MOBIDATALAB

Labs for prototyping future mobility data sharing solutions in the cloud



# D6.9 Exploitation Plan final

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# Summary sheet

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# Legal Disclaimer

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# Project partners

| Organisation | Country | Abbreviation |
|---|---|---|
| AKKODIS | France | AKKODIS |
| AETHON SYMVOULI MICHANIKI MONOPROSOPI IKE | Greece | AETHON |
| CONSIGLIO NAZIONALE DELLE RICERCHE | Italy | CNR |
| F6S NETWORK IRELAND LIMITED | Ireland | F6S |
| HERE GLOBAL B.V. | Netherlands | HERE |
| HOVE | France | HOVE |
| CONSORZIO INTERUNIVERSITARIO PER L'OTTIMIZZAZIONE E LA RICERCA OPERATIVA | Italy | ICOOR |
| KATHOLIEKE UNIVERSITEIT LEUVEN | Belgium | KUL |
| POLIS - PROMOTION OF OPERATIONAL LINKS WITH INTEGRATED SERVICES | Belgium | POLIS |
| UNIVERSITAT ROVIRA I VIRGILI | Spain | URV |


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# Document history

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# Executive Summary

This document provides the final exploitation plan including the exploitation strategy from partners. It also details the three main outcomes of the project that can be exploited jointly. These key exploitation results help define strategic partnerships within and outside the consortium that will play an important role in the transferability and sustainability of the project results. The consortium also identifies the necessity of elaborating a post-project agreement (in a letter of intent or a memorandum of understanding) as a key element of the consortium shared exploitation plan. It incorporates details about the objects of collaboration, a governance structure where – at least – all former partners will be represented and will as well anticipate future responsibilities and possible share of costs/revenues for maintenance and evolution of the MobiDataLab Open Knowledge Base (MOKB), the MobiDataLab Transport Cloud (MTC) and the Virtual & Living Labs beyond project life.


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# Abbreviations and acronyms

| Abbreviation | Meaning |
|---|---|
| API | Application Programming Interface |
| CC | Creative Commons |
| CCAM | Cooperative, Connected, and Automated Mobility |
| CKAN | Comprehensive Knowledge Archive Network |
| FAIR | Findable, Accessible, Interoperable, Reusable |
| GDPR | General Data Protection Regulation |
| ICT | Information and Communication Technologies |

| | |
|---|---|
| ITS | Intelligent Transportation Systems |
| LoI | Letter of Intent |
| MaaS | Mobility as a Service |
| MoU | Memorandum of Understanding |
| NAP | National Access Point |
| OEM | Original Equipment Manufacturer |
| OKB | Open Knowledge Base |
| RDF | Resource Description Framework |
| SME | Small and Medium-sized Enterprise |
| SWOT | Strengths, Weaknesses, Opportunities, and Threats |
| TC | Transport Cloud |

# 1. Introduction

## 1.1. Project overview

There has been an explosion of mobility services and data sharing in recent years. Building on this, the EU-funded MobiDataLab project works to foster the sharing of data amongst transport authorities, operators, and other mobility stakeholders in Europe. It develops knowledge as well as a cloud solution aimed at easing the sharing of data. Specifically, the project is based on a continuous co-development of knowledge and technical solutions. It collects and analyses the advice and recommendations of experts and supporting cities, regions, clusters, and associations. These actions are assisted by the incremental construction of a cross-thematic knowledge base and a cloud-based service platform, which improves access and usage of data-sharing resources.

## 1.2. Purpose of the deliverable

Following the version 1 of the exploitation plan (D6.8, submitted at M6), this document provides an update on the partners' exploitation strategies, and reports on the exploitation activities from the partners giving feedback on the exploitation workshops, as they relate mainly to a joint exploitation plan.

## 1.3. Intended audience

The dissemination level of this deliverable is 'public' (PU). It is addressed to the whole MobiDataLab partners, inside and outside the project and then a larger audience of organizations that are interested in how the different outcomes of the projects will be exploited and maintained during and beyond project life. AKKODIS is the Exploitation manager, in charge of coordinating the exploitation strategy at the consortium level, according to all partners' feedback involved in the deliverable.

# 2. Main outcomes of the project

For three years, MobiDataLab set out to improve the sharing of knowledge and data in the field of mobility, providing technical solutions. As a result, the main outcomes of the project are: 1) a co-constructed multi-thematic knowledge base on mobility data sharing topics, 2) a cloud-based service platform that improves the access to and the use of data resources, and 3) a methodology for planning and executing mobility data labs bringing together data providers and data users with the aim to solve problems related to the organisation of mobility at the city and/or regional level.

## 2.1. Open Knowledge Base

The MobiDataLab Open Knowledge Base aims to serve as a reference on practices and solutions related to mobility data sharing, like e.g., legal frameworks, data governance, interoperability, privacy, standards, and technological challenges. More precisely, it contains recommendations related to the following topics:

- Legal and governance: Regulatory data sharing gap analysis, recommendations on legal frameworks, data Governance recommendations (cf. Task 2.1 and Task 2.5)
- Mobility data privacy: Existing anonymization techniques analysed, privacy-by-design strategies and privacy risk assessment tools (cf. Task 2.2)
- Applicable standards: Mobility and cross-domain data sharing standards such as e.g., public transport, road traffic, new mobility, geospatial, metadata (cf. Task 2.3)
- Existing cloud solutions and frameworks: Solutions enabling transport data sharing and processing in the cloud, analysed and evaluated (cf. Task 2.4)
- Mobility data sharing use cases: Concrete use cases contextualised by the reference group of municipalities (cf. Task 2.6)
- Actors' needs: Relationships and needs of actors in the data sharing ecosystem in transport (cf. Task 3.1)
- Market study: Main products, services, and platforms used in transport data sharing described and analysed (cf. Task 3.2)
- Gap analysis: Main gaps and issues in the current transport data market such as e.g., heterogeneity, aggregation issues, data availability, standardisation, privacy, etc. (cf. Task 3.3)
- Business and revenue models: Possible business models and legal structures (cf. Task 3.4)

## 2.2. Transport Cloud prototype

The MobiDataLab Transport Cloud platform aims to facilitate access to mobility data in an open, interoperable, transnational, and privacy-preserving way. The platform also aims to adopt the FAIR principles and make mobility data findable, accessible, interoperable, and reusable.

The vision behind these goals stems from the needs and interests of the public and private stakeholders that have an interest to either act as mobility data providers (for instance, provide real-time public transportation data, road-network data, vehicle data), or are interested in consuming mobility data through the access and services provided by the Transport Cloud platform. Therefore, the platform has been designed according to federated cloud principles to offer solutions that strive to reduce and, whenever possible, eliminate current technical limitations that act as barriers to mobility data sharing and reuse (cf. Task 4.1).

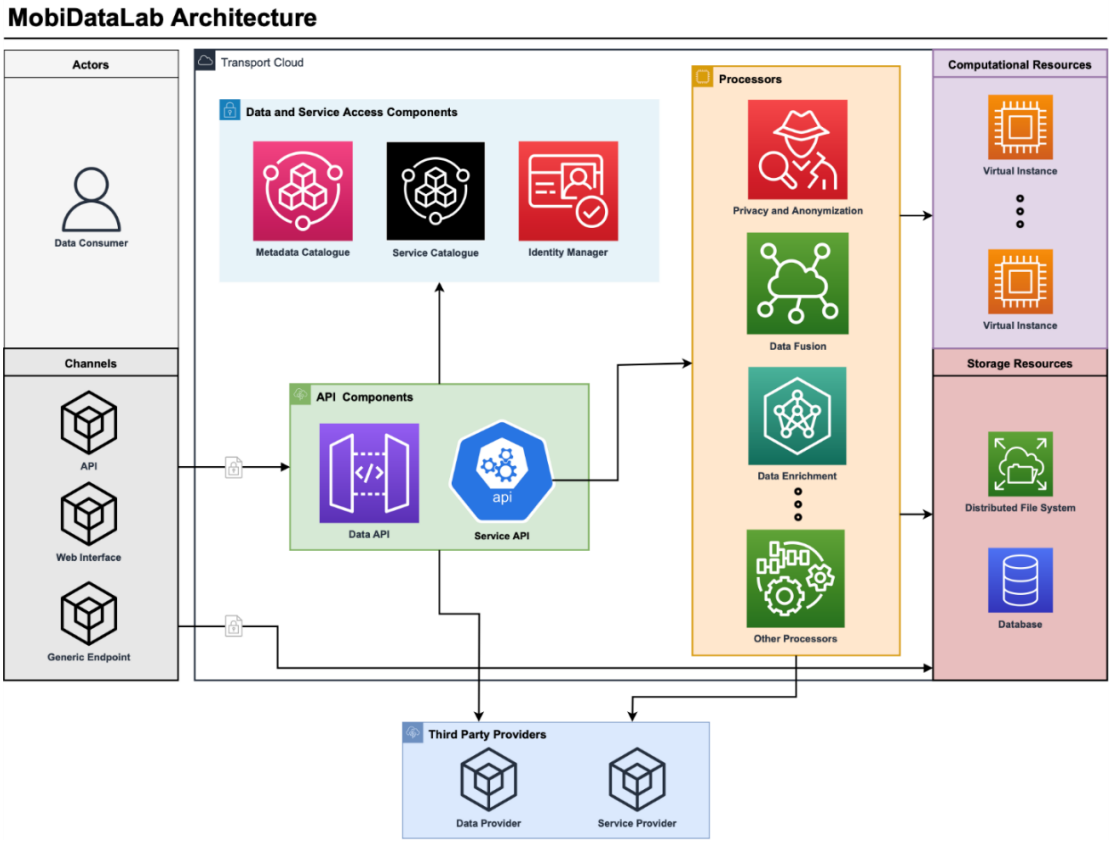


*Figure 1 - Architecture of the Transport Cloud*

The Transport Cloud architecture is composed of a collection of components that perform key operations (see diagram in Fig.1). It has been primarily designed to promote mobility data sharing between data consumers and data providers. It comprises:

- Metadata and services catalogues, i.e., a set of software catalogue systems reviewed on their capabilities are integrated into the Transport Cloud, easing data findability and accessibility (cf. Task 4.2),
- Journey planning APIs, for accessing passenger information based on public transport open data (cf. Task 4.3),
- Data enrichment processors, i.e., toolbox for data set enrichment, containing so-called processors which give the ability to create novel data and services (cf. Task 4.4),
- Privacy and anonymisation mechanisms, allowing that personal mobility data can still be collected, analysed, and shared with privacy guarantees (cf. Task 4.5).

## 2.3. Living and Virtual Labs

Making data accessible and improving data sharing is not an end in itself. Based on the data made available through the Transport Cloud, MobiDataLab aims to facilitate the generation of innovative ideas and solutions from all stakeholders dealing with concrete mobility problems or coming up with innovative ideas (public authorities, transport operators, start-ups, innovators). To this end, a Virtual Lab has been created as part of the project to support and facilitate collaboration between these organisations and individuals.

The Virtual Lab (cf. Task 5.1) is a digital version of a Living Lab and contains a range of features that enable solutions to be discussed and developed throughout their initial lifecycle, from challenge to idea to prototype. In the Virtual Lab, public transport authorities find tools to propose mobility challenges to participants, innovators can propose and build solutions to these challenges, and evaluators are able to provide opinions and suggestions.

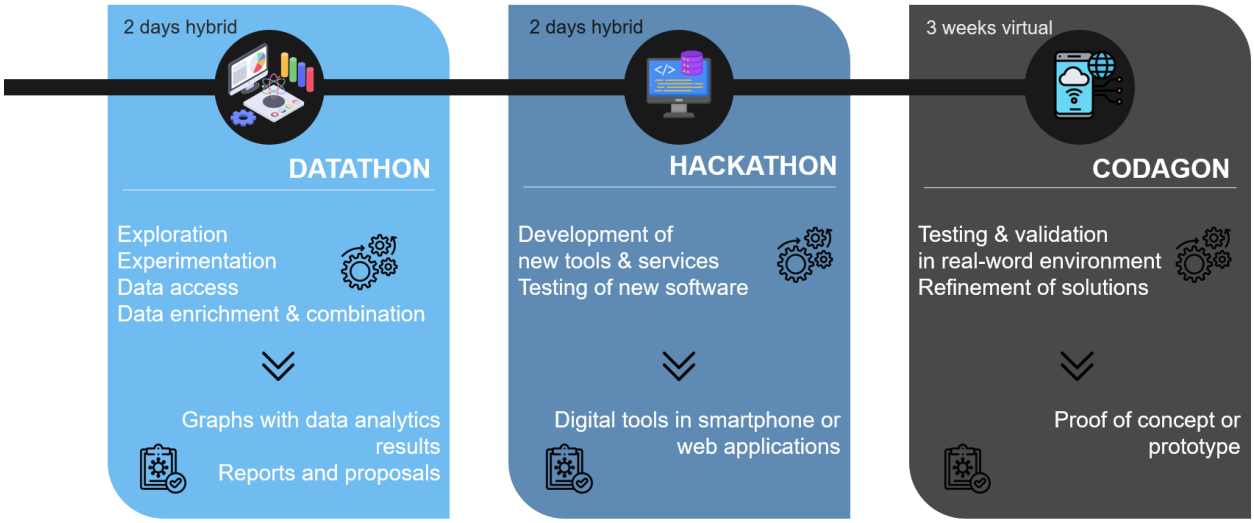


*Figure 2 - Formats of the mobility data labs*

Three different formats of innovation sessions (cf. Fig. 2), or Living Labs, have been tried and tested during the project: the Datathon (Task 5.4), Hackathon (Task 5.5), and Codagon (Task 5.6).

These three events have been executed sequentially in less than a year, relying on the Virtual Lab to access the data, and to improve the collaboration between the participants, data and challenge providers, and evaluators.

# 3. Exploitation Plan by the partners

This section describes the plans and strategic steps that each partner foresees for its long-term exploitation of the project outcomes.

## 3.1. AETHON

### *3.1.1. Key exploitation results*

#### 3.1.1.1. New insights into UI design

AETHON was WP5 leader and led the T5.1 - “Creation of the Virtual Lab – Extension of cloud’s UI”. This task extended the User Interface of the Transport Cloud with functionalities that empower it for becoming a Virtual Lab. Through this work, AETHON gained new information for UI design, that will benefit other projects and private initiatives. Moreover, the UI functionalities can be part of a toolset kit as something that companies or municipalities can use.

The Virtual and Living Labs contain functionalities that support its purpose and that closely resemble a social network with the addition of functionalities for data sharing and usage. Those will be modularised for adaptation to other projects that AETHON is working on (e.g., EFFICIOUS). AETHON also has an internal policy for releasing and maintaining open-source code in the company's GitHub account which will be considered at the end of the project. Last but not least, the functionalities developed in MobiDataLab will be extended towards improving the final offering of the project and align with the project’s post-finalisation aspirations and goals to create a Living Labs implementation toolset. Following the successful implementation of the Virtual Lab in the Hackathon, Datathon and Codagon instances, AETHON is utilising the Virtual Lab to support initiatives aiming to implement a digital equivalent/companion/twin to a Living Lab. Primarily, these efforts are focused on creating pilots with municipalities, industrial clusters and other European projects. In addition, the Virtual Lab UI codebase became a basis for future projects of AETHON using the React.js framework which is extended through other projects.

#### 3.1.1.2. New data for user needs and requirements

AETHON led the T3.1 - “Actors’ needs and cooperation framework”. This task aimed to explore the actors needs and identify the main actors that partake in data sharing in order to develop data sharing scenarios. The knowledge gained leads AETHON to expand its capabilities into actor’s needs and requirements elicitation thus, improving its level of service. Moreover, these insights may lead to new projects and ideas.

The Delphi method that was implemented in T3.1 is very significant in the sense that it generated data on experts' consensus with regards to the future of data sharing in Europe for the domains and use-cases of MobiDataLab. AETHON is actively working on data engineering for the domains of transportation and smart cities and the activities of the company align perfectly with the requirements generated in the task and through the survey(s). The requirements will allow better service adaptation and customisation for future tasks and offerings.

The outcomes of requirements elicitation will assist AETHON not only for future research endeavours but also for defining functional and non-functional requirements for its products especially regarding the continuation of Virtual Lab but also for TransiTool (www.transitool.com), a data analytics platform for Mass Transportation. AETHON gained insights into perceived data value, barriers and opportunities for data sharing and use-cases that facilitate or hinder data exchanges.

#### 3.1.1.3. MobiDataLab Virtual Lab

AETHON will analyse user requirements with respect to creating the Virtual & Living Labs (e.g., social features: messaging, commenting, or data exchange features: APIs for data sharing, security). The requirements will lead to modules generated for the purposes of the Virtual Living Lab of which their usage could be generalised to other products (3.1.1.1). As a whole, the Virtual & Living Labs is expected to be a paradigm of building Living Labs interfaces with respect to the architecture and the modules (software artefacts) that support the UI. AETHON will examine whether the UI could be extended to become a standalone product or whether specific modules could be reutilised in other products. Currently, AETHON examines whether the Virtual Lab product can be combined with EFFICIOUS to create a Virtual Lab on top of a data sharing/circular economy marketplace. This concept is very innovative and beyond current state-of-the-art which justifies the commercial interest of AETHON. Furthermore, the Virtual Lab is currently being examined for implementation as a multi-tenant application allowing multiple users to install a standalone application of the Virtual Lab. This will allow further exploitation of the Virtual Lab paradigm across different use cases.

### *3.1.2. Exploitation strategy*

AETHON is a transportation engineering consultancy and expects to leverage the results from MobiDataLab both indirectly and directly. In the former case, AETHON will use the data and conclusions from the Delphi survey and the product definition of the Virtual Lab (user story maps, use-cases etc) to better understand the actor's and the stakeholder's needs and enable improved design of similar interfaces in the future through better understanding of the user. This extends to the testing/demonstration activities within the MobiDataLab project that will collect feedback on the Virtual Lab. In addition, AETHON will build upon the results of creating the Transport Cloud in terms of acquiring knowledge on open data sources and on data privacy. Last but not least, through MobiDataLab, AETHON will gain insights and knowledge on the data sharing culture in the transportation field allowing the tailored creation of products and services that address the needs and concerns of users (cities and Transport Service Providers – customers of AETHON).

Through the Living Lab instances and events, AETHON will gain significant experience related with the methodology of collecting data. This methodology can be transferred to other projects and initiatives and can be offered as a service in the relevant stakeholders. In the latter case, AETHON aims to exploit the Virtual Lab directly as a solution of the Transport Cloud or separately, through the reuse of functionalities (code snippets) in other products and projects.

## 3.2. AKKODIS

### *3.2.1. Key exploitation results*

#### 3.2.1.1. MobiDataLab Open Knowledge Base

AKKODIS led the WP2 dedicated to the Open Knowledge Base. It aims to consolidate knowledge derived from the most important projects and initiatives implemented in the domain of transport data sharing. This open collaborative Content Management System, with metadata of knowledge categories and search functions, follows a Wikimedia-based approach.

#### 3.2.1.2. Transport Cloud, Mobility Data Catalogue and Processors

AKKODIS led the WP4 “Transport Cloud prototype” whose aim was to prototype a platform for searching, accessing, and fusing multimodal mobility data in the cloud. The MobiDataLab Transport Cloud (MTC) stepped from individual components developed aside from each other to a consistent and coherent set of functionalities.

- The Azure Cloud infrastructure providing Metadata services, Journey planner, Processors and APIs, with tools, connectivity, documentation, and technical support.
- The Data Catalogue is a key component of this platform, which can be expanded on demand to include all the datasets available in a given region, once the corresponding data sources have been identified. This automated ingestion is based on the concept of harvesting, which can be carried out between two identical cataloguing solutions (proprietary protocol, e.g., CKAN) or between two different cataloguing solutions, in a standardised and perfectly interoperable way (e.g., from OpenDataSoft to CKAN or GeoNetwork).
- Data Processors allow to build richer and more powerful datasets combining them, and to contribute to the development of open tools allowing the enrichment of data. Different data enrichment techniques are provided as open tools: semantic enrichment (combining with the Linked Open Data cloud, RDF/SPARQL) and geographical enrichment (tools for geocoding / projection, cross-referencing with spatial datasets, geodata APIs, OpenStreetMap data, etc.). The cloud federated architecture and the enrichment techniques are used for improving analysis of mobility data.

#### 3.2.1.3. Mobility Data Labs

The mobility data labs (also known as “MobiDataLab x-athons”) allow to showcase the capability of the Transport Cloud as an intermediary validation that brings feedbacks to improve the platform. The services are now designed to reach the expectations of the x-athons’ participants in terms of tools, functionalities, and data quality. Also, capacity planning allows to guarantee proper response time, high availability, reliance, and consistency of the whole platform. Based on its experience in the project, AKKODIS will continue acting as an intermediary between the platform and its users, registered in the course of the data labs, either data providers (transport stakeholder, including public transport authorities and municipalities also providing mobility challenges) or data users (e.g., the community of data lab innovators and start-ups who participated in the data labs or requested to do so). In particular data users have an important interest in having access to the platform as it facilitates access to and re-use of mobility data as well as other sectoral data.

### *3.2.2. Exploitation strategy*

AKKODIS, as a consulting and engineering company, will use the MobiDataLab results as a set of reference solutions when designing and integrating smart and collaborative systems for its customers, for e.g., connected and automated operations. These solutions could be coupled with our expertise in multiple technological domains (Artificial intelligence, Cloud computing, Machine Learning, Data Science and Data Engineering, Geospatial technologies, etc.) and could be further extended, leading to the development of innovative data exchange and processing platforms based on open industrial standards (for example, the Data Spaces architectural model). Moreover, AKKODIS will design and establish specific partnerships with start-ups or selected SMEs to accompany them in new markets (abroad and/or targeting other vertical markets) thanks to AKKODIS’s worldwide implantation, with strong presence in the EU and expertise in numerous vertical industry sectors.

As a summary, the plans are based on the following action paths:

- AKKODIS is recognized as a key technical provider for the evolution of the Open Knowledge Base and the Transport Cloud prototype while maintaining and expanding the in-place R&D partnership; current instances will be maintained in operation by AKKODIS teams under conditions expressed in the Memorandum of Understanding being discussed by all partners (cf. chapter 4 below).
- A Freemium model is envisaged for selling the usage of MobiDataLab services to selected users; particular care will be spent on the evolution of the MobiDataLab Value Proposition for defining different level of services in the use of the Transport Cloud prototype beyond the project.
- Ensure coherence and positioning of MobiDataLab outcomes with the company’s Global Offer Portfolio (GOP).
- Leverage on AKKODIS customers large portfolio for expanding the reputation and adoption of MobiDataLab technical solutions.

## 3.3. CNR

### *3.3.1. Key exploitation results*

#### 3.3.1.1. New techniques for semantic enrichment of mobility data

The CNR has introduced the semantic enrichment processor in the context of WP4, Task 4.4.
The processor introduces novel semantic enrichment techniques[1] that have been used within the project for improving the analysis of mobility data, thus possibly offering actionable insights for the project partners and other stakeholders.

The need of a semantic enrichment processor stems from the widespread adoption of personal location devices, the Internet of Mobile Things, and Location-Based Social Networks, which collectively facilitate the collection of extensive movement data. This data often requires enrichment with various semantic dimensions to provide rich, contextual, and diverse information about the environment, thereby leading to the need of having semantically enriched trajectories. The processor's backend is structured as a three-step pipeline. It begins with a dataset of trajectories and a set of enrichment data sources, including linked open data, and ultimately output datasets of semantically enriched trajectories adhering to the open Resource Description Format (RDF) standard and to a customized version of the STEPv2 ontology. Such a format allows for the integration of these enriched datasets into a chosen triple store (e.g., GraphDB), enabling the extraction of insightful movement behaviours and patterns through SPARQL and federated SPARQL queries. The semantic enrichment processor is usable through (1) an interactive user interface (which has been introduced in the first version of the demonstrator and can be installed and executed in a machine) and (2) a webAPI server that brings the processor's backend functionalities to remote users. This latter component effectively positions the semantic enrichment processor as a service within the transport cloud platform.

The design and development of the semantic enrichment processor are grounded in the principles of modularity, configurability, and extensibility. This approach allows future developers the flexibility to potentially create any semantic enrichment pipeline to suit their needs and application scenarios, and to extend the functionalities provided by the semantic enrichment processor's current version.

All the software tools and the methodologies developed by CNR pertaining to the semantic enrichment processor have been made available in the GitHub repository https://github.com/MobiDataLab/mdl-semantic-enrichment. The repository is open to scientific communities in the areas of mobility and transportation, with open software licenses favouring reuse and growth of the communities.

[1] Information available from Linked Open Data (LOD) or extracted from the web sites of the bus/train companies, or meteorological data, or from social networks can enrich mobility data with, for example, the timetables, weather and public opinions on the quality of the provided service. We call semantic enrichment the methods used to enrich data in this way.

### 3.3.1.2. New insights into cloud technologies for federating transportation data sources

The CNR has contributed to the conception, definition, and design of the Transport Cloud Platform, the open solution supporting the MobiDataLab cloud federation enabling the European-wide sharing and trans-national access to heterogeneous sources of mobility data. This effort encompassed several tasks within the WP2 and WP4.

First, the CNR has led the task 2.4 in WP2, which aimed at performing an analysis and evaluation of the available solutions (e.g., frameworks, tools, environments, infrastructures, etc.) that could be leveraged in MobiDataLab to enable transport data sharing in the Cloud. Such analysis considered the key features of existing approaches and provided the relevant state-of-the-art solutions from different perspectives, encompassing both technical and non-technical viewpoints. Such analysis also served the purpose of partly inspiring how the Transport Cloud Platform had to be designed, and which key components it had to possess.

In the same work package, the CNR has also contributed to task 2.6, whose purpose was to define the various use case scenarios the Transport Cloud Platform needed to support, and thus highlighted many of the functional and non-functional requirements the Platform needed to satisfy.

The CNR then led the Task 4.1, WP4, whose purpose was to conceive, define, and design the Transport Cloud Platform. To this end, this task took as input many of the results of the WP2's above-mentioned task, and produced as output the Deliverable D4.2, which describes the architecture of the Transport Cloud Platform. Starting from the requirements defined on a per use-case level (see Task 2.4, Deliverable D2.9), this task defined the actors expected to interact with the Platform and how the information flows through it, the functionalities that the Transport Cloud needs to implement, and the requirements on a per-platform level. This then allowed to provide the specifications of the Transport Cloud architecture and to focus on the technologies needed to implement a prototype of the platform.

Overall, the Task 4.1, and more specifically the final deliverable D4.2, should be seen as one of the two pillars of the WP4, since it specifies which components are present in the transport cloud, their roles within the platform, the functionalities they must provide, and how they relate to each other. The second pillar is represented by the set of 4 demonstrators introduced in WP4, which represent the software counterparts of the FAIR principles and concretely implement functionalities in relation to data catalogue (Task 4.2), data access services and data channels (Task 4.3), data processors (Task 4.4), and anonymisation and data privacy (Task 4.5).

Put together, these two pillars enabled to build a prototype of the Transport Cloud, which has been used and validated by the participants in the Living and Virtual Labs, and continuously improved in this context.

### *3.3.2. Exploitation strategy*

The exploitation of the project outcomes from CNR are in the context of its mission which extends in the following directions: advancements of knowledge, education, promotion, and dissemination of (multi-disciplinary) research, support of open-source initiatives, innovation and technology transfer towards the national industries. Specifically, CNR will benefit from the scientific advances obtained from the cooperation with all other partners in the project and will exploit the novel methodologies developed and the expertise acquired by presenting project results at scientific events and publishing them in international, high-impact venues. CNR will transfer and share acquired expertise with other researchers (universities and research institutes) with the aim of creating, advancing, and disseminating the knowledge acquired. The project outputs, specifically the semantic enrichment processor shared as open source on GitHub[2], will be exploited to fertilise new collaborative research work in the context of novel approaches for mobility data sharing, semantic enrichment of mobility data, new services with major added value.

CNR has advanced the state of the art in the semantic enrichment of mobility datasets as proved by the scientific publications that further confirm CNR as a reference in the field. The semantic enrichment processor enables the building of new enhanced mobility datasets that will be the basis for further research activities, including PhD theses thus enabling new long-term research objectives. The novel methodologies and the knowledge learned will be transferred to students in the PhD and Master courses taught by CNR researchers.

Finally, CNR will exploit the increased skills and domain knowledge learned to contribute in new regional, national, and international research projects and will collaborate with partners and other stakeholders willing to incorporate MobiDataLab research results in their products/services to improve its positioning for future and enhanced opportunities of cooperation with industrial realities.

## 3.4. F6S

### *3.4.1. Key exploitation results*

#### 3.4.1.1. Network of corporates and startups

F6S participated in WP3, titled "New data sharing services and business models," and WP5, known as "Living and Virtual Labs." The tasks that were undertaken within the framework of both WPs aimed to expand the F6S community and its platform membership.

[2] https://github.com/MobiDataLab/mdl-semantic-enrichment

During this period of work, F6S had access to a network of corporate innovators from the mobility/transport sectors, who served as data providers, as well as data-driven startups specialising in solving challenges and proposing solutions.

Through this close collaboration with these stakeholders, F6S was able to add more users to its network and extend its reach into various market segments. This engagement provided valuable insights and connections that contributed to the growth and diversification of F6S's user base and market presence.

#### 3.4.1.2. New services for corporates and startups

F6S serves as a community builder and services provider, boasting a user base of 4.5 million users. During the project's run, the organisation consistently tested and validated new revenue models aimed at generating value for its users. F6S took part in WP5, titled "Living and Virtual Labs," where it gathered valuable insights from other project partners regarding the design and implementation of challenge-based events, as well as engaging corporates and startups.

The primary objective behind F6S's participation in WP5 was to gather knowledge and expertise that could be applied to incorporate these activities as future added-value services offered by F6S. These services would be made available either through its platform or through participation in similar European and international projects. This strategic move aimed to enhance F6S's offerings and better cater to the needs of its user community, ultimately strengthening its position as a valuable resource for corporates and startups alike.

### *3.4.2. Exploitation strategy*

F6S boasts extensive experience in nurturing the innovators' network and holds the distinction of being the largest startup and SME community on a global scale. In its involvement with the MobiDataLab project, F6S aimed to further expand its reach by attracting additional corporate innovators from the mobility and transport sectors, as well as data-driven startups, to join its already impressive user base of 4.5 million individuals. The primary objective was not only to increase the size of its community but also to connect with the specific market segments represented within MobiDataLab, namely transportation and data sharing. Additionally, F6S sought to extend its influence into other sectors where data sharing provides significant added value. This expansion plan primarily hinged on its active participation in WP3, focused on "New data sharing services and business models," and WP5, centered around "Living and Virtual Labs."

F6S plays a pivotal role in delivering over €2 billion annually to startups and SMEs, offering a comprehensive suite of services encompassing CRM for deal flow, corporate challenges, structured programs, startup support services, corporate partnerships, recruitment, government grants, and free startup resources. It also leads in application management for various accelerator programs, serving more than 17,000 such initiatives worldwide.

By deeply engaging in WP5, particularly in the realm of tech startups and SMEs, F6S intended to learn from its more seasoned project partners in the organisation of hackathons, datathons, codagons, and the methodologies they employ. The goal was to explore the potential of these activities as future value-added services. The project's overall findings may also open the door to other complementary activities.

Lastly, as the leader of Task 6.5, "Cooperation with other projects and initiatives," F6S committed to forging strong connections with other entities, initiatives, and projects. The aim was to expand its network by collaborating closely with these partners and leveraging their collective expertise and resources for mutual benefit.

## 3.5. HERE

### *3.5.1. Key exploitation results*

#### 3.5.1.1. Interoperable interfaces for exchange of mobility relevant data and services

Interoperable interfaces are key success factor for data exchange and data usage. HERE, as a platform company will pay a particular attention to the technical solutions envisaged and will ensure the most possible usage of open standards for the different technical modules, data formats and communication protocols.

#### 3.5.1.2. Tools and services

Tools and services that enable the usage of data and/or providing services based on mobility data are another result of the MobiDataLab project. These assets support and accelerate the growth of the ecosystem(s) around mobility data. The tools and services are also used to connect between platforms to make use of different datasets across the systems. Findings and developments made within the project, will also influence the evolution of products and services within HERE Technologies.

#### 3.5.1.3. Available data sets

With the role of HERE as a content provider, an outcome of the MobiDataLab project is the accessibility of data via tools and services. The definition of interoperable APIs and data formats and its usage for mobility data aligned with requirements, such as data privacy and protection are a further exploitation result for HERE.

#### 3.5.1.4. Datathon and developer engagement

The datathon as one of the living labs is another key exploitable result. Events like hackathons, datathons, codagons etc. are accelerators for inventions that can be made with provided data and services within a fruitful environment. These events can be seen as incubator events or “initial seeding” to test and grow the developed early stages within the project stakeholder group.

### *3.5.2. Exploitation strategy*

HERE is engaged in many relevant standardization bodies and communities to define and establish standards. The outcomes and learnings made within the MobiDataLab project will be integrated in standards discussions, the refinement of existing standards and will influence the discussion on new standards.

To extend the ecosystem of tools and services for using data/services and interacting with data for manifold use-cases, MobiDataLab results will be integrated into existing ecosystems as reusable assets. With the initial “seeding” of ideas in the living labs new ideas will be generated and existing ideas will be reviewed, evaluated, and extended by the participants of the living labs. They can also be seen as incubators and influencers to scale the usage of platforms, data, tools, and services.

## 3.6. HOVE

### *3.6.1. Key exploitation results*

#### 3.6.1.1. New commercial channel for journey planner

Journey planner is the core business of HOVE. However, the results of a journey planner depend on the availability and quality of the data. This project helped HOVE to better understand the market and identified 3 relevant kinds of data actors which are data generators, data aggregators, and data analytics service providers (public transportation, geographical services, …).

MobiDataLab enabled HOVE to extend its business model and include additional datasets to improve its coverage in the European market. It has also enabled HOVE to extend its product offering to include datasets other than public transport in its journey planning outputs – including other types of open data. HOVE also identified data types having high potential of impact on the creation of innovative digital services, i.e., vehicle location, environment, maps, payment, vehicle usage, static infrastructure, dynamic infrastructure, ticketing, and user-generated data.

### 3.6.1.2. New and enhanced journey planning parameters

In order to meet customers' needs in terms of journey planning, it was important to adapt mobility and make it as accessible as possible. For this reason, within three years and using additional data sources, HOVE developed a new version of Navitia (Multi-Criteria) and added new parameters to the Navitia journey planner to help users plan their journeys according to their own criteria, for example:

- Occupancy
- Comfort
- Pollution
- Accessibility
- Traffic
- Arrival time

These new or enhanced criteria could be combined with existing parameters to help user find the journey that best suits his needs.

Navitia Multi-Criteria represents a significant advance in HOVE's traveller information system, distinguished by its ability to integrate new calculation criteria into its algorithm. To summarize, Navitia Multi-Criteria will enable to:

- Offer travellers new criteria for searching and finding mobility solutions,
- Generate new itinerary alternatives using the new criteria,
- Tag itineraries more easily and flexibly,
- Direct travellers towards mobility solutions with a high level of reliability.

A concrete example of an exploitation could be to identify and predict usages by correlating search requests with ticketing data. This would make it possible to create a model that would predict, based on actual search requests, the journeys that will be made. Thanks to this model, a public transport authority could better organise and manage public transport to ensure that supply meets expected demand.

### 3.6.1.3. API usage monitoring

One way to retrieve and share data from journey planner is to track API usage. This has required the use of an API manager, which will enable Hove to better understand customer needs, and refine Navitia's roadmap based on those needs.

### 3.6.1.4. Access to journey planner data

In January 2023, HOVE's policies changed and the company decided to discontinue the open source model for Navitia Multi-Criteria. From now on, to request and access HOVE's services, in accordance with GDPR rules, it is necessary to subscribe to a licence.

This means we have closed the open code for all products, restricted access to our open data bar on navitia.io and stopped technical and functional support. This decision was taken for economic reasons.

#### 3.6.1.5. Enhanced conversion tools

HOVE identified, developed and contributed to the creation of open tools to facilitate the conversion from one standard to the other (e.g. NetEx, SIRI, GTFS, MDS, GBFS, etc.), the combination of different types of data, and the verification of their quality. Such tools benefited HOVE as they will be used also by HOVE's data quality teams to facilitate integration or open or private data for HOVE customers.

### *3.6.2. Exploitation strategy*

HOVE has provided access to its core product suite Navitia, which is an intermodal passenger information system, and to its open-data portal Navitia.io, which provides access to high quality open data for public transport in over 30+ countries, as well as access to tools and APIs, infrastructure that facilitate innovation and deployment of new solutions. On the technical side, HOVE has contributed to the Transport Cloud to enable access to tools such as access control (API management) and explore easy-to-access ways to re-use mobility data, including public transport data.

## 3.7. ICOOR

### *3.7.1. Key exploitation results*

The evaluation framework developed in T3.5 Societal and Environmental Impacts of Data Sharing Assessment Framework constitutes a general methodology that can be scaled up to measure the impact of data sharing services over the economy, society, and environment. This framework can also be the starting point for further research that can constitute papers to be presented in specific conferences.

Moreover, the evaluation framework can be proposed as new methodology to be used in new research and innovation projects.

#### 3.7.1.1. Evaluation framework for the transport data sharing culture

In T3.5 Societal and Environmental Impacts of Data Sharing Assessment Framework, ICOOR provided a generalised evaluation framework that could be used to assess the impact of data sharing services also on stakeholders' trust and collaboration. Within this framework, a questionnaire investigating users' acceptance of data sharing services and of new business models has been provided. Then, in the context of T5.2 Quantification and measurement of data exchange culture, the questionnaire has been used to assess the impact of the data sharing culture. Within the evaluation framework, a specific methodology to assess the stakeholders' acceptance of the novel business models has been developed and documented in D3.4 "Data Sharing business and revenue models" and D3.5 ""Societal and Environmental Impacts of Data Sharing assessment framework".

### *3.7.2. Exploitation strategy*

The skills and knowledge gained within this project will provide a better understanding and further qualification of the research and implementation of digitalisation and data sharing in transport solutions. The evaluation methodology proposed within MobiDataLab will be used in future public research as well as in applied research and innovation projects, especially in the context of Horizon Europe and Digital Europe. ICOOR will use the knowledge generated through this project for:

- generating new research and innovation projects related to ITS, big data analytics, smart city;
- establishing new strategic partnerships with industry actors;
- educational purposes, for instance by organizing training sessions in the different locations of the Interuniversity Consortium. Students will get in touch with the project and will be offered the possibility to carry out research on different aspects related to the project.

## 3.8. KUL

### *3.8.1. Key exploitation results*

#### 3.8.1.1. Legal and regulatory analysis

Various EU legal frameworks impose or incentivise data sharing in the EU. The existence of multiple legislation has however led to a fragmented landscape which hinders public authorities and private operators alike from understanding and assessing data-sharing obligations. At the same time, several legal challenges remain.

KU Leuven (CiTiP) examined the existing legal instruments and regulatory framework with a view to, first, conducting an assessment of the potential legal bottlenecks that hinder data sharing, and second, propose recommendations on how to address them.

The findings of both analyses can be used by:

- public/regulatory authorities, who can reflect on the legal and regulatory changes that may need to be performed, at EU or national level, thereby driving the policy debates forward.
- private actors, who can get a better understanding of the obstacles that need to be overcome to increase data sharing and how they can organise their business accordingly. On that basis, they can also become better equipped to participate to the EU or national policy debates.

#### 3.8.1.2. Data governance mechanisms

In the current EU policy context, data governance is mainly referred to as an organisational and legal framework that could serve the objective to facilitate access to and reuse of data. From a legal standpoint, data transactions (as uni-, bi- and multi-lateral exchanges) through which data sharing and reuse are realised make up the kernel of this framework.

Many different data governance mechanisms can be designed, such as data commons and data pools, data trusts and various forms of independence stewardship of data. KU Leuven (CiTiP) first mapped the existing and suggested forms of data governance mechanisms, and second, provided recommendations for the mechanisms that can lead to optimum forms of data sharing.

The findings of both analyses can be used in similar ways as those described under 3.8.1.1.

### *3.8.2. Exploitation strategy*

Being an academic research centre, CiTiP's objective is to advance the already existing knowledge and to examine the compliance of new information technologies with the European legal frameworks related to data and to ICT. The research serves to expand the existing knowledge and establish and expand CiTiP KU Leuven’s spheres of competence.

The results will be used in future research and exploited mainly by publishing in (scientific) journals, contributing to conferences, through the Centre’s education activities, by leveraging the findings to other business sectors and by contributing policy recommendations.

## 3.9. POLIS

### *3.9.1. Key exploitation results*

As a network of city and regional authorities promoting transport innovation and sustainable mobility, POLIS is most interested in the knowledge built and insights gained within the project related to data sharing challenges, opportunities, and governance models. Data is a high priority of the POLIS agenda for several reasons. Firstly, the role of POLIS members (public authorities) in the data space is expanding rapidly through activities such as open data, data acquisition from the market to support different transport tasks and functions and crowd-sourced data, and data analysis to gather travel insights. Secondly, the EU itself has adopted an ambitious data agenda, of which data sharing is a key component and which is building on the ITS Directive in the mobility data domain. POLIS is particularly interested in the tasks and associated deliverables dealing with legal frameworks, data sharing technologies, standards, technological developments, business and revenue models, societal and environmental impacts.

### *3.9.2. Exploitation strategy*

POLIS aims to disseminate knowledge, insights, and tools developed to its members, primarily local and regional authorities, using various channels, notably the POLIS Traffic Efficiency Working Group. The Working Group has established a data stream that includes webinars and workshops, facilitating members in sharing experiences and addressing challenges in their data-related activities. Data sharing stands out as a central focus in these activities, complemented by other pertinent issues like data privacy, data governance, and standards, where MobiDataLab can provide valuable insights. POLIS has already extended invitations to MobiDataLab to present insights and results to its members throughout the project, with plans to continue doing so beyond the project's lifespan.

Furthermore, POLIS actively engages in several other data initiatives and regularly consults with the European Commission on developments related to the ITS Directive, specifically those impacting local authorities. These engagements serve as excellent opportunities to spotlight MobiDataLab' s work, findings, and outputs. As POLIS remains committed to participating in data-related projects, such as the Deployment of the European Mobility Data Space (DeployEMDS), they intend to incorporate and build upon MobiDataLab' s results in these endeavours.

## 3.10. URV

### *3.10.1. Key exploitation results*


Funded by the European Union

#### 3.10.1.1. Protection mechanisms applied to mobility and transport data

Mobility data, collected via location-based services, sensors and RFID tags, or service-related metadata, among other sources, and typically compiled into (trajectory) microdata sets can be highly valuable to improve public health, transportation, urban planning, economic planning, etc., by learning the mobility patterns of citizens.

However, trajectories serve both as quasi-identifiers (i.e., certain combinations of positions or the combination of a trajectory with other attributes can uniquely identify a person) and as sensitive information. Thus, trajectories are personally identifiable information on its own right and hence, according to the EU General Data Protection Regulation, they must be adequately protected and/or anonymized before releasing them for any secondary use. Anonymization cannot be limited to suppressing the attributes containing the subject's identity, because the origin, the destination and even the intermediate points of a trajectory may allow re-identifying a subject.

The standard approach to build anonymized data sets is centralized: the subjects send their original positions over time to the data controller, who takes care of producing an anonymized data set. Hence, providing the data controllers of useful mobility data anonymization methods or synthetic mobility data generators is essential to encourage the sharing of mobility data.

However, the standard approach has a significant drawback: Even though the released anonymized data set may not disclose personal information, all mobility data are fully disclosed to the data controller. This is a serious privacy threat (e.g., due to possible attacks and data leakages) and requires subjects to blindly trust the data controller.

An alternative to the standard approach is to empower the subjects with the ability to anonymize their trajectories locally. In this way, they do not need to release their original trajectories to a central data controller. A user could anonymize her trajectory by aggregating it with a set of similar trajectories obtained for other (unknown) subjects, thanks to exchange protocols which run on a fully decentralized peer-to-peer network. In this way, for example, an administration could collect already-anonymized mobility data from the citizens who accepted to install an official application in their smartphones.

### *3.10.2. Exploitation strategy*

The anonymization of mobility datasets and the collection of mobility data in a privacy-preserving way are core research interests for URV, even more so now that this type of information is gaining attention due to its utility to design strategies to manage pandemics and to mitigate climate change by optimizing transport.

For example, due to COVID-19 pandemic, the use of contact-tracing applications was adopted in several countries. Most of these apps were based on a centralized approach, where data was collected by the app, and all sent to a nation-wide server. This approach raises concerns about citizens' privacy and unnecessary digital surveillance, thus alerting us to the need to minimize personal data collection and avoiding location tracking.

The anonymization module developed within MobiDataLab has been shared as open source on GitHub[3], along with other MobiDataLab outcomes. This module allows users to protect mobility datasets in a simple way. However, choosing the right anonymization method and parameters is a complex problem that requires a nuanced view and careful consideration. Complex anonymization procedures are typically manual processes involving several rounds of analysis and data transformation, tailored each technique and parameters to the dataset and user's needs. Therefore, we recommend that these anonymization procedures be informed and/or performed by anonymization experts in collaboration with domain experts.

Thanks to MobiDataLab, URV has improved its expertise in the anonymization of mobility datasets and has added this enhanced service to its catalogue. They are also able to advise institutions and companies that need to gather and process mobility data in a GDPR compliant way.

Finally, the knowledge generated within the project, and the availability of new enhanced mobility datasets will constitute the basis for further research activities, including PhD theses. This will lead to long-term research objectives and new research projects. Generated knowledge will be incorporated into existing courses (e.g., URV's "Cryptography and Data Security", "Privacy Protection"), and will also foster the creation of new courses.

[3] https://github.com/MobiDataLab/mdl-anonymizer

# 4. Joint exploitation strategy

This chapter presents joint exploitation plans which not only comply with the objectives of each partner separately as described in the previous section, but which, to be achieved, require a well-articulated collaboration between the partners after the end of the project.

## 4.1. Jointly exploitable results

In addition to the results described in section 3, which will be exploited individually by each of the partners, and which have already been incorporated into their strategic roadmap, some outcomes can only be exploited to their full potential collectively. These results reflect the three main objectives of the project, and the corresponding outcomes, i.e., the Open Knowledge Base, the Transport Cloud prototype, and the Living and Virtual Labs.

### *4.1.1. Open Knowledge Base*

The MobiDataLab knowledge base provides a solid analysis of the current landscape for mobility data exchange, from a legal, technical, and economic perspective. It consists of authentic contributions from real representatives of the mobility sector, collected through our Advisory Board and Reference Group, which significantly increases its value. The content is freely available in an open format, on a highly relevant subject and at the right time. The MobiDataLab knowledge base therefore offers a lot of exploitation opportunities. For partners, this is an excellent way to showcase the work being done around mobility data sharing.

Its promotion can continuously be improved after the project, for attracting additional contributors. The information it contains could be made more accessible, so that it is not perceived as too specific. The traffic figures show that the content is mainly consulted in their online pdf version, which is static, whereas a wiki version is available.

Post-project governance has been discussed with the partners, with the aim of improving accessibility and continuing to provide up-to-date information on the most recent developments in the mobility data sharing field. As a result of these discussions, it has been agreed that the Open Knowledge Base should preferably be managed by a third-party organisation with a European dimension to ensure that the tool is intended for the community as a service.

Until such organisation is identified, and a transfer is agreed, the project will continue to maintain and jointly operate the Knowledge Base.

#### 4.1.1.1. Common objectives

The common objectives corresponding to a joint exploitation of the Open Knowledge Base are as follows:

- Contribution as open content, i.e., keeping on contributing after the end of the project (e.g., keeping content up to date)
- Post-project governance for the knowledge base, with a crowdsourced contribution approach with authentication/authorisation
- Transfer of knowledge to sustainable community-based organization/association

#### 4.1.1.2. Partners ready to contribute and expected contribution

AKKODIS will maintain the website and wiki, to which all WP2 and WP3 partners have access and which they are expected to update as they deem appropriate. AKKODIS remains also available for collaboration and further technical developments of the OKB and MTC prototypes.

KUL and POLIS participate in the *deployEMDS* project started in November 2023, which opens a new way for publicizing the results of the project in the context of the Common European Mobility Dataspace.

Similarly, ICOOR, AETHON and KUL will use the project knowledge in the framework of the novel Horizon Europe project *NOUS*, answering the call topic “HORIZON-CL4-2023-DATA-01-02" where the MobiDataLab solutions, models and tools will be used to supporting the spread of the data sharing culture within the European space. MobiDataLab input will be required, in this project, for the creation of portals designed to provide information to the players operating in the mobility sector.

The content of the knowledge base could eventually be transferred to a more permanent organisation, not dependent on time-limited funding. To this end, the content could also be divided into different subsets (e.g., legal and governance aspects, technical solutions, business analysis) and entrusted to different organisations.

#### 4.1.1.3. Possible external stakeholders

Transferring the hosting, maintenance, contribution management and moderation of the knowledge base to a more sustainable organisation will be a medium or long-term objective. Among these organisations that could be entrusted with all or part of the knowledge base, provided they are interested in sharing this knowledge with their community and developing it further, are the following, with whom collaboration on various subjects has already been established during the MobiDataLab project, being part of the Advisory Board:

- La Fabrique des Mobilités,
- ERTICO (Akkodis, HERE, ICOOR as members)
- UITP

La Fabrique des Mobilités is an organisation that could ensure that the knowledge is made accessible to the community as a service: it has its own media and a compatible wiki that consortium partners can contribute to. However, it is mainly targeted at the French public. At the European level, concrete exchanges of information have been done with NAPCORE, UITP, and ERTICO – chairing the CCAM Association and MaaS Alliance. We also plan early contacts with IDSA and beyond Europe, the Open Mobility Foundation (based in the United States).

#### 4.1.1.4. Specific considerations

The licence applied to the content of the Knowledge Base is an important consideration, especially as it is strongly envisaged that it will be passed on to third-party organisations, most of which being particularly committed to the open source and open content philosophy (e.g., la Fabrique des Mobilités). As a result, and since this is the licence usually adopted by these organisations, the Creative Commons Attribution (CC-BY[4]) licence is the preferred choice, although a more restrictive licensing scheme (such as, e.g., CC-BY-SA) may be applied to specific content or deliverable, depending on the requests of the partner responsible for it.

### *4.1.2. Transport cloud*

The MobiDataLab Transport Cloud developed in WP4 is a prototype, not yet a product – even if the prospects for the corresponding product are studied in the WP3 deliverables, which refer to it as the "future" Transport Cloud.

Despite being still prototypical, the MobiDataLab Transport Cloud has already proved its usefulness and robustness in the WP5 innovation sessions (i.e. around 200 users in a hackathon context), with its data and service catalogues and open-source software components. It has therefore a proven track record in the field and can trigger useful sustainable products and services for other municipalities and customised data labs – offering open access to catalogue services and providing a playground to test solutions and applications out. It can also be used with universities, for example as a training tool.

Among the evolutions that have been studied and anticipated in the architecture definition (Task 4.1), and whose implementation would enable the Transport Cloud to evolve from a prototype to a product, the fine-grained authorisation/authentication would enable the involvement of a wider range of data providers, enabling an advanced collaboration between transport operators for co-development of multimodal solutions.

However, the main evolution identified is the alignment of the Transport Cloud prototype with the dataspace architecture. It is indeed a very interesting avenue for standardising the platform. Unfortunately, this evolution could not be implemented during the project due to the low technological maturity of the corresponding initiatives, but it should become a realistic technical possibility in the soon future, given the major developments underway in the dataspace ecosystem.

[4] https://creativecommons.org/licenses/by/4.0/

By aligning the Transport Cloud (whose key strength is its proven relevance for solving concrete mobility data sharing use cases) with the Data Space architecture recommendations, the exploitation partners would be able to showcase a mobility dataspace augmented with services suited to solve concrete urban mobility problems, based on open technologies. Such a perspective is in line with the opportunities identified in the SWOT analysis of the Future Transport Cloud (cf. Task 3.3/D3.3), highlighting specific opportunities related to the use cases and synergies with other data sharing initiatives.

#### 4.1.2.1. Common objectives

The common objectives corresponding to a joint exploitation of the Transport Cloud prototype are therefore as follows:

- Filling the gap between the Transport Cloud and the EU mobility dataspace,
- Maintaining the platform online with demonstrators,
- Further developing the open-source data processors like e.g. the geo-semantic enrichment processor.

#### 4.1.2.2. Partners ready to contribute and expected contribution

AKKODIS will maintain the platform, especially the metadata catalogues, and will improve the geographical enrichment processor. The CNR will improve the semantic enrichment processor and align the platform architecture with the latest dataspace recommendations. HERE will maintain and possibly host the geodata and service catalogues. HOVE will provide technical support for the journey planning component (Navitia version 2 “historical” as opposed to the now restricted Navitia multi-criteria) and advise on open-source alternatives. And URV will maintain the anonymization module, improving the solution upon request and advising potential users (e.g., private data providers) on anonymisation guarantees.

#### 4.1.2.3. Possible external stakeholders

Among the various initiatives with which the MobiDataLab consortium established lasting collaborations during the project, the following stakeholders seem to be particularly relevant for further exploitation of the Transport Cloud components:

- NAPCORE for helping to demonstrate catalogue interoperability (e.g. metadata search through all the National Access Points and validation testing and integration of the mobilityDCAT-AP standard),
- DeployEMDS, as a follow-up of PrepDspace4mobility, and Dataspace Support Center for helping to align the Transport Cloud architecture with the mobility dataspace recommendations.

#### 4.1.2.4. Specific considerations

The budget for the cloud platform fees has risen to 500€/month during the Codagon (November 2023), covered by AKKODIS. For nominal use of the platform (i.e., outside any living lab occurrence), these costs can be reduced to €150/month. AKKODIS is committed to covering these costs until at least the end of 2024, and potentially longer if other direct external funding becomes available.

In addition, a workforce contribution of around 10 days/year for the more technical aspects of maintenance is anticipated (evolution of the platform/services and maintaining operational status).

Up to 5 additional days would be needed to add references for a new region/city (harvesting of metadata, ingestion of geodata for journey planning coverage, anonymisation of private data, etc.).

### *4.1.3. Data Labs (virtual)*

The successful organisation of three innovation events in Europe as part of the WP5, the Datathon in Berlin (May 2023), the Hackathon in Paris (September 2023) and the Codagon online and in Leuven (November 2023) seem to offer very good opportunities for joint exploitation after the project for the partners involved.

Indeed:

- 200 x-athon individual registrations and post-deadline registration requests offer promising scaling opportunities,
- a significantly large community of mobility data users, that transport stakeholders e.g. NAPs, transport organizing authorities, etc. seek to create and maintain on their side,
- enthusiastic feedback from domain experts, highlighting the fact that the data labs provide direct contact and framework for collaboration with a community of data users, which is lacking in other projects they are part of.

#### 4.1.3.1. Common objectives

The preparation and execution of the MobiDataLab Datathon, Hackathon and Codagon have shown that organising a living data lab requires a very substantial contribution in terms of workforce (i.e., for animating, mentoring, evaluation, etc.), which is far too important to be envisaged without funding. The financial contribution necessary to meet the legitimate expectations of participants in terms of work environment and networking opportunities, is also significant. It is therefore extremely difficult to envisage the organisation of new living labs once the project has been completed.

However, the online part of the data labs (or virtual lab) seems to offer interesting avenues for post-project exploitation.

Indeed, the Codagon has shown that many participants appreciate working entirely online, over a longer period, and such a format offers the participants an interesting level of flexibility.

Based on these observations, the following common objectives can be proposed:

- Maintaining the virtual lab online, with up-to-date challenges,
- Animating the MobiDataLab data users' community online,
- Providing advice on how to replicate the innovation sessions in other contexts, local areas, cities, regions, etc.
- Further reinforcing the link between the x-athon winners and their challenge provider (municipality or project), should any help in this matter is needed.

#### 4.1.3.2. Consortium partners ready to contribute and expected contribution

The consortium partners will work on the common objectives listed before. AETHON will maintain the Virtual Lab interface and the municipality challenges online, AKKODIS will maintain the data catalogue integrated into the virtual lab, the domain name, and the Azure platform as a service, F6S will interact with the startup ecosystem, HERE Technologies will maintain the service catalogue accessible, HOVE will provide special access to the Navitia platform upon request (new token to provide if users want to access the services during a limited time and with limited number of requests), and POLIS will encourage their members to innovate using the virtual lab, supporting them if needed.

#### 4.1.3.3. Potential external stakeholders and involvement strategy

Some of the project's stakeholders would be particularly interested in the consortium partners maintaining the community of innovators and data users:

- Other cities willing to replicate the methods with similar challenges, like e.g. the cities of Rome, Amsterdam, Antwerp, who already collaborated with the project as part of the reference group and/or the Advisory Board
- EIT Urban Mobility, which offers funding mechanisms for start-ups to explore the deployment of their solutions on "pilot sites"

#### 4.1.3.4. Specific considerations

In case of Living Labs opportunities identified, the partners should redirect them to municipalities or other data and challenge providers for the organisation of Living Labs. The joint exploitation would only concern the online access to challenges, data, and services.

# 5. Exploitation Committee

## 5.1. Exploitation Group and exploitation workshops

An exploitation meeting was held at each of the General Assemblies organized during the project, namely:

- Toulouse (September 2021)
- Pisa (April 2022)
- Brussels (September 2022)
- Athens (March 2023)

At the last General Meeting in Reggio Emilia (October 2023), a dedicated 2-hour workshop was held, followed by two online sessions in December 2023 and January 2024.

## 5.2. Exploitation Committee and post-project cooperation

### *5.2.1. Letter of intent or memorandum of understanding*

With the aim of formalising the interest and intents from the MobiDataLab partners and potential third parties (or "Parties") to capitalize together on the project's outcomes, a non-binding document (be it a "letter of intent" or "memorandum of understanding") will be issued and signed by voluntary consortium partners at the end of the project. This document does not imply a legal commitment and expresses a convergence of will between the signing partners, indicating an intended common line of action with respect to the joint exploitation of MobiDataLab' s legacy.

#### 5.2.1.1. Responsibilities of the parties

Its general principle is that each Party undertakes to take part in the sustainability of the joint exploitable outcomes, for at least 2 years. It formalizes what is to be done, by whom and how, (as stated in the section 4 of the present document) with the corresponding financial and workforce contribution.

#### 5.2.1.2. Governance structure

We call "MobiDataLab Exploitation Committee" the elicited governance structure. It will be constituted of one representative of each party or "Member".

This Exploitation Committee aims to formulate proposals and take decisions on the Open Knowledge Base, the Transport Cloud components, and the (Virtual) Data Lab.

There will be a minimum of 2 meetings per year, with mandatory presence or representation, all members being appointed in turn as meeting coordinator in charge of finding a suitable date, send invitations, write down minutes and circulate them.

### 5.2.2. Possible involvement of external stakeholders

The project has attracted a significant amount of attention, which has given the partners the opportunity to interact with a large number of stakeholders. We are referring here to any or all of these organisations, be they associations, municipalities, data providers or other research projects, which may be involved at any stage in the exploitation of the project's results:

- Reference group of transport authorities: Milan, Paris, Eindhoven, Leuven, and others
- Data providers: Cubic Transportation System, Tier Mobility
- Associations and Networks: MobilityData[5], ITxPT[6], UITP[7], La Fabrique des Mobilités[8], ERTICO[9], EIT Urban Mobility[10], EMTA[11]
- Other EU-funded projects: NAPCORE[12], UPPER[13], MASTER[14], EMERALDS[15], MobiSpaces[16], DeployEMDS, 4FRONT cluster, 5GMETA[17], SoBigData[18]

### 5.2.3. Dissemination of exploitation activities

Exploitation activities may be disseminated through the same channels as those used during the project, such as the following research communities, seminars and conferences: Dagstuhl, Transport Research Arena, ITS congress, FOSS4G, OpenStreetMap, Autonomy, RTR conference, Urban Mobility Days, World Passenger Festival, DSM Summer School, Tomorrow Mobility, etc.

[5] https://mobilitydata.org/
[6] https://itxpt.org/
[7] https://www.uitp.org/
[8] https://lafabriquedesmobilites.fr/
[9] https://ertico.com/
[10] https://www.eiturbanmobility.eu/
[11] https://www.emta.com/
[12] https://napcore.eu/
[13] https://www.upperprojecteu.eu/
[14] http://www.master-project-h2020.eu/
[15] https://emeralds-horizon.eu/
[16] https://mobispaces.eu/
[17] https://5gmeta-project.eu/
[18] https://plusplus.sobigdata.eu/

# 6. Conclusions

This document provides the final version of the MobiDataLab partners' exploitation strategy and key activities that will be executed after the end of the project to maximise the benefits and impact of the project's research outputs and deliverables, in collaboration with the stakeholders, initiatives and projects listed herein.

A joint exploitation strategy has been defined for the project outcomes which require a well-articulated collaboration between the partners to be further developed, namely the Open Knowledge Base, the Transport Cloud, and the Virtual Data Labs. This joint exploitation strategy has been elaborated during workshops held regularly along the project timeline. It will be further formalised with a letter of intent or a memorandum of understanding (or any other form of agreed document) expressing the intents of the consortium partners and potential third parties with respect to the exploitation of the project's legacy.


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# MobiDataLab consortium

The consortium of MobiDataLab consists of 10 partners with multidisciplinary and complementary competencies. This includes leading universities, networks and industry sector specialists.

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For further information please visit **www.mobidatalab.eu**

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