Outcomes:** There are various outcome levels expected from the provision of eCAVs including better utilisation of infrastructure, fewer short car trips and more trips by public transport, greater use of electric vehicles and increased sustainable access for all.
- **Indirect Outcomes:** The direct outputs are intended to lead to a number of indirect outcomes such as improved access for businesses and individuals, shorter and more

reliable journeys, reduced CO2 and improved air quality, increased electrification of transport, improved health and wellbeing

- Impacts: If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- e-CAVscan improve first and last mile connectivity which makes trips by public transport more convenient and attractive. This can then lead to fewer short trips being made by car and more trips by public transport which in turn can reduce CO2 emissions, improve air quality and improve access to people’s daily needs resulting in improved quality of life whilst also protecting the environment.
- If vehicles can operate without a driver, they could operate for longer hours of service when needed. Leading to greater utilisation of existing transport infrastructure which can result in improved access to businesses and improved productivity, supporting sustainable economic growth.
- As e-CAVs are electric powered vehicles, they can lead to greater use of electric vehicles, increasing the electrification of mobility which is part of developing an innovative city region.

Evidence

Evidence
<p>Milton Keynes In October 2018, Aurrigo undertook the world’s first ever multi-connected and autonomous vehicle demonstration in Milton Keynes. A 12-month trial of self-driving pods on Milton Keynes pavements and streets is currently underway to test out a new first/last mile transport solution for local people, shoppers and visitors. Up to 40 pods capable of travelling up to 15 miles per hour and lasting up to 60 miles off one charge are operating in the city centre. https://www.miltonkeynes.co.uk/news/self-driving-pod-trials-officially-underway-in-milton-keynes-1-8423883</p>
<p>Blind Veterans UK Blind Veterans UK, the national charity for blind and vision-impaired ex-Service men and women, along with Aurrigo, launched a 6 month trial of e-CAV driverless pods in April 2019. The vehicle carries up to four people and travels at a maximum speed of 15mph. The route will follow the most popular parts of the Blind Veterans UK training and rehabilitation centre in Ovingdean, near Brighton. The vehicles are exploring the importance of voice activated controls, designed to best suit the needs of people who are blind or vision impaired. The hope is the e-CAV will allow the veterans to regain their independence. https://www.blindveterans.org.uk/articles/blind-veterans-begin-world-first-trial-of-driverless-pods/#</p>
<p>The University of Salford In October 2018, the University of Salford and Navya launched an e-CAV service on the University campus. The level 4 autonomous shuttle can be used by staff, students and visitors to move around the campus. There are future plans to expand the route offering and the University are providing a mixed environment e-CAV test facility. https://blogs.salford.ac.uk/healthyactivecities/wp-content/uploads/sites/48/2019/01/CAV-update-06-12-2018.pdf</p>

Assumptions and Externalities

- The MaaS system functionality supports the delivery of eCAVs
- Sufficient take-up of the services by users.

- The infrastructure to deliver the services is deliverable
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Public awareness of eCAVs (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up,
- Procurement arrangements promoting innovation are in place (contracts are signed; suppliers are selected) and implemented promptly without affecting the delivery of MaaS and discouraging new suppliers to come forward.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

The key risk to the eCAV project delivery its outcomes is the human factors associated with adoption of automated transport. However, with the demographic segments dominated by young and more affluent groups, the likely openness to such technologies than the average across the demographic spectrum.

The delivery of the scheme itself is also a risk with the operation of eCAVs on live trafficked roads. This is, essentially, a binary risk and either it will be possible or it will not but TfGM will work with its partners to develop a project that supports the securing of the necessary legal framework for operation.

9. Micro-consolidation centres and e-cargo bikes

Logic Map Components

- **Outputs:** Promotion of micro consolidation centres with integrated rental of e-cargo bikes. Facilitates modal transfer of deliveries from large to small vehicles (e.g light goods foods to e-cargo bikes) via a small hub open use by all commercial operators.
- **Activities:** The direct activities and changes in behaviour as a result of this project would be opportunities for smaller SMEs and start-ups, transfer of freight from large to small vehicles and the transfer of freight to electric vehicles.
- **Direct Outcomes:** The direct outcomes would be better utilisation of infrastructure, more sustainable movement of goods, fewer short journeys by large goods vehicles, greater use of electric vehicles increased levels of cycling.
- **Indirect Outcomes:** These direct outputs are intended to lead to a number of indirect outcomes shorter and more reliable journeys leading to improved productivity, reduced CO2 emissions and improved air quality, increased electrification of transport and improved health and wellbeing.

- Impacts: If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- Micro-consolidation centres transfer freight from large to small vehicles within urban areas which leads to fewer short trips by large goods vehicles and more sustainable movement of goods and resources. This results in shorter and more reliable journey times, reduced congestion, improved productivity; all supporting sustainable economic growth.
- E-cargo bikes transfer freight to zero emission vehicles leading to greater use of electric vehicles and increased levels of cycling. This then results in improved air quality, reduction in CO2 emissions and improved health and wellbeing. This helps to achieve improved air quality and environmental protection.

Evidence

Evidence
<p>Gnewt Cargo Gnewt Cargo, operating in central London, is classed as a ‘carrier’s carrier’, receiving parcels from carriers and suppliers in single HGV loads at its centrally located depots and carrying out the last-mile transaction on their behalf using a fleet of electrically powered LGVs (Allen and Browne, 2016). This approach reduces the number of LGVs having to deliver parcels in a given area, as well as reducing CO2 and air pollutant emissions. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/777682/fom_last_mile_road_freight.pdf</p>
<p>Zedify Has 8 depots across UK. New "micro-consolidation centre" opened in July 2019 just outside ULEZ and houses up to 20 of Zedify’s zero emission electric cargo trikes and will be able to handle over 1,500 deliveries each day. https://postandparcel.info/106484/news/zedify-opens-new-london-depot/</p>

Assumptions and Externalities

- Sufficient take-up by operators.
- Sufficient level of support and data shared by transport operators for the MaaS.
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Procurement arrangements promoting innovation are in place (contracts are signed; suppliers are selected) and implemented promptly without affecting the delivery and discouraging new suppliers to come forward.
- Creation of the platform will attract SMEs and new enablers (developers) start using it.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.

- Participants are willing to complete surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of user/customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

The key risk to the achievement of outcomes are the lack of uptake by delivery operators, potentially due to the increased complexity of deliveries. The selection of the specific locations to be covered by the trial will be key to this, potentially alongside mandating their use and restrictions on operators within the specific geographies. This will need to be carefully monitored alongside having sufficient capacity to support operations in those locations. Consulting with operators during the pre-rollout stage will be important to gaining their support and developing a system that both works for operators and delivers outcomes.

10. Open access parcel lockers

Logic Map Components

- **Outputs:** Provided at mobility hubs and other locations for parcel drop-off and pick-up. Operate on an open access basis and any commercial operator can make use of them.
- **Activities:** The direct activities and changes in behaviour as a result of lockers include increased choice in delivery locations, reduced need for home deliveries and fewer missed deliveries and need for repeat journeys
- **Direct Outcomes:** There are various direct outcomes expected as a result of lockers including more sustainable movement of goods and fewer short journeys by large goods vehicles.
- **Indirect Outcomes:** These direct outputs are intended to lead to a number of indirect outcomes such as improved productivity, shorter and more reliable journeys, reduced CO2 emissions and improved air quality and improved health and wellbeing
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- Open access parcel lockers reduce the need for home deliveries and increase the choice in delivery locations. This means more sustainable movement of goods with improvements including shorter and more reliable journeys resulting in sustainable economic growth.
- Open access parcel lockers can result in fewer missed deliveries requiring repeat journeys leading to fewer short trips by large goods vehicles resulting in reduced

CO2 emissions and improved air quality therefore protecting the environment and health and wellbeing.

Evidence

Evidence
InPost Provides a UK network of nearly 1,200 fully automated parcel lockers that are accessible 24/7 which can temporarily store goods for customers to pick up at a later time. All lockers are located in safe and secure locations e.g. Transport for London sites, Esso petrol stations and Morrisons supermarkets and enable Customers can collect, send and return parcels to the lockers.
Cubee Belgium Results from 150 Cubee users in Belgium: 49.2% of the respondents indicated the collection of the parcel was combined with another activity whilst the remaining 50.8% made a dedicated trip. If the collection of parcels by parcel locker users only consisted of dedicated trips then the CO2 emissions would increase with 23% compared to home delivery. https://www.researchgate.net/publication/317847539Ecological_and_economic_impact_of_automated_parcel_lockers_vs_home_delivery

Assumptions and Externalities

- Sufficient take-up by operators.
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Public awareness of lockers (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up,
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

The risks to this project are limited in terms of delivery outcomes as they are growing in use in various geographies at present. If located in convenient locations and the open access approach does facilitate use by a range of delivery companies, they should help to meet outcomes, however, location, convenience for delivery companies and public awareness are key.

11. MaaS Marketplace – other shared modes

Logic Map Components

- Outputs: A range of mobility systems available on a shared basis- potentially by anyone or by selected groups of users (e.g business communities). Includes:
 - Ride sharing
 - e-Scooters

- Van sharing
- **Activities:** The direct activities and changes in behaviour as a result of these shared modes include greater integration with public transport, reduced need for personal or business vehicle ownership and less space needed for car parking.
- **Direct Outcomes:** There are various direct outcomes expected from the provision of shared modes including more sustainable movement of resources and people, fewer short car trips by car and goods vehicles, more trips by public transport and greater use of electric vehicles.
- **Indirect Outcomes:** These direct outputs would lead to a number of indirect outcomes including shorter and more reliable journeys, increased electrification of transport, improved air quality and reduced CO2 emissions and improved access for business and personal needs.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- Van sharing can give businesses access to freight transport without needing to specifically own the vehicle which leads vehicles only being used when really needed and resulting in more sustainable movement of goods. This can lead to improved productivity more efficient use of assets resulting in support for sustainable economic growth.
- E-scooters can lead to increased access to sustainable travel, particularly greater use of electric vehicles, for all. This results in improved equal access to people’s daily needs and the quality of life for all.
- Ride sharing can reduce car ownership and resulting need for parking, which could result in fewer short trips being made by car, leading to reduced CO2 emissions and improved air quality consequently protecting the environment.

Evidence

Evidence
<p>Enterprise Enterprise car club offers small and large vans that can be used by all members of the car club and are advertised for trips to the DIY shop, business use, moving house or office https://www.enterprisecarclub.co.uk/gb/en/about/our-vehicles.html</p>
<p>Lime Lime is a network of e-scooters that can be accessed and paid for via a mobile app. Lime aims to provide access to smart, affordable mobility to all communities. Lime scooters are dockless and can be picked up and parked anywhere. Lime are currently operating across the world, primarily in the USA, but only two locations in the UK – Milton Keynes and London. https://www.li.me/locations</p>

Liftshare

Liftshare is a ride-sharing platform that allows members to find others taking the same journey who can then ride-share and save money and reduce emissions. Some employers have their own Liftshare group to promote ride-sharing to work.

<https://liftshare.com/uk>

Assumptions and Externalities

- The MaaS system functionality supports the delivery of shared modes
- Sufficient take-up by users
- Delivery by private sector on either a procured or commercial basis
- Procurement arrangements are in place (contracts are signed; suppliers are selected)
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Public awareness of shared modes (sufficient marketing undertaken; comms plan is in place; public engagement event; newsletters; number of tweets; news posts; interviews; promotional videos etc) to allow reasonable level of take-up;
- Creation of the platform will attract SMEs and new enablers (developers) start using it.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete travel diaries, surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

Key to meeting outcomes of these services and use while increasing public transport use and improving accessibility will be ensuring these services within the MaaS system have a financially attractive proposition, support the level of demand required and are available in convenient locations.

12. MaaS Support

Logic Map Components

- Outputs: MaaS Support has three outputs:
 - MaaS and future mobility accelerator to attract mobility start-ups
 - MaaS and future mobility skills for next generation public/private sector professionals and innovators
 - MaaS training to individuals to support use of services encourage uptake
- Activities: The direct activity and change in behaviour as a result of the three outputs are support and encouragement for sustained long term modal shift to sustainable modes.

- Direct Outcomes: The direct outcomes will include more sustainable movement of people and goods, fewer trips by car and large HGVs, more trips by public transport, cycling and walking, and increased access for all.
- Indirect Outcomes: The indirect outcomes may include improved productivity, shorter and more reliable journey times, reduced CO2 and improved air quality, improved health and wellbeing and improved access to people's daily needs.
- Impacts: If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- MaaS and future mobility accelerator to attract mobility startups can lead to improved productivity, through stronger businesses which supports sustainable economic growth.
- MaaS training to individuals to support use of services encourages sustained long term modal shift to more sustainable modes. This results in fewer short trips by car, more trips by public transport and increased levels of walking and cycling. In turn CO2 emissions will be reduced, air quality improved and improved health and wellbeing. Consequently, protecting the environment and improving the quality of life for all.

Evidence

Evidence

Future Transport Digital Accelerator, Transport for New South Wales, Australia

Created to enable innovators and start-ups to collaborate directly with the organisation. The aim is to deliver future transport projects that will, among other benefits, personalise a traveller's experience.

<https://www.austrade.gov.au/future-transport/mobility-as-a-service/>

Assumptions and Externalities

- Sufficient take-up by SMEs and start-ups
- Procurement arrangements are in place (contracts are signed; suppliers are selected)
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to take part in monitoring and evaluation

Outcome Risk Management

Key to these projects will be attracting interest from the necessary businesses and professionals therefore they need a clear, attractive and appropriate proposition for engagement and marketing. The continuous monitoring and evaluation proposed throughout this FMZ should enable lessons to be learnt and amendments to the approaches to be made where appropriate to meet the desired outcomes.

13. MaaS and e-mobility exhibitions

Logic Map Components

- **Outputs:** This project provides a series of exhibitions in the regional centre and the other IDAs to promote e-mobility and the uptake of MaaS.
- **Activities:** The direct activities involved in this project include display and marketing in e-mobility modes, with opportunities for personal trials, and the display of MaaS promotional and learning material, all with support from exhibition staff, which will increase awareness and uptake of MaaS and sustainable modes of transport
- **Direct Outcomes:** The direct outcomes will include more sustainable movement of people and goods, fewer trips by car and large HGVs, more trips by public transport, cycling and walking, and increased access for all.
- **Indirect Outcomes:** The indirect outcomes may include improved productivity, shorter and more reliable journey times, reduced CO2 and improved air quality, improved health and wellbeing and improved access to people's daily needs.
- **Impacts:** If these outcomes are successfully achieved over time, it is envisaged that the impacts will support the 2040 Transport Strategy and achieve the long-term outcomes of supporting sustainable economic growth, protecting the environment, improving the quality of life for all and developing an innovative city region.

Logic Map Connections

The following provides a commentary on a number of examples of the flow of logic through a selected number of connections made in the logic map:

- Micro, short and medium term rentals to try out technologies and MaaS increase the awareness and uptake of all sustainable modes of transport which can lead to fewer short trips by car, more trips by public transport and increased levels of walking and cycling. In turn resulting in reduced CO2 emissions improved air quality and improved health and wellbeing. Consequently, protecting the environment and improving the quality of life for all.
- Display of MaaS promotional and learning material can lead to greater uptake of MaaS leading to increased access to sustainable modes and improved access to people's daily needs leading to improved quality of life for all.

Evidence

Evidence

EV Experience Centre:MK

Europe's first electric vehicle education centre is a brand neutral store situated in Centre:MK. The centre offers neutral, no obligation advice on the best electric vehicle for customers depending on their lifestyle and budget, short (20 minute) and long test drives (4-7 days) and charging advice.

<https://evexperiencecentre.co.uk/>

Assumptions and Externalities

- Sufficient exhibitions are operated over the course of the FMZ programme to have an impact
- Businesses, including shared service operators and EV manufacturers are willing to participate.
- Sufficient take-up by users
- All commercial and legal arrangements are in place (data sharing and service level agreements are signed with transport operators) to achieve the expected outcomes and impacts.
- Effective user feedback and research processes are in place in order to continuously update and refine the User interface (app, web, chatbot voice based interface).
- User feedback and research helps to develop and refine the User interface: app, web, chatbot, voice based.
- Participants are willing to complete surveys, feedback interviews and participate in focus groups; so, we are able to build a baseline of customer experience to carry forward to the analysis phase.
- Nudging and influencing behaviour has a significant impact on the users and they are changing their behaviours.

Outcome Risk Management

The key risk for this project will be whether enough people are attracted to ensure that they secure interest in MaaS and e-mobility. Important to this will be generating a proposition that is sufficiently attractive and the buy-in from e-mobility companies offering trials of their vehicles and services will be vital in doing this.

Appendix 1 – Logic Maps

























