



“Mobility as a Service” (MaaS) in a multimodal European cross-border corridor

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Abstract

MyCorridor mission is to facilitate sustainable travel in urban and interurban areas and across borders by replacing private vehicle ownership by private vehicle use, as one element in an integrated/multi-modal MaaS chain, through an innovative ITS platform that will combine connected traffic management and multi modal services, facilitating modal shift. It will propose a technological and business MaaS solution, which will cater for interoperability, open data sharing, as well as tackling the legislative, business related and travel-behavior adaptation barriers enabling the emergence of a new business actor across Europe, namely “Mobility Services Aggregator”. The paradigm change will be proved through long distance and cross border Pilots in a European corridor of 6 countries. Those sites will develop Mobility Package tokens, purchased through one-stop-shop, and will incorporate *Traffic Management Services*, interfaces to *Services related to MaaS multimodal PT*, *MaaS vehicle related services* and *Horizontal (business related) services*.

Keywords: *Mobility as a Service (MaaS), multimodal transport, seamless mobility services, traffic management services, TM2.0, carpooling, car sharing, cross-border mobility corridor, Mobility Services Aggregator, mobility token*

1. Introduction

In the context of Special Eurobarometer Survey 422a (2014), Commissioner Violeta Bulc said: *"Today's survey shows that good infrastructure, better connections, and cheaper tickets are the main concerns of EU citizens. That is why we need to remove technical and administrative barriers to ensure that transport services can really operate across the whole EU, without national boundaries. Also we cannot assume that transport services will always be there, or be safe, unless we maintain them. Transport is about people. That is why in all of*



my initiatives, the main objective will be to contribute to travelers' needs and to set the conditions for the European transport economy to flourish." The survey also revealed that **convenience** is by far the main reason for choosing a specific means of transportation for everyday and long journeys (both 61%), followed by speed (respectively 31% and 41%) and price (12% and 18%).

In light of these aspects, a new H2020 EU funded project is starting in June 2017 to last 3 years, entitled MyCorridor (*Mobility as a Service in a multimodal European cross-border corridor*), with the mission to advance the current status by delivering a solution that materializes the relatively new concept of *'Mobility as a Service' (MaaS)* (Hietanen, 2014) that reflects the vision of seamless mobility services.

The solution that is proposed by MyCorridor aims to hugely implement the MaaS concept by providing distinct features such as the *Mobility Services Aggregator* that will operate seamlessly across the whole EU in a multimodal notion. The key backbones of the *Mobility Services Aggregator* will be an innovative platform and a thorough business logic able to support multiple business schemes.

In specific, MyCorridor will enable a paradigm shift for car users, by driving the "vehicle world" towards MaaS. The basis of the MyCorridor project is the TM 2.0 platform (2014) (i.e. as an enabler of MaaS), and, therefore, one of the key starting points are those mobility services related to the interactive traffic management vision of the "vehicle world". It aims to extend the current capability of TM 2.0 by integrating in a single platform pan-European data sets, able to offer urban and interurban services that are multimodal, seamless, flexible, reliable, user-friendly, all-inclusive, cost-effective and environmentally sustainable.

Currently, there is a tendency to create local MaaS communities at city level with agreements among different mobility providers: public transport, bike and car sharing, taxi, train, etc.; integrated in a single local platform or application. What is often missing is the interoperability among these different "city" platforms that remain silos.

MyCorridor aims to address this gap through the multi-operator integration of multimodal transport services in a single hub, overcoming local fragmentation and aiming to reduce complexity and costs associated with multiple interfaces. A joint effort of the different operators would also guarantee a smoother approach towards standardisation of APIs (Application Programming Interfaces), a better understanding of alternative viable business schemes and the sustainability of the system, while offering to all transport operators (bigger and smaller) a gate towards more innovative mobility schemes.

2. The Mobility Services Aggregator

2.1 The Concept

By definition, MaaS is "*a shift away from personally owned modes of transportation and towards mobility solutions that are consumed as a service. This is enabled by combining transportation services from public and private transportation providers through a unified gateway that creates and manages the trip, which users can pay for with a single account*".

To meet this, *MyCorridor* aims to facilitate sustainable travel in urban and interurban areas and across borders by replacing private vehicle ownership by private vehicle use, as just one element in an ***integrated/multi-modal MaaS chain***, through the provision of an innovative platform that will be based on mature ITS technology and will combine connected traffic management and multi modal services, facilitating modal shift.



It will, thus, propose a technological and business MaaS solution, which will cater for interoperability, open data sharing, as well as tackling the legislative, business related and travel-behavior adaptation barriers enabling the emergence of a new business actor across Europe; the one of a **Mobility Services Aggregator** that will seamlessly integrate public and private transportation means as needed, into a cross-border travel chain, without owing any of them.



Figure 1: *The MaaS paradigm as approached by the MyCorridor interconnected public and private transportation services.*

MyCorridor will prove this paradigm change through six (6) connected European sites, which form a cross-border corridor (from the far South to the far North, crossing Central and Eastern Europe) with road transport and multimodal chains.

Mobility Package tokens will be purchased through a single point and will incorporate the following services: a) Traffic management services (advanced navigation, adaptive traffic control, traffic status & event detection, dynamic traffic management), b) Services related to MaaS Public Transport interface (Multi-modal real time information/planning/booking/ticketing), c) MaaS vehicle related services (car sharing, car-pooling, parking, taxi, ...), and d) Horizontal services (loyalty schemes, Mobility Tokens, clearing).

The MyCorridor sites' Partners will further associate with more local/regional MaaS stakeholders, building and sustaining in this way a broad network that will allow a meaningful operation and evaluation of the system across all aspects concerned.

2.2 Background



The project work extends TM2.0 ERTICO Platform (2014) to MaaS and a multi-modal change. TM2.0 aims to agree on common interfaces, principles and business models which can facilitate the exchange of data and information from road vehicles and the TMC (Traffic Management Centre) and back, improving the total value chain for consistent traffic management and mobility services as well as avoiding conflicting guidance information on the road and in vehicles.

In addition, MyCorridor will integrate in its one-stop-shop all national or European services/schemes/systems that are brought in/interfaced by its Consortium members acting as Pilot nodes. Indicative ones are the *EVIS.AT – Real-time Road Traffic Information* (2015) for Austria that will be integrating nation-wide, harmonized road traffic information with multimodal journey planning and in-vehicle platforms of MyCorridor, the *VAO – Austrian Multimodal Journey Planner* (2017) and the *RODOS Transport Systems Development Centre* (2017) that will be enhanced with e-ticketing in the project, the *DYNAMO, DIMIS and m4guide multimodal journey planning platforms* - addressing both public and private transport - funded by the German government that will be enhanced on cross-border planning and information level in the project, the *AMS BUS advance-sale, booking and e-ticketing system for intercity bus transport* in Czech Republic, the *RSM car sharing system* in Italy, the *IRU Global Taxi Platform*, connecting (as of September 2016) over 500.000 taxis (around 10% of the world's total taxis) through roaming taxi applications in 5 continents, etc.

In addition, several socially responsible travel promotion platforms concepts will be considered (e.g. CityMapper¹, TimesUp², GreenYourMove³). However, in MyCorridor, the change of mode is not based solely on individual traveler intent for environmentally friendly reasons but goes hand-in-hand with his/her comfort enhancement and price benefits. Thus, socially responsible behaviour will eventually become mainstream without any need for awareness creation and incentives. E-purse and mobility tokens existing concepts and applications (e.g. MyCicero), will be analysed and taken into account with the aim to internationalise them and provide them across various service providers and borders.

Last but not least, IRU will be the beneficiary that will ensure the close and active liaison with *MaaS Alliance*⁴ throughout the project.

2.3 One Stop Shop

The conceptual design of the MyCorridor One Stop Shop is illustrated in

Figure 2. In this figure two major stakeholder categories are foreseen. On the one hand, MyCorridor introduces a gateway for service providers who are willing to register their services and make them available in the MyCorridor ecosystem. On the other hand, end users (both travelers and carpoolers) send a request for MaaS and, as a result, they receive a token that fulfils their request after the MyCorridor Service Delivery Platform performs matchmaking of their preferences with the available services, taking into account a number of other parameters, such as feedback received from other users about the available services, user personal preferences, business models in use, etc.

MyCorridor is equipped with a service registration tool that allows any affiliated service provider to provide semantically annotated metadata for describing their services, thus making them visible in a searchable context. More specifically, in the case of info-mobility services, a dedicated utility allows for the registration of the info-mobility service API details

¹ <https://citymapper.com/>

² <https://www.timesupp.com/>

³ <https://www.greenyourmove.org/>

⁴ <http://maas-alliance.eu/>



into the MyCorridor registry, thus enabling its seamless integration into the MyCorridor service space. All service metadata along with the available API details are stored in the MyCorridor service registry.

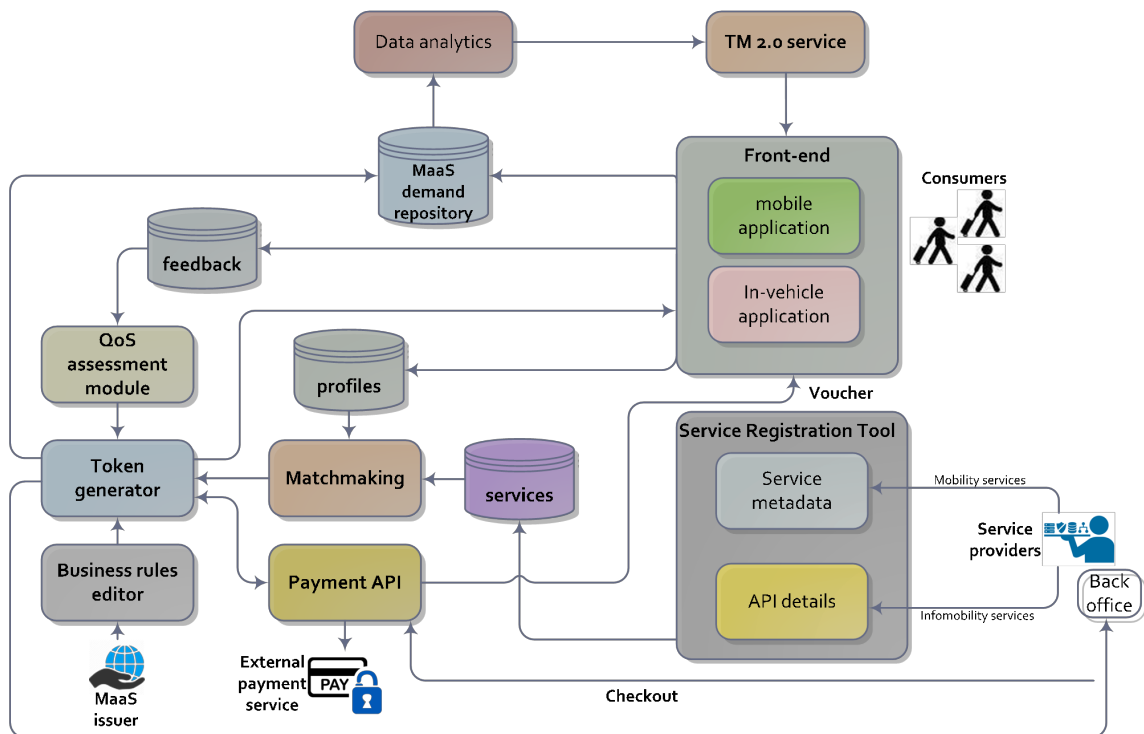


Figure 2: Overall functional architecture of MyCorridor One-Stop-Shop.

The Token Generator (TG) resides at the core of the MyCorridor functional architecture. Its role is to respond to any user incoming request for MaaS services by producing the MaaS product that best matches the requesting user needs. The real matchmaking between available services and users' requests is carried out by the Matchmaking module. This looks up the requesting user profiles and the services registry and produces as an output a workflow of services that fulfil the user requests, after applying appropriate machine learning techniques (e.g. collaborative filtering). The TG combines the results of Matchmaking with the specific business rules that impose the business model in use for the provision of the MaaS services, defined by the MaaS operator, through the means of a business rules editor. TG also takes into account the results of the QoS assessment module, which performs evaluation of the offered services based on user experiences. Once a token is generated, it is sent to the user, through the front-end applications, both mobile and in-vehicle ones. It is also sent to the involved service providers' back office so that they record any MaaS activity pertaining their service. On user's acceptance, a payment transaction is initiated by an affiliated external payment service, to which the MyCorridor architecture is connected through an appropriate secure API.

Another important aspect of the MyCorridor functional architecture is the capability it provides for interfacing with available traffic management (e.g. TM2.0) services. MyCorridor manages a bi-directional interaction with TM services. In one direction it sends analytics information to TM services for enabling their live updates, by the means of the Big Data



Analytics facility applied on the MaaS demand data repository that MyCorridor maintains. In the other direction, TM services are integrated into the MyCorridor front-end applications, enhancing the overall service experience for users.

From a technical point of view, MyCorridor can be seen as comprising a cloud-based backend that implements the service delivery platform, and a lightweight frontend that delivers the end user applications. The communication between the frontend and the backend is handled through a secure Rest API. All functionalities delivered by the backend are implemented as Restful web services, accessible in a secure way by the frontend applications. The backend handles all computational intensive processes that are appropriate for realizing the envisaged MyCorridor concept, such as service matchmaking, communication and processing of external data, info-mobility service composition and invocation, collection and evaluation of user feedback, definition of appropriate business rules, big data analytics, speed-up techniques, fare calculation & payment. On the frontend, a set of additional functionalities are implemented, such as profiling, personalization, but also the appropriate mechanisms for enabling invocation of backend services. The frontend applications will be built for smartphone and in-vehicle devices.

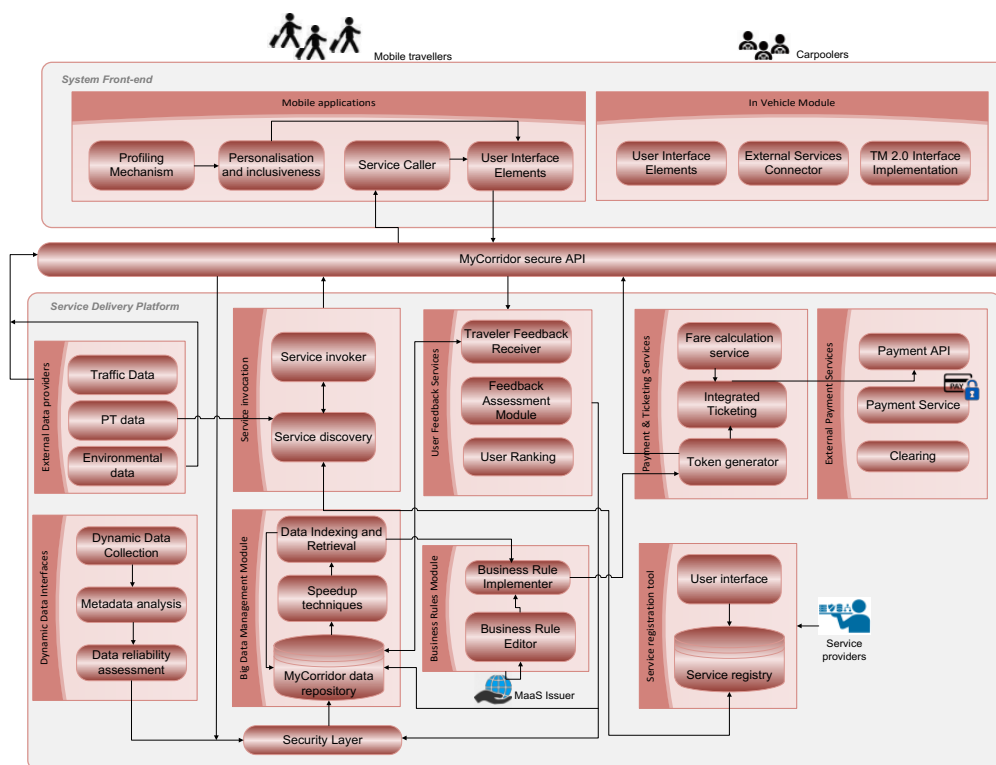


Figure 3: MyCorridor low level system architecture.

2.4 Business logic

Conventional MaaS schemes already foresee a revolution for the Mobility Business: the independent mobility infrastructure and services currently operating independently in “silos” (or in the best case scenario within an “integrated” ticketing scheme), will be bundled within any MaaS scheme and provided to their users in an interchangeably manner. MyCorridor



embraces this novel approach. But, on top of that, supports two additional business innovation aspects.

A. Inclusion of (Interactive) Traffic management into the MaaS value proposition

The conventional MaaS concept is mostly concentrated on public transport and mobility services sharing. In addition, MyCorridor stimulates a multi-modal view as well, also putting forward a series of shared use of car related and Traffic Management related services. While traffic management has been traditionally a road infrastructure issue, affecting only the road managers and not the drivers, newer trends have resulted to Traffic Management being much more interactive with the drivers. Traffic Management services are and should be perceived as a “car related mobility service” by the drivers. MyCorridor, in particular, pays attention to the following:

- TM 2.0: Traffic Management, which is interactive to individual services and therefore to Service Providers.
- V2X: connected car services that are deriving from Traffic Management, such as the traffic light assistance & GLOSA use cases.

B. “Corridor” view

The conventional MaaS concept concerns a bundle of mobility services within a certain locality (city, region or even cross border Euro-region). This view supports commuters and/or regular visitors. MyCorridor expands this view to Corridors: A certain MaaS business entity (called a MaaS issuer) can operate at any Region, but, additionally, the total business scheme envisages the connection of the MaaS issuers’ Regions through Transport Corridors. For example, if the City of Rome would like to initiate a MaaS product, this could be perfectly feasible under any conventional MaaS scheme. The problem, however, would be that the City of Rome could operate this service naturally only within the boundaries of the City. MyCorridor will further enhance this view by bringing together different MaaS issuers of various cities and regions, which are connected by the Corridors.

In this way, the Transport Corridors’ concept can support also non-frequent travelers (such as visitors) moving across a country or, most importantly, across borders in Europe, providing a business solution that stimulates mobility services across the Corridors engaged, too. The mobility services across a Corridor could be part of a MaaS product or simply mobility ticket products and/or car related services facilitating the link between the Regions covered by the MaaS issuers. MyCorridor’s platform can support both options. The totality of the mobility services within and across the regions (through the Corridors) is supported by the Mobility Services Aggregator. The Service Aggregator could be indeed a new corporation or an alliance of MaaS Issuers. The following figures depict the Corridor view and the business model description for the Mobility Services Aggregator respectively.

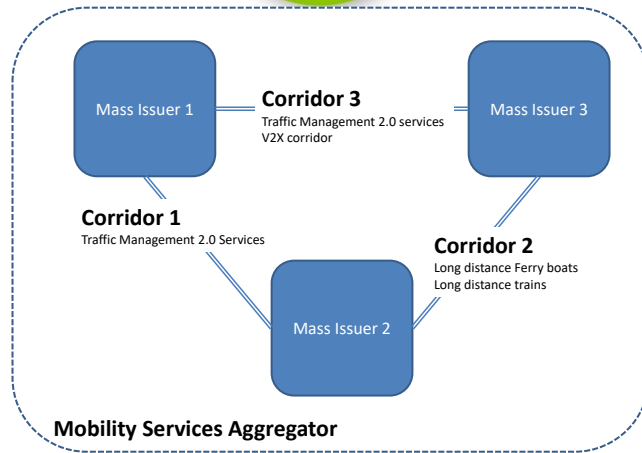


Figure 4: The Corridor view, within MyCorridor business logic.

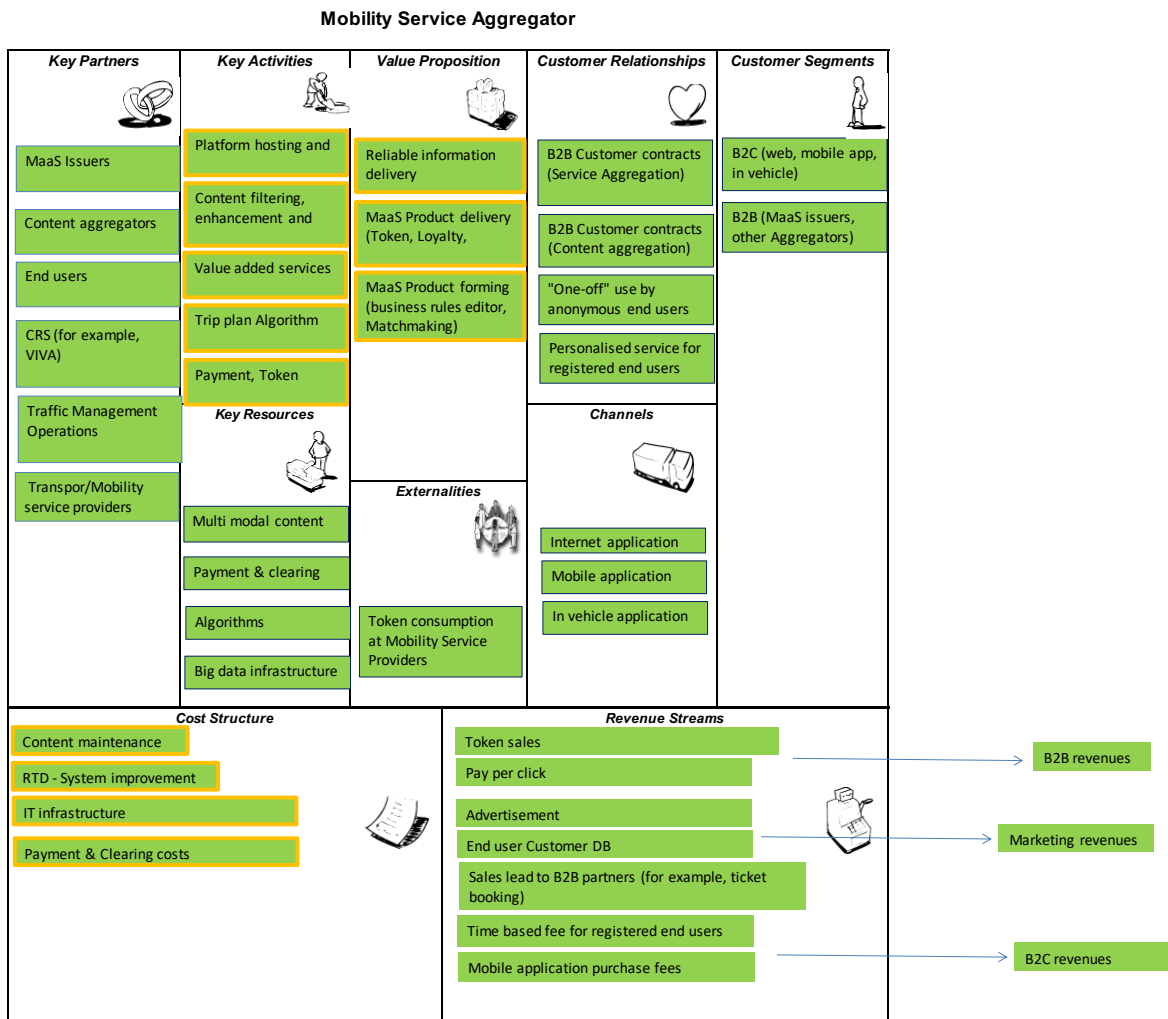


Figure 5: Business model description for the Mobility Services Aggregator.



The platform has to support the B2C (Business to Customer) as well as B2B (Business to Business) relationships required for the operation of one to many interoperable Mobility Service Aggregators.

The B2C relations are supported by a series of alternative pricing and taxation strategies, depending on the nature of the business scheme, i.e., if it is related more to travel demand management (for example, if run by Transport Authorities with the objective to minimise traffic impact) or to profits (for example, if run by private corporations). A mixture of strategies will be possible and facilitated by the Business rules editor incorporated in the Platform. Moreover, the platform will support the B2B matchmaking of services into a bundle of MaaS products, which will also obey a series of marketing policies as defined in the Business rule editor.

The flexible use of strategies to support the MaaS business ecosystem, through software business intelligence tools (such as the Business Rules Editor & the Service Matchmaking) is highlighted to be the key business innovation of the project.

The key aspect of the business making is the Mobility Token; a Mobility Token is a type of voucher purchased by the travelers through the Platform, and can be used in exchange of mobility services consumption. More specifically, a critical part of enabling the MaaS ecosystem is to provide a flexible method of payments' splitting between participating transportation Service Providers. Users (passengers/ consumers) shall be able to purchase through a single payment transaction through the MaaS, the right to use combinations of participations means of transport, on the basis of differentiated "products" as defined by the MaaS. The consumption of this "right" at the participating transportation service provider will be implemented through the use of e-money vouchers.

Essentially, consumers shall be purchasing through a single transaction, "transportation products" through the MaaS, comprised of alternative combinations of transportation service providers, itineraries, schedules, etc. The packages purchase will, in fact, comprised of a mix of e-money vouchers, each of which is eligible to be used as a payment method only at the designated transport service providers. For example, the consumer might be purchasing through a single transaction a transportation product, comprising several itineraries with several transportation service providers and for a specific time period. In fact, this package will consist of multiple e-money vouchers. Each e-money voucher, apart from corresponding to an actual e-money value, has also specific eligibility parameters that permit it to be redeemed at designated Transportation Service Providers, with specific time-limitations, regional limitations, etc. As such, these e-money vouchers act as "Mobility Tokens" that - as part of a complete transportation product - are consumed at each transportation provider, while adhering to their time/region/other eligibility properties. However, it should be noted, that "Mobility Tokens" are not just arbitrary codes, but they rather correspond to actual e-money values. The payments splitting between providers, the clearance, etc. between participating transport service providers as well as the cards acquiring and clearance at the side of the consumer, shall obligatory have to be implemented by a licensed e-money Institution.

For the purposes of the project, VivaWallet –a licensed European e-money Institution, with an EEA-31 license, will assume card acquiring and settlement between participating businesses (transportation service providers), which will be registered as "partnering businesses". Settlement through Mobility Tokens is implemented in real time, and money disbursement to transportation service providers is next working day, with fully automated processes and online reconciliation.



2.5 B2C and B2B Roles and Relations

Business to Customer (B2C) Roles & Relations

Each traveler connects to a service aggregator through MyCorridor platform. The traveler uses the aggregator services in the following possible modes:

A. Creation of a mobile Wallet with mobility tokens

- Browse and select a MaaS product.
- Buy mobility tokens that can be used in the future for the consumption of the services included in the MaaS product.
- Ability to store additional e-money balance, through other means of payments (cards, cash, etc.).

B. Rewarding schemes

- Get loyalty points through offering services to the aggregator; i.e. participating in a floating car scheme or offering his/her car for a car sharing/pooling scheme.
- Get loyalty points by following a social responsible choice.

C. Plan a trip

- Plan a multi modal trip through the platform.
- Get information for an environmentally friendly trip according to business rules.
- Book for a mobility service through the platform.
- Pay for a mobility service outside a MaaS issuer region.

D. Mobility services use

- Consume the Mobility Tokens.
- Acquire in vehicle services related to Traffic Management.

E. Quality of service (QoS) monitoring

- The traveller rates the individual mobility service QoS as well as the overall aggregator services.
- The connected service and the aggregator rate the traveler behaviour (i.e. payment speed, punctuality, proper use, behaviour, etc.).

Business to Business (B2B) Roles & Relations

Relevant relations exist in three modes:

A. Between aggregator and connected mobility service providers/Traffic Management Operators

- The aggregator signs contracts with MaaS issuers and/or directly with connected Mobility Service Providers: transportation services' owners, traffic management operators, road and travel infrastructure operators or other (i.e. touristic) services providers.
- The network of MaaS issuers and Mobility service providers recognise the token scheme at global level (i.e. Aggregator's level) or local level (within the Region of MaaS issuer).
- The aggregator is entitled to sell alone or in combination to their services.
- A clearing house guarantees the operation.

B. Between aggregator and infomobility service providers

- The aggregator signs contracts with infomobility services providers and CRS (Computer Reservations System) ticket distributors.
- The content and/or booking/ticketing products are used by the Aggregator to support the end users planning of the trips.



- A Licensed Payment Service Provider partner provides payments settlement and clearing services.

C. Between aggregators

- The aggregator may sign contracts with other Mobility Services Aggregators (i.e. other regions and countries); thus offering a roaming service to its clients covering these markets.
- The aggregator may sign contracts with other types of aggregators (i.e. of touristic or leisure activities services) to offer combined and extended services.

3. Application fields and proof of concept

MyCorridor intended applications cover four (4) basic operational fields that embrace a number of key services respectively, as follows:

Traffic Management Services

TM01: Interactive traffic management

TM02: Event management

TM03: Advanced Traffic Forecasting based on Floating Car Data (FCD), provided by the driver in return of mobility tokens

TM04: Urban charging

C ITS (in-vehicle information with regards to Traffic Lights Status, Traffic Events)

TM05: Zone access control

MaaS vehicle related services

VE01: Advanced navigation services -

VE02: Parking

VE03: Park and Ride

VE04: Car sharing/Pooling

VE05: Electric vehicle sharing

VE06: Taxi service

VE07: Bike sharing

VE08: Pay as you go insurance

Services related to MaaS Multi-modal Public Transport (PT) (interface)

PT01: Multi-modal real time information

PT02: Multi-modal trip planning/ booking/ticketing

PT03: Single mode PT services (i.e. ferry boat use by car)

Horizontal (non-Mobility) services

HO01: Loyalty schemes

HO02: Eco behaviour schemes based on AVATAR concept

HO03: Mobility Tokens

HO04: Clearing (*Settlement between partners shall be carried out by a licensed Payment Service Provider, operating under the provisions of the European Payment Services Directive.*)

HO05: Integrated payment

Other than the above key applications, there are additional supporting ones, such as *user registration and profiling, user rating and feedback, service provider registration and profiling and service registration and data/metadata submission.*



Pilot demonstration of MyCorridor one-stop-shop providing the above applications will involve an eco-system of interoperable MaaS Issuers, covering together a cross-border Pan-European Corridor going through Greece, Italy, Austria, Germany, Czech Republic and the Netherlands. Each MaaS Issuer can operate one or more local or cross-border corridors that involve various typologies of mobile users. Pilots will run in 2 iterations, with different key objectives in each case, as shown in the following table.

Table 1: Pilot iterations in MyCorridor.

Participants type & number	Evaluation objective	Success Criteria
1st Iteration		
6 internal developers/service providers (transport operators, mobility service providers, content providers, etc.)	Functionality of MyCorridor front-end & back-end modules	At least 6 services integrated in MyCorridor One-Stop-Shop.
20 users (from each MyCorridor site) - a total of 120 users, addressing all MyCorridor profiles encompassing VEC citizens (respecting also gender equality)	UI and key functionalities aspects	Usefulness and usability rated positively as a mean by over 50% of users per site and 60% overall.
2nd Iteration Round [M28-M33]		
<ul style="list-style-type: none"> • All project internal developers/service providers • At least 15 external developers/service providers 	<ul style="list-style-type: none"> • Functionality of optimised MyCorridor front-end & back-end modules • Benefit from added value services (enhanced services) • Attraction of external service providers 	<ul style="list-style-type: none"> • At least 2/3 of the intended services at node-cities integrated in MyCorridor platform. • At least 15 external service providers will connect their services in MyCorridor platform. • On average, less than 1 day of development required for integration of any of these services into MyCorridor platform by experienced developers. • Cloud Architecture scalable and able to support all connected support services. • Multiple business principles and schemes of all connected service providers supported by MyCorridor platform.
50 users (from each MyCorridor	• Impact of	• UI adequate for operation by all



Participants type & number	Evaluation objective	Success Criteria
site) - a total of 300 users, addressing all MyCorridor profiles including Vulnerable to Exclusion Citizens (VEC) (respecting also gender equality)	MyCorridor in: cross-border interoperability, time, comfort, environmental outcome <ul style="list-style-type: none"> • UI aspects, with focus on personalisation • Benefit from added value services (enhanced services) 	types of travelers (including those with low IT literacy, elderly, travelers with disabilities, etc.) in an intuitive, personalized and fast way (user acceptance per group over 65%; overall over 75%). <ul style="list-style-type: none"> • Time of use faster by at least 90% (on average) over the without MyCorridor options.

MyCorridor aims to be all-inclusive, and, as such, to cover the needs of all types of travelers with varying profiles (needs and preferences). Basic user profiles – representing a significant share of the population - that will be supported during the Pilots of the project through the MyCorridor system are the following:

1. The “**Commuter**”
2. The “**Tourist**”
3. The “**Businessman**”
4. The “**Spontaneous user**”
5. The “**Mobility-restricted**” user (i.e. user with disabilities)
6. The “**Low IT literacy user**” (i.e. elderly user)

MyCorridor must be in position to support all variations of mobility corridors that will be requested by users with varying user profiles. These may be **local** - within the borders of one country – and range in the rural, cross-urban or interurban context or **cross-border**, requiring the travel from one country to another across Europe. Also, all possible travel modes available in corridor should be provided as an option to the user. It will validate key scenarios that may arise as a mobility need of the aforementioned clusters of users.

The MyCorridor proof of concept will be enabled through a series of real services that will be provided by MyCorridor Partners (belonging to the application clusters presented above) and be integrated in the MyCorridor One-Stop-Shop. In addition to MyCorridor owned/provided by the beneficiaries’ services, there are more ones interfaced – external to MyCorridor –to which access has been assured by their providers, through signed Letters of Support. Moreover, there is a series of Public Services that will be also interfaced in MyCorridor through open API’s.

4. Conclusions

A novel solution, that aims to materialise ‘*Mobility as a Service*’ (MaaS) concept in a cross-border multimodal context is introduced by a new H2020 EU funded project, starting in June 2017, entitled MyCorridor (*Mobility as a Service in a multimodal European cross-border corridor*).

MyCorridor aims to hugely implement the MaaS concept through a *Mobility Services Aggregator* – a new technological and business service provider - that will operate seamlessly across the whole EU in a multimodal notion. The project will specifically focus on driving the “vehicle world” towards MaaS. Key innovation lies in the following:



1. **Innovation in MaaS implementation:** By developing the necessary mechanisms to support the driver getting out of the car and participating in a multi modal trip chain - integrating traffic management, use of multimodal PT chains, use of private MaaS solutions - such as car or bike sharing/pooling and an integrated Europewide “EURO-Mobility Ticket”; supported through mobility tokens for purchase of flexible and integrated travel services.
2. **Innovation in the market place and business models:** By connecting multimodal services to MaaS, through a mechanism that will be produced to enable service providers to cooperate in providing a seamless result to the traveler. This will lead to the modernisation of the mobility market, by introducing new payment schemes (Mobility Token) and business roles (that of the Mobility Services Aggregator).
3. **Innovation in policy:** By supporting the ITS Directive (40/2010) priorities, expanding TM2.0 to multimodal trips and MaaS (towards TM2.1), aiming to finally constitute a trailblazer for successful policy guidelines in this area.
4. **Innovation in citizen Quality of Life (QoL):** Through an one-stop-shop and integrated business scheme that will allow all citizens (accessible, with equity) to realise MaaS-based travel around Europe in a much cheaper (at least 20% less), comfortable (at least 10 times faster) and environmental friendly way (with at least 75% reduction in CO₂ and NO_x emissions due to shift away from private car).

In parallel to implementation and in order to turn it into a business reality, a series of legal and operational issues have to be resolved. The project will provide a full legal and operational description of the novel role of Mobility Services Aggregator by making also reference to the existing platforms in other domains (e.g. Amazon).

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TM2.0 ERTICO Platform - <http://ertico.com/projects/tm-2-0/>

VAO – Austrian Multimodal Journey Planner (2017) - Available online: <http://fahrplan.oebb.at/bin/query.exe/en>