National Centre for Social Research

Mobility as a Service Case Study: Wave 2 Report

National Evaluation of Future Transport Zones

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At the **National Centre for Social Research (NatCen)** we believe that social research has the power to make life better. By really understanding the complexity of people's lives and what they think about the issues that affect them, we give the public a powerful and influential role in shaping decisions and services that can make a difference to everyone. And as an independent, not for profit organisation we're able to put all our time and energy into delivering social research that works for society.

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Executive summary

This report presents findings from Wave 2 of a longitudinal case study conducted as part of the Future Transport Zones (FTZ) national evaluation. The FTZ programme is a Department for Transport (DfT) funded initiative that involves Transport for the West Midlands (TfWM), the West of England Combined Authority (WECA), Solent Transport (representing Portsmouth, Southampton, Isle of Wight and Hampshire) and Derby and Nottingham, trialling new transport services and innovations. In each area, the local FTZ programme is made up of distinct 'schemes' all of which contribute to innovation in transport delivery. This case study focuses on Mobility as a Service (MaaS)[a] which is being trialled across all areas.

MaaS case study

The objectives of the research were to understand the process of developing and delivering a successful MaaS intervention and to draw key lessons learned to inform future MaaS development. The findings are based on eighteen in-depth interviews with stakeholders who had a key role in the scoping, design and/or implementation of MaaS schemes across the four zones. Additionally, the report references findings from the zones' local process evaluations related to MaaS.

Scheme progress

Since Wave 1 fieldwork in autumn 2021, all four areas had made substantial progress with their MaaS solutions. Solent were furthest ahead, having achieved a micromobility public launch of their app and were preparing for a full public launch in spring 2023. TfWM and WECA were at an early stage of implementation while Derby and Nottingham were preparing to imminently procure their MaaS provider and were running a restricted trial in Derby.

Key findings

Approach to design and procurement
Zones took different approaches to the design and delivery of their MaaS solutions;

- WECA and TfWM took a customer led approach, opting for highly specified solutions encompassing existing mode integrations or support services. This meant that more time was spent specifying the solution and negotiating procurement.

- Solent took a more flexible approach, opting to continuously refine their solution after the procurement stage. This agile approach enabled them to respond to changing circumstances and focus resources on responding to challenges or emerging customer needs at the implementation phase. While Derby and Nottingham were still to appoint a MaaS provider, they were following a similar route to Solent.

While it was too early to determine the most successful design and delivery approach, this will be a key area of learning to emerge over the remaining timeline of the FTZ programme.

Solent, WECA and TfWM appointed their MaaS platform providers through competitive procurement processes and benefited from engaging with potential suppliers pre-tender or during the process. While this approach allowed them to better understand the capabilities of the market and build an enhanced offer for customers, it was resource intensive both for the internal (i.e. FTZ delivery, legal and procurement) and external (i.e. potential supplier, transport operator) teams. The zones experienced delays finalising contracts with appointed MaaS platform providers due to protracted negotiations or having to adapt the contractual arrangement to accommodate the novel nature of MaaS.

Implementation

The novel nature of implementing MaaS impacted the timeline for development, with user testing and negotiating new integrations with transport operators taking longer than anticipated. The zones indicated that they had to bring in people with a variety of skills onto their projects to ensure effective delivery. The expansion in the number and variety of internal and external stakeholders involved in the project led to challenges around capacity, achieving buy-in from key stakeholders, communication and working relationships.

Moving through the implementation stage zones were:

- Using **agile and innovative project management** approaches to mitigate challenges.

- Looking ahead to marketing their solutions and **making decisions on when to move to public launch**. Key considerations for areas were:

  - the timing of when to align availability of the MaaS app with a full marketing strategy; and

  - the need to strike a balance between waiting until the solution was developed enough to appeal to the public and launching the solution to allow for learnings within the timeframe of the FTZ funding.

- **Assessing the commercial viability** of solutions post-FTZ funding. Concerns raised here by zones included:

  - whether a seamless transport service across operators was possible in a commercially competitive environment; and

  - whether a local area approach to MaaS would offer a large enough user base to support it.

Suggestions to improve commercial viability included introducing fees such as congestion charging or car parking into the solution, adding an entertainment offer, advertising or government subsidies. To ensure the longer-term sustainability of the schemes, the need for innovative responses to this challenge will remain live.

Data infrastructure

Since the last wave, zones had made progress in developing the back-end functionality of their MaaS solutions, which includes the technology and data which drive journey planning, booking and paying for journeys. Each of the zones had varying requirements from MaaS providers, ranging from adapting existing solutions to building additional infrastructure. Derby and Nottingham, Solent and WECA were relying on their MaaS provider to develop journey planning functionality while TfWM required the provider to develop only the front-end of the solution and facilitate integration with their existing back-end.

At this wave of fieldwork, zones had begun to experience first-hand the data requirements to these complex technological systems. The pace of development was impacted by the complexities of pre-existing data agreements, data security, data quality and having to integrate the new MaaS platform with existing functions and services. Suggestions for overcoming these issues included building in additional costs for managing integrations into the contract, appointing providers with existing integrations or with previous experience of developing MaaS-type schemes and establishing information governance structures and processes at the outset.

1 Introduction

This report presents findings from Wave 2 of the longitudinal case study on Mobility as a Service (MaaS) being implemented as part of the Future Transport Zones (FTZ) programme. The case study forms part of the national evaluation of the FTZ programme.

1.1 Future Transport Zones Programme

The FTZ programme is a Department for Transport (DfT) funded initiative that involves selected areas trialling new transport services and innovations. FTZ is a key element of the Government's Future of Mobility Urban Strategy[b] and part of the wider shift to cleaner transport technology. DfT's core objectives for the FTZ programme are to:

- trial new mobility services, modes and models;
- improve integration of services and availability of real-time data; and
- create a digital marketplace for mobility services.

There are four areas participating in the programme: Transport for West Midlands (TfWM), West of England Combined Authority (WECA), Solent Transport (representing Portsmouth, Southampton, Isle of Wight and Hampshire) and Derby and Nottingham. Each area is implementing a diverse set of innovative schemes designed to meet the objectives of the FTZ. These include mobility hubs, data hubs, Dynamic Demand Responsive Transport (DDRT) and urban freight consolidation trials.

Mobility as a Service (MaaS) is one of only two schemes that are being implemented by all four zones. The DfT commissioned a separate evaluation of the other e-scooter trial and as a result, e-scooters are out of scope for the FTZ evaluation. MaaS is a term used to describe "digital transport service platforms that enable users to access, pay for, and get real-time information on a range of public and private transport options" (Enoch, 2018). MaaS aims to change the way in which users perceive transport, shifting away from a focus on the means of transport (such as having a bus pass or train ticket) to the purchase of transport services as multi-modal packages which can be used flexibly to meet individual needs (Karmargianni & Matyas, 2017). At its most developed, MaaS consists of a single digital interface which allows frictionless and integrated access to a complex range of travel services. Throughout the report, 'MaaS solutions' is used to recognise that MaaS, as a concept of mobility, could take different formats (e.g., web browser interface and/or app).

MaaS, and its offer to the public of 'seamless travel', sits at the heart of the FTZ projects in all areas. Across areas, the availability and integration of various types of data is integral to the delivery and functionality of MaaS. Furthermore, once MaaS is developed, it is also expected to yield a vast quantity of new data enabling greater understanding of customer behaviour.

1.2 The national evaluation and MaaS case study

The DfT commissioned the National Centre for Social Research (NatCen) to conduct a national evaluation of the FTZ programme. The core objectives of the national evaluation are to maximise the opportunities for learning, to understand how new digitally enabled mobility modes, services and business models can be delivered successfully, and to assess the extent to which the programme has achieved its intended outcomes.

As part of a wider evaluation, NatCen are carrying out a longitudinal case study examining MaaS. The MaaS case study's four key research objectives are to:

- Understand the whole process of developing and delivering a successful MaaS intervention, including the enablers and barriers to implementation;

- Examine the development and design of the 'back-end'[c] as well as the user experience of the 'front-end'[d];

- Understand what the key lessons learnt are from development and implementation to inform local authorities seeking to develop MaaS in the future; and

- Understand how variations in context affect implementation and delivery of MaaS.

The data collection as part of the MaaS case study will take place at three time points throughout the evaluation. Wave 1 fieldwork was completed in late 2021, Wave 2 in early 2023 and Wave 3 is planned for Autumn 2024. Table 1 summarises the data collection methods used at each wave. The current report describes findings from Wave 2 of this case study.

Table 1 Summary of methods at each Wave

Methods	Wave
Qualitative interviews with FTZ stakeholders (e.g. scheme leads, suppliers, transport operators)	Wave 1, Wave 2, Wave 3
Review of zone planning and implementation documents	Wave 1, Wave 2
Survey with 500 residents in each of the four zones	Wave 1, Wave 3
Review of local process evaluation findings specifically related to MaaS	Wave 2, Wave 3
Qualitative research with MaaS users (including focus groups and digital travel diaries)	Wave 3

1.3 Methods

The following paragraphs provide further detail on the methods used at Wave 2. Eighteen in-depth interviews with stakeholders who had a key role in the scoping, design and/or implementation of MaaS were conducted across all zones. Interviews explored aspects such as the design and implementation of MaaS solutions and key factors around the development of technology and deployment of data. Interviews lasted approximately 1 hour, were conducted using Microsoft Teams and took place between late January and early March 2023.

To support the national evaluation, all the zones were asked to share local process evaluation findings at three-time points, the first timepoint being in January 2023 to inform Wave 2 of the case study.[e] The research team reviewed the submitted findings and analysed these alongside the findings from the Wave 2 qualitative interviews. Where relevant, the report presents findings from the local process evaluations which relate to MaaS. These include findings drawn from qualitative interviews conducted by zones with internal staff working on MaaS, internal monitoring and progress reports, meeting minutes, and internal workshops on MaaS.

1.3.1 Sampling and recruitment

A purposive sampling approach was used to capture a diverse range of insights from internal and external stakeholders with varying expertise and involvement in the design and implementation of MaaS. Internal stakeholders included project officers directly involved in delivering MaaS projects, as well as those working on ticketing or data elements. External stakeholders included technology suppliers, transport consultants and MaaS platform suppliers providing expertise in the design and development and implementation of the schemes. The types of stakeholders varied by area depending on progress made against design or delivery in the specific zone. Table 2 sets out the number of interviews achieved across the zones.

Table 2 Number of stakeholder interviews conducted by zone

Stakeholder type	TfWM	WECA	Solent	Derby and Nottingham	Total
Internal	4	2	2	3	11
External	2	1	3	1	7
Total	6	3	5	4	18

Stakeholders were invited to participate by FTZ project leads using a NatCen invitation template. The invitation included clear information about the study, what participation entailed and explanations of limitations around confidentiality and anonymity[f]. Stakeholders were asked to opt-in if they were interested in participation before contact details were shared with NatCen.

1.3.2 Fieldwork and analysis

A topic guide, designed in collaboration with the DfT, was used to guide the interviews. The guide was designed to be used with different types of stakeholders and was thus organised into modules. The main themes covered included:

- Background and context (for example, a stakeholder's role on the MaaS project, length of time in the role, team structure);
- Progress and key milestones achieved since Wave 1 case study fieldwork in autumn 2021;
- Designing and implementing a MaaS solution (procurement, stakeholder engagement, resourcing, marketing strategy; funding and commercial viability);
  - Data infrastructure (key considerations, data sharing and integration); and
- Key successes and challenges and lessons learnt.

All interviews were audio recorded with participants' permission and then transcribed verbatim. The transcripts were managed and analysed using NatCen's Framework approach (Ritchie et al., 2013) which allows in-depth exploration of the data by case and by theme. Coded data was reviewed to draw out a range of participants' views to identify any similarities and differences within and across zones. Further information on the approach to data analysis can be found in Appendix A to this report.

1.3.3 Interpreting the findings

The report avoids giving numerical findings, since qualitative research cannot support numerical analysis. This is because purposive sampling seeks to achieve range and diversity among sample members rather than to build a statistically representative sample. Instead, the research provides in- depth insight into the range of experiences, views and recommendations.

To protect participants' anonymity, quote labels only include the zone. Due to the small qualitative sample size, any other detail regarding a participant's characteristics would potentially lead to identification.

1.3.4 Report structure

This report builds on findings from Wave 1 and explores progress made with the design and implementation of MaaS solutions in zones, and the associated data infrastructure needed to deliver it. The report is structured as follows:

- Chapter 2 sets out an **overview of delivery progress** made in each of the zones since Wave 1 of the case study.
- Chapter 3 focuses on the **design and set up of MaaS products**
- Chapter 4 focuses on **the implementation and roll out of MaaS products**
- Chapter 5 focuses on the **data infrastructure that underpins MaaS**

- Chapter 6 concludes the report with an **overview of the key lessons learnt**.

The findings in each chapter are based on evidence from the qualitative interviews with MaaS internal and external stakeholders. Where findings are drawn from local process evaluation findings, this is referenced in the text.

# 2 Overview of delivery progress since Wave 1 (Autumn 2021)

This chapter addresses progress made in each of the zones since Wave 1 fieldwork in autumn 2021. It begins by presenting a high-level overview of progress made against the MaaS five-stage development process and then goes on to look at each zone in turn, addressing key milestones and the timeline for future development.

2.1 Overview of progress since autumn 2021

Substantial progress had been made since the Wave 1 fieldwork in autumn 2021, with the zones successfully maintaining momentum in the development of their solutions.[9]This was despite unforeseen challenges such as the complexity of commercial negotiations with transport operators and the continuing impact of delays caused by the COVID-19 pandemic. While public launch of a MaaS solution was still some time away for three of the four zones at the time of fieldwork, stakeholders highlighted the substantial amount of activity involved in getting to the point of procuring a solution provider and establishing early versions of the app.

As presented in Figure 1 below, each zone had been developing their MaaS solution iteratively and broadly followed the same five key stages, although some of these overlapped or involved multiple product testing iterations. At the time of the research in January/February 2023, the zones were at different stages in this process. Solent, who were furthest ahead, were between stages four (Beta product launch) and five (full product launch). They had carried out a micromobility only launch of their MaaS app in October 2022 and were preparing for a full public launch in spring 2023. TfWM and WECA were both at the third stage (building the MaaS solution), having recently appointed their Maas platform suppliers. Derby and Nottingham were preparing to imminently go out to market for their MaaS supplier (Stage 2), as well as running a restricted trial in Derby.

Figure 1 High level overview of process of developing a MaaS solution
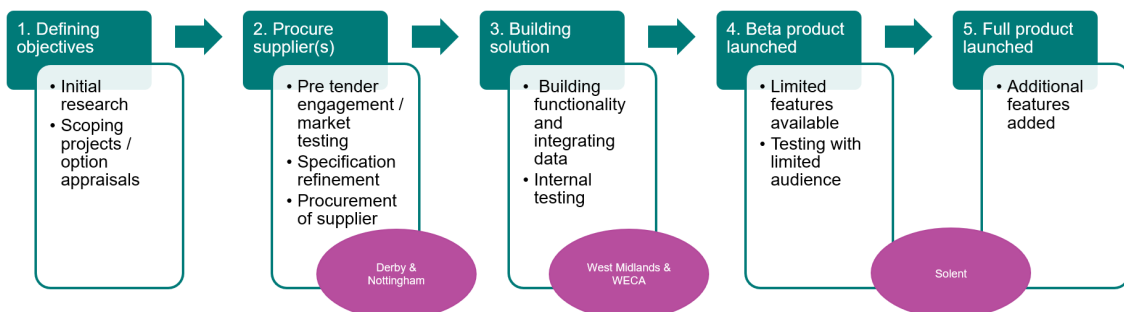
The following paragraphs set out in more detail the progress made and current status of the MaaS solutions at the time of fieldwork in each zone.

2.1.1 TfWM

TfWM put out their MaaS solution to tender in January 2022. This was followed by a lengthy negotiation and scoring process. National Express, the region's main bus operator, was involved both in the design of the specification and assessment of supplier responses. National Express contributed additional requirements that a successful supplier should meet, from the perspective of a competitive transport operator. This process concluded with contract award in autumn 2022. At the time of Wave 2 fieldwork in January/ February 2023, the contract was being finalised with the successful provider, FOD Mobility. Discussions were underway to specify the technical integrations needed to join the new MaaS platform with the existing Swift[h] back office system including its disbursement engine.[i]

The zone was planning a staged approach to the development of its app and was working towards an Alpha[j] version. This early version would include integrations that the platform provider offered as part of their White Label[k] product as well as static data and journey-planning functionality for a number of modes. This would be followed by a Beta[l] version which would include more complex mode integrations as well as booking and payment functionality. The zone planned to release this Beta version to a restricted public audience for additional testing in summer 2023 before pushing out to the wider public through a complex marketing campaign in early 2024. TfWM had revised its timeline for full public launch from spring 2023 to early 2024 as a result of the extended procurement process.

2.1.2 WECA

Following a period of market engagement with potential suppliers, the WECA senior management team approved the MaaS platform procurement in March 2022. This was followed by a six-month clarification and scoring process, with the successful consortium, Worldline and Mentz appointed in autumn 2022.

Given some delays to the procurement process, WECA were looking to meet the first key milestone of releasing an Alpha version of their MaaS app in early 2023. Negotiations with transport operators around the solution's commercial model had been ongoing alongside this. At the time of fieldwork, WECA were out to market for a marketing agency to develop the branding and marketing strategy for the app. Like TfWM, WECA were taking a staged approach to development. The Alpha version of the app will be followed by a Beta release with more complex mode integrations as well as booking and payment functionality. WECA were planning to test the Beta version with a customer longitudinal panel in spring 2023 prior to wider public launch in late summer 2023.

2.1.3 Solent

Following a 'dark' launch[m] of the Beta version to staff of the region's local authorities and Universities of Portsmouth and Southampton in early 2022, a micromobility only public launch of Solent's MaaS app, Breeze, took place in October 2022. The launch was promoted by a digital only media plan.

Solent had continued to integrate new modes and operators into the app. Most notably, they had successfully applied for the Rail Delivery Group Travel Agent License to retail rail tickets. These could be bought through the app from November 2022. At the time of fieldwork in January/ February 2023, Solent were in a pilot phase with a requirement to sell a minimum number of tickets before the solution would be formally approved. Solent were also adding ancillary features to the Breeze app to bring additional value for the customer and drive uptake of the solution. These features included a voucher feature and Active Trip which offers users a step-by-step guide to their journey. SolentGo, the zone's existing smart ticketing offer was also due to be integrated into the app, however issues with ITSO technology meant that these plans were put on hold while a solution was found.

A wider multi-faceted marketing campaign was planned to promote a version of the app with additional travel modes in spring 2023. These activities were planned to take place later than originally intended due to an extended period of user testing of the Beta app and the delays involved in securing the rail Travel Agent License.

2.1.4 Derby and Nottingham

Derby and Nottingham had commissioned SYSTRA to conduct an options appraisal to establish the exact scope of the MaaS solution. This was due to be completed in October 2021, but was finally delivered in May 2022. Since completion of the options appraisal, Derby and Nottingham had been developing a specification for procurement of the MaaS platform provider. At the time of Wave 2 fieldwork, the zone was about to go out to tender.

Alongside the options appraisal, Derby was running a restricted MaaS trial, called DerbyGo, in partnership with Toyota Kinto. The app launched to staff and students at Derby University and Derby College with limited features in September 2021. Take up of the app had so far been lower than anticipated due to unforeseen challenges in integrating UniBus, the bus service for university students which links campuses around the city. In light of this, the trial had been extended by 6 months to the end of the 2023 academic year. Since Wave 1 fieldwork, additional online parking providers had been integrated into the app and the integration of UniBus was about to be finalised at the time for Wave 2 fieldwork.

3 Design and procurement

This chapter explores the design and procurement of the MaaS solutions across the four Future Transport Zones (FTZ). It outlines progress to date, key factors which the zones considered in defining their overall approach and the experiences of procuring a MaaS platform provider.

3.1 Design

3.1.1 Progress to date on design

At the time of Wave 1 fieldwork, Solent, WECA and TfWM had all reached an advanced stage in planning and design. As a new innovation and a core component of all FTZ programmes, zones had spent considerable time on this phase of development. The Wave 1 report set out the zone approaches to scoping and set up of their MaaS projects. It detailed the key features and functionality that zones' expected from their MaaS solutions and examined the main sources of information to inform scoping and design phases.

At Wave 2 fieldwork, the designs of the Solent, WECA and TfWM solutions remained largely unchanged, although they had undergone refinements as a result of testing and stakeholder engagement (for further information on testing post-procurement see Chapter 4). WECA and TfWM had further refined their solution designs as part of the procurement process (discussed in relation to procurement below). Derby and Nottingham were the least advanced with specifying their design at the time of Wave 1 fieldwork, but had made significant progress in finalising their design since, which is discussed in more detail below.

In their local process evaluation findings, Derby and Nottingham described the intended MaaS solution as a single point of contact for detailed information on journey planning and an opportunity to pay for, hire or reserve transport or parking. To better understand how MaaS could operate across both cities and help inform the development of the specification for procurement, Derby and Nottingham commissioned a detailed options appraisal. It found that there was a high degree of commonality between the two councils in what they wanted from a MaaS solution and as a result recommended procuring one White Label product across both cities with the option to switch on or off individual functions depending on the local requirements. It is therefore likely that Derby and Nottingham's specification will require their MaaS supplier to be able to show an understanding of these requirements, and to be able to develop their MaaS solution accordingly.

Derby and Nottingham Options Appraisal
The Derby and Nottingham appraisal conducted by SYSTRA presented a list of options for a two-city MaaS solution and the deliverability/challenges of each. It drew its insights from consumer testing, interviews with operators/service providers and a customer panel. The customer panel was set up to explore

public expectations of MaaS and to develop 'personas' that identified how different people would interact with the solution. The personas were subsequently used for soft market testing[n] to provide insights into the sequencing and prioritisation of various aspects of the offer. The appraisal also included insights from the restricted DerbyGo trial which provided key learning for the main FTZ solution. It offered a greater understanding of the opportunities and constraints of using a white label product and the complexity of negotiations with transport operators to achieve integrations.

The appraisal was due to be completed in October 2021 but was subsequently delivered in May 2022. This was due to delays with a Data Protection Impact Assessment which needed to be completed and approved by both councils before the appraisal could begin. As outlined in the zone's local process evaluation findings, due to the novelty of the scheme and a lack of experience with projects of this nature, the dialogue with Information Governance was protracted.

In their local process evaluation findings, Derby and Nottingham emphasised the importance of adequately resourcing a prolonged *'thinking time'* at the early stages of an innovative project. The zone's local process evaluation also outlined the importance of assessing learning from similar schemes within and outside the UK on an ongoing basis, while taking care to consider the implications of local market conditions for these comparisons.

3.1.2 Defining an overall approach to MaaS design

As Solent, WECA and TfWM were at the stage of implementing their solutions, two main considerations have emerged as guiding the zones' decision-making on the overall approach to design of their solutions (from defining objectives through to going to tender for a solution provider). These are outlined below.

- **Customer-led design.** The zones differed in how they considered the customer in the design of their solutions. During scoping, TfWM and WECA both emphasised building a solution around what customers most wanted from a transport product and what would make the most difference to their day-to-day experiences. The zones felt this would be essential to ensuring take-up of the solution following its development.

  "We're not here just to provide things with wheels on. We're here to provide those journey experiences for people." (TfWM)

  TfWM and WECA highlighted that MaaS solutions were sometimes too focused on the technological capabilities over what customers wanted or needed: *"Rather than talking about the gadgets and the widgets and whatnot, you're thinking about how the user might use it."* (WECA) The design solutions for both zones were guided by statements of 'customer intent' or desirable outcomes for customers contained in 'product statements'.

  Both areas argued that these approaches helped MaaS solution providers, and transport operators, to understand their desire for MaaS as a single service based on types of customer journeys. They also indicated that MaaS

solution suppliers had responded well to this idea of customer intent or a product statement, and generally understood the approach.

Solent's approach emphasised the importance of balancing customer-led design with what would be technically achievable within the time and resources available and aimed to maximise the opportunity to learn through implementation. Solent therefore had the lightest level of customer engagement pre-procurement, with its focus being on user-testing after procurement. As such, Solent intended to build a solution around available services and adapt these to meet customer preferences as they emerged through testing.

- **The degree of specifying solution upfront.** The areas took different approaches to the specification of their designs. Customer-focused scoping work had led WECA and TfWM to opt for highly specified solutions which encompassed existing mode integrations, support services and operator requirements or priorities. At the other end of the spectrum, Solent spent less time specifying its solution and instead opted to learn through the process of implementation, with Derby and Nottingham opting for a similar approach to Solent.

  By taking a highly specified approach to design and development, WECA and TfWM aimed to circumvent issues or delays at implementation stage (for example, due to protracted operator negotiations). They believed that creating a more detailed specification from the outset would lead to more seamless MaaS solution development than iteratively adding new functions or features to the design after contract award.

  Another reason for adopting this approach was to secure greater commitment from the MaaS supplier(s) and to ensure the supplier delivered against the contract. As TfWM put it, the supplier would have to say to themselves, *"Well, we signed up to this, so this is what we are seeking to deliver."* (TfWM)

  Solent preferred to follow a more flexible approach with contractual arrangements between partner organisations that would enable them to be responsive to changing circumstances. An interviewee from Solent argued: *"This is a research project where learning through using it is the important bit, so let's accelerate the first bit, and not worry too much about the exact specification … inevitably it will be wrong and have to change." (Solent)* A key advantage of this more flexible approach was the ability to move quickly to solution development.

  As a result of their options appraisal, Derby and Nottingham settled on a similar approach to Solent. They argued that there would be no advantage to setting out highly detailed requirements from the outset as these were likely to change during implementation. Like Solent, this meant that their approach was more likely to favour the ability of suppliers to offer flexible solution development after procurement.
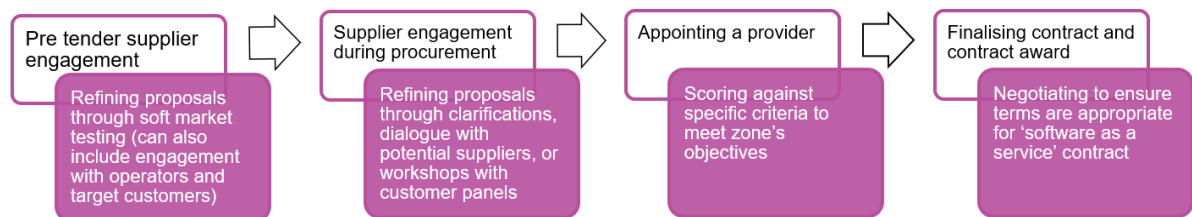
3.2 Procurement

Once zones had decided on the broad approach to be taken to the design of their MaaS solution and developed a preliminary specification, procurement was the next key stage in development of the MaaS solution. Solent, WECA and TfWM had each taken a slightly different approach to this phase of the project, but a common aim of their approaches was to facilitate dialogue with potential suppliers in order to refine their offers. Each of the three zones had appointed their MaaS platform providers through competitive procurement processes.

- Solent had appointed Trafi and Unicard by autumn 2021.

- WECA appointed Worldline and Mentz by autumn 2022.

- TfWM awarded their contract to FOD Mobility by autumn 2022.

- Derby and Nottingham had completed the development of their specification and were about to go out to tender for their MaaS platform provider.

The following paragraphs outline key stages [Figure 2] in the process of appointing a provider, as well as challenges encountered.

Figure 2 Stages in a MaaS platform provider procurement process

Pre tender supplier engagement	Supplier engagement during procurement	Appointing a provider	Finalising contract and contract award
Refining proposals through soft market testing (can also include engagement with operators and target customers)	Refining proposals through clarifications, dialogue with potential suppliers, or workshops with customer panels	Scoring against specific criteria to meet zone's objectives	Negotiating to ensure terms are appropriate for 'software as a service' contract

3.2.1 Pre-tender supplier engagement

As MaaS was a new product, areas reported engaging the market early in order to understand the costs and capabilities of suppliers, and to inform refinement of their specification.

Solent had conducted a pre-invitation to tender at Wave 1 to test what suppliers could offer in terms of functionality. The process had provided useful information on app functionality, and steered Solent towards an integrated MaaS app that would include travel planning and ticket booking within the same solution rather than a simple journey planning app (with signposting to other transport apps to book tickets). TfWM's local process evaluation found that this upfront approach had resulted in clearer MaaS objectives and outcomes.

3.2.2 Supplier engagement during procurement

TfWM and WECA, who had chosen to develop a more detailed specification, incorporated opportunities for dialogue with suppliers after tender responses had been received. This was done in one of two ways:

- **Customer panels.** Both zones facilitated opportunities for potential suppliers to demonstrate their proposed solutions to members of the public and receive feedback on strengths and drawbacks of their designs. This

feedback was used both by suppliers to amend their proposed designs and by zones to inform their final assessments and selection of a provider.

- **Competitive Procedure Negotiation.** TfWM introduced an additional stage of engagement with suppliers following the submission of initial tenders. Each bidding supplier met with the MaaS delivery team to discuss their proposals and were given the opportunity to refine them at a second stage. While this approach helped refine the specification, the additional stage prolonged the process and was resource intensive, as a small procurement team had to manage 170 clarification questions from the first bidding round. The submission of refined bids led to tight scoring and resulted in the award outcome being challenged: "*We then got to the period of award and sent the feedback letters out, and that's when the second-place bidder came back to dig a bit deeper, challenge slightly, so again that lengthened the process.*" (TfWM)

Uniquely among the zones, TfWM had also fully involved National Express, as the region's main bus operator, in specification development and procurement. The operator had both reviewed the specification pre-tender and specified additional requirements as well as scoring submitted bids. TfWM felt that National Express had brought additional value by offering a different perspective to that of the zone and building-in specific requirements that would be needed to reassure transport operators of the feasibility of the app. For example, around the operating model of transport providers, and customer-continuity or allowances such as ensuring that customers could use barcode tickets (already used by the bus operators in the region) when purchasing through the app.

3.2.3   Appointing a provider

In all three zones where procurement had been completed, a process of scoring against specific criteria had taken place, with the contract being awarded to the highest scoring bidder.

Each area's objectives for the MaaS solution fed into their procurement specification, what qualities or capabilities they looked for when writing it, and how they scored prospective suppliers. While Solent had adopted a more open-ended design approach, WECA and TfWM tended towards a more detailed specification. Qualities that zones looked for during procurement reflected differences in these approaches.

As discussed earlier, TfWM and WECA emphasised a customer-focused approach. WECA looked for what providers responding to the tender could offer beyond the design of the solution itself, including customer support services and existing relationships with transport operators. This was in addition to technical expertise, existing accreditations, and back-end functionality (e.g. ticketing). TfWM also aimed to identify providers that could show social value or a charitable contribution from their work. Indeed, this was described as trying to get '*everything*' they possibly could into the specification at once.

This approach to design and procurement was described by WECA as 'aggregated', that is, bringing together the different desired components of the

MaaS solution under a single contract. As one interviewee put it in relation to encouraging taxi providers to join the solution:

> "So, the aggregator was... rather than us having to go out and negotiate contracts with taxi and car hire companies, the provider would've already done that. Perhaps it's a little bit more costly for us [in terms of procurement] but it saves us that effort that we can put elsewhere." (WECA)

In contrast, Solent had favoured a less specified approach which allowed for additional features and functions as needs were identified. Here the emphasis was on the ability to offer a core solution, which could be integrated with existing functions, transport operators and mobility service providers, and their existing smart ticketing system.

Derby and Nottingham had tried to see off potential difficulties during development of a MaaS platform, by anticipating problems through their options appraisal stage and DerbyGo trial.

> "[We tried to] sort of pre-empt them [issues] a little bit and make sure that as and when we do have a MaaS provider on board we understand what the challenges might be, just to support that integration process. That includes not just speaking with the provider themselves, but ... (also) going down the supply chain." (Derby & Nottingham)

3.2.4   Finalising the contract with the appointed provider

Solent, WECA and TfWM all experienced delays finalising contracts with their appointed MaaS platform provider, although reasons for the delays varied. Solent had issued multiple iterations of their contract, taking up a substantial amount of their local authority legal team's time. Issues mainly arose from their MaaS supplier's lack of familiarity with working in the UK, and in particular of the nature and format of UK public sector contracts. The supplier had requested extensive changes to the contract at a late stage in the process, many of which referred to protections that were already provided by English common law. TfWM had to respond to National Express no longer being part of the core agreement and thus requirements on the provider changed accordingly.

In WECA, it became apparent that the intellectual property (IP) arrangement typically used by local authorities when purchasing transport infrastructure (such as buses or roads) was not suitable for a 'software as a service' contract and the combined authority received push-back from the market. While both the foreground and background IP were owned by the provider, under the original contract WECA would have had a royalty-free license with no payment to continue using both foreground and background IP after the contract ended. Following feedback from potential providers, WECA amended their approach during the procurement process to pay an ongoing license fee for use of the background IP. This reflected the expectations of the market that use of the service is contingent on continuing payment.

In all three zones, the implications for delivery of the delays had been minimised as providers had shown flexibility and undertaken initial set-up tasks at their own risk. The recurrence of this issue, however, reflects that these types of arrangements are unfamiliar for local authorities and suppliers and the

additional time and legal resources required to create them should be factored in by other areas planning to implement similar schemes in the future.

Key learnings from procurement

The experiences of procurement in WECA, TfWM and Solent indicate a number of key lessons for other areas undertaking similar projects in future.

- **Build in sufficient time for procurement processes.** Procuring a provider for an innovative project like MaaS requires more time than would normally be expected for transport projects of this scale, particularly when working to a highly detailed specification. It is important to consider this when developing a timetable for delivery to avoid unanticipated delays.

- **Ensure procurement processes are adequately resourced.** Having in place dedicated resource with the correct technical expertise is essential to progressing procurement as effectively as possible. While areas aimed to build associated costs into their financial modelling, they still found it difficult to anticipate all the costs involved, such as legal teams having to spend a great deal of time working out detailed contracts.

- **Provide adequate time for supplier engagement.** Stakeholders from Solent, WECA and TfWM all discussed the value that had been brought to their solutions through engagement with potential suppliers, whether pre-tender or during the procurement process. It is an important opportunity to better understand the capabilities of the market and leads to an enhanced offer for customers.

- **Create opportunities for design refinement.** Stakeholders in WECA and TfWM highlighted the value that was brought to their solution design through facilitating opportunities for customer feedback during the procurement process. Iterating design throughout the procurement process can produce a strengthened specification and drive improved offers from suppliers.

- **Consider requirements of all parties in the procurement process, including transport operators and MaaS suppliers.** Involving transport operators directly in procurement can lead to delays in the process and, if the nature of the relationship between the operator and the local authority changes (as happened between National Express and TfWM)[1], to changes in how the MaaS solution is designed. However, their involvement can bring benefits in ensuring that transport providers' operational needs are considered from the outset. It may be appropriate to consider options for offering additional resourcing support to operators to fully engage at this stage, for example, dedicating a portion of the award to part-funding a post within the operator to contribute to the procurement process. Similarly, considering and better understanding the contractual needs of a potential MaaS supplier (and not just those of the local authority), whether they arise from an unfamiliarity with the UK public sector or different working conventions, can help avoid blockages in the process. In order to enable their successful involvement, it is important to ensure that all parties are aligned in expectations for and objectives of the project.

- **Planning for implementation challenges post-procurement.** Solent had quickly encountered challenges post-procurement that caused delays in the timeline. One example was the lengthy process of securing a Travel Agent

License to sell rail tickets through the Breeze app. Other zones believed that dedicating more time and resource to developing a detailed solution design and attempting to pre-empt problems pre-procurement would help to avoid this situation. Other areas, for example, had required integration of rail from the outset. It is likely, however, that challenges will arise that could not have been foreseen (WECA and TfWM would not have been aware of the challenge with rail without Solent's experience). As such, it is important to discuss with a potential provider how they would approach unexpected challenges at the procurement stage.

4 Implementation and roll out

This chapter explores implementation of MaaS solutions following appointment of a MaaS provider. It explores key factors in the timeline of development, resourcing, stakeholder engagement, marketing and branding, budget and spend, and the longer term commercial viability of MaaS solutions.

As set out in section 2.1, each of the zones were at different stages in their development timeline at the time of fieldwork. Derby and Nottingham were about to go out to tender for a MaaS platform provider for their main solution. Both TfWM and WECA had just appointed their MaaS platform providers and were working towards Alpha versions of their apps. Solent were the furthest ahead, having achieved a public micromobility-only launch of their Breeze app in October 2022. A full public launch accompanied by a multifaceted marketing campaign was planned for spring 2023. As Derby and Nottingham had not yet reached the implementation phase of their main solution, this chapter will focus on findings in relation to TfWM, WECA and Solent. However, Derby and Nottingham are referenced where relevant lessons from their work to date emerge.

4.1 Key considerations in the timeline for development

Across the three zones, the development of MaaS was taking longer than anticipated. Stakeholders identified key factors affecting the timeline which were experienced differently depending on their specific approach to set up and implementation. The following paragraphs examine each of these factors in turn.

4.1.1 User testing of new MaaS integrations[o]

Stakeholders discussed the extent of testing and assurance during the development of the MaaS app. Solent, WECA and TfWM each had a three-tiered plan for testing:

- technical assurance by the provider that a new feature or integration was delivered in line with the specification or contract,

- internal testing by the MaaS solution delivery team,

- restricted user group testing.

In Solent, this three-tiered process for testing new integrations was well established, having been ongoing since release of their Beta app in winter 2022. WECA and TfWM had begun to implement technical assurance by the provider and internal testing by the delivery team as they worked towards their Alpha solutions. Stakeholders discussed the importance of restricted user group testing, which was intended to identify any issues related to user experience beyond the technical functionality. By addressing these issues at an early stage, zones felt they could more successfully build a user base for the solutions following public launch.

Each zone was taking a different approach to defining the restricted user group to participate in testing. For Solent, this included staff from the region's local authorities and the Universities of Southampton and Portsmouth. Extensive user testing prior to public launch had not originally formed part of Solent's project plan, therefore engaging local authority and University Staff allowed the zone to quickly scale up its activity in this area. At the time of fieldwork, WECA planned for their test audience to consist of a 120-member longitudinal panel with representation from each of the customer segments they had identified in the original product specification. This decision was linked to WECA's objective of developing a product that is closely tailored to the travel-needs of individuals within their region. TfWM intended their restricted test audience to extend to several thousand members of the public.

At the time of fieldwork, user testing was ongoing in Solent and was planned to begin in WECA and TfWM once Beta versions of their apps were available. In Solent, testing was felt to lead to a better understanding of what the customers wanted (for example, point by point journey planning, like a Satnav) and accessibility issues (for example, on the accessibility of the app for those with visual impairments, dyslexia or colour blindness). The zone realised it was essential to test new integrations with existing ones to ensure that they worked together as well as in isolation and adapted its testing programme to reflect this. For example, rather than only testing a new bikeshare integration, the zone now tested the bikeshare integration alongside rail travel in the one journey to ensure both worked well together.

A key learning is allowing the timeline for delivery to be sufficiently flexible to account for additional time to implement necessary fixes identified through testing. Following the testing phase, Solent made the decision to undertake a 'dark launch' rather than public launch of the Beta version of Breeze to improve the user experience of the app. TfWM had scheduled in six months to trial their Beta app with a restricted audience before wider release.

4.1.2   Negotiating new integrations with transport operators and mobility service providers

Solent, WECA and TfWM were all taking a staged release approach to the delivery of their schemes, with Alpha and Beta versions preceding full public launch. Each had a detailed plan for which modes and functions should be added at each stage in the timeline of development. However, stakeholders highlighted the degree to which these plans were dependent on negotiations with third parties (transport operators and mobility service providers) proceeding as planned. Business prioritisation or availability of resourcing could change within third parties at any time and meant that a planned integration could be pushed back by weeks or months. As such, project delivery teams and MaaS platform providers indicated that changes to the plan were inevitable and had to be built into the expectations for the timeline.

While these changes occurred prior to public launch (and therefore impacted on internal project timelines only rather than public expectations or customer experience), they still had implications for the way in which delivery was being managed. In Solent, development of the solution was structured around quarterly sprints. In order to maintain their timetable, stakeholders explained

that for each planned integration (such as a particular mode) in a given quarter, a back-up integration was in place (see Figure 3). Therefore, if a planned integration fell through, it could be replaced at short notice. This was described as *'agile prioritisation.'* WECA too were taking an agile approach in that they did not have fixed dates for each release, but would remain flexible according to how quickly third-party negotiations progressed.

Figure 3 Agile prioritisation in delivery planning
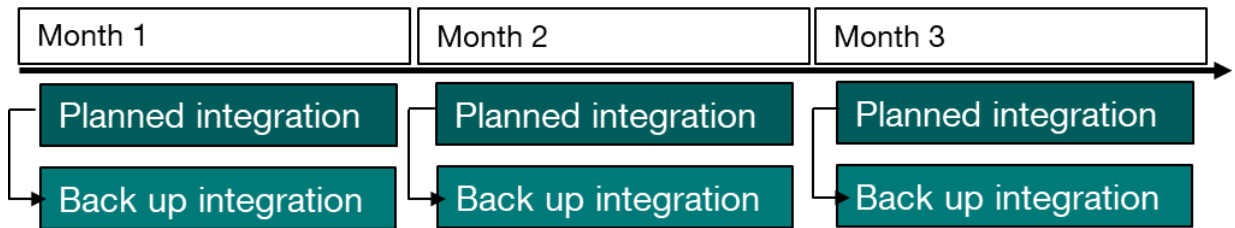
4.1.3   Decision to move to full public launch

The final stage in development is the full public launch of the MaaS solution. Project leads highlighted the importance of getting this stage right. A key consideration was the timing of when to align availability of the app with a full marketing strategy. Both Solent and WECA had made the decision to delay the full public launch of their solutions:

> *"…one of the key priorities we have is that when we launch to the public, we have a really strong proposition, a really strong brand, a really strong marketing campaign because we know we've kind of got one shot to get it right. If it doesn't go well when we go live and press the button on the marketing and we don't have a really strong proposition to the customer, then we lose that opportunity."* (WECA)

There was a balance to be struck between waiting to launch a product with a high quality customer experience (in terms of both app functionality and modes available) from the outset in order to drive uptake, and also launching with sufficient time for the app to be fully up and running within the timeframe of the FTZ funding. zones had therefore built a buffer period into their release timelines, during which the solution would be publicly available but not marketed. In TfWM and WECA it is likely that customer feedback during this time will determine whether there are any further revisions to their date for full launch.

In Solent, the decision to first undertake a micromobility-only launch in October 2022 (in response to delays in integrating rail ticketing) had allowed the zone to incrementally strengthen its offer. By publicizing only the micromobility element to the public (e-scooters and bikeshare), Solent was able to continue improving the availability and customer experience of other modes in the background (through adding operators, features and functionality). This provided additional reassurance to the delivery team by building towards its spring 2023 target for full launch.

Key learnings for the implementation timeline

- **Understand the importance of restricted user testing and build flexibility into the timeline to allow for this.** Stakeholders in Solent, WECA and TfWM emphasised the importance of restricted user testing to identify functional issues or problems with the user experience that would otherwise have been missed by the implementation and delivery team. Building flexibility into the delivery timeline in order to implement improvements identified in this way and strengthen the product offer is key for other areas implementing MaaS in future.

- **Plan for priority and resourcing changes within transport operators and mobility service providers.** The progress of MaaS integrations is highly dependent on transport operators and mobility service providers and they are likely to have business priorities which do not align with the delivery timeline. Understanding this, and having back-up plans in place, is key to mitigating risks to the budget or project delays.

- **Stagger full product availability and marketing activities.** Across the zones, plans were in place at the time of fieldwork to delay marketing activities until some time after the full solution was publicly available. Sequencing release and marketing in this way provides reassurance through allowing an opportunity to correct any outstanding issues before the product is widely known and visible amongst the general public.

4.1.4   Resourcing and stakeholder engagement

This section discusses challenges and lessons learned related to internal resourcing and stakeholder engagement.

The Wave 1 Report identified a range of internal and external stakeholders involved in the development of MaaS (Section 3.3.). Internal stakeholders included the core project team, wider transport teams, constituent local authorities or combined authorities and internal support teams, such as finance, legal and procurement. External stakeholders included technology suppliers involved in delivering the MaaS solution, public transport suppliers and the general public. At this wave of fieldwork, the number of external stakeholders increased as TfWM and WECA had contracted their MaaS platform providers and Solent contracted additional suppliers providing marketing support and an in-app voucher feature.

Resourcing and working with internal stakeholders

There were three main considerations identified for working with internal stakeholders:

- **Time pressure and resourcing issues.** While at Wave 1 stakeholders highlighted the limited capacity of internal corporate teams, such as legal and procurement, at Wave 2 this extended to the core delivery team.

  In WECA, the number of meetings between different stakeholders limited the time that teams could dedicate to working directly on the solution. As a mitigation measure, WECA decided to select two or three people to be a key

conduit to share information about the programme with their teams so that most internal stakeholders could focus on delivery.

> *"We've been burdened, most of the team, with a lot of meetings and engagements because there's so much going on. So much need for collaboration, so we've just been through a process of reviewing how that works, removing meetings from diaries as much as we can."* (WECA)

WECA had also established a 'pillar' approach to team governance in order to improve efficiency. Rather than operating under a single workstream, the core project team created four 'pillars' of activity;

1) *the customer:* which included customer research, customer strategy around mobility credits, and marketing and user testing,

2) *the scheme and operating model*: which included how to make MaaS a long-term viable commercial proposition and assurance and auditing of the financial back-office element of the platform,

3) *development of the platform*: included management and assurance of the technical requirements, and

4) *monitoring, evaluation and externalisation*: to capture and share learning on the project. Organising in this way had allowed team members to concentrate their decision-making in a particular area of focus.

Solent explained that the resourcing required to deliver MaaS had been underestimated from the beginning. As MaaS projects are completely new and innovative, there was no precedent set for the level of resourcing that would be needed and the zone had to be reactive in its resource allocation to address issues as they arose. In response to this challenge, the zone had restructured the core delivery team and were recruiting to a number of newly created posts to address gaps in expertise. Rather than having one project lead, the scheme would be led by three individuals with one focused solely on commercialisation. They highlighted some of the constraints which impact recruitment such as having to follow public sector recruitment processes and having to offer a fixed term contract which might not be attractive for professionals with the required skillset.

- **Variety of specialisms involved in MaaS.** The successful delivery of a MaaS solution required multidisciplinary teams drawn from a wide range of expertise. As such, local authority teams involved in MaaS had expanded considerably since the previous fieldwork in November 2021 to include skills and economy teams to support with social value commitments, accessibility and diversity experts, legal and information governance, travel demand management and communications.

TfWM and Derby and Nottingham highlighted the need to recruit technical experts in areas outside of local authority expertise such as systems readiness and process mapping (TfWM) and data (drawn from Derby and Nottingham's local process evaluation findings). Given the novel resourcing needs identified by the zones, WECA suggested that a useful resource for other areas implementing similar schemes in the future would be an organogram of an ideal MaaS team structure.

- **Ensuring a shared vision of MaaS.** A key consideration was ensuring that all stakeholders had a shared understanding and expectations of MaaS, particularly when teams had not been engaged from the outset.

  To help create a shared vision for MaaS, TfWM developed a product statement of intent – a document which set out the outcomes that the solution should aim to achieve for the customer. This had been accompanied by half-day workshops led by the MaaS project manager for internal teams to address themes around the meaning of MaaS, its relative impact and the role that a specific team should play in its delivery. Stakeholders felt this had been an effective mechanism to share the concept and philosophy behind MaaS beyond their usual Boards.

  Solent too reflected on having to take internal stakeholders, such as legal and finance, on '*a journey',* as they initially saw MaaS as presenting a greater level of risk than they were comfortable with. Solent had expended substantial resource on offering ongoing reassurance to these teams that risks were being actively managed and sufficient mitigations were in place.

Working with external stakeholders

- **Securing buy-in from transport operators and mobility service providers at an early stage.** Across the zones, stakeholders acknowledged the importance of engaging transport operators and mobility service providers in MaaS from the outset. Zones highlighted a number of possible levers for bringing transport operators and mobility service providers onboard:

  - **Focus on trial nature of scheme.** WECA was initially focusing only on the trial period of MaaS in their discussions with operators and providers, rather than requiring them to make mid-to-long term commercial decisions to be involved with the solution based on the zone's specification only. WECA planned to revisit the commercial terms of their agreements when this period ends.

  - **Strength of public sector involvement over purely commercial venture.** A number of stakeholders highlighted the strength of a MaaS solution being implemented by local authorities rather than a private entity. Operators and providers were reassured that their data was not primarily being used for profit.

  - **Changes in public transport usage after COVID-19.** Changes in public transport usage patterns brought about by COVID-19 was also a key lever for zones as operators were interested in the potential for MaaS to increase patronage on their services.

However, there were a number of challenges to securing buy-in from these stakeholders at an early stage. For example, TfWM had involved National Express in the development of their MaaS solution specification and procurement process with the intention that the operator would fully migrate their services to the TfWM app. While negotiations with National Express had not resulted in the intended outcome, TfWM reflected that there were key lessons learnt from the experience including the importance of establishing senior level support within both organisations, being clear about the requirement from the operator, and consistently reviewing the objectives of the

solution to ensure a shared vision by both parties. Depending on the proposed level of integration, operators may require assurances that new solutions can retail their tickets at scale from the point of launch.

- **Managing working relationships with external suppliers.** A key difference in stakeholder engagement since November 2021 is that zones had engaged a wider number of external suppliers to deliver different aspects of their solutions. TfWM and WECA had each appointed MaaS platform providers, and other suppliers included new or supplementary back-office suppliers and marketing agencies. Establishing good working practices and relationships across these external partners was considered key to the success of a project.

  After appointing their provider, WECA actively prioritised a good working relationship. The zone dedicated two days to team collaboration and bonding exercises, prior to discussing technical details of the specification or contract. As part of this, they conducted a *Strengthscope* assessment to identify and better understand the strengths that each party was bringing to the team. They also developed a Collaborative Charter for the project to set out how they aspired to work together and their shared values.

- **Capacity of transport operators and mobility service providers.** External stakeholders highlighted the considerable resource burden for operators and service providers to contribute to specification design or procurement processes as well as facilitating the service or data integrations themselves. These are contributions which they are not typically funded to deliver. For private micromobility providers, changes in the financial markets resulting in a reduction in investor financing (such as higher interest rates which have increased the cost of borrowing), may mean that there is even less capacity within such stakeholders to contribute to MaaS projects in future.

- **Drawbacks of local/ regional approach to MaaS implementation.** External stakeholders (particularly transport operators and mobility service providers) highlighted possible issues with the model of developing MaaS on a local or regional basis under the FTZ programme. They explained that many operators and mobility service providers operate on a national basis, therefore having to manage and resource multiple integrations in different areas of the country was considerably burdensome for them. They suggested that some '*consolidation of effort*' was needed and may, in fact, allow DfT funding to achieve more (rather than being used to replicate design, procurement and implementation processes). They also reflected that the local or regional model does not cater to customers who wish to travel nationally or between different localities. They questioned whether the current model would result in additional funding to harmonise schemes at some point in the future. As highlighted by Solent FTZ's local process evaluation findings, a discussion on the wider adoption or extending of the MaaS systems already adapted for UK use, may therefore be warranted for any authority looking to develop this offering.

- **Challenges in integrating rail ticketing.** Internal stakeholders reflected on the implications of the creation of Great British Railways (GBR) for their engagement with rail companies. Their view was that regional rail companies had stepped back from engagement with zones in light of the changes in the industry.

Separately, Solent identified challenges in applying to and becoming accredited under the Rail Delivery Group (RDG) Travel Agent License in order to retail rail tickets through their Breeze app. The accreditation took a year to complete. Solent's local process evaluation findings detailed that the process to obtain a licence required a series of validation trials, and several sign-off procedures after a month of live tests with RDG, as well as industrywide approval via its internal Board systems. While there was a documented roadmap for how to achieve accreditation, Solent felt that the many substages to the process were not necessarily highlighted or well explained by RDG. As such, the process was described as '*complex*' and '*opaque*'. Solent emphasised that the Travel Agent License was not an appropriate mechanism in the context of MaaS and that while there were plans to develop one, delivery of this by the industry was years away. As such, government intervention was felt to be needed to establish a working solution for future MaaS schemes. Solent's local process evaluation findings highlighted that the licence is a temporary measure which provided the quickest way to deliver rail into the Breeze app, but which would not allow full MaaS operation of rail products.

Key learnings for resourcing and stakeholder engagement

- **Draw on experiences of the zones when planning for resourcing and identifying required specialisms for delivering future MaaS schemes.** Across the zones, a key challenge was resource planning and identifying which teams or experts were needed to deliver MaaS without a blueprint to guide them. A significant benefit for other areas undertaking MaaS projects in the future will be the knowledge that has been gained in this area through the FTZ trials. This will enable areas to scale up their teams more quickly and source required expertise from an earlier point.

- **Dedicate resource to creating a shared vision of MaaS and establishing good working relationships.** Stakeholders repeatedly spoke about the importance of ensuring that both internal and external teams involved in MaaS delivery fully understood the aims and objectives of the project and were therefore working towards the same end goal. This was particularly important as MaaS was an unfamiliar concept for many. Areas implementing MaaS in future should consider how to do this effectively, whether through a shared statement of intent or interactive workshops.

- **Remain cognisant of the needs and priorities of transport operators and mobility service providers throughout delivery.** Securing and maintaining buy-in from transport operators and mobility service providers is central to the successful delivery of MaaS. Doing so requires understanding the potential resourcing burden for these organisations to fully engage with a MaaS project, particularly for national operators that may be engaging with MaaS schemes in a number of local authorities or regions. Areas implementing MaaS in future should consider whether it may be feasible or advantageous to provide additional support to operators and providers to achieve integrations with the service. Or, if this is not possible, be realistic with organisations from the outset about the requirements on them and check in regularly to assess whether their circumstances have changed.

4.1.5 Marketing and branding

Getting the marketing and branding of the solution right was felt to be key to building the user base and ensuring its success. For TfWM and WECA, considerations around branding and marketing were still at an early stage at the time of fieldwork. TfWM had a marketing and communications lead in place and had decided on branding to fit within their wider branding strategy. They also anticipated that their appointed provider could offer some support with marketing. WECA were in the process of appointing a marketing and communications partner and would soon have branding confirmed to fit with their wider strategy. Solent were further along with their branding and marketing roll out, having appointed a marketing agency to develop their campaign, trademarked their 'Breeze' brand and aligned this with physical infrastructure in the region including Voi e-scooters and Beryl e-bikes.

While Solent were further along in the process, all three zones were preparing for a multifaceted marketing campaign, to include both digital and physical campaigns, events and competitions. The zones were also exploring other innovative ways to promote their solution. For example, Solent were working with businesses via their Breeze for Business project, whereby Breeze would be promoted through major businesses in the region. TfWM were exploring the option of having QR codes placed on all vehicles involved in the MaaS scheme and TfWM staff getting out into town centres to demonstrate how to use the app.

Solent discussed the value of targeted marketing. One element of this was the development of a Customer Relations Management (CRM) platform. This was not included in the original specification but was later identified as a valuable addition to the MaaS solution. The CRM system will sit behind the Breeze interface and allow the supplier to segment the app's customer base and send them tailored messages to encourage continued use of the app. For example, by offering more affordable or efficient route suggestions for a typical journey. Crucially, it will be able to identify if a customer has not completed the full sign-up process for the app and prompt them to do so.

At the time of fieldwork, TfWM had a number of transport-related apps which they intended to phase out in favour of the single MaaS interface. Stakeholders highlighted that this transition presented a particular marketing and communications challenge for the zone, particularly around communicating effectively to existing users of other platforms that they needed to move across to the MaaS app. TfWM had already retired one outdated but popular app with a large user base and attempted to move these users to another existing TfWM platform. Due to the age of the technology, they had not been able to use in-app messaging to inform customers of the planned switch off. Despite having dedicated substantial resources to an information campaign outside of the app, TfWM still received a large volume of complaints on the day of switch off. TfWM was also unable to accommodate the influx of new users to its other platform which, as a result, was unavailable for a number of hours. Since then, the zone had put in place a number of measures to ensure the MaaS app, once launched, would be able to quickly scale up to accommodate user transitions of this size, including moving to a more cloud-based system.

While Derby and Nottingham had not yet undertaken procurement of their Maas platform provider, the zone was already looking ahead to marketing and acknowledged the importance of factoring it into scheme costs from the outset. However, the zone suggested there would be minimal budget to promote the service as the funding available to deliver the project is capital-based and therefore needs to be spent on development and resourcing the platform. As such, the FTZ was considering possible solutions to this issue. One option, detailed in the zone's local process evaluation findings, was to see if it would be possible to use capital money for revenue spending on marketing activities, as well as seeking to include marketing services within the MaaS platform provider contract.

Key learnings for marketing and branding

- **Begin planning of marketing activities early.** Stakeholders identified the importance of a strong marketing and branding campaign to ensuring uptake of a solution amongst the general public. Planning well in advance of the intended launch date is required to ensure that sufficient budget is set aside and to develop multifaceted strategies involving external expertise.

- **Consider the benefits of targeted marketing.** Given that MaaS solutions are intended to meet the needs of different types of traveller with different journey patterns, local areas implementing MaaS in the future should consider the possible advantages of targeted marketing from the outset and how this can practically be delivered within the app.

4.1.6 Financial and commercial considerations during implementation

Whether the MaaS solutions will be commercially viable after FTZ funding ends was a key consideration for the schemes when putting their financial models and spending plans together. These plans for how to distribute resource across the timeline tended to reflect whether the zone preferred a highly specifed solution from the outset or to learn and develop through implementation. This section addresses the financial models used to work out the costs of design, set-up, and procurement relative to the costs of service delivery and implementation. It also explores emerging concerns about the longer-term commercial viabilty of the MaaS solutions beyond FTZ, and the ideas being put forward by interviewees to address these concerns (see section on 'Suggestions for improving commercial viability of MaaS' below).

Budgets and spending

Spending against budgets was in line with or less than expected across all four zones. Current underspending in Derby and Nottingham, TfWM and WECA was because they had not advanced as far as they would have liked with service delivery. For Derby and Nottingham, this was partly due to the project leads not having dedicated roles to work on the FTZ initiative, meaning it was only one of the service developments they were working on. It was also due to the decision to commission a detailed options appraisal before procuring a MaaS solution supplier. For WECA and TfWM, underspending arose from delays or complications during the procurement process that had slowed subsequent

service development, however the procurement processes themselves had been more resource intensive than anticipated. For further detail on the complexities of the procurement process see section 3.2. TfWM and Derby and Nottingham interviewees, also emphasised legal support with contracts[p] being one area where they had spent more than anticipated (the other area being technical consultancy).

While spending in Solent had so far been in line with expectations, stakeholders emphasised that the MaaS project could easily consume a much higher budget than available as the possibilities for enhancements were endless. Given this, the project team reviewed and revised the scope of the scheme on a regular basis. However, the budget for the scheme had been increased to allow for additional flexibility, having been reprofiled from the zone's Drone Logistics scheme. Longer term, operating costs were likely to be higher than previously anticipated as there were unexpected running costs involved in the disbursement engine, ID verification and the voucher feature.

Business models during set-up and implementation

The innovative nature of FTZ meant that spending on complex parts of procuring, such as the resources needed to respond to extensive clarification questions (for further detail see section 3.2), and developing a MaaS solution was sometimes hard to predict. Attempts to address this problem were reflected in the different approaches taken by TfWM, WECA and Solent. As described in Chapter 3, TfWM and WECA had opted for a highly specified solution from the outset, to encompass existing integrations, support services and operator requirements/ priorities, and aimed to circumvent issues at implementation stage by working with potential suppliers to refine their offer during the procurement process. To this end, these zones had factored upfront costs into their business model, which they argued gave them a few years 'grace' to allow the solution to be established commercially.

> *"We're frontloading the programme to cover off some of those operational concerns and operational costs for the future. So, we effectively buy ourselves a couple of years to get the thing properly going."* (TfWM)

However, Solent, who had focused instead on getting the solution operational as quickly as possible and learning though implementation, felt that putting too much resource into procurement risked not having enough budget later for solution development and delivery.

Commercial viability of MaaS solutions

Interviewees across the zones recognised the considerable costs of designing, commissioning and setting-up a MaaS solution, with some saying they doubted the solution or app, and the integration and running of software and services, would have been possible for the local authorities without FTZ funding. Zones recognised that funding was provided by the DfT on the understanding that not only was the technology unproven but so was the business model, and that this provided a level of risk mitigation should a project not be successful (as described in Derby and Nottingham's local process evaluation findings).

Stakeholders raised a number of considerations around the commercial viability of MaaS solutions beyond FTZ in their current forms. These considerations revolved around two key aspects. Firstly, whether the philosophy of a seamless service across transport operators was possible in a commercially competitive environment. And, secondly, whether local or combined authority level was the right size to achieve enough users to support the implementation of MaaS.

The first aspect referred to how the MaaS solution would generate the income needed to run it and whether transport operators saw a commercial advantage for themselves in being involved. At the time of the research, all zones were considering the feasibility of commission models (for example, whereby a transport operator or mobility service provider would pay a fee, or a proportion of each ticket/ service sold) to the zone as the host of the solution. For this to be a workable option, zones would have to prove the business case to operators and service providers – that being hosted on the solution gave them access to new customers.

Models which passed additional costs on to the customer were therefore not seen as viable as they presented a barrier to increasing uptake of the solution. For example, having booking fees on transport apps was not a popular option because it would be an additional cost to travellers that they would not have to pay if booking direct through most transport operators. Transport operators were not keen to offer discounts on travel to encourage use of a MaaS solution app or service because many were struggling to survive financially post-COVID-19 (especially as many more people were choosing to work from home and not travel at all). In Derby, there was also evidence that exclusive participation by some taxi firms over others in a solution would go against competitive local authority taxi licencing regimes. More broadly, zones were cautious about being seen to promote certain operators over others through inclusion in the solution or in the way customers were directed to travel through the app's algorithms.

The second aspect of commercial viability was whether a local authority-based approach provided a large enough area to gain sufficient users to sustain a MaaS solution commercially. External stakeholders expected some MaaS solutions would fall by the wayside while others would begin to dominate:

> *"In five years' time there'll be a clear two/ three winners, I suspect, maybe broadly regionally based. It may be that [X app] is like the go-to MaaS app for southern England, whereas in northern England, there might be something else."* (Solent)

The potential size of the user base was a concern for TfWM given that the intended commercial agreement with National Express had not been finalised. They had initially based their commercial modelling on the assumption that their solution would be marketed direct to National Express customers (as the operator would have retired their native apps), therefore ensuring a sizeable user base from the outset. At the time of research, TfWM were re-examining their modelling. In any case, zones acknowledged that achieveing a cost neutral operation was likely to take longer than the lifetime of the FTZ programme (outlined in Solent's local process evaluation findings).

Suggestions for improving the commercial viability of MaaS

In addition to the cost efficiencies which could be created by accessing a larger customer base (through offering a regional or national MaaS solution) (discussed above), other suggestions to make MaaS more commercially viable were put forward. These were grouped as follows:

Commercial ideas, involving:

- Inclusion of congestion charging or car parking fees into the solution, with discounts for greater use of public, active or more sustainable forms of travel;

- Adding booking of cinema or theatre tickets, events and festivals as part of the seamless experience;

- Integration of company travel budgets, bookings and invoicing into the system;

- Selling advertising on the front-facing app; and,

- Selling learning from the FTZ trials as commercial training.

Public sector ideas included government subsidy for MaaS solutions because of their social and environmental value (at least until they become established), and possible regional or Mayoral funding in specific locations (e.g. Derby and Nottingham said they might receive funding through a 'devolution deal').

Key learnings for financial and commercial considerations during implementation

- **Spending may be delayed due to lengthier planning and procurement processes.** The time needed to agree solution design and procure a platform provided, before development work could begin, was longer than anticipated across the zones. An understanding that spending is likely to be concentrated at the latter stages of MaaS development may assist other areas in planning their budgets in future.

- **Have a clear process in place to limit scope and spending creep**. Given that possible enhancements to a MaaS solution are endless in terms of improving the product offer and customer experience, it is important that areas implementing a MaaS scheme in future have robust processes in place to manage project scope and mitigate this risk of overspend.

- **Creative solutions to help ensure commercial viability may be needed.** The commercial viability of the MaaS solutions beyond FTZ funding was still to be proven at the time of fieldwork, however stakeholders across the zones could foresee a range of possible issues or challenges in this regard. As such, it is likely that creative or innovative ideas to increase commercial sustainability and drive both operators and users to the app will be needed for other local authorities prospectively developing MaaS in the future.

5 Data infrastructure

This chapter explores the technological infrastructure developed by the zones to deliver their MaaS solutions and the opportunities and constraints of doing so. It addresses key considerations around accessing data, data integration and data sharing and how zones intend to use the data gathered by the MaaS solution.

5.1 Building MaaS data infrastructure

The back-end functionality of a MaaS solution, and how well it works, is a key factor in securing public uptake of MaaS. It includes the technology and data which drive journey planning, booking and paying for multi-modal and multi-operator journeys, routing functions, reservation services, and a revenue disbursement engine (see section 4.1 Wave 1 Report).

At the outset of the study, each of the zones varied significantly in how much existing infrastructure they had in place and how this was operating within the local transport marketplace (for further information see section 4.2 Wave 1 Report). Derby and Nottingham, Solent and WECA were relying on their MaaS provider to develop or build journey planning functionality. The case was different for TfWM, whose existing app already had much of the journey-mapping and real-time information functionality that their MaaS solution would provide. As such, TfWM commissioned their MaaS provider to deliver only the front-end of the solution and to facilitate integration with the existing back-end. As a result, requirements on a MaaS provider to adapt or build additional infrastructure for the back-end functionality of their MaaS solutions varied across the zones (Table 3).

Table 3 Existing data infrastructure pre-MaaS and functions planned under MaaS

Zone	Existing infrastructure	Functions planned under MaaS
TfWM	Established multi-modal smart ticketing (Swift) Journey planning tool Payment processing and disbursement engine	Account-based ticketing building on Swift New MaaS front-end to integrate with existing infrastructure
WECA	Limited multi-modal smart ticketing (TravelWest) Basic journey planning functionality	Improved smart ticketing offer building on TravelWest Sophisticated journey planning tool Payment processing and disbursement engine

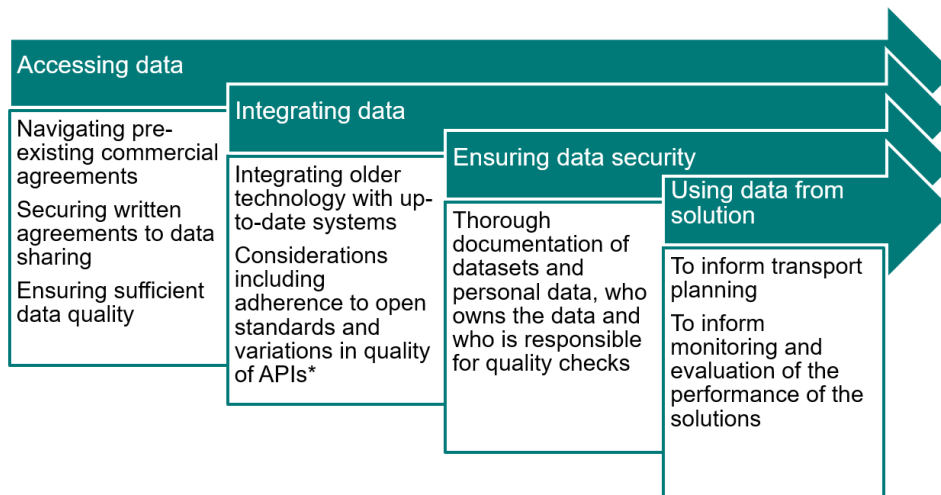| Solent	Limited multi-modal smart ticketing (SolentGo)	Improved smart-ticketing offer building on SolentGo Journey planning tool Payment processing and disbursement engine
Derby and Nottingham	In Nottingham, multi-modal smart ticketing (Robin Hood) In Derby, multi-operator (bus only) smart card (Spectrum)	Journey planning tool Improved smart ticketing offer building on Robin Hood Payment processing and disbursement engine

Most zones had an existing multi-modal ticketing offer which they expected to integrate into the MaaS solution, but the level of maturity and usage and therefore the requirements from MaaS providers varied across the areas (for details see section 4.2.2 Wave 1 report).

- Derby and Nottingham each had their own multi-modal smart ticketing system designed for the local market (Robin Hood in Nottingham and the Spectrum card in Derby). Following the options appraisal, it was intended to layer the new MaaS offer over existing Robin Hood ticketing while a decision on whether to integrate Derby's Spectrum was still to be made.

- Solent's existing smart ticketing offer, SolentGo, which includes a smartcard and other multi-operator bus tickets, was expanded with FTZ funding to offer a new 'Saver 5' carnet ticket from April 2021. Solent intended to integrate SolentGo into the 'Breeze' MaaS app, however issues with ITSO technology meant that these plans were put on hold while a solution was found.

- WECA planned to integrate their existing smart ticketing offer TravelWest into the new MaaS solution. This would require additional functionality for payment collection and processing to shift to the combined authority.

- TfWM's existing Swift[q] system had been offering multi-modal, multi-operator tickets for a number of years, and had a million customers. TfWM had used FTZ funding to improve their Swift system to become the back-end of the MaaS solution, by converting it from a Smartcard system into an Account Based Ticketing system. The new MaaS interface was intended to 'plug into' this existing data infrastructure.

In Nottingham and WECA, their data hub or data centre projects continued to be developed separately from their MaaS solutions. However, the intention remained to link the schemes at some point in the future. WECA had just completed the successful procurement of a data hub provider, while Nottingham were just about to start this process, having recently finalised the specification.

Figure 4 outlines the key data considerations that the zones have encountered in ongoing development of their back-end systems since Wave 1. These are discussed in detail in the following sections.

Figure 4 Key data considerations when developing a MaaS solution

Accessing data	Integrating data	Ensuring data security	Using data from solution
Navigating pre-existing commercial agreements Securing written agreements to data sharing Ensuring sufficient data quality	Integrating older technology with up-to-date systems Considerations including adherence to open standards and variations in quality of APIs*	Thorough documentation of datasets and personal data, who owns the data and who is responsible for quality checks	To inform transport planning To inform monitoring and evaluation of the performance of the solutions

*An API (application programming interface) is a software intermediary which allows two programmes to exchange data

5.1.1   Accessing data

At the time of Wave 1 fieldwork in autumn 2021, the zones were at an early stage of scoping out or developing the data infrastructure to support the front-end user experience of their solutions. As such, the potential issues or constraints they identified were largely hypothetical. In January/ February 2023, more of that work had taken place and zones had begun to experience first-hand what was required on the data-side to build these complex technological systems. Derby had drawn key lessons from the continuation of their restricted MaaS trial, DerbyGo.

Navigating pre-existing commercial agreements

Securing agreements with transport operators and mobility service providers was the first step to accessing the data needed to power a MaaS solution. Pre-existing agreements between data companies or technology providers and transport operators continued to be a challenge for the zones. This related to ensuring that the two main types of data for MaaS back-end functionality were made available by transport operators and mobility providers:

- 'Live' data includes data on the location of vehicles (such as the live location of buses) and their status (such as the battery level of an e-scooter), as well as real-time payments.

- 'Static' data includes timetabling and route information, locations of key infrastructure such as bus stops or docking stations, and the structures and pricing of fares.

Stakeholders described the practical experience of determining who had ownership of data as "*peeling back layers of an onion*." Zone engagement with transport operators led to the discovery of data or technology suppliers, each with their own commercial agreements in place about how the data could be used. Both internal and external stakeholders felt that it was the contractual landscape and untangling the relationships of dependency to access data, rather than technological constraints, that mainly determined the pace of back-

office development. Suppliers could be unwilling to freely share data as they saw MaaS as a potential commercial opportunity. For example:

- Derby's restricted MaaS trial, DerbyGo, was substantially delayed due to negotiations with a technology supplier of UniBus, the university student bus service which links campuses around the city. Derby reported that the supplier only agreed to share data given the trial nature of the app (that is, it would not be operating for profit).

- Solent too acknowledged that high levels of complexity and tailored negotiations had created significant workloads and challenges, in addition to the different commercial sensitivities within different sectors and businesses in the UK transport industry which often needed to be addressed on a case-by-case basis. This was felt to be very prevalent in the bus sector. Solent's local process evaluation findings acknowledged that the diverse and privatised public transport system in the UK also created a more challenging environment than in Continental Europe where most providers are state owned.

Stakeholders remarked that it could be difficult to disentangle whether delays of agreements are as a result of the complexity of commercial agreement or a lack of buy-in from operators. The complexity and resource intensity of negotiations could lead operators to deprioritise engagement with those trying to set up a MaaS solution. This extended to pre-exiting agreements, not only within transport operators, but also between local authorities and transport operators in their locality or region. As such, local authorities with less mature inward links with their local transport market may in fact be less constrained in the development of MaaS solutions than those with more established arrangements.

Securing written agreements to data sharing

Stakeholders outlined that written agreements or contracts between zones and transport operators or mobility service providers set out the terms of engagement and determined the extent of and expectations around data sharing. The basis of agreements to data sharing could have significant implications for the MaaS solution functionality. Due to the outcome of negotiations between National Express and TfWM described in section 3.2, the planned level of integration of National Express into the final solution was more limited than originally intended.[r] National Express was no longer obligated to redirect its data on customer records, its financial back-office, service performance, and so on, through the TfWM infrastructure. Instead of all ticket products being offered through the app from the outset, TfWM would initially rely on existing arrangements under the Swift smart ticketing offer with additional tickets added on a product-by-product basis. The model would be similar to a typical third-party retailer and in line with the level of integration being attempted between modes and solutions in other zones. It is important to consider the degree to which planning or agreements are progressed with other parties prior to finalising contracts that core design or business model elements depend on.

Ensuring sufficient data quality

Stakeholders explained that having accurate and reliable data is essential to meeting the travel needs of customers. MaaS providers remarked on the value of policies such as the Bus Open Data Policy (BODS) in making static data such as bus schedules, map locations and bus stop names available in an open-source format. For this reason, the UK was described as a better location for developing a MaaS solution than many other countries. However, while such data is well organised, stakeholders explained that it is not always up-to-date and accurate. They questioned whether there were sufficient requirements on transport operators to ensure that the data is current and suggested that additional quality assurance procedures should be put in place.

Considerations of data quality also arose in relation to real-time data sources. TfWM found that the data sources used to power their existing journey-planning offer were not sufficiently accurate to meet the demands of MaaS.

> *"We have multiple different providers doing different things, processing the data differently…What that meant for the customers, they might look at an app and see one result, and they might look at a bus stop display and see a different result. There were lots of these inconsistencies, and when there was a problem, it was understanding where in that chain was the problem."*
> (TfWM)

As this was identified as a risk to the project and its commercial viability, a new workstream was introduced to assess the quality of data feeds used throughout the organisation and the appointment of a new back-office supplier to consolidate their data streams. While the investment needed to correct the issue was considerable, the new workstream had led to a cultural shift within the organisation towards challenging whether established systems meet customer needs.

5.1.2   Data integration

Once areas have access to data there is a further step involving data integration. This section explores key considerations encountered at this stage. Since the Wave 1 fieldwork in autumn 2021, Solent had continued to integrate further transport operators and functionality into the Breeze app, including rail ticket purchasing and ancillary features such as Active Trip (which provides users with step-by-step instructions throughout their planned trip). TfWM's platform providers were engaging with Swift back-office suppliers to specify the requirements for linking the new interface with the existing data infrastructure. The DerbyGo restricted trial too had progressed in integrating online parking providers and was due to complete integration of UniBus.

Integrating older technology with up-to-date systems

A key process in developing a MaaS solution is the integration of the new MaaS platform with existing functions and services. MaaS back-office solutions were required to integrate both with existing local authority smart ticketing systems and the data infrastructure of transport operators and mobility service providers. The following paragraphs set out a number of key considerations encountered by the zones in relation to these integrations:

- **Integrating with older technology.** Both internal and external stakeholders explained that bringing together new technology (the MaaS back-end) with older systems could create difficulties. Legacy systems could be fit for purpose for their existing functions but were not designed to facilitate these types of integrations or to support the complexity of MaaS solutions. As such, patches had to be applied or '*a technical bridge*' built between the two systems.

- **Adherence to open standards.** There could also be variation in the level of adherence of operators' application programming interfaces (APIs) to open data standards which necessitated the use of '*transformations*' to reformat the data. These constraints could be time-consuming, costly and require unique solutions each time. This tended to frequently arise with traditional public transport operators whose technology was more likely to be out-of-date than that of the newer micromobility providers.

- **Variations in quality.** The MaaS back-office may not only have to integrate with an operator's primary system but with multiple others which sit behind it, and which may not be of equal quality. Integrations had therefore been more complex and challenging than anticipated. For example, one integration into DerbyGo required 210 end points rather than the anticipated 20 to 50. These unforeseen complexities presented a risk to schemes. Internal stakeholders suggested it should be a condition of contract that the MaaS platform provider covers additional costs associated with unexpected lengthy or technical integrations.

  As such, internal stakeholders explained the value of appointing providers with existing integrations as part of a White Label product. In TfWM, for example, the appointed provider brought existing car club and car hire, rail and some taxi integrations. This could save zones time both in respect to negotiations with operators and service providers, as well as the technical integration itself. At the same time, providers described an *'economy of experience'* whereby more experienced MaaS providers (those who had been involved in a greater number of MaaS-type schemes) were encountering fewer '*surprises*' with later integrations.

Integrating new front-end interface with existing back-end infrastructure

Where complex back-end functionality already existed within a zone (and therefore did not need to be built by the appointed platform provider), this introduced different considerations and could present a considerable area of work. TfWM were the only zone who had procured a MaaS front-end provider to integrate with a fully functional and established back-end infrastructure. The intention was to create *'mirrored accounts'* with a customer able to access payment and ticketing services both on the new MaaS app and through Swift.

Stakeholders estimated that the integration would take about 6 months to complete. Considerable efforts had been made at the specification and procurement phases to outline what would be needed to link the two systems together. The appointed MaaS platform provider and existing back-office supplier were in a discovery phase to map out a detailed plan at the time of fieldwork

"I think the reality is that where there may be a line on a diagram that was sent out to us showing effectively an API link, that may not necessarily exist in the real world. So, that's what we're going through at the moment, to just refer back to those diagrams and say, 'Well, does that exist?." (TfWM)

Key considerations included whether an API existed for a particular integration, and if so, whether it could be linked to a third party, as well as agreeing the testing and sign-off process for each integration. This level of planning was time and resource intensive for both parties. Further, where a suitable API did not exist as a first step, then it needed to be built, which could lead to delays in the process.

Other key considerations

One important function of MaaS solutions is facilitation of ID verification for use of certain modes, including e-scooters and car club. Zones were taking different approaches to how this function would operate in their solutions. A key factor in zone decision-making was the additional risk involved in verifying a user to access a vehicle. If the ID verification function is fully integrated into a solution, where a user goes on to misuse the vehicle, then the risk and liability lies with the local authority. Given this, Solent had opted for a lower level of integration through a linked account:

"So from the user's point of view, they're not swapping any apps and they're still in Breeze, but in reality, they've already registered for [mobility service provider], they've linked their account to Breeze, then… through the back end, they're booking directly with [mobility service provider]." (Solent)

WECA, on the other hand, had decided to accept this additional risk in order to enhance the customer experience. TfWM also raised the inconsistency in approach across mobility service providers as a challenge for the organisation. Each provider had its own service for providing ID verification and an additional area of work for TfWM would be in attempting to achieve consistency across modes through negotiating with providers to align their approaches.

Another issue raised by TfWM, was the need to enhance their smart ticketing scheme to include barcode ticketing or visually validated tickets. This was in order to accommodate private bus operators who currently offered tickets in this format. For barcode ticketing, private operators back-offices were not yet connected to TfWM's disbursement engine, so again, this enhancement required additional resource.

Given the volume of different suppliers and operators involved in a MaaS scheme and the scale of system and partner integrations, Solent noted the importance of establishing robust change control processes to ensure effective oversight of solution development in its local process evaluation findings.

5.1.3   Data security and ownership

Considerations around data security and ownership continued to be an area of focus for zones given the large body of data that the solutions both rely on and generate. As the web of data that a solution relied on increased, so did the need for thorough documentation of what new datasets were being added. There

were a number of reasons for this; to have a record of who owned the data and who was responsible for checking its quality. This would then allow for the quick identification and diagnosing of problems as soon as they arose.

It also related to the flow of personal data, which was a key consideration in the implementation of Data Protection Impact Assessments (DPIAs). Stakeholders in Solent explained that it was difficult to foresee from the outset the volume of personal data that would be processed through a Maas solution. It is essential to properly resource and establish information governance structures and processes from the beginning of MaaS solution development. For example, it is much easier to maintain information risk registers and data retention registers than to create them once early versions of the solution are already in use.

For this reason, some zones were exploring alternative options to local authorities owning the data themselves. The preference for Derby and Nottingham, for example, was to manage the MaaS provider contract but not own the data. The zone's view was that they do not need to own the data if it can be provided to them anonymously for monitoring and reporting purposes. The local authorities would not be performing any other function (such as handling customer queries) for which ownership might be required.

5.1.4   Using data from the MaaS solution

At the time of the research, thinking about how data produced from the MaaS solutions would be used was still in the early stages. High-level plans around this remained consistent from Wave 1 (November 2021). Zones intended to use the data in two main ways:

1) to inform transport planning by helping to identify, for example, where public transport infrastructure was lacking, and

2) to inform monitoring and evaluation of the performance of the solutions.

TfWM, as part of refining their product statement, had given additional attention to identifying their customer base and understanding how to measure the success of the solution for this audience. A key focus of these discussions was in moving beyond technical or transactional indicators (i.e. is the app running as intended), to more outcome-based elements of the service (i.e. what types of behaviour/ behaviour change are resulting from the app). A primary consideration going forward would be the capability of the app to provide the data needed to measure these types of indicators.

Related to this, Solent's university partners faced ongoing challenges in accessing the user data to investigate the performance of the Breeze app and its implications for user behaviour change. Stakeholders recommended earlier discussions with platform providers on the role of research in design and monitoring to allay concerns around data security or data sharing.

Key learnings on data infrastructure for MaaS

- Seek expertise to navigate pre-existing agreements. Across the zones, stakeholders emphasised the challenges of unpicking pre-existing agreements between transport operators and data or technology suppliers in

order to access the data needed to power MaaS. Areas seeking to implement MaaS in the future should consider seeking out and engaging experts in this area at an early point in their timeline in order to offset possible delays.

- Prioritise finalising core data contracts before progressing with other elements of design and implementation. Where key aspects of MaaS solution design are dependent on access to and integration of data from specific sources, guaranteeing this access at an early stage will minimise the potential impact of changes to agreements with other parties.

- Take a 'whole organisation' approach to data quality. The demands of MaaS for quality data are likely to require a wider organisational review of data sources and processes which may have implications for other transport projects. Understanding the likelihood of this cultural shift and putting in place the necessary resource to lead it, will help ensure that other areas implementing MaaS can be proactive rather than reactive on this aspect.

- Plan for unforeseen technological challenges. Despite the existence of open data standards, the variation in quality and design, particularly in relation to older transport back-office systems, can give rise to unexpected integration challenges for platform providers. Other areas implementing MaaS in the future should consider the time and resource advantages of procuring a product with existing integrations. While possibly resulting in a less bespoke solution, this approach also mitigates risks to the local authority of lengthy or costly additions.

- Ensure data collected through the app can help demonstrate success. Understanding from an early stage which indicators can be used to evidence intended outcomes of the solution and ensuring with platform providers that the app is capable of collecting data against these, is key to being able to demonstrate the success of a solution.

6 Lessons learnt and conclusion

This chapter draws together key lessons learnt and successes from across all stages of MaaS development and concludes by considering the next steps for the evaluation.

While three of the four zones were still a considerable time away from public launch of their MaaS solutions at the time of fieldwork, substantial progress had been made since autumn 2021. Solent was the most advanced with their solution, having achieved a micromobility public launch of their Breeze app in October 2022. TfWM and WECA were at an early stage in the implementation of their solutions having completed provider procurement since Wave 1. Derby and Nottingham were preparing to procure their solution following a detailed set-up stage. Zones highlighted the high level of resourcing and activity needed to progress through the early stages of MaaS development, that is, scoping and design, and procurement of a MaaS provider. The findings highlight the complexity of implementing novel technological solutions previously not trialed in the UK.

6.1 Key lessons learnt

Stakeholders were invited to reflect on successes and challenges as well as lessons learnt from the process of developing MaaS schemes to date. Across the areas, some common themes emerged, that reflect key considerations for developing a MaaS solution.

6.1.1 Balancing competing priorities in design and development

Each of the zones had grappled with various competing priorities when scoping and designing their MaaS solutions. In particular, this centred around:

- How best to **incorporate customer preferences** in design; whether from the outset through pre-tender engagement and defining customer-based outcomes, or through user-testing at the implementation stage, and

- The extent to which **developing a highly specified brief** from the outset could facilitate a more seamless development process later, or whether learning through implementation and focusing resource on this stage could be more fruitful.

Each approach taken involved potential benefits and downsides. While it was too early in the process to determine the most successful balance overall, this will be a key area of learning to emerge over the remaining timeline of the FTZ programme.

Key lesson: Other areas planning to implement a similar scheme in the future will need to consider how the resources, skills and internal processes of their organisations might be best suited to one approach or the other.

6.1.2 Adequate time and resourcing for user-testing

Across the zones, stakeholders emphasised the importance of ensuring adequate time and technical expertise to facilitate meaningful user testing. Testing could take place at various stages of the development process including procurement (involving testing of potential supplier solutions) and iteratively at the implementation stages (involving use of Alpha and Beta versions with a restricted audience). It was evident that zones had at times underestimated the role that testing would play in determining the overall timeline of a project, including the time to move to full public launch.

Key lesson: Other areas planning to implement a similar scheme in the future should fully map out these user testing processes and consider how each new feature operates in conjunction with existing functions (not only in isolation).

6.1.3 Implications of market maturity on procurement and implementation

Across the zones, stakeholders reflected on the complexity of negotiations at both the procurement stage and through implementation as well as the time and resources this required from FTZ delivery teams. Negotiations were with potential and appointed suppliers as well as operators and service providers. The complexity of negotiations often reflected unfamiliarity with MaaS schemes and the legal and commercial arrangements of the wider transport market. In some cases, no effective or suitable mechanisms existed to respond to the needs of MaaS and there were still few suppliers within the market with experience of implementing schemes of this scale, which could lead to pressure points and resourcing constraints across the zones as well as for suppliers.

Key lesson: Other areas aiming to develop similar solutions in the future should consider the possible impacts of market and sector immaturity on their timelines. However, it is likely that this situation will ease as a result of experience gained through the FTZ programme.

6.1.4 Influence of third-party dependencies on project success

The extent to which third-party dependencies determined the timeline and potential success of a MaaS solution was unfamiliar to the FTZ delivery teams. The volume of suppliers, operators and service providers involved in schemes of this scale was not typical for transport projects. A range of external factors, such as resourcing within third parties or complex negotiations to finalise data sharing agreements, could affect the delivery timeline as well as the service that a zone would be able to offer through its end product.

Key lessons:

- The importance for areas to **remain agile in their project management** to help ensure that projects continued to progress in a timely manner. Suggested approaches included structuring the timetable around quarterly sprints with planned back-up options for planned activities.

6.1.5 Planning the right level of resourcing

As MaaS projects are completely new and innovative, there was no blueprint for the level of resourcing and specialisms or technical expertise that would be needed. This was especially highlighted by the incorporation of additional teams as the development of MaaS progressed, including legal support, technical expertise and marketing. The findings also highlighted the importance of a dedicated project manager to coordinate between multiple stakeholders and ensure that milestones and timelines are being met.

Key lessons:

- As suggested by the area leads, a useful resource for other areas implementing similar schemes in the future would be an **organogram of an ideal MaaS team structure**. This will be an activity that the national evaluation team will undertake as part of the endline evaluation activities.

- Other areas planning to implement a similar scheme in the future may also need to consider **approaches for cascading knowledge effectively** from the core management team to others involved in delivery. This will be essential to ensure that blockages do not arise from resources being diverted from working on the product to meetings/ planning sessions.

6.1.6 Engaging internal and external stakeholders into a shared vision for MaaS

The success of MaaS relied on close collaboration between internal stakeholders and a range of third parties including technology suppliers, transport operators and mobility service providers. Given its innovative and technical nature, it was important to make sure that both internal and external stakeholders had a shared understanding of the objectives and plans for MaaS.

Key lesson: Other local authorities planning to implement similar schemes need to consider ways in which to bring stakeholders together under a shared vision of what MaaS should deliver. Examples from the areas included developing a product statement of intent or organising workshops or collaboration days to address themes around the meaning of MaaS and how different teams will contribute to its delivery.

6.1.7 Providing assurances around longer-term commercial viability

Commercial viability and sustainability of MaaS was a key concern for internal and external stakeholders. A lack of certainty on the commercial future of MaaS acted as a barrier to securing buy-in from some transport operators, as they struggled to see much commercial advantage and doubted whether the scheme

would generate enough income for it to be a worthwhile investment of time and resources. In addition, there were concerns around running such solutions at local authority-level; rather than nationally.

Key lesson: To address these concerns, there needs to be a clearer understanding of MaaS as a long-term commitment, with the aim of providing assurance to those who do not see the commercial benefit. Some operators may also require assurance that the new solution can retail their own services from the point of launch.

6.1.8 Ensuring quality of data feeding into and produced by MaaS solution

Good data quality is integral to the success of a MaaS scheme, both in terms of building a solution's functionality and in ensuring that adequate data is produced by a solution to observe its impact on travel and behaviour change.

Key lessons:

- There is perhaps a key role for policy in ensuring that common data standards are applied across the transport sector and, where common standards and open sources already exists, clarifying and **strengthening the requirements around quality assurance** and maintaining up-to-date datasets. It is possible that DfT's Transport Data Strategy[s] will help to address some of these concerns.

- Going forward, it will also be key to ensure that MaaS platform providers and data suppliers have a shared understanding with FTZ delivery teams of the importance of having **ready access to appropriate user data** through the solutions to demonstrate their impact.

6.1.9 Reflections for Government

Internal and external stakeholders raised possible issues with the model of developing MaaS on a local or regional basis under the FTZ programme. These included:

1) the resource burden on transport operators and mobility service providers of having to manage multiple integrations in different areas of the country,

2) the use of DfT funding to replicate design, procurement and implementation processes in different areas of the country,

3) funding an overall approach to travel (that is, MaaS solutions that cover local travel but do not cater to regional or national travel) that may be out of step with what customers want. Customers have been involved and consulted on the design of individual solutions, however an alternative option (that is, national travel or travel between regions) is not being considered under FTZ.

Key lesson: Further consideration is needed around how MaaS will develop going forward in order to best meet the government's objectives to improve

integration of services and availability of real-time data and create a digital marketplace for mobility services. This includes whether some consolidation of effort is needed.

6.2   Next steps for the case study

In the next and final wave of research for this case study, due in 2024, the following data collection methods will be used:

- interviews will again be conducted with stakeholders involved in the design and implementation of MaaS solutions to understand any continued or additional challenges, learning and successes as the schemes develop in each area;

- these will be complemented by local process evaluation findings that specifically relate to MaaS;

- qualitative research will be conducted with MaaS users via two focus groups per area (5-7 participants per group) and digital travel diaries (10-14 per area), and

- a small-scale survey with the general public, first conducted at Wave 1, will be repeated to assess any changes in awareness of MaaS across the FTZ programme.

The final wave will ultimately explore how MaaS solutions have been developed throughout delivery and will enable us to make more distinctions between the zones. In addition, we will also bring in the perspectives and experiences of MaaS users, thus providing a more complete picture of programme design, implementation and deployment.

Endnotes

[a] MaaS is a term used to describe 'digital transport service platforms that enable users to access, pay for, and get real-time information on a range of public and private transport options' (Enoch, 2018).

[b] See the Department for Transport's Future of Mobility: Urban Strategy report for more detail.

[c] The part of a computer system or piece of software where data is stored or processed.

[d] The mobile application or web browser interface that is seen and used by the customer.

[e] The second timepoint will be January 2024 to inform Wave 4 of the case study and the final timepoint will be in September 2024 to inform a final overall synthesis report of the programme.

[f] Given the small numbers of interviews involved, and the fact that many area project officers are known to DfT, it was possible that individuals within DfT could know who had participated. This was explained to participants and they were given the opportunity to retract any information at the end of the interview that they did not want included in the report.

[g] For details on the overview of the approach taken by each of the zones to a MaaS solution and what they were aiming to achieve see Wave 1 MaaS case study report (section 1.2.3).

[h] Swift in TfWM's existing local multi-modal smart ticketing offer which has been running for a number of years.

[i] A disbursement engine is software that manages complex payment processes that span multiple payment channels and manages payments to multiple payees.

[j] An early version of the MaaS product with core features and functions that is used for internal testing.

[k] A white label technology product is provided without branding so other companies can add their own branding.

[l] A later version of the MaaS product with additional features and functions that is used for testing with external users and customers.

[m] A dark launch involves releasing a new product or new features to a subset of users to gather their feedback and implement improvements before launching to all users.

[n] Soft market testing is a process of engaging with potential suppliers before an organisation begins buying goods or services. It gives suppliers the opportunity to both inform the specification and prepare to meet the demand.

[o] The term 'integration' refers to the addition of a new feature to the MaaS app, such as the ability to pay through the app, but also refers to the addition of a new transport mode to the solution.

[p] For further information see section on 'Finalising the contract with the appointed provider'.

[r] TfWM had originally aimed for a higher level of integration between National Express and the zone's MaaS solution than is being attempted between modes and solutions in the other zones.

[s] See the Department for Transport's policy paper for Transport data strategy.

7 References

Enoch, M. (2018), Mobility as a Service (MaaS) in the UK: change and its implications. Government Office for Science.

Karmargianni, M. and Matyas, M. (2017), The Business Ecosystem of Mobility as a Service. 96th Transportation Research Board (TRB) Annual Meeting, Washington DC, 8-12 January 2017.

Ritchie J. et al (2013). Qualitative Research Practice: A Guide for Social Science Students and Researchers.

Appendix A. Additional technical information

Data management and NatCen's Framework Approach

The data management analysis was conducted by a team of 4 researchers. The interviews were managed and analysed using the framework approach developed by NatCen. The analytical framework is developed on the basis of the key topics and issues emerging from the research objectives and data. A series of matrices are set-up, each relating to a different thematic issue. The columns in each matrix represent the key sub-themes or topics and the rows represent individual interviewees or groups.

Data from each interview was then summarised into the appropriate cell in Microsoft Excel, so the data are ordered systematically and grounded in participants' accounts. This allows individual narratives or cases to be explored fully but also enables the analyst to drill down on specific themes or topics quickly and effectively.

Interview discussion guide

7.1.1 Background and context [ALL]

- Individual's role and responsibility (brief recap for those included in last wave)
  - Role in overall FTZ programme
  - Any changes in scope of role during the programme
  - What FTZ schemes do they work on (if relevant)
  - If not working directly on FTZ, what their role is and what it involves. How does their team work with the FTZ delivery team
  - Length of time involved in FTZ
  - Any changes to the objectives of MaaS solution

7.1.2 Progress under the MaaS scheme since Wave One [MaaS internal stakeholders]

The aim of this section is to understand the progress that has been made under the MaaS scheme since Autumn 2021, as well as key design and engagement decisions and lessons learned through this process.

Key milestones achieved since <u>Autumn 2021</u>

- High level overview of progress since

Current status of MaaS scheme

- Current stage of planning, design or implementation
- Immediate next steps in the process

Ongoing research and testing

- Consulting external expertise – why, who, at what point
- Local trials *(e.g. DerbyGo)*
- User testing (e.g. of Beta product; customer segmentation)
- Commissioned research (e.g. D&N's Systra Options Appraisal) - aims, methodology

For each of the above bullets, please explore:

- Key learnings/ findings
- Implications for the MaaS scheme
- Any changes to scheme objectives or MaaS features/ functions as a result

Designing the MaaS scheme

- Service design decisions *(D&N only)*
    - Designing a solution that works for the area/ region (e.g. one or two city solution
    - Whether building on legacy system (e.g. Robinhood card in D&N)
    - Travel options in scope/ out of scope (bus, train, e-scooter, bikeshare etc)
    - Travel planning (e.g. access to real time information/ mapping, cost/ time comparisons for alternative routes etc)
    - Booking capabilities
    - Payment models – subscriptions, account based, pay-as-you-go
    - Privacy and data security considerations
    - Other key features (e.g. incentives)

For each of the above bullets, please explore:

- Key factors considered when making design decisions

- – What has worked well

- – Any challenges in relation to design and how overcome

- – Any lessons learnt

- Any key changes in design since <u>Autumn 2021</u> *(all zones)*

  - – How came about

  - – Implications for the MaaS solution

Procuring MaaS supplier(s)

- Developing a specification for open tender *(D&N only)*

  - – Key considerations

  - – What informed approach (i.e. market testing, experience of other zones).

- Procurement of platform provider *(WECA and TfWM only)*

  - – Experience of tendering process

  - – Timeline for going out to market

    - ▪ Key factors considered (e.g. whether other zones going out to tender at the same time)

  - – Reason selected provider

  - – Whether responses to their specification met their needs

  - – Lessons learnt from tendering process

Implementation *(Solent, WECA and TfWM)*

- Priority features to include in early or Beta versions of MaaS solution (i.e. modes, journey planning functionality, booking and payment functionality etc). *(WECA and TfWM only)*

- Timeline – whether on track

- What has worked well

- Any implementation challenges to date and how overcome

- Any lessons learnt

- Next steps for implementation stage

- Any early outcomes or unintended consequences

Marketing strategy *(only applicable to schemes that are close to / have launched i.e. Solent and WECA)*

- Key principles of marketing approach

  - – Target audience

  - – Communication channels used to market scheme

- What has worked well and less well

- Lessons learned in relation to marketing scheme

MaaS team and key stakeholders *(all zones)*

- Any changes to team structure or resourcing since <u>Autumn 21</u>
  - Implications for the MaaS scheme
    - Benefits
    - Challenges (e.g. if any key personnel changes)
- Any new internal stakeholders engaged *(all zones and particularly for D&N)*

(e.g. if building on current/legacy systems - teams responsible for these, procurement, governance, lawyer, steering group, IT)

  - Reasons for engagement and implications for MaaS scheme
  - Extent, format and frequency of engagement
  - Any remaining gaps in engagement
- Any new external stakeholders engaged (all zones)
  - Whether engaged all transport operators (across all modes) anticipated, any challenges experienced
  - Facilitators and barriers to engaging transport operators
  - Experience with MaaS supplier

If not offered spontaneously prompt specifically on MaaS suppliers, data suppliers, transport operators

    - Reasons for engagement and implications for MaaS scheme
    - Extent, format and frequency of engagement
    - Any future stakeholders intend to engage – who, how, when

Funding and commercial viability (all zones)

- Whether spending to date in line with expectations
- How often are budgets reviewed and revised – who is responsible for monitoring scheme spend
- How have changes to budgets been agreed
- Current views on commercial viability beyond FTZ funding
- Whether exploring models for commercial sustainability
  - *If extending beyond funding*, how expect to cover operating costs

7.1.3 Engagement in MaaS design and implementation [MaaS external stakeholders (particularly transport operators)] NEW

The purpose of this section is to better understand the level of engagement between zones and external stakeholders, their concerns around the future of the scheme and how these are being met.

Understanding of FTZ and the MaaS scheme NEW

- Their understanding of MaaS
- How is MaaS different to what is currently available
- What is the MaaS scheme aiming to achieve
- How do they see the MaaS offer fitting within the existing local market place

Experience of the MaaS scheme to date

- Consultation process
    - Whether engaged in legacy system
    - When first told about FTZ scheme and information provided
    - When, how often, extent and format of consultation on approach/ design
    - Key stakeholders engaged (internal and external)
- Resourcing and management for transport operators
    - Implications for existing workload
    - Any capacity considerations for operators
        - Staff resourcing (e.g. new hires or restructuring)
        - Any training/ guidance requirements
        - Any new internal processes that needed to be put in place
- Data sharing
    - Understanding of LA data requirements
    - Resources to provide data required
    - Data sharing agreements, necessary contractual agreements
    - Current data specification contracts and implications
    - Data security and GDPR
- In their view, key strengths/ successes of zone's MaaS solution/ approach
- Any concerns going forward (e.g. commercial viability, other business implications for operator).

7.1.4 Data infrastructure [MaaS internal, Data internal and Data external stakeholders (specifically MaaS and Data hub suppliers)]

The aim of this section is to explore zone's data requirements, whether existing infrastructure can meet these needs and, where there are gaps, how these are being overcome.

Summarise approach to data i.e. in what ways are they using data to improve MaaS functionality or pursue certain scheme objectives

Key milestones achieved since Autumn 2021

- High level overview of progress since Wave One fieldwork

Current status of data project / work

- Current stage of planning, design or implementation
- Whether any changes in approach to using data/ new data sources identified
- Key challenges overcome and how (to include integration of legacy systems, *where relevant)*

Key data considerations since <u>Autumn 2021</u>

- Accessing all data needed
    - Transport operator's API feeds
    - Reservation and ticketing interfaces
    - Real time journey data
- Data integration (particularly around ticketing and payment, whether data is in correct digital format, integrating new and legacy system (if using))
    - Whether benefitted from national policy changes e.g. Bus Open Data Policy.
- Data ownership and security
- Data sharing
    - Contractual agreements to access transport operator data – if any changes in approach/ bespoke arrangements
- New data capabilities needed (how these being sourced / developed, how confident they are that these will be met)

For each of the bullets above, explore

    - What is working well
    - Whether any challenges and how overcoming
    - Lessons learnt to date
- Immediate next steps for the project

Procurement of data hub provider *(D&N, WECA – internal stakeholders only)*

- Developing a specification for open tender
    - Key considerations
    - What informed approach (i.e. market testing, experience of other zones).
- Procurement of platform provider *(if relevant)*
    - Experience of tendering process
    - Timeline for going out to market
        - Key factors considered
    - Reason selected provider
    - Whether responses to specification met needs (i.e. market readiness).
    - Lessons learnt from tendering process

Data project team and key stakeholders

- Any changes to team structure or resourcing since <u>Autumn 21</u>.
    - Implications for the MaaS/ Data scheme
        - Benefits
        - Challenges (e.g. if any key personnel changes)
- Any new internal stakeholders engaged
    - Reasons for engagement and implications for the Data project
    - Extent, format and frequency of engagement
    - Any remaining gaps in engagement
- Any new external stakeholders engaged (probe specifically around transport operators)
    - Reasons for engagement and implications for the Data project
    - Extent, format and frequency of engagement
    - Any future stakeholders intend to engage – who, how, when

7.1.5 Lessons learnt [ALL]

This section aims to draw out high level take-aways from all stakeholders about the programme.

- Main successes of the scheme to date
    - Whether on track to meet scheme objectives
- Main challenges of the scheme to date
- Things that would do differently in the future
- Key learning for other FTZ areas / other local authorities hoping to introduce similar schemes

Analytical framework

Chart 1 – Background and context

Role & responsibility	Participant overview
	ALL A&C STAKEHOLDERS: • Role in FTZ programme • What FTZ scheme they work on (if relevant) • Any changes to role ALL B&D STAKEHOLDERS: • What their role is • What it involves • How their team works with the FTZ delivery team

	• Any changes to role
	ALL NEW STAKEHOLDERS:
	• Length of time involved in FTZ
Scheme objectives	All A&C STAKEHOLDERS
	• Any changes to the objectives of the MaaS solution
Other	

Chart 2 – Progress under the MaaS scheme since Wave One

Key milestones	Overview of progress since Autumn 2021
Current status of MaaS scheme	Current status • Current stage of planning, design or implementation
Next steps	Immediate next steps in the process
Designing the MaaS scheme	Service design decisions (D&N only) • Key factors considered when making design decisions Key changes in design since Autumn 2021 (All zones but primarily Solent, WECA, TfWM). • How changes came about • Implications for the MaaS solution Successes Challenges & lessons learnt • Detail how each challenge overcome • List any lessons learnt in relation to each challenge

Procuring MaaS supplier(s)	Developing a specification (D&N only) • Key considerations • What informed approach Procurement of platform provider (WECA and TfWM only) – Experience of tendering process – Timeline for going out to market Key factors considered (e.g. whether other zones going out to tender at the same time) – Reason selected provider – Whether responses to their specification met their needs Successes Challenges & lessons learnt • Detail how each challenge overcome • List any lessons learnt in relation to each challenge
Implementation (Solent, WECA and TfWM only)	Priority features for early or Beta versions • Modes • Journey planning functionality • Booking and payment functionality • Other Timeline – whether on track Successes Challenges & lessons learnt • Detail how each challenge overcome • List any lessons learnt in relation to each challenge Any early outcomes or unintended consequences Next steps for implementation stage
Ongoing research and testing	Consulting external expertise Local trials User testing Commissioned research

	Under the above headings cover the following as relevant: • Key learning/ findings • Implications for the MaaS scheme • Any changes to scheme objectives or MaaS features/ functions as a result

MaaS team and key stakeholders (All zones)	Any changes to team structure or resourcing since Autumn 21
	
	• Implications for the MaaS scheme
	
	    o Benefits
	
	    o Challenges
	
	Any new internal stakeholders engaged
	
	List each new stakeholder and include:
	
	• Reasons for engagement and implications for MaaS scheme
	
	• Extent, format and frequency of engagement
	
	• Any remaining gaps in engagement
	
	Any new external stakeholders engaged
	
	List each new stakeholder and include:
	
	• Whether engaged all transport operators anticipated
	
	• Facilitators to engaging transport operators
	
	• Barriers to engaging transport operators
	
	• Experience with MaaS supplier (excluding D&N)
	
	    o Reasons for engagement and implications for MaaS scheme
	
	    o Extent, format and frequency of engagement
	
	Any new stakeholders who they intend to engage

Funding and commercial viability (All zones)	Whether spending to date in line with expectations
	• How often are budgets reviewed and revised – who is responsible for monitoring scheme spend
	• How have changes to budgets been agreed
	Current views on commercial viability beyond FTZ funding
	• Whether exploring models for commercial sustainability
	• *If extending beyond funding*, how expect to cover operating costs
Other	

Chart 3 – Engagement in MaaS design and implementation

Understanding of FTZ programme	Their understanding of MaaS
	• How is MaaS different to what is currently available
	• What is the MaaS scheme aiming to achieve
	• How do they see the MaaS offer fitting within the existing local market place

Experience of the MaaS scheme to date	Consultation process
	• Whether engaged in legacy system
	• When first told about FTZ scheme and information provided
	• When, how often, extent and format of consultation on approach/ design
	• Key stakeholders engaged with (internal and external)
	Resourcing and management for transport operators
	• Implications for existing workload
	• Any capacity considerations for operators
	o Staff resourcing (e.g. new hires or restructuring)
	o Any training/ guidance requirements
	o Any new internal processes that needed to be put in place
	Data sharing
	– Understanding of LA data requirements
	– Resources to provide data required
	– Data sharing agreements, necessary contractual agreements
	– Current data specification contracts and implications
	– Data security and GDPR
Their view of the zone's MaaS solution	Successes/ strengths
	Challenges/ concerns

Chart 4 – Data infrastructure

Approach to data	Summarise approach to data
Key milestones	Overview of progress since Autumn 2021

Current status of data project/ work	Current status - Current stage of planning, design or implementation - Whether any changes in approach to using data/ new data sources identified Successes Challenges & lessons learnt - Detail how each challenge overcome - List any lessons learnt in relation to each challenge Any early outcomes or unintended consequences
Next steps	Immediate next steps in the process

Key data considerations	**Key data considerations since Autumn 2021**
	
	- Accessing all data needed
	  - Transport operator's API feeds
	  - Reservation and ticketing interfaces
	  - Real time journey data
	- Data integration
	  - Whether benefitted from national policy changes e.g. Bus Open Data Policy.
	  - Data ownership and security
	- Data sharing
	  - Contractual agreements to access transport operator data
	- New data capabilities needed
	
	Successes
	Challenges & lessons learnt
	
	- Detail how each challenge overcome
	
	- List any lessons learnt in relation to each challenge
	
	Any early outcomes or unintended consequences
	
	Next steps for implementation stage

Procurement of data hub provider (D&N, WECA only)	Developing a specification for open tender • Key considerations • What informed approach Procurement of platform provider *(if relevant)* • Experience of tendering process • Timeline for going out to market ○ Key factors considered • Reason selected provider • Whether responses to specification met needs Successes Challenges & lessons learnt • Detail how each challenge overcome • List any lessons learnt in relation to each challenge

Data project team and key stakeholders	Any changes to team structure or resourcing since Autumn 21
	• Implications for the MaaS/ Data scheme
	    ○ Benefits
	    ○ Challenges (e.g. if any key personnel changes)
	Any new internal stakeholders engaged
	List each new stakeholder and include:
	• Reasons for engagement and implications for the Data project
	• Extent, format and frequency of engagement
	• Any remaining gaps in engagement
	Any new external stakeholders engaged
	List each new stakeholder and include:
	• Reasons for engagement and implications for the Data project
	• Extent, format and frequency of engagement
	• Any future stakeholders intend to engage

Other	

Chart 5 – Lessons Learnt

Key successes	List each key success as its own **heading** and add summary beneath.
Key challenges	List each key challenge as its own **heading** and add summary beneath.
What to do differently in future	List each key suggestion as its own **heading** and add summary beneath.
Key learning for other FTZ areas	List each key lesson as its own **heading** and add summary beneath.
Other	