Reaching Critical MaaS

Interregional Co-operation for Seamless Mobility in the Brussels-Capital Region

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MaaS is not just an App

The rise of commercially shared mobility services and new forms of travel has broadened people's choices when it comes to travelling in cities and towns. Walking, cycling and other forms of micromobility, along with public transport, ridesourcing, taxis, and car travel, fulfil different needs, at different times and for different purposes. However, people may find it challenging to use these modes in combination, or to select the best fit for a given trip, because these travel options are not sufficiently connected, coordinated or convenient. In the current environment, people lose out because good travel alternatives are not readily available to them, and cities and towns lose out because people's travel choices gravitate to the most compelling yet detrimental option in the current environment – the personal car.

Public authorities face the challenge of developing a regulatory framework for urban mobility that facilitates bringing together these different modes into an easy, unified and compelling offer geared towards people's needs. This is the challenge the Brussels-Capital Region (BCR) faces: steering the large-scale deployment of MaaS to ensure it fulfils the needs of citizens.

MaaS is not just an app. MaaS is an ecosystem that brings together a wide variety of stakeholders – mobility operators, MaaS providers, data intermediaries – to provide a tailor-made offer to the end user. These stakeholders are connected by data sharing practices that can only emerge if they trust each other. Public authorities play a key role in connecting these stakeholders and establishing trust through norms, rules, and protocols. This is what this study is about: the governance of MaaS to align its development with public policy objectives.

MaaS in the Brussels-Capital Region and beyond

In the Brussels-Capital Region (BCR), nearly half of employees are commuters from the neighbouring provinces of Flanders and Wallonia, while 20% of employed residents of the BCR work outside of it. Answering these mobility needs requires co-ordination with transport and innovation policy across the three Belgian regions, as well as with relevant policies at the Federal and EU level.

	Brussels-Capital Regional Government	Walloon Regional Goverment	Flemish Regional Goverment	Belgian Federal Government
	COMPETENT FOR REGIONAL TRANSPORT			COMPETENT FOR FEDERAL RAIL SERVICES + ORGANISES INTERFEDERAL DIALOGUE
Transport policy	Brussels Mobility	SPW Transport Mobilité	Department of Mobility and Public Works	Federal Public Service (FPS) Mobility & Transport
	COOPERATING THROUGH THEIR SUBSIDIARY BMC			
Public transport operations	STIB-MIVB *Public transport and regional MaaS*	TEC *Public transport*	De Lijn *Public transport – intermodal hubs*	SNCB-NMBS *Federal rail services*
Innovation policy	Paradigm	Digital Wallonia	Digital Flanders / Public company Athumi	ITS Steering Committee Secretariat FPS Policy and Support (BOSA) *Interfederal cooperation on innovation*

Our objective

Assisting the Brussels-Regional Government in addressing institutional reforms and inter-regional governance mechanisms necessary to support the development of an interregional MaaS ecosystem.

Our research approach

Governance diagnosis

Identification of key stakeholders and competencies

Review of MaaS-relevant projects in Belgium

Extensive stakeholder consultations

Interviews with 18 stakeholders

3 workshops

In-depth case studies

BOSA

European Health Data Space

MDS Policy API

What we delivered

Core report

Principles to guide discussions

Actionable recommendations, illustrated by case studies

Companion report 1

Detailed review of MaaS-relevant projects in Belgium (background research)

Companion report 2

Discussion of relevant EU policies

Five Guiding Principles Underpinning MaaS Governance in Brussels

1

Data is the foundational infrastructure of MaaS

Data, like roads, rails and other infrastructure, shapes real-world outcomes: it underpins a variety of new shared mobility services, ensures efficient transport services and supports the integration of these services through MaaS. Mobility data is foundational infrastructure in that it is increasingly essential for citizens to live fulfilled lives.

2

MaaS requires sharing informational, operational and transactional data

MaaS requires sharing of data necessary to plan, operationally deliver and to pay and allocate revenues from joined-up trips. However, sharing this data does not necessarily, or primarily, mean sharing all data with everyone. Vetting data access rights for MaaS stakeholders is essential.

3

Interoperability should be ensured at the interregional level

Data compatibility and interoperability allows different stakeholders to connect their services. It should enable the delivery of joined-up trips involving different service providers – e.g. private shared mobility services, public transport operators, identity authentication services and payment processors).
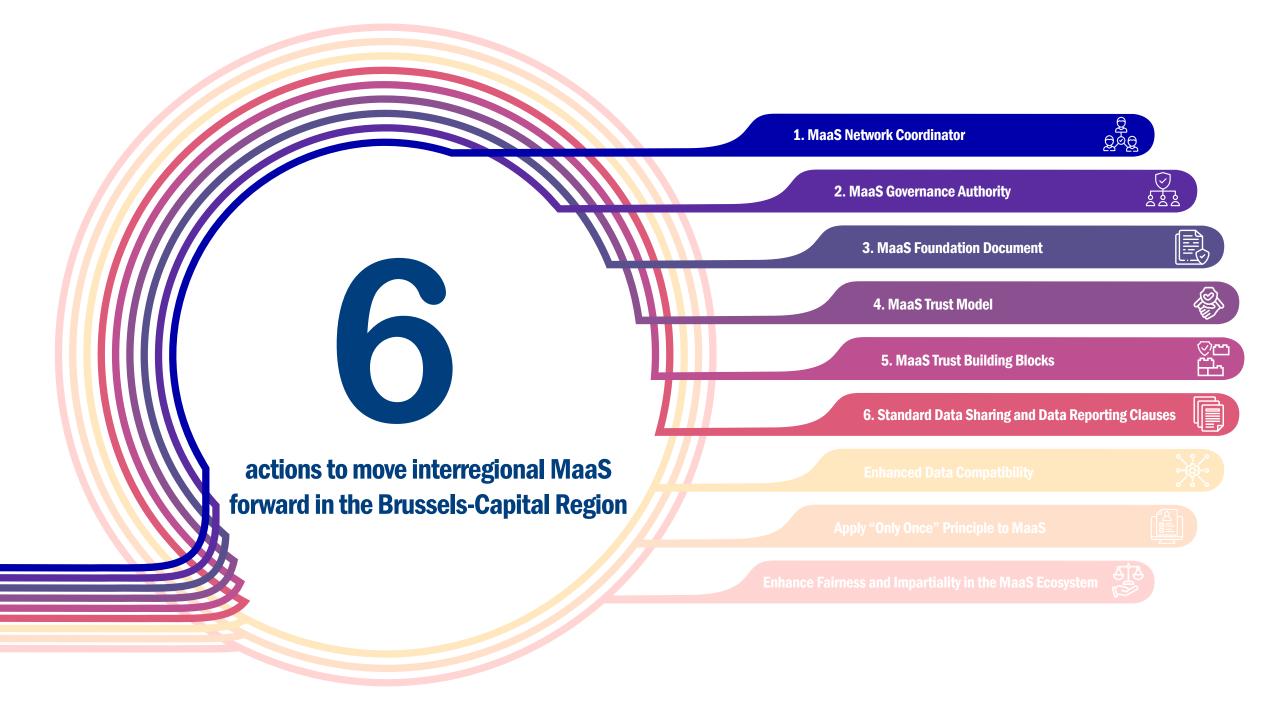
4

MaaS requires personal access/status portability

MaaS requires sharing information about customers among mobility operators and MaaS providers. This portability may involve sharing personal data for defined uses and with the consent of the traveler. Alternatively, it can involve sharing a trusted assessment (yes/no) of the traveler's status with, or access rights to, a mobility service.

5

Sharing does not require pooling data

MaaS requires a common data resource available to vetted MaaS ecosystem actors. This resource can be comprised of pooled data managed by one stakeholder. Alternatively, it may build on decentralised and on-demand API-enabled data exposure requests. This approach, unlike data pooling, seems more conducive to build trust among MaaS actors.

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actions to move interregional MaaS forward in the Brussels-Capital Region

1. MaaS Network Coordinator

2. MaaS Governance Authority

3. MaaS Foundation Document

4. MaaS Trust Model

5. MaaS Trust Building Blocks

6. Standard Data Sharing and Data Reporting Clauses

Enhanced Data Compatibility

Apply "Only Once" Principle to MaaS

Enhance Fairness and Impartiality in the MaaS Ecosystem

Information & Coordination
1. Designate a MaaS Network Coordinator (MNC)

There is a real need to monitor, track, coordinate and share information regarding MaaS-relevant developments and initiatives among MaaS ecosystem stakeholders and across all three Belgian regions and the federal level. The MaaS Network Coordinator (MNC) addresses this need.

Why a MaaS Network Coordinator?

There are ongoing practices of collaboration and knowledge exchange around MaaS and related topics in and around the Brussels-Capital Region. However, these tend to be marked by fragmentation and the duplication of initiatives. Moreover, information asymmetry is a problem as knowledge of MaaS-relevant initiatives is not shared among, or accessible by, all stakeholders. The MNC's role is to structure, organise and optimise these exchanges.

Roles and Responsibilities

The MNC would support effective and continuous collaboration, as well as ensure synergies between the strategies and actions of all MaaS stakeholders. The MNC would ensure that relevant information is available to all, that all stakeholders are thoroughly consulted, that resources are efficiently used (e.g. recommending work with an existing working group rather than the launch of a new one) and that innovations in other sectors can inform the MaaS policymaking process. The MNC should be independent and should not represents the interests of stakeholders who have a vested interest in steering the market in a certain direction (e.g. mobility operators, MaaS providers).

Who leads?

The MNC operates at the interfederal level and can be represented by an individual or by a team. The MNC is not a new institution. It does not have authority to take decisions and exists only to support bodies that have legal authority and be a resource to MaaS stakeholders.

Implementation

The MNC can be created through a protocol signed by the three regions and the federal government. As such, it would have no legal personality and no resources of its own. It could be first be composed of staff-on-loan from the four transport ministries. It could then be transferred to operate within the remits of the MaaS Governance Authority (MGA - see next action).

2. Establish a MaaS Governance Authority (MGA)

To serve interregional mobility, MaaS requires common policies and coordinated actions to enable effective oversight and guidance of the MaaS ecosystem and its stakeholders. The MaaS Governance Authority (MGA) accomplishes this role.

Why a MaaS Governance Authority?

Everyday trips cross regional boundaries in the Brussels-Capital Region. To deliver traveller-centric MaaS, consistency in regulations and norms is essential. Trust among stakeholders – public authorities, public transport operators, mobility service operators, MaaS providers – is also necessary for the uptake of MaaS. The MGA fills these roles as the authority in charge of developing and enforcing norms, providing resources and resolving conflict.

Roles and Responsibilities

The MGA would have responsibility for defining rules and policies with respect to MaaS, as well as of providing resources to support the MaaS ecosystem. It will also monitor the ecosystem and ensure that rules and policies are respected by stakeholders. It will represent the four relevant public authorities and consult all other MaaS stakeholders. It will be assisted in this mission by the MNC.

Who leads?

The MGA is a new interfederal body with a formal legal identity. It represents the three regional governments and the federal level. It will take decisions on their behalf and has its own resources and staff.

Implementation

The creation of a new interfederal body with a formal legal identity must be approved by the three regional and the federal parliament through a cooperation agreement. Such an agreement may take two to three years to finalise. Until then, the four public authorities can work on the foundation document (action 3) and trust framework (action 4) under a common protocol agreement. In the future, as the European Mobility Data Space develops, the MGA and the future Mobility Data Space Governance Authority will need to be integrated.

Definitions & Consensus
3. Produce and maintain a MaaS Foundation Document

Policymakers define MaaS differently and have different assumptions, priorities and objectives when seeking to deliver it. Consensus exists at a high-level but breaks down when seeking to operationalise MaaS. The MaaS Foundation Document helps establish a shared understanding and starting point for dialogue.

Why a Foundation Document?

The MaaS Foundation Document bridges the gap between high-level principles and operational frameworks that enable their delivery. It serves four key functions. First, it would be a vision document regarding desired outcomes. Second, it would identify common principles and clearly define the concepts underlying these principles. Third, it would provide a description of the MaaS ecosystem and the stakeholders that compose it, as well as outline its governance framework. Finally, it would provide a mapping of consensus and disagreement between stakeholders. The MaaS Foundation Document will establish a common understanding of what MaaS is and what it isn't and address questions that are left open today.

How does it work?

The MaaS Foundation Document will be modular in design, comprised of foundational statements regarding key aspects of MaaS and its governance. Each of the four governments will be able to opt-in or opt-out of these thus establishing where consensus lies. It will be a living document, updated regularly (e.g. once every two years) to reflect MaaS-relevant innovations and update the state of consensus and disagreement. While the MaaS Foundation Document will reflect the state of positions held by public authorities, it should also be guided by a thorough consultation of public transport, mobility service operators and MaaS providers.

Who leads?

The MaaS Foundation Document is jointly defined by the three regional governments and the federal government. Once created, the MGA stewards the MaaS Foundation Document.

Implementation

The MaaS Foundation Document may initially be created under a cooperation protocol, before the MGA is constituted. The ongoing interfederal working group on communication and terminology, led by Flanders, may initiate discussions around its structure and content. Once in place, the MNC would assist in its development. Once finalised, the document would be signed by the four relevant governments to indicate their agreement with its contents and referenced in policy documents.

Fairness & Confidence

4. Develop a MaaS Trust Model

MaaS require data sharing but this requires trust among stakeholders that data sharing obligations are fair and will help achieving common goals. The MaaS Trust Model enables this by building on rules and audit mechanisms (action 4) as well as technical building blocks (action 5) underpinning trust.

Why a MaaS Trust Model?

Interviews with key stakeholders within the Belgian MaaS ecosystem revealed concerns regarding expansive data-sharing in support of MaaS. A trust model is a set of agreed-upon rules and norms, supported by technical building blocks (see action 5), that allows data to be shared in a way that ensures the sovereignty of data holders and the security of data exchanges. Trust models seek to answer the following questions: is an actor who they say they are? Can they be trusted with personal or sensitive data? Can their data and affirmations regarding their use of data be trusted? Setting a framework to address those questions builds trust among MaaS stakeholders.

How does it work?

The trust model should encompass two primary functionalities. First, it should grant stakeholders the ability to specify to what end, and by whom, their data may be used, along with the ability to verify these uses and users. This may take the form of contractual measures or involve technical measures (see action 5). Second, the trust model should define key principles that will guide how these rights, responsibilities and roles are established and audited. The MGA, once established, will play a key role in this respect.

Who leads?

The MGA will own and be responsible for the implementation of the trust model. All relevant stakeholders within the ecosystem, public or private, should be consulted.

Implementation

Developing a first version of the trust model will take time. The process may start before the official launch of the MGA and could initially rely on an interfederal working group. Once instituted, the MGA will be in charge of revising the trust framework and conducting all necessary audits to ensure alignment and compliance with it.

Modular & Deployable

5. Identify and use MaaS Trust Building Blocks

An essential component of the MaaS Trust Model (action 4) are the technical building blocks that establish trust among MaaS Stakeholders when sharing data. These building blocks enable trust-building in a modular and deployable manner.

Why create MaaS Trust Building Blocks?

Establishing trust requires policies outlining the respective roles of stakeholders as well as the technical mechanisms to ensure their enforcement. For instance, verifying that a data user is who they say they are implies a digital identity and an authentication process to ascertain their identity. The MaaS Trust Building Blocks ensure that the trust model is implemented and is respected in practice.

What is involved?

All the elements that comprise the trust model (action 4) should be matched with technical building blocks and processes. Each rule set in the trust model should supported by technical functions. For each of these technical functions, existing solutions should be identified and evaluated. The MGA will then issue recommendations for which technical building blocks to use. The final report of this project suggests a number of existing solutions to match key functions of the trust model.

Who leads?

The MaaS Governance Authority is responsible for enabling trust. This implies identifying, referencing or providing the technical building blocks that operationalise the trust framework.

Implementation

The MGA, in consultation with stakeholders, will work with the MNC to identify existing building blocks that could be implemented within, or adapted to, the MaaS ecosystem. When no such solution exists, the MGA will coordinate the creation of new building blocks and functionalities where relevant.

6. Create a repository of Standard Data Sharing Clauses

Public service contracts, mobility service regulations, or contracts regulating the integration of mobility services into MaaS all comprise data sharing clauses. Lack of harmonisation among these erodes efficiency. A common repository of agreed data sharing clauses remedies this lack of consistency.

Why create a Repository of Standard Data Sharing Clauses?

The lack of consistency in data sharing requirements across contracts and regulations entails high transaction costs linked to the time and effort required for bilateral negotiations, mapping systems to each other and accommodating inconsistent requirements. Creating consistency in data sharing requirements would address these transaction costs and, in turn, would make participation within the MaaS ecosystem more attractive to all parties. It would also create more certainty and predictability for operators who would know how and where to focus their investments.
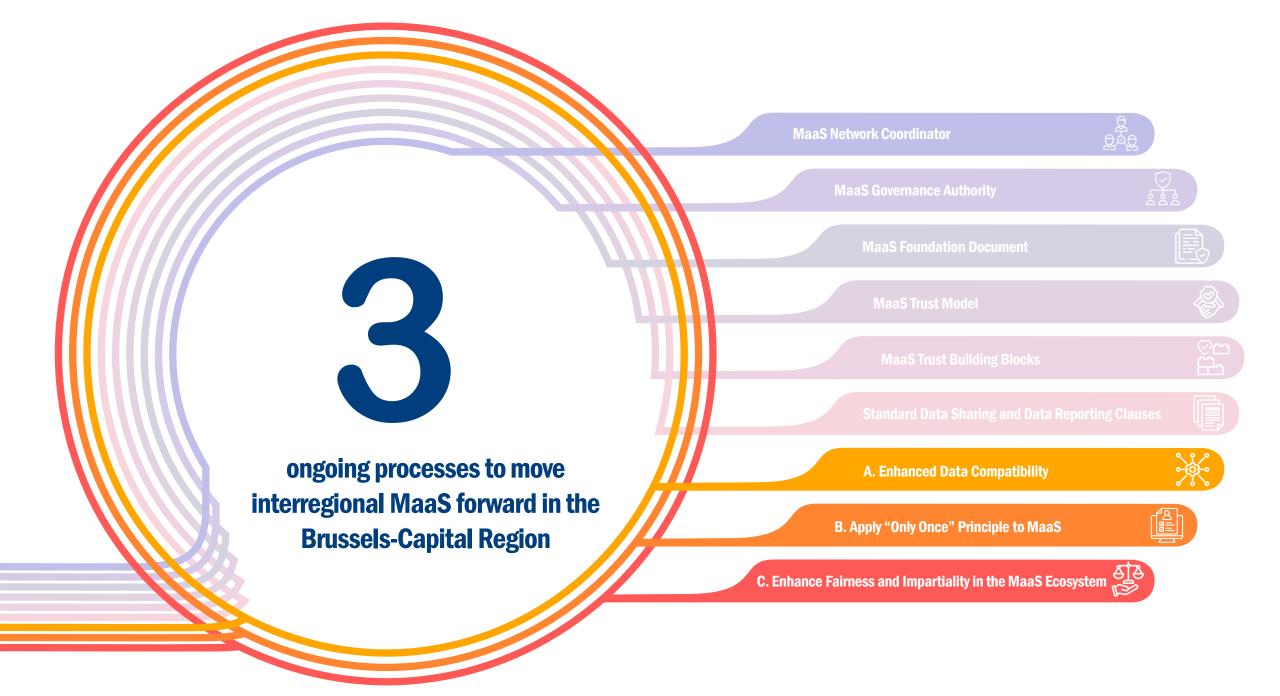
What is involved?

The MGA, in consultation with all stakeholders and with the support of the MNC, should develop a repository of standard and agreed data sharing clauses. These clauses should set out the roles and responsibilities of data owners and data users, and address (i) the scope of data that should be shared to deliver each functionality (e.g. trip planning, booking ticket, offering access to vehicles, paying for a trip) ; (ii) the risks associated with sharing this data and who bears it ; (iii) the mitigation strategies to address these risks, and who implements them ; (iv) conflict resolution mechanisms ; and, (v) interoperability principles.

Who leads?

The MGA develops the repository of clauses. The MNC supports the MGA and ensures all stakeholders are duly consulted.

Implementation

The repository could be referred to in legislative acts regulating mobility services and in public transport service contracts. The MGA should regularly revise and update these standardised clauses ; in this way, all ordinances and regulations referencing them would always be up to date.

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ongoing processes to move interregional MaaS forward in the Brussels-Capital Region

MaaS Network Coordinator

MaaS Governance Authority

MaaS Foundation Document

MaaS Trust Model

MaaS Trust Building Blocks

Standard Data Sharing and Data Reporting Clauses

A. Enhanced Data Compatibility

B. Apply "Only Once" Principle to MaaS

C. Enhance Fairness and Impartiality in the MaaS Ecosystem

Compatible & Mappable
A. Foster Enhanced Data Compatibility

MaaS requires interoperability of systems and data. Full interoperability is not a short-term possibility, but it is already beneficial to work towards enhanced data and system compatibility. This enables data and systems to be more easily mapped to each other and to third-party interfaces.

Why seek enhanced data compatibility?

Many policymakers and public transport operators consulted as part of this project have focused on interoperability and, more precisely, "standardisation" (full interoperability) as a priority. This contrasts with private sector stakeholders, especially those already proficient in cross-platform data management, who note that weak interoperability is not a barrier to MaaS development. These stakeholders argue that a number of solutions already exist to ensure different systems effectively communicate with each other without requiring full standardisation. Seeking enhanced compatibility, or harmonisation, may be enough.

What is involved?

A number of tools already enhance the compatibility of different stakeholders' systems, including a core set of mobility data standards and specifications. Many of these are compatible and convertible via interpreters and proxies. Some frameworks also exist to efficiently map some standards to others. Rather than working towards full standardisation, a more near-term strategy involves seeking pivotal points of interoperability. Identifying these allows to define minimum interoperability mechanisms.

Who leads?

The MGA identifies and recommends approaches and methods to develop and implement minimum interoperability mechanisms.

Implementation

The MGA will work with the MNC – who will consult all relevant stakeholders – to define the state of work on interoperability in Belgium and within Europe as well as identify best practices worldwide. It will then issue recommendations, which can be referenced in contracts and regulations. The MNC will be responsible for ensuring these recommendations evolve over time to reflect the maturity of the market.

User centricity & Portability
B. Adapt and apply the "Only Once" Principle to MaaS

MaaS should seek to eliminate barriers travelers face when undertaking joined-up trips. One of those barriers is the need to register separately and maintain distinct identities for each mobility operator and MaaS provider. Applying the "only once" principle enhances user experience and facilitates information portability.

Why apply the "Only Once" principle to MaaS?

The need to register separately for each mobility operator and MaaS provider deters travellers from using MaaS. Yet, sharing information about users is challenging from a privacy perspective. EU policy enshrines the Only Once Principle: EU citizens should only be required to provide information about themselves to public authorities one single time. A regulatory and technical infrastructure has been developed to support this. It could be used as an inspiration and adapted to the MaaS ecosystem by extending it also to commercial service providers.

What is involved?

Adapting the Only Once principle to MaaS implies setting the right governance (e.g. rules regarding data use, mechanisms to collect users' consent, auditing mechanisms) and technical infrastructure (e.g. infrastructure to exchange data or check information about a user in a secure manner). Some MaaS stakeholders view this as challenging and yet only once approaches are used by service integrators in Belgium (e.g. BOSA and FIDUS in the public sector). Solutions are also being developed to give users' greater control over the use of their data, and to ease data portability with private sector stakeholders (e.g. SOLID). These solutions could be adapted for the MaaS ecosystem.

Who leads?

The MGA fosters the application of the Only Once principle within the MaaS ecosystem relying on the MNC to organise stakeholder consultation and evaluate existing solutions.

Implementation

Following the model developed in the trust framework, the MGA should recommend a set of rules and the technical mechanisms to abide by these.

Competition & Participation
C. Enhance Fairness and Impartiality in the MaaS Ecosystem

The lack of willingness to collaborate, co-operate or share data forms an enduring and significant barrier to the uptake of MaaS. Overcoming the existence and perceptions of power asymmetry and unfairness within the MaaS ecosystem helps ensure participation, uptake and enhances beneficial competition.

Why seek enhanced fairness and competition?

Private sector stakeholders feel that public transport operators (PTOs) benefit from an unfair advantage. While mobility operators are required to share their data and integrate into MaaS solutions, PTOs do not face the same requirements. The services of the latter may not be integrable, or only with a limited number of fare products. Yet, several PTOs have been tasked with developing MaaS solutions and will benefit from the integration of other mobility services.

What is involved?

A review of current public transport regulations may be necessary. This may imply discussing the role of PTOs as MaaS providers in the absence of market failures, and planning redress mechanisms to ensure a fair competition. Using the standardised data sharing clauses (action 6) in public transport contracts may also ensure consistency. It will also require ensuring robust safeguards when PTOs are also MaaS providers.
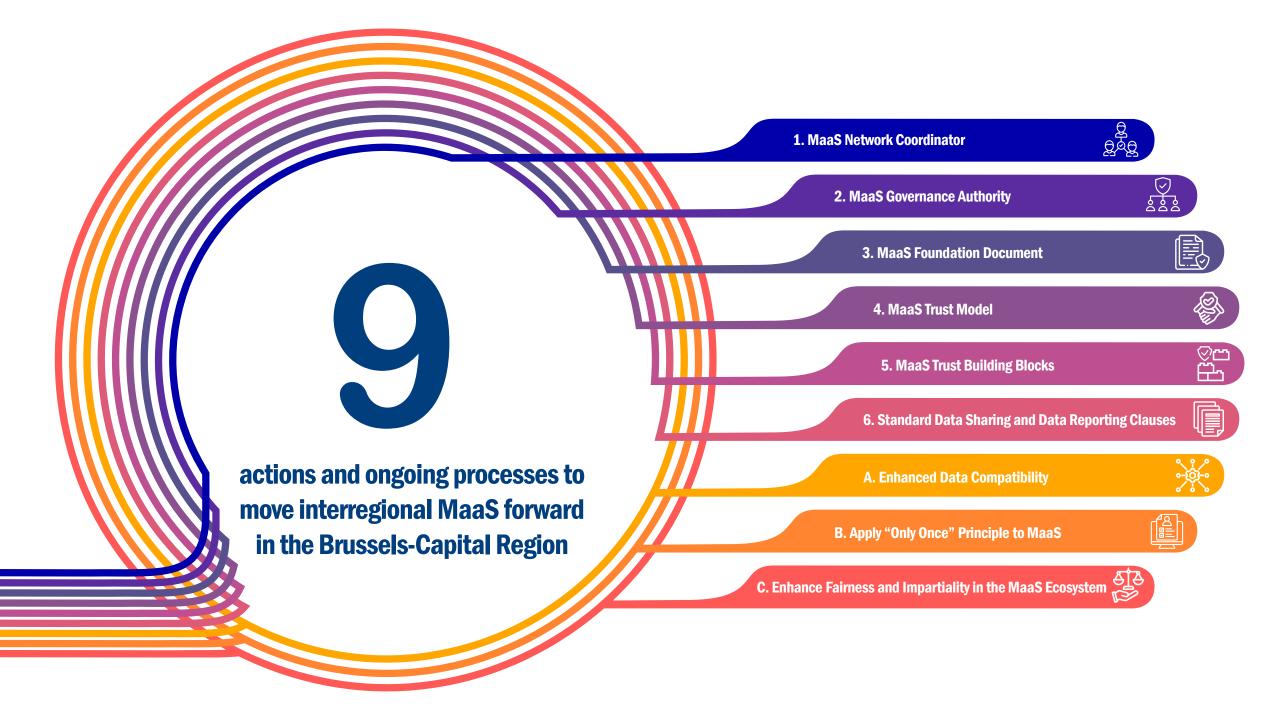
PTOs will also need to develop and improve their digital fare products. They are already committed to this and are working together through their subsidiary BMC. BMC is not bound by a public service contract with any government in Belgium; specific channels of communications between BMC and public authorities may need to be established.

Who leads?

Given that this issue concerns the regulation of public transport in Belgium, including concerns regarding competition and public service delivery, the federal government has a leading role to play, working in close collaboration with the three regions and the EU. The MGA and MNC will share their assessment of barriers to competition within the MaaS ecosystem.

Implementation

In the short term, discussions on this complex and sensitive topic could be started as part of a working group, led by the federal government.

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About the
International Transport Forum

The International Transport Forum at the OECD is an intergovernmental organisation with 69 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers. The ITF is the only global body that covers all transport modes. It is administratively integrated with the OECD, yet politically autonomous.

The ITF works for transport policies that improve peoples' lives. Our mission is to foster a deeper understanding of the role of transport in economic growth, environmental sustainability and social inclusion and to raise the public profile of transport policy

About
Brussels Mobility

Brussels Mobility is the administration in charge of mobility and transport on behalf of the Brussels-Regional Government. It developed and implements Good Move, the award-winning regional Sustainable Urban Mobility Plan.

Brussels Mobility organises public transport operations through a public service contract with the regional operator, STIB-MIVB. It is also the licensing authority for shared mobility services. Brussels Mobility is at the forefront of innovations in the mobility sector and has developed a thorough data governance framework.

About
DG Reform

The Directorate-General for Structural Reform Support, (DG REFORM) of the European Commission is responsible for helping EU Member States implement structural reforms.

DG REFORM oversees the implementation of the Technical Support Instrument (TSI), the EU's main tool for providing technical expertise and capacity-building assistance to member states. As such, it helps governments in designing and carrying out reforms that improve public administration, strengthen governance, and foster sustainable economic growth.

For more information on the project or to download the reports

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