Design of a Regional Town and Rural Hinterland MaaS Blueprint

December 2023

research@transport.nsw.gov.au

Table of Contents

Acronyms

Abbreviation	Definition
CHSP	Commonwealth Home Support Program
CT	Community Transport
iMOVE CRC	iMOVE Cooperative Research Centre
IPTAAS	Isolated Patients Travel and Accommodation Assistance Scheme
ITLS	Institute of Transport and Logistics Studies
KSF	Key Success Factors
MaaS	Mobility as a Service
PPP	Public-Private Partnership
PTALs	Public Transport Accessibility Levels
RTRH	Regional Towns and Rural Hinterlands

Executive Summary

This executive summary provides an overview of findings from research project *Design of a Regional Town and Rural Hinterland (RTRH) MaaS Blueprint*. The research was delivered in partnership with iMOVE CRC (project 3-020) and supported by the Cooperative Research Centres program, an Australian Government initiative. The research was undertaken by the Institute of Transport and Logistics Studies (ITLS), University of Sydney. This executive summary was produced with permission of the original authors.

Introduction

Although much knowledge and experience has been accumulated in progressively introducing elements of Mobility as a Service (MaaS) into a metropolitan setting, there is a relative void in the context of Rural and Regional MaaS, with the generally accepted position that the metropolitan context is quite different. MaaS in rural and regional areas is unlikely to be built on a strong regular route-based public transport offer, and therefore car-based solutions are likely to be important in the mix with potentially more flexible forms of public transport services with a different client customer base. In a rural setting, reducing social exclusion and improving well-being are the key policy objectives that can be enhanced through a MaaS framework. The purpose of this summary is to present the outcomes of a Project to design a Blueprint for future MaaS initiatives in a rural and regional setting, drawing on new data specifically collected with all relevant stakeholders.

What do we mean by MaaS?

MaaS has been widely used in recent years and often without due attention to its definition. A concise definition of MaaS is:

> A type of service that, through a joint digital channel, enables users to plan, book and pay for multiple types of mobility service.

A longer and more detailed definition is:

"MaaS is a framework for delivering a portfolio of multi-modal mobility services that places the user at the centre of the offer. MaaS frameworks are ideally designed to achieve sustainable policy goals and objectives. MaaS is an integrated transport service brokered by an integrator through a digital platform. A digital platform provides information, booking, ticketing, payment (as PAYG and/or subscription plans), and feedback that improves the travel experience. The MaaS framework can operate at any spatial scale (i.e., urban or regional or global) and cover any combination of multi-modal and non-transport-related multi-service offerings, including the private car and parking, whether subsidised or not by the public sector. **MaaS is not simply a digital version of a travel planner, nor a flexible transport service (such as Mobility on Demand), nor a single shared transport offering (such as car sharing).** 'Emerging MaaS' best describes MaaS offered on a niche foundation. This relates to situations where MaaS is offered on a limited spatial scale, to a limited segment of society or focused on limited modes of transport. The MaaS framework becomes mainstream when the usage by travellers dominates a spatial scale and the framework encompasses a majority of the modes of transport." (Hensher et al., (2021); emphasis added).

MaaS has until now been primarily considered in an urban context where typically there is a core local public transport offering and a wide variety of shared transport providers. MaaS in a rural and regional setting is much less likely to have conventional public transport as its core and thus, more attention needs to be given to the role of the car as a potential shared collective and to consider how trip needs are likely to encompass travelling outside the rural and regional setting to locations where specialised services are provided.

The inclusion of non-mobility services is one way that Rural and Regional MaaS may find personal mobility can be provided sustainably. Importantly, Rural and Regional MaaS must include connectivity of the rural hinterland beyond regional towns as a means of addressing social isolation and achieving goals around equity of access.

Research methods

The research methodology included review of an extensive evidence base of existing experience and new data collection. This section describes the work conducted and main findings. This comprised a desktop review of recent international experience with Rural and Regional MaaS (**Annex 1**) and an extensive program of primary and secondary data collection. Following extensive consultation with SMEs in TfNSW three regional towns in NSW were selected for study, with the choice of locations based on Public Transport Accessibility Levels (PTALs), economic links, justice and fairness and disadvantage (based on Socio-Economic Indexes for Areas data). Nowra, Dubbo and Coffs Harbour were selected (**Annex 2a**). The data collection comprised three principal strands comprising design (**Annex 2**) and analysis (**Annex 3**) to:

- Identify, via interviews, the barriers and business opportunities of different stakeholders in the three locations;
- explore current transport needs and experiences among regional and rural residents (via community discussion groups) in the three locations; and
- to establish through an online survey the transport modes that users have used recently when travelling locally and further afield, and to elicit switching behaviour potential under varying mobility subscription plans in 16 regional cities.

Seventeen in-depth interviews were conducted with supply-side providers and organisers in the three locations selected for detailed study (Dubbo, Nowra, and Coffs Harbour). These interviews yielded valuable insights into the perspectives and experiences of stakeholders who could be involved in MaaS provision in these areas. Secondly, community discussion groups with 45 participants, which included a "pencil & paper" survey, were conducted in the same three locations. This approach engaged directly with end users and captured their mobility barriers, feedback and suggestions, contributing to a deeper understanding of their mobility needs and expectations. Finally, a NSW-wide online survey targeting residents of the 16 regional cities was conducted to provide a broader perspective, allowing for the identification of preferences and needs related to mobility and non-mobility services in regional and rural areas. Data collection methods are summarised in Table 1.

Table 1: Overview of primary data collection and aims

Phase	Data type	Sample	Location	Key output
1	In-depth interviews with stakeholders	• Transport providers • Non-transport providers	• Nowra • Dubbo • Coffs- Harbour • Sydney	• Highlight complex rural mobility issues • Identify the mobility framework • Capture perception of customer needs
2a	Group discussions with end users	• Drivers • Non-drivers	• Nowra • Dubbo • Coffs- Harbour	• Confirm barriers of stakeholders • Further insight into nature of issues of transport disadvantage and vulnerability • Implications for Rural and Regional MaaS
2b	Online Survey with end users	• Drivers • Non-drivers	• 16 Regional Cities	• Explore new initiatives offering travellers more travel options for both short and long-distance trips • Elicit travellers' preference on different subscription plans with a set of travel options at discounted prices as well as other services

Findings from the literature review

A number of general observations on rural MaaS schemes were drawn from the review of literature and evidence:

- Much of what is currently promoted as MaaS fall within the Level 1 or 2 classification of Sochor et al. (2018). Although marketed as MaaS, they do not go beyond offering integrated information, booking or payment. This reflects the relative infancy of MaaS in a rural context. Following the definition proposed by Hensher et al. (2021), these schemes may be better described as MaaS-like (or even as exhibiting components or qualities of MaaS), rather than MaaS.

- There is some evidence that existing schemes in the West have been "downgraded" while those in Japan appear more widespread (World Economic Forum, 2021). The Kätevä Seinäjoki MaaS pilot (2016-17) was one of the first MaaS schemes in Finland to introduce mobility bundles. While the App continues to operate, it functions only as a regional journey planner and a mobile ticketing application.

- The literature suggests a distinctiveness to rural MaaS and cautions against direct comparison with urban areas. While MaaS *per se* faces an uncertain future, much of the current concern is directed towards experience in the urban context.

- MaaS in a rural context is dominated by a preponderance of short-lived pilots, even in Finland (Eckhardt et al, 2018 & 2020) and Sweden (Hult et al, 2021), which can be described as the trailblazer locations. There is also an important contrast between locations which have attempted to create a "MaaS experience" from the outset (e.g., *Go-Hi* or *NaviGoGo*) and those schemes which are attempting to put in place the elements of a MaaS scheme and then build from there (e.g., the Tompkins County initiative and Vamos in California are implementing the building blocks of a wider initiative to plan and implement a rural and regional MaaS system). Similarly, even though the recent ALPIO Eastern Uusimaa pilot did not include real MaaS-like integration, this development is seen as an enabler for future MaaS.

- Some schemes are very small in terms of actual users (e.g., Finland and Sweden). A small potential user base will always be a challenge. Whilst not yet implemented, a key part of the aims of the Netherlands pilots is to ensure a minimum of 50,000 users of the app as 'without this kind of scale, there will be only a limited effect and little opportunity to make a positive business case.' (Ministry of Infrastructure and Water Management, 2019).

- While population density is widely accepted as being crucial to a workable MaaS scheme this appears to be less important in a rural context as shown by experience from Finland and the Netherlands. Nevertheless, degrees of rurality provide barriers to the achievement of sustainable mobility outcomes.

- Not every trial / scheme is the same in terms of their targeted users/trial participants. Lessons learnt and transferable policy is therefore more limited than the number of schemes in existence might suggest. Also, information on historical schemes often disappears, which makes learning from past schemes more difficult, especially if there has been no formal evaluation.

- There are examples of niche schemes such as the tourist focused *Ylläs* Around (Artic MaaS) in northern Finland and *FjällMaaS* in Sweden and the cross-border pilot (not yet implemented) in Limburg, Netherlands. *NaviGoGo* was specifically targeted at young people. The Japanese national level approach to MaaS distinguishes between tourism-driven and tourism-promoting MaaS and also incorporates a variety of revenue raising activities such as encouraging the participation of sponsors such as local businesses.

- Trust and partnership is a crucial building block. Evidence of partnership working is key - the Tompkins County initiative is a good example of moving from a concept with a vision to on the ground implementation. The Limburg pilot in the Netherlands, while yet to be implemented, is

unusual in that it is intended to be developed in conjunction with foreign partners from Germany and Belgium. Working with key stakeholders, whether they be businesses or activity-based centres, is an important part of partnership working. The recent ALPIO Tampere pilot is a good example of how mainstream transport services and social and health service transport can be integrated as part of a MaaS offering.

- Car-based modes are becoming more prevalent (e.g., inclusion of carsharing in the *KomILand* pilot in Sweden and ridesharing as part of the four other current or recent Swedish pilots, and the proposal to incorporate e-car sharing in the Sao Joaquin scheme in California). This is important since public transport is unlikely to be the backbone of Rural and Regional MaaS. Finding better ways of utilising the car by sharing in one form or another, while moving forward to achievable sustainable outcomes is a key challenge and opportunity.

- App integration is more common, even with the smallest schemes, e.g., the recent experience in Sweden (Hult et al, 2021)– meaning that the technology issues are largely resolved and that the future focus should be on the development of organisational and business models where, apart from in Finland, very little work has been done.

- There is almost no mention of school transport in the rural transport offer, although there is scope for widening non-school use of school transport.

- As is the case with urban-focused MaaS, there is limited technical evaluation (an exception being the Finnish pilots and the current Swedish MaaS trials). Proper evaluation of pilots is key to identify which aspects, if any, are transferable to new locations. It is worth noting that in the Netherlands' pilots, the intention is that these should be self-sufficient within two to three years, even those pilots which are more rurally or regionally based.

- There is absence of expressly rural (as distinct from regional which incorporates rural) journey planners.

- Prospects for scalability appear limited in current Rural and Regional MaaS activities since this will depend on how well MaaS segments the market through the number of mobility bundles offered (if bundles are offered). Although it should be noted that the Netherlands' pilots are intended to have a high number of App users to achieve scalability.

- The unique Finland country level approach to the development of MaaS has not yet led to rural implementation at scale (in contrast to Japan), perhaps partly due to the emphasis on urban MaaS in Helsinki and Turku. There remains a pressing need to identify potential business models to support MaaS in rural environments. It has been suggested that the Public-Private Partnership (PPP) MaaS business model could be especially suitable in rural or sparsely populated areas, where overall transport volumes are low, but travel distances are relatively long. This could include logistics and non-transport-related multi-service offerings. There is limited experience from Finland (*Kätevä Seinäjoki*) and Sweden (*FjällMaaS*) which suggests that it will be beneficial to include freight and small goods movement within a Rural and Regional MaaS model.

- The regional archetypes of MaaS in Japan (tourism-driven; tourism-promoting; community-sustaining; community-harnessing) proposed by World Economic Forum (2021) represents a significant finding from a collection of MaaS developments. They inform not only the model that MaaS should follow depending on the characteristics of the regions where MaaS is to be introduced, but also the challenges and key success factors that the Blueprint developed as part of this research should consider.

- The role of policy-related stakeholders in developing an appropriate policy context for Rural and Regional MaaS to be established and thrive should not be understated since there is often considerable lack of capacity. Actors involved in rural MaaS pilots face similar organisational challenges as found in urban MaaS developments. Collaboration and combination are essential if effective use is to be made of the available transport resource.

- Finally, it is important to bear in mind that a solution which has proven successful in one context should not be assumed to be replicable in another (different) context with the same level of performance.

In summary, the review of the literature provides an up-to-date perspective on what are the key elements of MaaS in the rural and regional context, including barriers identified to date, through examination of recent "on the ground experience" with MaaS and MaaS-like schemes, primarily in a rural context but also including reference to urban areas. In a regional and rural context, key exemplars are primarily identified from Finland, the Netherlands, Sweden, the UK, the USA, and Japan.

Findings from primary data collection

In-depth interviews

The in-depth interviews with service providers and organisers of transport were designed to gain insights about the services and products they provide and their potential fit within the Blueprint for Rural and Regional MaaS, and how they could be leveraged through greater integration. Interviews sought to establish the barriers the transport service providers face in meeting users' needs, key success factors of MaaS, and business opportunities that MaaS will bring.

A total of 17 stakeholders were interviewed including both non-transport providers such as government, peak bodies, health and Aboriginal organisations and transport providers from the bus, train and Community Transport (CT) sector and included a variety of levels of seniority. All the interviewees were drawn from the management level in their organisations.

The initial results (Figure 1) of the qualitative analysis showed that many people experience real challenges in meeting their mobility requirements due to the high level of transport disadvantage and other vulnerabilities, and there is a gap between existing transport systems and the people who are most dependent on them. Distance makes a car a necessity, while other transport modes offer unsatisfactory alternatives.
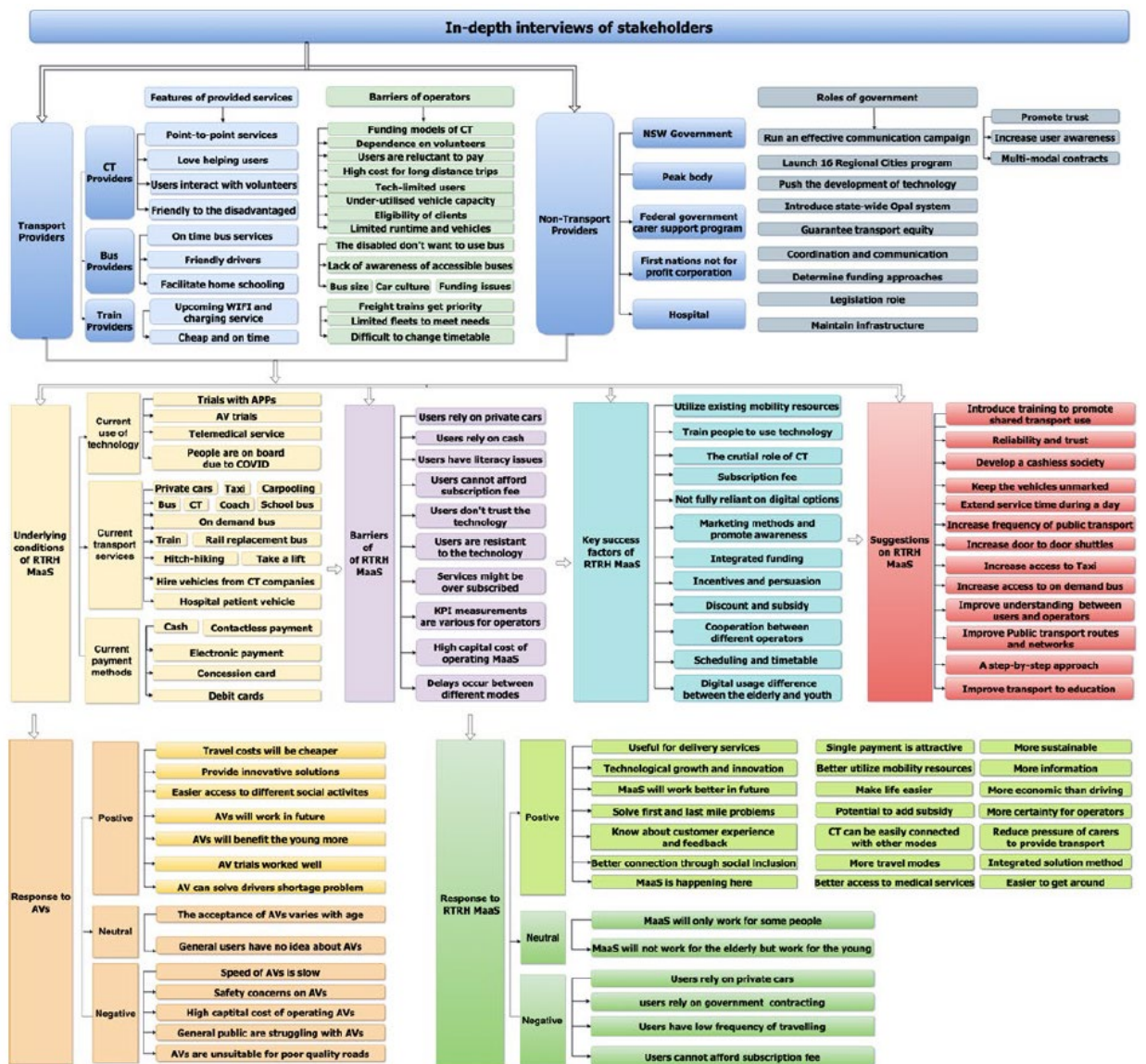

Figure 1: Summary of results obtained from in-depth interviews

A total of 19 core themes were identified as critical determinants underpinning the acceptance and success of Rural and Regional MaaS, namely:

- Underlying conditions for implementing MaaS which covers the current mobility services available (1), current use of technology (2), current payment methods (3) and current ways of knowing about available mobility services (4):
  - The current mobility services available included the private car, on-demand minibus, taxi, bicycle, bus, carpool, train, rail replacement bus, ridesharing, school bus, club bus, passenger coach services, community transport (CT), hitch-hiking, take a lift, and hospital patient vehicle. Overall, there was low demand for public transport resulting from a lack of coverage and confidence in use, perceived unreliability and the long intervals between services. As a result, users defaulted back to using their own cars, further reducing demand for public transport services, leading to lower patronage levels. This, in turn, can make it more difficult for public transport providers to justify maintaining or improving these services.
  - The current technology usage included various references to multi-modal mobility Apps, autonomous vehicle trials particularly in Dubbo and Coffs Harbour and the use of local champions – a trustworthy person with good technology and communication capacity, plays a significant role in the local communities to facilitate people to connect up and start with the technology.
  - Prior to COVID-19, cash was identified as the predominant payment method, but users were becoming more inclined to use contactless payment and Opal card (smart card), where available.
  - Users generally, had to take the initiative to acquire information about available mobility services, e.g., via word of mouth, indicating that current transport services in rural areas may suffer from lack of marketing.

(5) Barriers to meeting the mobility needs of the general public:
  - Access issues were identified as the most significant barriers to meeting needs. This included accessing essential services such as medical appointments especially when these essential services weren't available in the immediate surrounds. Limited access to transport can create a sense of isolation. Improving transport options and infrastructure can help increase access to opportunities for young people and improve their overall quality of life. A lack of access to infrastructure was raised, making it difficult for people to get to bus stops and making it more difficult to implement new mobility solutions. The distance required to travel to bus stops was also raised.
  - Having to leverage the support of others or being dependent on others for transport can be challenging for individuals. When relying on others for transport, individuals may have limited options in terms of the places they can go, the times they can travel, and the modes of transport available.
  - The sparsity of services was identified including limited transport services, a lack of taxis or no bus services that make connections to places like airports difficult. There were also long distances between centres making full network coverage difficult.
  - Complex contractual obligations particularly in relation to funding for CT were raised. Conflicting views about how these services were funded were identified. Funding sources are a common challenge in the CT sector, as adequate funding is critical to ensuring the continued provision of vital services but finding a sustainable and diversified funding model can be difficult.

(6) Barriers to meeting mobility needs of people with disability:
  - Several interviewees mentioned that even though carers of individuals with disabilities play a crucial role in providing care for their loved one, these carers do not always meet the eligibility requirements for government assistance programs, which adds to the expenses and challenges they face in caring for their loved ones. Eligibility for CT was raised as an issue or a need to provide alternative transport options for disabled persons who are not eligible for CT services.

Barriers for transport service providers, including CT operators (7), bus operators (8) and train operators (9):
  - CT relies heavily on volunteers and this has both advantages and disadvantages. Volunteers are considered as one of the strengths of the CT sector since they are motivated to help people and thus can improve the service quality, especially for the disadvantaged. However, relying on volunteers brings challenges to CT, such as the driver shortage and uncertainty and constraints of volunteers' working time.
  - Barriers to bus operators included reference to trouble overcoming a car culture, overcoming a lack of awareness of accessible services and bus services not well connected with other public transport providers such as rail and CT.

9

- Train operators identified three main barriers to services delivery including a perceived priority given to freight trains over passenger trains, an inability to change timetabling to connect better with other modes and a lack of availability of fleets to meet needs.

(10) Barriers to transport in the Aboriginal community:
- Recognising the importance of cultural sensitivity with Indigenous communities was identified as crucial to addressing travel needs. This was helped by having Indigenous workers involved in addressing the travel needs of Indigenous communities. However, a shortage of available staff was identified as a barrier. Affordability was also identified as a barrier to transport.

(11) Barriers to implementing Rural and Regional MaaS:
- The main barriers to implementation identified included users being resistant to technology and relying on private cars. A lack of familiarity with MaaS or the technology that it relies on, such as mobile Apps and real-time information systems, was identified. This can create resistance and reluctance to adopt these new tools and services. The comfort and convenience provided by private cars was something people are not willing to give up. Private cars were seen as more cost effective for frequent or long-distance trips. Subscription fees were also perceived as prohibitive.

(12) Response to Rural and Regional MaaS:
- Responses to MaaS were predominantly positive with advances in technology and increased uptake identified as reasons why MaaS will work better in future. Interviewees believe MaaS could make life easier for people by offering a more convenient, efficient, and sustainable transport system.
- According to the interviewees, MaaS will make it easier for people to access essential services and participate in community activities. This could reduce isolation and increase opportunities for social and economic participation. By improving transport options and connectivity, MaaS can promote social inclusion.

(13) Impact of disaster and COVID-19 on transport services:
- While COVID-19 led to difficulties for some transport providers such as CT, it also changed people's working and living style, having an impact on tourism and leading some services to diversify their activities. COVID-19 also changed users' habits of using technology with more users adapting to using smart mobile phones.

(14) Factors influencing the ability to meet needs:
- Government funding to subsidise services was the most commonly mentioned factor influencing transport providers ability to meet community needs, particularly business models that relied heavily on government support to be profitable. Other factors identified included communication between different organisations and departments to increase the use of public transport and bus patronage given the importance of complementary information. Respondents also identified reliability and trust factors.

(15) Considerations on Rural and Regional MaaS sponsorship:
- Sponsorship from other businesses, such as the courtesy buses for clubs, could provide a more constant stream of funding for MaaS initiatives. This type of sponsorship could also help to offset the cost of maintaining the fleet of vehicles and improve the overall sustainability of the MaaS initiatives.

(16) Business opportunities of Rural and Regional MaaS:
- Non-transport providers viewed MaaS as an opportunity for operators to integrate into a larger network. MaaS provided the ability to integrate systems where different operators could work together in a seamless manner, making that process more efficient and streamlined. MaaS could fill a gap in providing on-demand services and help stimulate regional economies.

(17) Key success factors (KSF) of Rural and Regional MaaS:
- Technology usage and uptake – particularly an acknowledgment of the difference in uptake between generations – was identified as a significant factor. A resistance to technology or a lack of confidence should be considered when designing the MaaS blueprint. It was suggested that the implementation of MaaS should not fully be reliant on digital options, but also include the traditional booking methods such as phones, to make non-tech savvy users adapt it step by step.
- Marketing methods and awareness promotion were considered another significant key success factor. This included the need for promotion and awareness raising but also encouragement to help passengers see the benefits of usage.

(18) (19) Suggested and expected role of government:
- MaaS is a multi-disciplinary initiative that involves multiple government departments and agencies with a specific role to play in facilitating implementation. Table 2 outlines the expected role of government sectors in Rural and Regional MaaS.

- The government was seen as a central player in the co-ordination and communication between different stakeholders and sectors. This is because the government has the resources, authority, and expertise to bring together different groups and ensure effective collaboration towards a common goal.
- Government was seen as important in running an effective communication campaign to build trust and awareness, encourage usage and communicate benefits.
- It was suggested that the government extend the opal card system into regional areas to help pave a way for a payment method of MaaS.

Table 2: Expected role of government sectors in Rural and Regional MaaS

Department	Expected role
Transport for NSW	Connect and communicate with different organisations and stakeholders together to develop strategies.
National Disability Insurance Agency	Support a better life for Australians with a significant and permanent disability and their families and carers by better administering the access to the scheme and simplifying the approval procedure for the payment of individualised support packages.
IPTAAS[1]	Serve as significant funding source for users who need to travel more than 100km one way or 200km within a week for appointments to the same medical practitioner or health service.
CHSP[2]	Provide transport support for older people who stay at home and closely work with transport service providers to maintain their life independence.
Department of Health	Provide health related funding to community transport providers.
Department of Education	Provide education related transport funding and start a curriculum about life skills and using public transport to promote awareness on public transport from a young age.
Department of Communities and Justice	Oversee disability policy and link how that all fits in in terms of disability type services.
Local Government	Councils can oversee a better utilisation of assets, resources, and funding across different sectors.

Community discussion groups and end-user surveys

The end user surveys were designed to collect information about the mobility requirements of citizens and their attitudes towards MaaS-like solutions.

Community discussion groups with 45 participants, which included a "pencil & paper" survey were conducted in the three study locations. The aims of this qualitative analysis were to explore current transport needs and experiences among regional and rural dwellers in terms of how they access their surroundings, what constraints they face, and how to address barriers; and to ascertain the nature and extent to which travel can be eased, and behaviour changed by better integration of different forms of transport and the availability and use of supporting technology.

A NSW-wide online survey targeting residents of 16 regional cities was also conducted to provide a broader perspective. This survey sought to elicit users' long- and short-distance behaviour and their preference for different mobility plans with both mobility services and non-mobility services; and to generalise the findings from the three selected locations (Nowra, Coffs Harbour and Dubbo) to a wider regional NSW context. There were almost 1,000 respondents to this survey.

A qualitative analysis of the end-user discussions identified the following themes:

- Methods of knowing about, booking, and paying for mobility services:
  - Knowing about both current and future methods of getting information, booking, and paying for mobility services can provide a comprehensive picture of the current state and future trends of mobility services. While offline booking methods comprised the majority of current methods, this was expected to decline in the future. Awareness of services was currently sought through online methods and in the future, it is expected that integrated mobility Apps and local Apps providing information on all modes of transport will be the most used methods.

---

[1] Isolated Patients Travel and Accommodation Assistance Scheme
[2] Commonwealth Home Support Program

- o Constraints on getting out of rural and regional areas:
  - • The constraints indicate several issues with the current public transport system and infrastructure, including poor service quality, lack of information, inflexibility, affordability, and accessibility. The issues of poor train and bus services, limited service hours, long waiting times, and high cost, create barriers for people trying to access destinations via public transport. In addition, the lack of lighting at night and poor pathway conditions makes it unsafe for people to use public transport, particularly for those with mobility difficulties. The difficulty of finding public transport information and the inflexibility of the timetable create additional barriers for people trying to use the system.
- o Barriers to meeting mobility needs:
  - • The main barriers identified to meeting the mobility needs of users were inadequate infrastructure design and maintenance, poor path conditions and limited awareness of available services.
- o Impact of transport disadvantage on vulnerable groups:
  - • The emotional, social and functional impact of transport disadvantage on vulnerable groups were considered. These are summarised in Figure 2.
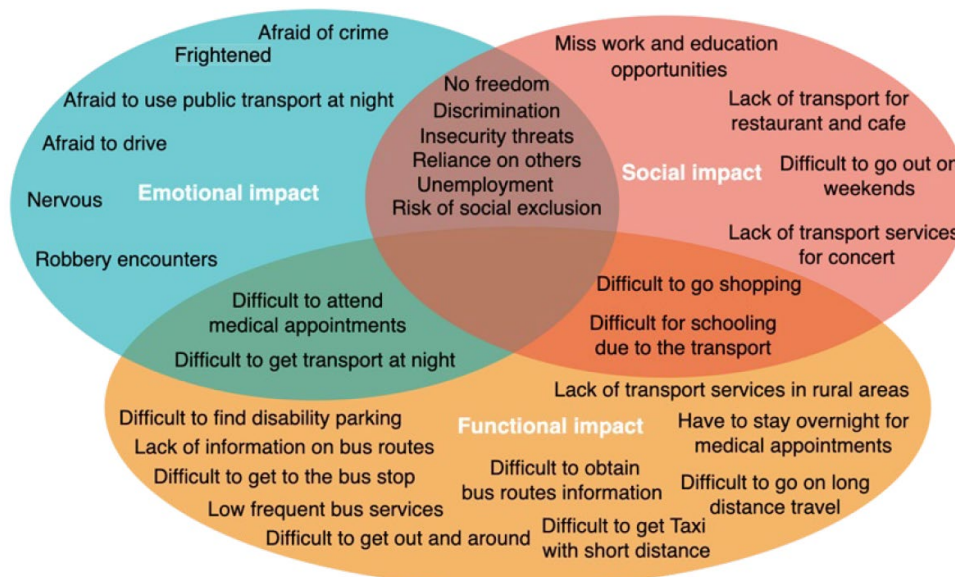
Figure 2: Impact of transport disadvantage on vulnerable groups

- o Pro-social aspects of Rural and Regional MaaS:
  - • An effective pro-social intervention relies largely on the ability to identify the presence of a negative state and determine the cause of the negative state. The motivation behind MaaS is to fill in the unmet mobility needs with more available transport services, which can be characterised by availability and affordability. In view of the unequal access to mobility resources, MaaS aims to distribute mobility resources equally and provide services for different trip purposes, which can be characterised by integration and sharing.

The pencil & paper survey component of discussions reinforced the qualitative analysis and highlighting some interesting geographical differences. These are fully explored in **Annex 3**.

- • Reported private car usage was higher in Dubbo and Nowra when compared with Coffs Harbor. Use of taxi/Uber and walking were the most commonly reported transport types used in Coffs Harbour.
- • Users in Nowra were less likely than other areas to report using a mobile phone to book transport and more likely to go to the bus / train station to book their journey in advance.
- • There were also geographical differences in respect to barriers to getting out of regional and rural areas. Disability was the most commonly identified barrier in Nowra, whereas inability to afford a car was more commonly reported in Coffs Harbour.

- Respondents were asked what services they would most be interested in using if they were available in their area with results summarised in Table 3.
- **The most commonly suggested improvement that could be made to regional and rural services was more frequent bus services, reported twice as many times as any other suggestion.**

Table 3: Service's users would be most interested in using:

Services that respondents are currently use or would be interested in using if they were available in the three locations	Nowra	Dubbo	Coffs Harbour
Public transport			
Walk to bus stop, take regular bus, and walk to your destination; full or concession fare (depending on entitlements)	71%	67%	69%
Book an on-demand bus, walk to pick up point, travel on the on-demand bus, walk from bus to your destination	53%	53%	85%
Book on-demand bus, take on-demand bus to train station, take train and walk to destination	59%	40%	62%
Walk to train station, take a train, and then walk to your destination; full or concession fare	35%	27%	54%
Bookable Car share in advance (at least 5 hours' notice):			
If just for you: pay the same as you do for a bus, picks you up from home and drops you at your destination. Guarantees return trip at booked time	76%	60%	69%
Sharing with other people you know: Each pays the same as they would for a bus. Picks you up at your chosen location (e.g. home, agreed meeting point) and drops you off at your chosen location (e.g. home, agreed meeting point).	76%	60%	77%
Sharing with other people you don't know: Each pays the same as they would for a bus, picks you up at your chosen location, drops you at your destination and guarantees return trip at booked time	47%	47%	46%
For just you: take you to train station, pick you up from station, and drop you at destination	76%	40%	54%
Sharing with other people you know pick everyone up, take them to train station, pick them up at station, and drop everyone off at their destinations	59%	47%	54%
Sharing with other people you do not know take everyone to train station, pick everyone up at station, and drop everyone off at their destinations	35%	27%	38%
Bookable Taxi:			
Book taxi anytime on concession entitlement or subsidy	82%	87%	77%
Bookable Go-get or Car- next door:			
Book and use Go-get or Car- next door	53%	27%	38%
e-scooter/bicycle			
Use personal e-scooter or e-bike all the way from "anywhere to anywhere".	29%	20%	38%
Use shared e-scooter or e-bike all the way from a pick-up point to destination	24%	7%	31%
Use e-scooter or e-bike to bus stop and take on bus	18%	7%	23%
Use e-scooter or e-bike to bus stop and take on train	24%	7%	8%
Walk:			
Walk the entire trip	29%	40%	62%
Non-mobility services:			
The ability to be able to use an App to order your shopping, take away food and other needed items such as a medicine, grocery, wine etc., and have it delivered to your home	71%	67%	54%

Online Survey Findings

The broad online survey results are based on the responses of 916 people. A detailed quantitative analysis of sample characteristics is provided in **Annex 3**.

A key feature of the online survey was a stated choice experiment designed to elicit preferences for various MaaS packages. Respondents were shown various alternatives, described by a combination of levels of attributes associated with each mode and non-modal service offer, asked to review them, and decide which one was their most preferred if offered in a real market in the future. If none of the offers were appealing, they can simply choose to stay with what they currently do.

The modelling explored the appetite of respondents in the survey to bundle different modes, in different packages and at different bundle prices. Overall results suggest offering bundle discounts can be an effective way to encourage individuals to choose certain services but that it is important to note that different respondents exhibit different

preferences in terms of the level of discount offered. Respondents were also sensitive to overall bundle price (explored further in **Annex 4**).

The Blueprint

Based on the preceding analysis, ITLS developed a blueprint for MaaS in a regional and rural setting. The blueprint document presents a vision for how transport services in rural and regional areas in the NSW context could be better organised to meet the needs of residents and visitors. It features a mobility framework for Rural and Regional MaaS which is multi-modal (including all modes available, including the private car) and multi-service (e.g., non-mobility services such as parcel deliveries, library services, food and medicine distribution, media streaming). The Blueprint also provides a focus on decarbonising transport and combatting social exclusion.

A distinctive feature of the Blueprint is the recognition of the relative importance of the car (private or shared) as a mode in the rural and regional context and the critical importance of stakeholder involvement in governance. MaaS in a rural and regional context, as with MaaS in urban areas, will use a digital platform for users to find out about, book and pay for all their mobility, including any non-mobility services offered as well as reports of how much is being spent and time outlaid on various mobility options. The full blueprint can be found in the Final Report.

Rural MaaS is different from urban MaaS and compared to urban areas rural areas are characterised by limited transport options, vast distances, lower population density, different demographics with aging populations, a lack of modal integration, private car dependence, and socio-economic precarity. Understanding the challenges of rural areas is helped by recognising the stakeholders involved, their roles and their perceptions. Figure 3 below shows the major stakeholders in rural transport.
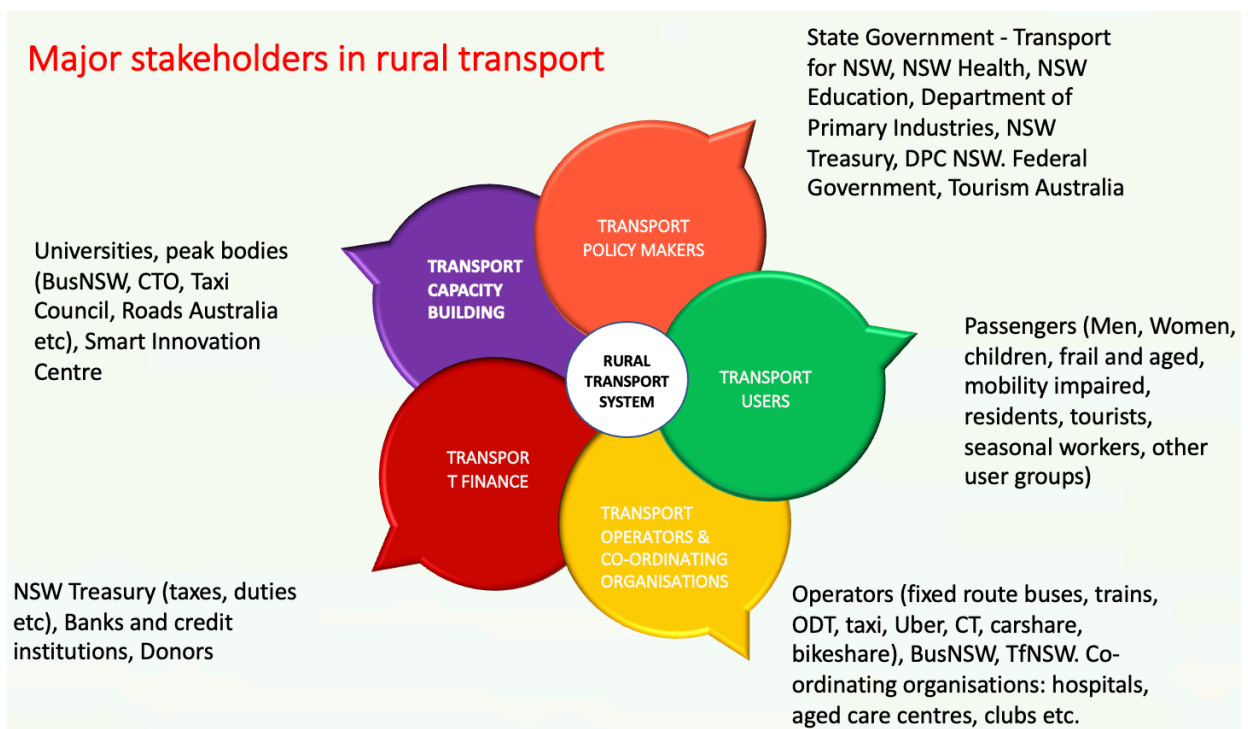
Figure 3: Major stakeholders in rural transport

Important issues to consider in implementing Rural and Regional MaaS include:

- A need for a better integrated transport system is recognised by all.
- Availability of multiple vehicles (including the private car) that are not being used as much as they could be.
- A one-stop-shop for travel is very much welcome and identified as the key selling point.
- A co-designed and phased implementation approach is considered necessary.
- Rural and Regional MaaS should not be fully reliant on a digital app.

The MaaS "product" needs to be visible and should be marketed using a range of media with a focus on user-benefits, reliability, and ease of use.

The Rural and Regional MaaS framework will include those modes that exist already and use understanding of gaps in current provision to encourage and nurture new and innovative mobility

14

options. These options include those transferring from an urban context such as lift-share and car-share in some rural towns, while the introduction of shared bikes or e-bikes could be fostered to help with first and last mile transport.

A significant contribution that a rural and regional framework will make is in the identification and implementation of innovative modes such as:

- A Car Community Club (CCC specifically aimed at harnessing underutilised car capacity to meet short, and particularly long-distance, journeys.
- Mobility as a Feature (MaaF) bringing together private non-mobility partners to provide improved mobility options, funded through cross subsidization.

Both CCC and MaaF are described in the full version of the Blueprint in the Final Report.

A roadmap or plan for implementation of this Blueprint is essential. It must consider the unique characteristics of the context. The figure below shows a exemplar implementation roadmap for Rural and Regional MaaS in NSW (Figure 4).
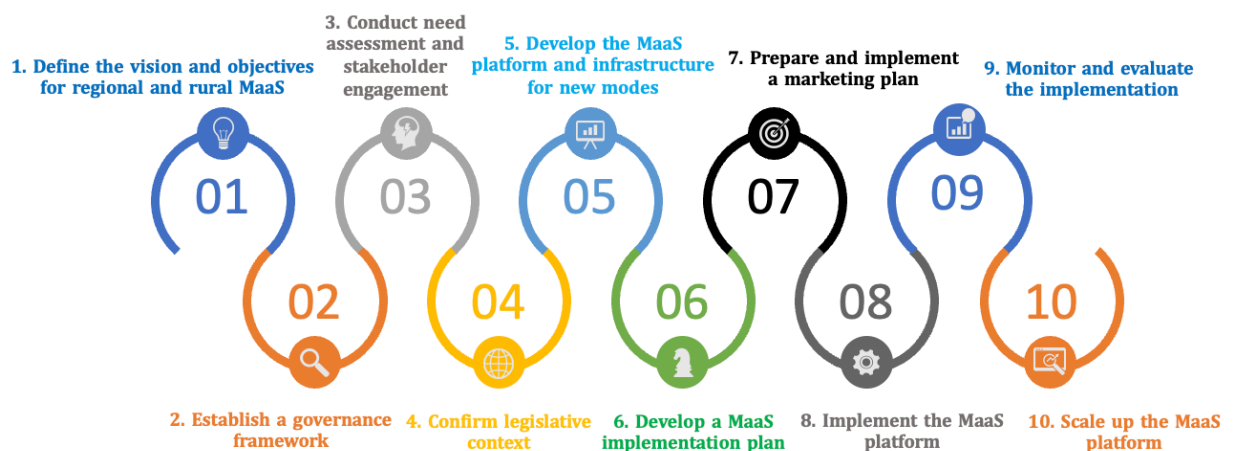
Figure 4: Implementation roadmap for Rural and Regional MaaS

Conclusion

MaaS is conceived as using technology for searching, booking, and paying for end-to-end multimodal transport services. This requires the integration of different modes of transport, including public transport, taxi, and car-sharing services, to provide seamless and convenient mobility options for users. Achieving integration and providing real-time information and pricing through an App could greatly improve the visualisation of transport services and make it easier for people to access and compare different mobility options, while also encouraging partnership among different transport service providers through agreements or contracts that outline the data sharing and updating process. This may require government intervention to stimulate supply, where this is a constraint. It also requires transport operators to share data to improve the user experience. Non-mobility services could be included in the offer (as explored in the stated preference survey), for example, deliveries so that if a user orders groceries online, the delivery time could be coordinated with available transport services. The convenience of including non-mobility services maybe sufficient for their use but users of multiple services could be offered loyalty awards.

The innovative proposal of a new mode as part of the rural modal landscape - the Car Community Club (CCC) has demonstrated how the car will play more of a role in Rural and Regional MaaS than in its urban counterparts – this is a key finding of the Blueprint. This will present opportunities to deliver accessibility benefits beyond improving public transport while allowing the development of a car-based widespread public transport network.

Based on the evidence a possible Action Plan beyond the Blueprint for Transport for NSW may include:

1. Defining and implementing the governance framework for Rural and Regional MaaS in NSW, building on the evidence and proposals contained within the Blueprint as a solid foundation. This is an absolute priority to allow development to a relevant pilot.
2. Identifying the organisational changes needed to effectively generate cross-departmental governance (between transport, employment, planning, health, social care, and education)

which is an essential part of the governance that will make Rural and Regional MaaS a reality.

3. Establishing the legislative changes that may be necessary to allow the pump priming of new services, including new modes. New subsidy arrangements may be needed to allow better and more sustained use of existing modes and new modes such as the CCC in a Rural and Regional MaaS product.

4. Exploration of the scope for bundling in Rural and Regional MaaS as the research underpinning the design of the Blueprint identifies this has promise.

References

Eckhardt, J., Nykänen, L., Aapaoja, A., & Niemi, P. (2018). MaaS in rural areas - case Finland. Research in Transportation Business & Management, 27, 75-83.

Eckhardt, J., Lauhkonen, A., & Aapaoja, A. (2020). Impact assessment of rural PPP MaaS pilots. European Transport Research Review, 12, 49.

Hensher, D.A., Mulley, C., & Nelson, J.D. (2021). Mobility as a Service (MaaS) – Going Somewhere or Nowhere? Transport Policy, 111, 153-156.

Hult, Å.; Perjo, L.; & Smith, G. (2021). Shared Mobility in Rural Contexts: Organizational Insights from Five Mobility-as-a-Service Pilots in Sweden. Sustainability, 13, 10134.

Ministry of Land, Infrastructure, Transport and Tourism Japan. (2021). Promotion of MaaS in Japan. APEC 2021 Virtual Webinar on MaaS and MOD – July 6 2021.

Sochor, J., Arby, H., Karlsson, I.C.M., & Sarasini, S. (2018). A topological approach to mobility as a service: A proposed tool for understanding requirements and effects, and for aiding the integration of societal goals. Research in Transportation Business & Management, 27, 3-14.

World Economic Forum. (2021). Transforming Rural Mobility with MaaS – White Paper. https://www.weforum.org/whitepapers/transforming-rural-mobility-with-maas