Mobility as a Service – Regional Research
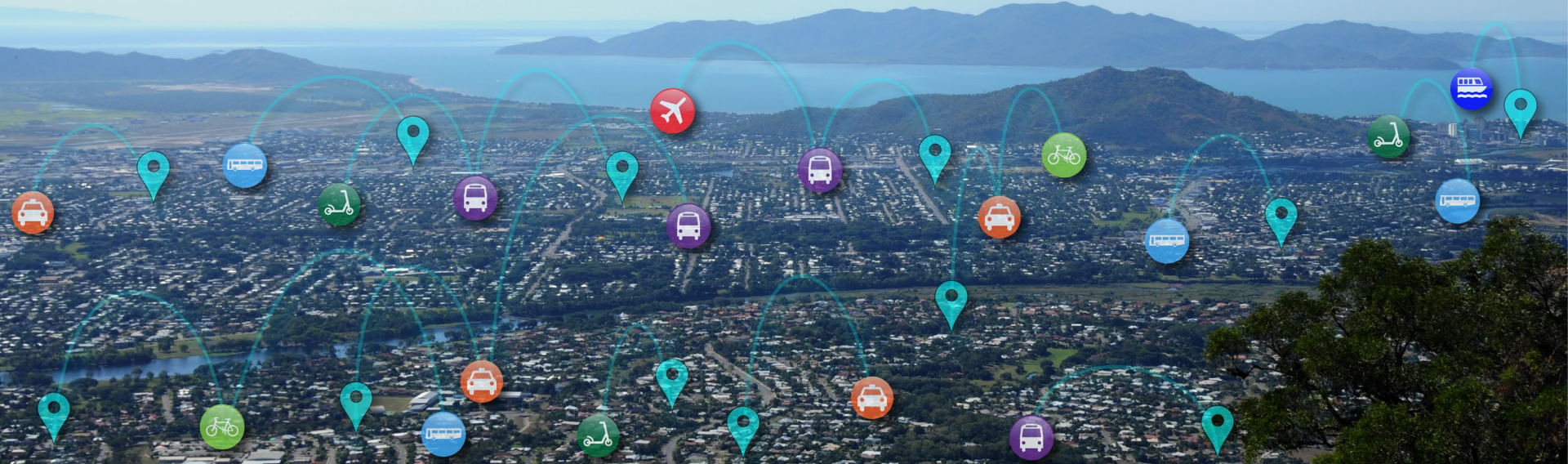
Research Presentation – March 2021

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Research Objectives

The key objective of this research study were to:

- Identify a preferred approach for a pilot proof-of-concept trial in at least one Queensland regional centre.

The following research gaps has been investigated in this report:

- **Policy Objectives:** what can and should TMR and its partners seek to achieve from public and shared transportation, both now and into the future?

- **Regional Context:** what conditions specific to Queensland's varied regional centres require consideration?

- **Definition of Success:** what does "success" look like for MaaS in regional Queensland?

- **Policy Options:** what are the available policy and planning options for MaaS in regional centres, now and into the future?

- **Success Factors:** what are the success factors (or, the necessary conditions for success) for MaaS in such locations?

- **Key Opportunities:** what are the most promising opportunities to start developing MaaS in regional Queensland?

What is Mobility as a Service (MaaS)?
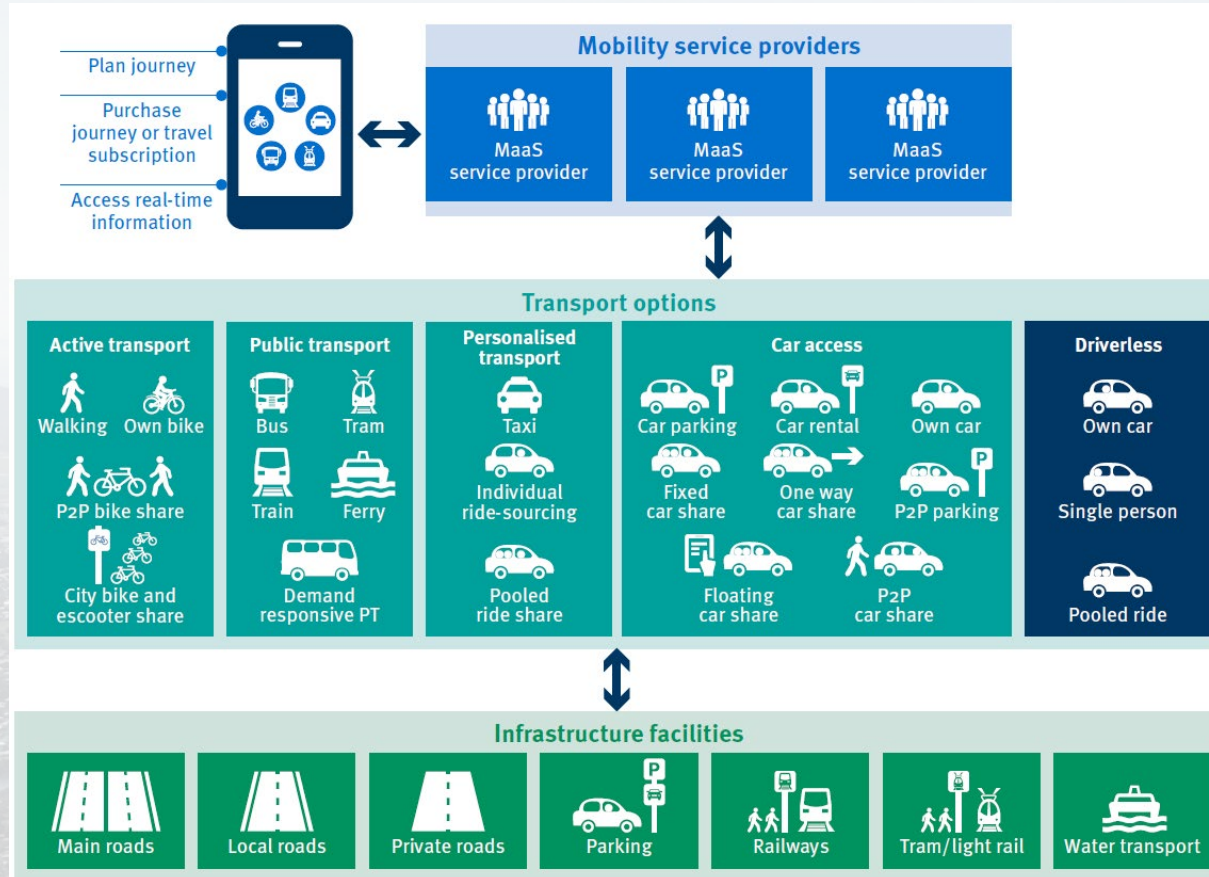
- A shift away from personally owned modes of transportation
- Moving towards aggregated mobility solutions that are consumed as a service
- Provides personalised journey planning, booking and payment
- Enables individual mobility budgeting through single payment or subscription models
- Offers choice and dynamic travel options

Policy objectives of regional MaaS

Key differences in what MaaS may achieve across various settings (Adapted from Aapaoja et al., 2017)

Setting	Objectives / Value proposition	Based on
Regional cities and towns	• **Increase efficiency and utilisation rates of vehicle fleets** • **Maintain sufficient service levels for those without access to private motoring** • **Support demand-responsive transit and community transport** • **Improve accessibility, including to key services such as health** • **Provide first/last-mile accessibility** • **Support tourist travel**	• **On-demand transport, taxis, buses, private (e.g., local community engagement) and commercial sharing services** • **Connections to long-distance transport services** • **Additional services: patient travel, parcel deliveries, library services, and food and medicine distribution, etc.** • **Tourist travel needs**
Major Cities	• Reduce the use private of cars (congestion, parking) • Reduce emissions • Seamless travel experience	• Existing public transport (buses, trams, local trains, city bikes etc.) • Extended with rental and sharing services and new modes (private and commercial; e-scooters, etc.)
Suburban areas	• To increase the sharing of vehicles and of trips • Reduce need for second or third cars in households • Reduce need for young adults pursue licence holding and car ownership • Provide first- and last-mile accessibility for conventional public transport	• Park & ride services, on demand transport, sharing services, and other transport service connecting suburban to city transport services
Rural areas	• Increase efficiency and utilisation rates • Maintain sufficient service levels • Improve accessibility	• Limited on-demand transport, taxis, and commercial sharing services • Connections to long-distance transport services • Additional services: parcel deliveries, etc.
National / international	• Offer easy all-in-one packages	• Long-haul transport including air traffic • Additional non-transport services: accommodation, event tickets, activities, etc.

International exemplars

Key international learnings for Queensland

Country	Project	Learnings
Finland	Rural-MaaS (*Maaseutumaas*) project (2016)	• The MaaS concept has strong origins in Finland and already plays a key role in the national transport policy. • Finland is adopting a national level approach to the development of MaaS. • The development of the Transport Code has helped to place Finland at the forefront of MaaS. • The 4P (Public-Private-People Partnership) approach focuses on the needs of the local communities. • Looked beyond passenger travel, such as freight and services.
	Kyyti – combining subsidised and fee-paying trips	• ICT and mobile apps can help coordinate subsidised travel and reduce transport costs for everyone. • Requires new regulations and frameworks to reduce silos in transport provision that allows for trip aggregation and cost savings.
Denmark	MinRejseplan journey planner	• Extension from existing journey planner and payment systems. • Getting different TSPs to join the system is paramount. • Importance of DRT services for low density areas and regional services. • Integration with the national *FlexDanmark* booking and dispatch coordination system.
	FlexDanmark DRT coordination and planning centre	• A national hub serving as the IT backend and call centre for DRT services in Denmark's five major regional transport authorities. • Similar to *Kyyti*, subsidised trips can be grouped with fee-paying trips to archive cost savings. • Strong focus of efficiency and IT solutions to match passenger by their time and location under five major "Flex" services. • With economies of scale, the Danish social DRT service is taxpayer funded, and it does not rely on volunteer drivers.
Japan	National MaaS policy Ministry of Land, Infrastructure, Transport and Tourism	• Demarcated the role of metropolitan, regional and rural MaaS and a special category of tourism. • A nationally consistent approach and standardised backend that works with existing payment systems while acknowledging local needs and differences. • Encourage local prefectures to experiment with MaaS trials.
	Sasaeai Kotsu, Tango Peninsula Kyoto	• An NGO run service that uses Uber technology to provide taxi-like services in a rural township with declining population. • Operations are regulated under national legislation with a focus on supporting rural communities for its transport needs, and also to serve incoming tourists.
	Myroute, Fukuoka	• A large number of collaborating partners, and is developed by Toyota after the first-hand experience of partnering with Whim in Finland to provide car-share and rental services. • On top of transport modes (rail, bus, car sharing, bike hire and walking), it also offers guides for attraction and discounts bundles for dining and shopping. • Strong focus on tourism information.
USA	*GoLink* by DART, Dallas	• An example of Mobility on Demand (US MaaS definition) service that won an US Federal Sandbox Grant. • Offers DRT services in lower density suburban areas in Dallas. • Intermodal integration (bus and Uber) and with monthly pass packages. • Service to be expanded as indicated in the recent bus reform plan, to meet efficiency (ridership) and coverage needs.
	Winnebago Catch-a-Ride, Wisconsin	• A social oriented DRT service in a rural township in Wisconsin where Uber does not enter due to low population. • A mix of volunteer and paid drivers and passengers connected by a ridehailing platform provided by *Feonix* and *Qryde*. • Strong focus on providing access to employment with funding support by local and state economic development agencies.

Key international learnings for Queensland

Selection criteria:

1. A minimum population of 10,000 people
2. A public transport offering (that may be improved by MaaS)
3. A transient workforce (e.g. mining, defence) who do not necessarily require a personally owned vehicle
4. A reasonable level of demand for mobility from tourism (transient visitors)

Remoteness level and the location of study areas:

Remoteness (ABS)
- Major Cities
- Inner Regional
- Outer Regional
- Remote
- Very Remote
- TMR Districts
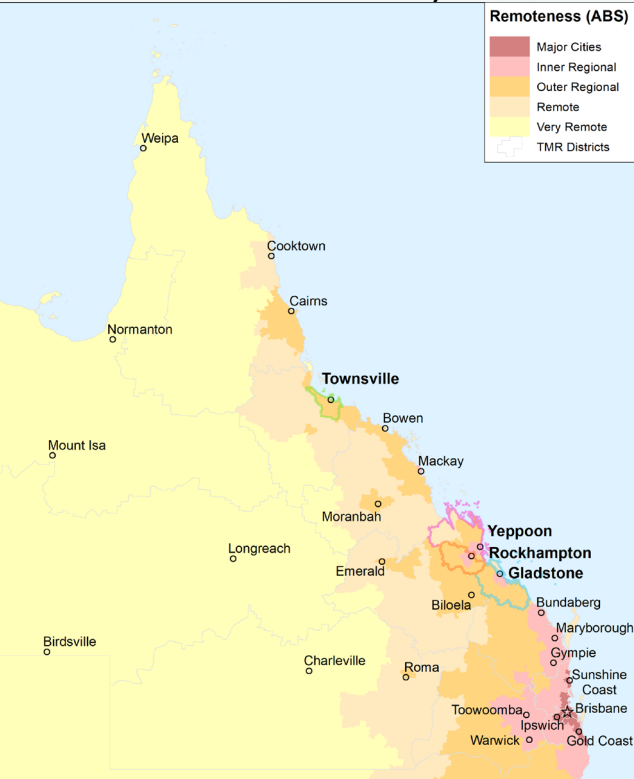
Key population and travel characteristics of the three study regions:

	Townsville	Rockhampton (incl. Yeppoon)	Gladstone
Demographics and land use			
Population (2019, estimated)	195,032	119,590	63,412
Area	3,731 km²	18,328 km²	10,484 km²
Population density	52.27 persons/km²	6.52 persons/km²	6.05 persons/km²
Travel characteristics			
Trips per day	573,359	304,196	163,843
Average distance per trip	7.94 km	9.57 km	8.18 km
Mode Split - Commuting			
Car as driver	61.3%	59.6%	62.5%
Car as passenger	28.1%	28.3%	28.3%
Public Transport	2.7%	2%	2.5%
Cycling	2.1%	1%	1.2%
Walking	5.7%	9.1%	5.5%
Transport Offerings			
Bus	Sunbus (Townsville) 14 routes 10 fare rates 15 fare zones	Sunbus (Rockhampton) 9 routes (3 fare zones) Young's bus 10 routes (8 fare rates, 17 fare zones)	CDC (Gladstone) 8 routes 4 fare rates 5 fare zones (No weekend/ public holiday services)
Personalised travel (taxi or ride-booking)	Taxi: 13 Cabs Ride booking Uber Didi Ola Shebah DRT (proposed)	Taxi: 13 Cabs Ride booking: Uber Didi Shebah	Taxi: 13 Cab Ride booking: Uber Didi Shebah
Ferry	Sealink – Magnetic Island and Palm Island	Freedom Fast Cats – Great Keppel Island	Sealink - Curtis Island Curtis Ferry - Curtis and Facing Islands
Micromobility	E-scooters Neuron and Beam	E-scooters N/A (Council being approached)	E-scooters N/A
Community Transport (examples)	St Johns TransitCare	Aboriginal & Islander Rockhampton Community Transport Central QLD CentacareCQ Community Transport Central QLD	Gladstone Aboriginal and Islander Community Transport Central QLD

Stakeholder engagement

The study included 13 guided interviews and one workshop (with 5 participants), with a total sample size of 18 participants across Townsville, Rockhampton (including Yeppoon) and Gladstone. In addition to regional Queensland stakeholders, two external experts from the New South Wales and United Kingdom respectively were interviewed. **The total sample size including external experts is 20.**

The interviews and the workshop (conducted between September 2020 and March 2021) explored the following key questions about MaaS:

- Understanding and definitions of MaaS

- MaaS models (in particular views about the possible model for implementation)

- Unique mobility needs in the study area regions

- Opportunities for MaaS (both for communities and transport service providers)

- Enablers and barriers to implementing MaaS in the study area regions

- Suggestions and recommendations

Interviews were recorded and partially transcribed to allow for further analysis. The transport text was interrogated and then grouped into a set of key themes. The themes were based on an extension of Lyons, Hammond and Mackay's (2019) level of MaaS integration framework, and the "definitions of success", developed with TMR (see next slide).

Participant location and types:

Type of participant	Townsville	Rockhampton (incl. Yeppoon)	Gladstone	Outside Study Regions
State Government (Qld)	Translink			
Local Government(s)	Townsville City Council (Workshop)	Rockhampton Regional Council*	Gladstone Regional Council	n/a
Transport provider	Public and private transport service providers, including bus and personalised booking services (incl. on-demand transit and community transport)			
Users	n/a	University	n/a	n/a
Academic/Experts				Other Australian States (NSW) and UK

*Local government area of Yeppoon, which is under the jurisdiction of Livingstone Shire Council were unable to be interviewed after multiple requests

TMR MaaS and Mobility Assessment Framework
(Adapted from Queensland Department of Transport (Forthcoming))

Assessments	Layers	Definitions of success
User **'Mobility Integration'**	Transactional Integration	Users are able to book, pay, and obtain 'tickets' for door-to-door multi-modal transport options through a single platform and across multiple providers.
	Informational Integration	Users are able to interrogate the availability of door-to-door mobility services, to plan door-to-door journeys and access support in journey execution through a single platform, in real time.
	Operational Integration	Public, active, and shared transport options are available and are competitive for multi-modal door-to-door journeys.
Services **'Enabling Environment'**	Mobility intermediary	MaaS operators aligned with the TMR vision are active in Queensland.
	Transaction	An efficient and effective transaction model from customer through to Transport Service Provider.
	Information services	Real time multi-modal trip information and support available to all customers.
	People, culture, communications	People, culture, and communications across TMR supports the establishment of the enabling environment; industry, community and other stakeholders have confidence in this.
Supply **'Mobility Ecosystem'**	Mobility services	Public, active, and shared transport options are efficient, reliable, and competitive with private vehicle travel and offer high levels of amenity.
	Infrastructure and vehicles	The transport and land use asset and infrastructure base supports and encourages public, active, and shared transport use.
	Capability and capacity	TMR has the capability and capacity to support transport system foundations which enable travel without the need to use a private vehicle; industry, community, and other stakeholders have confidence in this.

Location assessment of mobility integration

Layers and definition of success:	Townsville	Rockhampton (incl. Yeppoon)	Gladstone
Transactional Integration: Users able to book, pay, and get 'tickets' for door-to-door multi-modal transport options through a single platform and across multiple providers.	**Bus and ferry for Magnetic Island:** Return ferry and 1 day bus pass package available. **Other modes:** Transactions to allow journey booking, payment and execution are mode specific and separate.	**Most modes:** Transactions to allow journey booking, payment and execution are mode specific and separate.	**Most modes:** Transactions to allow journey booking, payment and execution are mode specific and separate.
Information Integration: Users are able to interrogate the availability of door-to-door mobility services, to plan door-to-door journeys and access support in journey execution through a single platform in real time.	**Bus and Ferry:** Translink platform allows intermodal journey planning, but without real time information. Google Transit allows for intermodal journey planning. **E-scooters:** Available devices can be seen on apps in real time. *Non-public transport modes are not visible on Google.*	**Bus:** Google Transit allows for some intermodal journey planning across the two bus companies in the region. *Non-public transport modes are not visible on Google.*	**Bus:** Google Transit allows for some intermodal journey planning across the in the region but there is only one public transport provider. *Non-public transport modes are not visible on Google.*
Operational Integration: Public, active and shared transport options are available and competitive for multi-modal door-to door journeys.	Only the Magnetic Island bus and ferry have some operational integration.	No evidence of operational integration.	No evidence of operational integration.
Summary	Bus and ferry (Magnetic Island) attained close to Level 2, otherwise at Level 1. Other are modes at Level 0.	Bus attained Level 1. Other modes are at Level 0.	Bus attained Level 1 (but there is only one public transport operator to start with). Other modes are at Level 0.

The key barriers and opportunities (1)

Themes	Key Barriers	Key Enablers	Solutions / Actions
Land use and transport integration	Car dependence, driving culture, lack of congestion.	Travel demands for public transport exists (e.g. tourism, workplace based travel).	MaaS centric land use and transport policies, infrastructure and modes.
Infrastructure and planning	Infrastructure priorities are often road focused.	State strategic and local plans are in place with clear directions and intent to develop MaaS.	Commence MaaS trials.
TSP ecosystem	"Silos" and a "turf mentality", subsidisation in transport, level playing field concerns.	Most transport service providers in the regions are supportive of MaaS concept.	A regional MaaS consortium or alliance to steer MaaS development with conflict resolution mechanisms.
Transaction	Some uncertainty about the reliability and cost of new MaaS related hardware and software.	Next generation ticketing is continuing to roll out, unlocking transaction and information integration barriers.	Development of common MaaS standards and requirements for data interoperability and sharing.
Active and e-mobility travel	Hotter and more humid weather may discourage active travel or waiting for public transport outdoors.	Emerging e-mobility may help to make some outdoor travel less physically challenging.	Explore possibilities to incorporate active travel, improve infrastructure design and provision

The key barriers and opportunities (2)

Themes	Key Barriers	Key Enablers	Solutions / Actions
Long distance travel	Longer travel distances between regional settlements. Could be more difficult to integrate into MaaS than local transport services.	Potential to incorporate long distance travel (e.g. coach, QR, air) in MaaS, and it could be attractive for tourists or corporate users.	Investigate the potential inclusion of long distance travel options in MaaS.
Social aspects	Ageing population and social disadvantage in some regional localities. Community transport and the NDIS are and are generally currently not considered in general public transport policy decisions.	Various operators exists to provide community transit in current PT service gaps with important social benefits.	Develop mechanisms to assess social impact when planning and providing MaaS. Include non-transport governmental departments (e.g. health, human services, indigenous peoples).
COVID-19	COVID-19 normalised flexible working arrangements, travel patterns became more irregular	Some regional areas have experience strong population growth, especially post-COVID	Monitor and capitalise the regional growth due to COVID.
Digital readiness	General public are not aware of MaaS yet. Internet blackspots exist in rural areas.	Most (but not all) people are digitally ready. Free public Wi-fi services available in many regional cities.	Further improve digital connectivity.User interface and experience needs to be intuitive.
Demographic and workforce	Transient workforce (e.g. fly-in-fly out and drive-in-drive out), especially for Rockhampton and Gladstone.	Universities provide natural markets for MaaS. Some employers already provide transport services	Potential area/market for employment/transient population focus. Explore workplace focused MaaS options with employers.

Driving principles for MaaS in regional Queensland

<u>Better travel choices</u>

- Meaningful reduction of private vehicle dependence

- Coordinate travel options, including new and emerging services

- Improve accessibility for everyone

<u>A supportive environment</u>

- Encourage collaboration between transport service providers

- Healthy competition for better services and innovation

<u>Fairness and equity</u>

- Support equity

- Pricing is fair
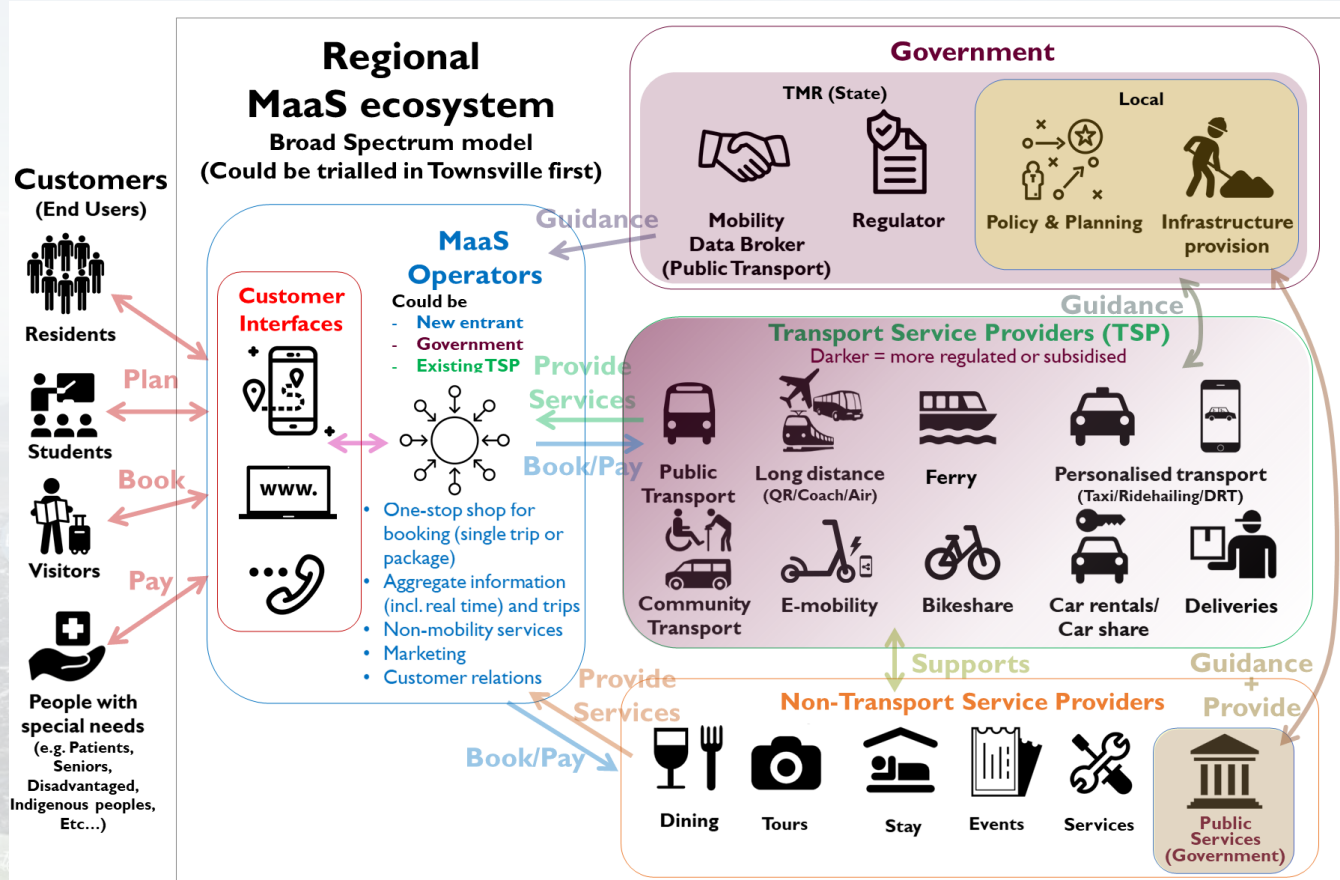
- Availability of MaaS services meets user needs

Other Considerations

- Protect individual privacy

- Support goals for regional growth and environmental gains

- Ongoing engagement with the stakeholders and the community

Next steps - Illustrative MaaS concepts

- Broad-spectrum regional MaaS

Next steps - Illustrative MaaS concepts

- Workplace focused MaaS