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DATA SPACE 4 MOBILITY MODELS INTEGRATION

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DS4MOB MODELS

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Keywords:	Data Collection, Use Case Selected, Data Providers, Datasets Inventory, Metadata.
Abstract (few lines):	This document presents a comprehensive overview of **data collection, and metadata representation for the DS4MOBMODELS project**. It begins with an introduction outlining the purpose, objectives, and structure of the deliverable. A detailed discussion on data collection includes specifications, descriptions of data providers, and an exploration of pilots and use cases, while offering a thorough inventory of available datasets, assessing their potential, limitations, and challenges related to harmonisation and interoperability. A critical section is dedicated to the development of a data model for metadata representation along with the selection criteria for the chosen model. A summary related to recommendations for the next phases is presented as a conclusion. Annexes include relevant information related with the advances and development of the project.

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Definitions, Acronyms and Abbreviations

Acronym	Title
ADMS	Asset Description Metadata Schema
AEMET	State Meteorological Agency
AMBici	Barcelona Metropolitan Bicycle Service
ART	Autorité de Régulation des Transports
ATTG	Territorial Transport Authority of Gipuzkoa
ATM T-Mobilitat	Barcelona Metropolitan Transport Authority T-Mobilitat
CINEA	European Climate, Infrastructure and Environment Executive Agency
CRTM	Madrid Regional Transport Consortium
DCAT	Data Catalog Vocabulary
DGR	General Directorate of Roads
DGSLR	General Directorate of Cleaning and Waste Services
DGPIM	General Directorate of Mobility Planning and Infrastructure
DGSCA	General Directorate of Sustainability and Environmental Control
DGT	General direction of traffic
DIGITAL	Digital Europe Programme
DSSC	Data Spaces Support Centre
EJ-GV	Basque Government
EMT Madrid	Madrid Municipal Transport Company
ETL	Extract, Transform, Load
EU	European Commission
FAIR	Findable, Accessible, Interoperable, and Reusable
GA	General Assembly
GDPR	General Data Protection Regulation
GHG	GreenHouse-Gas
GTFS	General Transit Feed Specification
HVD	High-Value Datasets
IGN	National Geographic Institute of Spain
IMT	Institute of Mobility and Transport
INE	National Statistics Institute
INSPIRE	Infrastructure for Spatial Information in the European Community
ITS	Intelligent Transport Systems
MITECO	Ministry for the Ecological Transition and the Demographic Challenge
MITMS	Ministry of Transport and Sustainable Mobility
NAPCORE	National Access Point Coordination Organisation for Europe
NAP	National Access Points
OCM	Open Charge Map
ORTR	Observatoire régional des trafics routiers
OTEP	Spain – Portugal Cross-border Observatory
PC	Project Coordinator

Acronym	Title
peGV	Valencian Municipal Fact Sheets
SDMX	Statistical Data and Metadata eXchange
SIMA	Andalusian Multi-Territorial Information System
SIMPL	Smart Interoperability Platform
SIOSE	Spanish Land Cover Information System
SCT	Catalan Traffic Service
TEN-T	Trans-European Transport Network
TMB	Barcelona Metropolitan Transport
UC	Use Case
UCS	Use Case Selected
UGE	Université Gustave Eiffel
WP	Work Package
WPL	Work Package Leader
W3C	World Wide Web Consortium

Executive Summary

This document is the deliverable D3.1 "**Specifications and collection of enriched datasets**" of the **DS4MOBMODELS** project (Grant Agreement nº 101176007).

The development of **D3.1** is entirely based on the outcomes of **D2.3.** "**Identification, definition and validation of mobility and logistics use cases**". The information compiled in D2.3 constitutes the sole foundation for the specifications and the subsequent collection of the enriched datasets presented in D3.1.

This deliverable has been set up to provide a comprehensive inventory of the data sources and metadata model that will be integrated into the Mobility Data Space. It documents the datasets available to the project, analysing both their untapped potential and existing limitations, and identifying the challenges expected during the forthcoming data harmonisation and interoperability phase. In addition, the deliverable presents the list of data models considered for metadata representation and details the selected model, including the rationale behind its choice and its relevance for enabling semantic and technical interoperability within the European mobility data ecosystem.

The scope, structure, and content of D3.1 directly reflect the validated and selected use cases defined in D2.3, ensuring full coherence and continuity between both deliverables.

The main target group for the Project Management Plan is the project members because this deliverable contains the management, monitoring and supporting processes necessary for the successful implementation of the **DS4MOBMODELS** project.

1 Introduction

1.1 Purpose and objectives

The purpose of this deliverable is to provide a comprehensive overview of the data ecosystem within the Mobility Data Space to the project. This includes the inventory of available data providers and datasets, evaluates their metadata, describes the potential and limitations found in these, and assesses their readiness for use in harmonisation and integration of data, which are the future phases of the project.

This deliverable **builds directly upon the mobility and logistics use cases selected and validated in Deliverable D2.3.** In particular, the data source providers described, and the inventory of datasets included in the catalogue are the direct result of the information identified during the development of D2.3, following the applied methodology based on interviews with relevant stakeholders and authorities involved in the project, either directly or indirectly. Furthermore, the risks associated with the development of D3.1 in relation to data availability, quality, and accessibility are fully consistent with those identified in D2.3, as they were considered potentially materializable at this stage of the project and in subsequent deliverables, ensuring continuity and alignment across project phases.

To support this goal, the deliverable is structured around the following key objectives:

- **Identify and document the data sources, datasets and metadata quality**, develop the inventory of each item along with their technical and contextual characteristics through a structured description of the data composition (data fields, formats, volumes, frequency of updates, granularity, and general aspects) to enable effective understanding of the data, discovering and utilisation scope.
- **Assess potential and limitations of the available datasets** by evaluating their usability, accessibility and relevance within the project. This includes describing the technical characteristics of each dataset, identifying new insights or services that could be derived from them, and outlining any technical, legal or organisational barriers to their use or integration.
- **Identify the main challenges for upcoming project phases**, with a focus on anticipating potential data inconsistencies, lack of standardisation, and other constraints that could affect the smooth development of the data processing.
- **Evaluate and present data models for metadata representation**, including a review of the existing models and a detailed description of the selected one, which will be adopted as the reference guideline for metadata management throughout the project.

This deliverable serves as a reference document to understand the scope, quality, limitations, and untapped potential of the data to be used to support the development of the project, ensuring that all stakeholders are aligned on its overall structure and definition.

1.2 Intended audience

This deliverable will be **disseminated publicly,** informing all interested stakeholders about the data sources and datasets available to the project and their integration into the Mobility Data Space. It also aims to inform the DS4MOBMODELS project partners about the current and untapped potential of the data, the challenges related to data processing that need to be addressed during the harmonisation and integration phase and establish the selected data model that will serve as a guideline for metadata representation.

1.3 Structure of the deliverable

This deliverable is structured into 6 sections with the corresponding description as follows:

- **Section 2** provides a general description of the data collection process and the key specifications to consider. It also offers an overview of the pilots and their use cases, detailing the data required for each one, the characteristics of that data, along with the relevant contextual information, and descriptive details for each data source.
- **Section 3** provides a detailed analysis of the datasets available for the development of the project, focusing on the complete description of their technical characteristics, usability, and relevance.
- **Section 4** explores various data models for metadata representation, outlining the evaluation criteria and presenting a detailed description of the selected model and its key components.
- **Section 5** summarises the main findings, insights, and recommendations derived from the assessment conducted in the deliverable and the main inputs for continuing with the next development phases of the project.
- **Section 6** are the references and **Section 7** contains the *Annexes*, which include additional information compiled during the project and relevant to the development of the deliverable, as well as to the overall results achieved up to the time of its submission.

2 Data collection

The purpose of the **Mobility Data Space** is to federate existing mobility data ecosystems across governance domains (public, private and cross-sector) and geographical levels (local, regional, national and cross-border) allowing controlled data sharing and reuse under common standards that ensure confidentiality, trust, respect for agreements, and technical interoperability, while safeguarding privacy and fair competition, in a way that fosters trust and incentivizes stakeholder participation.

Transport-related data is, by nature, collected in a decentralised manner, as each service provider, private or public, follows its own methods for data collection and storage. Due to economic competition, it is often difficult for all participants to initially agree on sharing their data without a clearly defined and trustworthy framework, where the benefits of participation are evident. Additionally, **mobility data** can contain sensitive information about the subjects involved (such as individuals or freight), raising significant privacy concerns. Consequently, managing data in this sector involves a range of technical and governance-related challenges that need to be tackled from the very beginning.

Developing a well-structured, comprehensive, and detailed **Data Specifications and Collection** process is essential to effectively address these challenges. Data collection represents the first and most critical phase in the lifecycle of a data space, as it determines the overall quality, reliability, and usefulness of the ecosystem. Any errors, omissions, or data issues occurring during this phase tend to propagate and magnify across the later stages of the process; these must be addressed and rectified before proceeding.

During this stage, the data required to support each specific use case is characterised and thoroughly analysed. The process not only provides a deep understanding of the data available (its origin, structure, technical characteristics, and quality) but also establishes the foundation for data interoperability, governance, and trust within the data space. Moreover, all legal, governance and technical/operational concerns are identified and described at this point, forming the specifications baseline that will guide subsequent stages of data management and sharing.

The more information available about the data sources, datasets, and the data involved, the more accurately the requirements for the subsequent stages of the process can be established. Having the data well defined and described ensures that each forward step is designed according to the actual conditions of the available data and the specific preprocessing needs to properly prepare them for effective harmonisation and integration. In addition, detailed and comprehensive metadata information is essential for the design and implementation of the metadata model required by the data space, ensuring consistency, homogeneity, and interoperability across all datasets involved.

Furthermore, to ensure the easy accessibility and usability of the data, managing a comprehensive catalogue of datasets and their specifications is essential. This catalogue can allow Mobility Data Space participants to clearly understand the structure and characteristics of the data involved, to know the technical and governance requirements, and to identify potential applications across different contexts, research studies, and business interests.

2.1 Data specifications

This project definition and progress are in line with **Europe's digitalisation goals in mobility and transport**, which is essential to work within a common framework with established standards and policies. This ensures interoperability and fosters collaboration across projects developed throughout the continent. This top-down approach enables the seamless replication of solutions at minor levels as local, regional and national, promoting alignment across borders and supporting both the scalability and interoperability of current and future developments.

In the literature, at the European level, *Gaia-X* is an initiative that provides a framework for the creation of federated data infrastructures. It is a conceptual and operational technological infrastructure project that defines the technical and governance principles that data ecosystem actors must follow, focusing on security, privacy, and transparency in data usage. *Gaia-X* offers the technical and operational foundations for data spaces to be viable and function efficiently, and interoperability. The principles established by this framework are Openness, transparency, sovereignty, fairness, independence, inclusiveness, freedom, federation, innovation, and evolution. In various European countries, including Spain, *Gaia-X Hubs* have been established to promote the implementation of these principles in national projects and initiatives related to data use in key economic sectors, including transport and mobility.

In a similar way but focused on the technical conceptualisation, the *Data Spaces Support Centre (DSSC)* aims to establish common requirements and best practices to accelerate the development of sovereign data spaces across key sectors, including mobility. The DSSC defines the core functional principles for these data spaces, structured around six key pillars: Business, Governance, Legal, Data Interoperability, Data Sovereignty and Trust, and Data Value Creation Enablement.

On the technical side, the *Smart Interoperability Platform (SIMPL)*, an initiative funded by the *Digital Europe Programme (DIGITAL)*, aims at the creation of a common European data space in strategic economic sectors and areas of public interest and serves as the technical backbone of European data spaces. Its main goal is to ensure seamless technical interoperability between diverse digital systems, enabling a more connected, digital, and citizen-centric Europe.

Both DSSC and SIMPL definitions aim to facilitate secure and trustworthy data sharing, aligned with core legal principles such as data protection, fundamental rights to privacy, safety, and cybersecurity.

In this context, the data specifications must be clearly identified and defined for each pilot at the use case level. These specifications should consider both operational and technical dimensions.

Based on the state of the art and general standards definitions, in this project, a classification for the data definition is proposed and used to develop the data collection process. The specifications are grouped into ten categories, organised under two main domains: ***Contextual and Governance Specifications***, and ***Technical Specifications***.

Each category defines a set of parameters and information required to fully describe the data implicated in each use-case. Some parameters refer to specific values or technical aspects, while others address processes, regulations, and contextual details that explain how the data has been handled by the provider from its origin to its final treatment, passing by its local availability for analysis or exploitation phase.

In the **Contextual and Governance Specifications**, the related categories and their related parameters are:

- **Governance:** Define the framework of rules, responsibilities, and policies that define how data is managed, accessed, and used. It encompasses data ownership (public or private) and the level of accessibility (open resources or restricted datasets), considering licensing conditions, access rights, and clearly defined roles and permissions that regulate who can interact with the data and how. It also involves cross-referencing rules to ensure consistency and accountability across all data practices.
- **Privacy and Security policies:** A set of practices and protections designed to ensure that data is handled safely and in compliance with relevant regulations. It involves privacy laws and standards (GDPR or equivalent frameworks) and cybersecurity measures and safeguards to protect data. Also, it refers to whether datasets contain

sensitive data, and the application of special security treatment as anonymisation techniques.

- **Interoperability:** Identifiers of the datasets and parameters that determine the link with other datasets. These are mainly primary and foreign keys in the data.
- **Lifecycle Statements:** Describe the relevant periods of time related to the data. The historical coverage and the execution of actions on the data, such as creation, expiration, archival, and deletion. Lifecycle statements help ensure that data is managed consistently, responsibly, and efficiently over time, providing clarity on how long data should be retained, how it should be updated or transformed, and when it should be retired.
- **References:** Point to the standardised contextual details and formats that ensure data is interpreted consistently across systems, considering temporal and encoding formats, linguistic and classification elements such as language, coding systems, and nomenclature, measurement units and spatial standards like coordinate systems.

And the **Technical Specifications** are:

- **Data Types:** Foundation of the data in terms of temporality, which describes whether the data is dynamically collected or not, and the structure that is used.
- **Data Sources:** Refers to the initial step of the collection process that describes the method used to collect the data. Also, it refers to the consulting sources to access the data as repositories, web platforms, access points, etc.
- **Metadata:** Conform to all the information related to the dataset that contains the data. It is the title, description, temporal and geographical coverage, etc. And all the information that identifies the dataset.
- **Formats and standards:** Identifies the type of documents or files that contain the data and the structure in which those containers are built.
- **Parameters:** Set of general aspects that describe the collection process and storage of the data, such as the frequency, volume, tolerance and thresholds for errors in specific fields, etc.

This classification supports a comprehensive approach to the data collection process by knowing in detail each data source related to their datasets and thereby their available data.

Based on the detailed data specifications and their categories, a basic template was developed as a guide to inquire about the availability, access, and general information of the data required for each use case within the pilots. This template contains fields with questions that directly or indirectly covers all the specifications described above. The questions enquiring about the data identified in Deliverable 2.3 are necessary for addressing each pilot and its respective use cases.

The purpose of this template is to gather all the necessary information to fully characterise the data and ensure the complete knowledge of the data involved, ultimately building a comprehensive dataset catalogue that will form the foundation of the project's Mobility Data Space.

The template contains the following fields:

1. **Data –** Name of the specific data required.
2. **Dataset or data description –** Brief explanation or clarification of the data required, related to their purpose and scope.
3. **Specific data provider –** The specific entity or organisation from which the data could be collected or inquired about a third party.
4. **Provider classification –** The provider could be public administration, private entity, open-source system, derived, etc.

5. **URLs –** Direct links to access the dataset or the platform where it is hosted. Additional links to the documentation or related topics are also included.
6. **Data type –** Type of information contained in the dataset or a specific type of related data.
7. **Format –** Format in which the data is provided: CSV, JSON, API, Excel, shapefile, etc.
8. **Frequency –** How often the data is updated: daily, monthly, annual, real-time, on demand, etc.
9. **Historical coverage –** Time period covered by the data.
10. **Geographic coverage –** Geographic area covered by the dataset: country, region, local, city, etc.
11. **Unit –** Unit of measurement used in the data: people for population, kilometres or meters for distance, number or trips by day, etc.
12. **Sensitivity / Legal restrictions –** Level of data sensitivity and any legal constraints: personal data, copyright, specific licenses, anonymisation, GDPR, etc.
13. **What type of data model would you like to use? Based on Standards –** Enquire about the data model or standards for structuring the dataset: tabular, entity-relationship, ontologies, SDMX, INSPIRE, etc. It is for a new definition.
14. **Does the data model require authentication and participant identification? –** Indicates whether user identification or authentication is required to access the data model.
15. **Does the data model require access-control requirements for the data product? –** Defines whether differentiated permissions or access levels are required for the data product.
16. **Does the organisation currently have any data model? -** Indicates whether there is an existing and known data model currently in use.

The template, which is added as *Annexes 7.1* (2 different versions), is used as a form for collecting the information for each use-case. The replicate forms are filled out during interviews with stakeholders, participants, or responsible organisations (publics or privates) for each use case within the project. However, due to the large amount of data required and the diverse fields involved, some interviewed organisations or individuals may not have access to all the required data, so the information is also completed by consulting other sources, including open data and additional datasets. Additionally, for identifying the relevant technical aspects of each data, a comprehensive review of the datasets is carried out.

2.2 Data providers description

The identification and description of data providers and datasets presented in the following sections are based on the interviews conducted under the methodology defined in Deliverable D2.3, specifically within the interviews with stakeholders. Through this process, data sources have been identified with varying levels of detail and maturity: while in some cases the data providers and their corresponding datasets have been clearly defined, in others the identification remains partial. In these latter cases, discussions with the relevant stakeholders are still ongoing, following a progressive engagement approach, and the final definition of the data sources is therefore pending.

Data sources can be categorised into three main types: **open sources** that provide publicly available information, **public organisations** that also manage publicly available but with some restrictions or limitations to access, and **private providers** that have their own data.

- **Open sources** refer to organisations that provide contextual data that is regularly updated at standard frequencies, follows certain regulations, and is always available and easily accessible online. These types of data do not require direct consultation with

the provider to access them. Examples include socio-economic data collected by national statistical institutes (e.g., the National Statistics Institute, or INE), land use information, geographic distribution data, meteorological data, etc. This data is typically of general interest to the population, which is why it is freely available and can be used for various analytical and planning purposes.

- **Public administration or organisations include government bodies or public entities** that provide data gathered from their own studies or other diverse sources. However, this data is not always readily available. It may require contacting the administration directly to inquire about what data is available and how to access it. The availability and ease of access to this data can vary depending on the administration's policies.
- **Private providers** are companies or organisations that hold data related to their own services. This data is not openly accessible and typically requires a direct agreement or exchange of information with the provider. Access to these data sets is often governed by contracts or partnerships and is not available to the public unless specific terms are agreed upon.

For this project, the data providers comprise a combination of the aforementioned categories. The European or generic organisations, and country-specific providers are outlined in Tables 1, 2, 3 and 4 that follow.

- **Generic organisations:**

Organisation	Acronym	Description
Open Sources		
European Commission	EC	The executive body of the European Union, responsible for proposing legislation, implementing decisions, and managing EU policies, including transport, energy, and digital infrastructure.
Open Charge Map	OCM	Open global organisation that maintains a database of electric vehicle charging stations, providing information about locations, availability, and network operators.
Private		
BlaBlaCar	-	Mobility platform that connects drivers with passengers who wish to share long-distance trips. Through its digital platform, users can offer or book available seats in private vehicles traveling between cities, enabling cost-sharing and reducing the number of vehicles on the road. BlaBlaCar operates in numerous countries and promotes a collaborative mobility model that improves travel accessibility while contributing to more efficient and sustainable transport.
Flixbus	-	European mobility company that provides long-distance bus services connecting cities across Europe and other international markets. The company operates through a digital platform that manages booking, route planning, and ticketing, while the transport services are delivered by a network of regional bus partners. FlixBus focuses on offering affordable and sustainable intercity and intercountry travel and provides extensive coverage across major transport corridors, often integrating its services with other mobility solutions such as trains and local transport networks.

TomTom	-	Dutch technology company specialised in location technology and digital mapping solutions. The company develops products and services related to navigation, real-time traffic information, mapping data, and location-based services. TomTom provides high-quality digital maps, traffic analytics, and software platforms that are widely used by automotive manufacturers, mobility service providers, public administrations, and technology companies.

Table 1: Generic Data Providers.

- **Spain:**

Organisation	Acronym	Description
Open Sources		
Cadastre	-	Spain's official system that records physical, legal, and economic data on real estate properties across the country.
National Geographic Institute of Spain	IGN Spain	Spain's official institute responsible for cartography, geodesy, and geographic information, including maps, geographic databases, and geospatial services.
National Statistics Institute	INE	Spain's national agency responsible for producing official statistics, including censuses, surveys, and demographic data.
Spanish Land Cover Information System	SIOSE	An official system that maps and classifies land cover in Spain for environmental, spatial planning, and cartographic purposes.
State Meteorological Agency	AEMET	Spain's national authority responsible for weather forecasting, climate monitoring, and issuing meteorological warnings.
Public Administration		
Barcelona City Council	-	The municipal government of the city of Barcelona, responsible for local services, mobility, public space, and urban planning.
Barcelona Metropolitan Transport Authority T-Mobilitat	ATM T-Mobilitat	Authority that coordinates public transport in the Barcelona metropolitan area and manages the integrated fare system, including the T-mobilitat card.
Barcelona Metropolitan Transport	TMB	The main public transport operator in Barcelona, managing the metro, buses, and other urban mobility services.
Barcelona Metropolitan Bicycle Service	AMBici	The public bicycle-sharing system of the Barcelona Metropolitan Area, designed for inter-municipal mobility and managed by the AMB.
Basque Government	EJ-GV	The autonomous government of the Basque Country, responsible for regional policies including transportation, health, education, and economic development.
Bicing	-	The public bicycle-sharing system of the Barcelona city.
Directorate-General for Traffic	DGT	The Spanish government agency responsible for road traffic and safety.
Catalan Traffic Service	SCT	Public agency of the Government of Catalonia responsible for managing road traffic, enforcing traffic

		regulations, improving road safety, and coordinating traffic monitoring systems across Catalonia.
Catalonia Government	-	The autonomous government of Catalonia, responsible for regional policies such as transportation, health, education, and territorial administration.
Extremadura Government	-	The Government of Extremadura is the regional authority of the Autonomous Community of Extremadura, located in southwestern Spain. , it operates under its Statute of Autonomy and consists of a President and a Council of Government.
Navarra Government	-	The Government of Navarra is the regional executive authority of the Autonomous Community of Navarra in northern Spain. It and has broad competencies in areas such as health, education, transport, environment, and economic development.
Madrid City Council *	-	The municipal government of Madrid, overseeing local services, transportation, urban infrastructure, and city planning.
Madrid Municipal Transport Company	EMT Madrid	The municipal operator of urban buses and mobility services in the city of Madrid.
Madrid Regional Transport Consortium	CRTM	The coordinating body for public transportation in the Madrid region, integrating fares, operators, and mobility planning.
Ministry for the Ecological Transition and the Demographic Challenge	MITECO	Spain's national ministry responsible for environmental policy, climate action, energy transition, natural resource management, and addressing demographic challenges.
Ministry of Transport and Sustainable Mobility	MITMS	Spain's national ministry responsible for transportation policy, mobility planning, infrastructure, and logistics.
National Access Point – Spain	NAP Spain	Spain's national platform that provides centralised access to transport and mobility data in the country in accordance with European regulations. The platform aims to facilitate data sharing, interoperability, and the development of innovative digital mobility services by ensuring that transport-related datasets are accessible and described using standardised metadata. The Spanish NAP is implemented through the platform NAPCORE Spain, which connects national datasets with the broader European ITS data ecosystem.
Territorial Transport Authority of Gipuzkoa	ATTG	Public authority responsible for coordinating and managing public transport services in the province of Gipuzkoa, including fare integration, service planning, and multimodal mobility.
Regional Government of Andalusia	-	The autonomous government of Andalusia known as Junta de Andalucía, responsible for regional administration and public services.
Valencian Government	-	The autonomous government is responsible for regional administration, governance, and policy implementation across areas such as health, education, infrastructure, transport, environment, and culture.
Valencian Municipal Fact Sheets	peGV	Valencian Community's portal responsible for producing multisectoral indicators for all municipalities, covering

		territory, demography, society, economy and public finances.
Private		
CPS Infraestructuras, Movilidad y Medio Ambiente, S.L.	CPS	Spanish engineering and consultancy company specialised in infrastructure, transport, mobility, and environmental projects. The company provides technical services including planning, design, project management, and advisory support for public administrations and private organisations. CPS has experience in the development of mobility strategies, intelligent transport systems (ITS), and digital solutions for transport data management, contributing to projects aimed at improving transport efficiency, sustainability, and regional connectivity.
Electromaps	-	Barcelona-based electric-mobility services company that runs a digital platform and mobile app to help electric-vehicle drivers find, access and pay for public charging points across Europe.
Mowiz	-	Digital platform or service related to mobility data (typically providing public transport or travel information).
Sociedad Estatal de Infraestructuras del Transporte Terrestre, S.M.E., S.A.	SEITT	Spanish state-owned company under the Ministry of Transport and Sustainable Mobility. Its main role is the management, administration, and maintenance of certain state-owned road infrastructures, particularly highways that were previously operated under concession agreements. SEITT is responsible for ensuring the operation, conservation, and service quality of these infrastructures, while supporting the efficient management of the national road network. In mobility and transport projects, SEITT may contribute with infrastructure-related data and operational knowledge relevant to road transport systems.

Table 2: Data Providers from Spain.

***Organisations from Madrid City Council:** General Directorate of Roads (DGR), General Directorate of Mobility Planning and Infrastructure (DGPIM), General Directorate of Sustainability and Environmental Control (DGSCA), General Directorate of Cleaning and Waste Services (DGSLR).

- **Portugal:**

Organisation	Acronym	Description
Public Administration		
Comissão de Coordenação e Desenvolvimento Regional do Centro	CCDR Centro	Regional coordination and development authority for Portugal's Centro region. It is responsible for implementing national and European policies at the regional level, particularly in areas such as regional planning, sustainable development, infrastructure, and innovation. The organisation also promotes cooperation between public administrations, research institutions, and regional stakeholders, supporting initiatives that require coordination across different sectors and territories. Coimbra is the main city of the region.

Comissão de Coordenação e Desenvolvimento Regional do Alentejo	CCDR Alentejo	Portuguese regional authority responsible for coordinating and promoting regional development policies in the Alentejo region. Its responsibilities include territorial planning, environmental management, regional economic development, and the coordination of public policies implemented at the regional level. In the context of mobility and data initiatives, CCDR Alentejo plays an important role in facilitating collaboration between regional stakeholders, supporting cross-border cooperation, and enabling access to relevant regional datasets and infrastructure. Lisbon is the main city of the region.
Institute of Mobility and Transport	IMT Portugal	Portuguese public institute responsible for regulating, planning, and promoting mobility and transport services across Portugal, including public transport and infrastructure.
National Access Point - Portugal	NAP Portugal	National platform established to facilitate access to transport-related data in accordance with European regulations on Intelligent Transport Systems (ITS). The platform provides a centralised access point where public authorities, transport operators, and other stakeholders can publish, and access datasets related to mobility and transport services. Its objective is to promote data sharing, interoperability, and the development of digital mobility services by ensuring that relevant transport data is accessible, standardised, and reusable.
Spain – Portugal Cross-border Observatory	OTEP	Observatory focused on cross-border cooperation between Spain and Portugal, analysing mobility, transport, and regional development in the border areas.

Table 3: Data Providers from Portugal.

- **France**:

Organisation	Acronym	Description
Public Administration		
Autorité de Régulation des Transports	ART	French regulatory authority responsible for overseeing and regulating transport services, ensuring competition, accessibility, and efficiency in the transport sector.
Opérateurs de Réseaux d'Énergie	Agence ORE	French public-interest organisation that brings together electricity and gas network operators (such as ENEDIS and GRDF) to collect, standardize, and publish open data related to energy networks, consumption, production, and mobility.
Bison Futé	-	French public service providing traffic forecasts, travel advice, and congestion information to improve road safety and traffic flow.
Ministères Écologie, Énergie, Territoires	-	French ministry responsible for environmental policies, energy, sustainable development, and territorial planning.

National Institute of Geographic and Forestry Information	IGN	Official French government agency for geospatial information.
National Access Point - France	NAP France	The platform enables public authorities, transport operators, and mobility service providers to publish and access datasets related to transport networks, traffic conditions, public transport services, infrastructure, and other mobility-related information. It is implemented through the platform transport.data.gouv.fr, which is part of the broader French open data ecosystem. It facilitates the sharing, discovery, and reuse of transport datasets by ensuring that data is published following common standards and metadata requirements.
Observatoire régional des trafics routiers	ORTR	French regional observatory monitoring road traffic, congestion, and mobility patterns for planning and transport management.
Société Nationale des Chemins de fer Français	SNCF	It is the state-owned railway company of France, responsible for operating most of the French rail network. SNCF operates both domestic and international train services, including the famous TGV (Train à Grande Vitesse), France's high-speed rail system.
Université Gustave Eiffel	UGE	French university specializing in civil engineering, transport, urban planning, and infrastructure research.
Private		
Euskotren	-	Public transport operator in the Basque Country, managing commuter rail, trams, and buses within the region.
ENEDIS	-	French electricity distribution company responsible for managing and maintaining the electricity grid, connecting consumers, and ensuring supply reliability.
Révéo	-	French electric vehicle charging network providing public access to EV charging stations.

Table 4: Data Providers from France.

2.3 Overview of the pilots and use cases.

In this deliverable, the selected use cases are identified, and their numbering follows the order of the pilots presented in Table 5. Note that this nomenclature follows the one used in the previous deliverable 2.3, which included all use cases (22) proposed during the initial phases of the project. Some of those use cases were later discarded, and only the selected ones (14) have been retained here. Table 5 shows the correspondence between that nomenclature and the new one proposed.

Use Case Id	Use Case Title
National Pilot	
Proposed in workshop	Winter service management: Emergency parking for heavy vehicles
UC13	Highway and main road congestion monitoring
Regional Pilot*: Andalusia, Valencia and Catalonia Region*	
UC16	Transport emissions evaluation [Andalusia Region]
UC21	Low Emission Zone monitoring [Valencia Region]
UC22	Active mobility monitoring [Catalonia Region]

Local / Metropolitan Pilot: *Madrid City and Barcelona City*	
UC3	Intermodal node demand analysis
Cross-border Pilot: *Portugal*	
UC5 PR	Cross-border passenger transport
UC10	Cross-border freight transit analysis
UC18	Freight emissions
UC19	Charging infrastructure
Cross-border Pilot: *France*	
UC5 FR	Cross-border passenger transport
UC10	Cross-border freight transit analysis
UC18	Freight emissions
UC19	Charging infrastructure

Table 5: Use Cases Id.

Table 6 summarises the information on the use cases mentioned above. It links each pilot to its specific use cases, outlines the data required to achieve its goals, and identifies the potential data sources that could provide this information.

Use Case Id	Use Case	Required Data	Data Providers
National Pilot			
UC NEW	**Winter service management: Emergency parking for heavy vehicles**	• Emergency parking data • Characteristics of roads • Traffic information (National and cross-border) • Points of interest • Incidents • Message signs • Meteorological data • Sustainability data • Floating car and phone data • Emissions data • Charging infrastructure • Logistic platforms • Cross-border public transport supply	**Open sources:** AEMET **Public Administration:** MITMS, EC **Private:** EYSA
UC13	**Highway and main road congestion monitoring**	*Same as the previous one • Detectors on roads • Toll sections • Traffic information (real-time and historical) • Connected vehicle data • Calendar for special operations	**Open sources:** AEMET **Public Administration:** MITMS **Private:** SEITT
Regional Pilot: *Andalusia, Valencia and Catalonia Region*			
UC16	**Transport emissions evaluation [*Andalusia Region*]**	• Characteristics of roads • Traffic information (real-time and historical) • Floating Phone data • Household Mobility Surveys • Vehicle fleet data	**Open sources: -** **Public Administration:** Reg. Gov. Andalusia.

		• Emissions data • Public transport supply • Interchanges nodes • Charging infrastructure • Freight transport • Port facilities	**Private:** Electromaps.
UC21	**Low Emission Zone monitoring [*Valencia Region*]**	• Municipality information • LEZ delimitation and restrictions • LEZ use data • Characteristics of roads • Pedestrian infrastructure information • Traffic information (real-time and historical) • Mobility surveys • Public transport data in LEZ • Intermodal nodes • Parking • Bicycle service infrastructure • Cargo distribution centers operation • Floating phone data • Connected vehicles data	**Open sources:** - **Public Administration:** MITECO, peGV, Valencian Gov. **Private:** -
UC22	**Active mobility monitoring [*Catalonia Region*]**	• Floating phone data • Characteristics of roads • Traffic intensity on TEN-T corridor roads • Road network information • Inventory, typology and temporal evolution of Vehicle fleet • Demand at transport interchanges • Cycling network information • Emergency parking • Logistic platforms • Emissions data • Electric or hydrogen chargers • Freight transport data • Main trip attractions points information • Mobility surveys • Mobility Mobile Apps	**Open Source:** INE, AEMET. **Public Administration:** ATMB, ATM, TMB, AMBici, Bicing, Barcelona CC, Catalonia Gov., SCT, DGT, MITMS. **Private:** Electromaps, Google Maps.
Local / Metropolitan Pilot: Madrid City			
UC3	**Intermodal node demand analysis**	• Points of interest • Characteristics of roads • Traffic data • Public Transport supply • Ticketing data • Parking occupancy • Public bicycle data • Sustainability data • Big data information • Socioeconomic information	**Open Source:** INE, Cadastral, SIOSE. **Public Administration:** MITMS, CTRM, Madrid CC, EMT Madrid, ATM Barcelona.

		• Land use • Household Mobility Survey (EDM Madrid 2018)	**Private:** -
Cross-border Pilot - Portugal			
UC5	**Cross-border passenger transport**	At cross-border points: • Road infrastructure • Traffic information • Big data study (2023) • Public transport supply and demand • Passenger volume • Mobile phone data • Vehicle fleet and identification • Emissions • Parking	**Open Source:** - **Public Administration:** OTEP, IMT, Extremadura Gov., MITMS, CCDR Coimbra, CCDR Alentejo, NAP Portugal. **Private:** Private Transport Services Operators (Flixbus, BlaBla Car, etc.)
UC10	**Cross-border freight transit analysis**	• Characteristics of roads • Freight transport information (surveys, flow data) • Traffic information • Planning and projects • Public transport services • Vehicle fleet and identification • Emissions • Parking	
UC18	**Freight emissions**	*Same as the previous one • Meteorological data • Sustainability data	
UC19	**Charging infrastructure**	• Characteristics of roads • Traffic information • Electric fleet • Vehicle data from electric vehicles • Electric chargers' information • Charging stations demand information • TEN-T Corridor related infrastructure	
Cross-border Pilot - France			
UC5	**Cross-border passenger transport**	At cross-border points: • Road infrastructure • Traffic information • Public transport supply and demand • Vehicle fleet • Emissions • Vehicles identification • Parking • Charging points	**Open Source:** IGN Spain, IGN France, Bison Futé, ORTR, UGE, EU, OCM.
UC10	**Cross-border freight transit analysis**	• Characteristics of roads • Freight transport information (surveys, flow data) • Traffic information • Planning and projects	**Public Administration:** Basque Gov., Transport Data Gouv,

		• Public transport service • Vehicle fleet • Emissions • Vehicles identification • Parking • Charging points	Ministères Ecologie Energie Territoires, ART, ATTG. **Private:** ENEDIS, Révéo, Euskotren, Mowiz, TomTom.
UC18	**Freight emissions**	*Same as the previous one • Meteorological data • Sustainability data	
UC19	**Charging infrastructure**	• Characteristics of roads • Traffic information • Electric fleet • Chargers' information • Charging stations information • TEN-T Corridor related infrastructure • Public transport service	

Table 6: Use Cases selected for each Pilot, Along with Required Data and Data Providers.

3 Inventory of available datasets

Table 7 compiles the key information on the available and identified datasets for the project. It is the inventory needed to support systematic review and analysis for the data collection process and forward project phases. Each entry identifies the Data Provider, the Dataset Title, and the Type of resource, accompanied by a concise Description outlining the dataset's content and purpose.

Related to the Type, in the Table, datasets are identified as being hosted across three main categories of online resources (web platforms, websites, and webpages) in addition to being distributed as flat documents (PDF, Excel, CSV, GTFS, etc.) and through REST APIs. A web platform refers to an integrated online environment that provides structured services, user interaction, and data management functionalities, often enabling direct access to datasets through dashboards or built-in tools. A website is a collection of interrelated webpages under a common domain that may publish datasets as downloadable files or provide documentation and links to programmatic access. A webpage is an individual page within a website that can host or reference a specific dataset, such as a single download page or data description.

Additionally, the table specifies the UC associated with each dataset, thereby indicating the particular application within the pilots in which the dataset is relevant.

More information, such as the links, access rights, and technical details for each dataset, is described in the forms added in the annexes for each pilot by use case.

Data Provider	Dataset Title	Type	Description	UCSs Related
AEMET	**AEMET Open Data**	REST API	This API enables the dissemination and reuse of the meteorological and climatological information produced by the Agency, in accordance with the provisions of Law 18/2015 of 9 July, which amends Law 37/2007 of 16 November on the reuse of public sector information.	UC16 UC21
Agence ORE (Energy Network Operators)	**Open Data Portal for Passenger Cars Registered by Commune and by Energy / Recharge Type**	Web platform	It provides quarterly counts of passenger cars registered in each French commune, starting from the fourth quarter of 2020. Each record classifies vehicles by their energy or recharge requirement and also includes optional identifiers for the EPCI (intercommunal authority) to support aggregation at broader territorial levels.	FR UC5 UC10 UC18
Andalusia Gov.	**Andalusia Road Network Report 2024** **Andalusia Traffic Count Plans 2024**	PDF Documents	Official reports that address data and general information related to the roads and traffic plans in the region.	UC16
	2011 Social Mobility Survey in	Web platform	This platform offers the dataset from the 2011 social survey on urban mobility in Andalusia,	

	the Urban Areas of Andalusia		providing microdata and summary files (XLS, ZIP) about travel patterns in the region's "urban areas."	
	Andalusian Logistics Network S.A.	Web platform	This provides detailed information on Andalusia's logistics infrastructure, including the location, size, and development status of logistics nodes (active, under development, or planned), their connectivity to road, rail, and maritime networks, and operational details such as warehouses, intermodal terminals, and service zones.	
	Andalusian Multi-Territorial Information System (SIMA)	Web platform	SIMA is a statistical database and information system that aggregates data from many sources, covering social, economic, demographic, environmental, infrastructure, health, transport, housing, and many other sectors.	
	Andalusian Public Road Transport Services	Web platform	Information related with the public transport in the region.	
ATM Barcelona	**Portal Open Data Catalogue for T-Mobilitat**	Web platform	It integrates and aggregates public transport information for Catalonia, including schedules, real-time passing times, disruptions, and geographic data.	UC22
	Barcelona Public Bike System (Comet) for Bicing	General Bikeshare Feed Specification (GBFS) - JSON File	A GBFS file with the endpoint's information.	
	Next bike Barcelona for AMBici	(GBFS) - JSON File	A GBFS file with the endpoint's information.	
ATTG Gipuzkoa	**Open Data Portal** **Moveuskadi - Public Transport Network Data of Euskadi**	Website	It includes information on operators (the companies or organisations providing transport services), schedules (timetables for lines and routes), stops (geolocated points where passengers board and alight), calendar data (service days and exceptions for each line), fares (pricing information), and other key element.	FR UC5

AQICN Project	**World Real-Time Air Quality Map (AQICN)**	Web platform REST API	This is an interactive global platform that displays up-to-the-minute air quality information based on the Air Quality Index (AQI) for more than 100 countries and thousands of monitoring stations worldwide.	UC16 UC21 UC18
Basque Gov.	**Historical Traffic intensity**	Web platform	Minute-by-minute traffic count records are available from the Basque Government's traffic monitoring stations, hosted on an Amazon Web Services (AWS) platform. The data are disaggregated by vehicle type (light and heavy vehicles), by lane, and by direction of travel, allowing for a detailed analysis of traffic flows.	FR UC5 UC10 UC18 UC19
	LPR	Web platform	The LPR data include minute-by-minute records of anonymized license plate readings collected at the selected monitoring stations. The dataset contains variables such as vehicle nationality, classification, speed, and vehicle length, enabling detailed analysis of traffic characteristics and movement patterns.	
Bison Futé	**Electric Vehicle Charging Stations Map - Recharge électrique page**	Webpage	It provides an interactive, real-time map that displays electric vehicle (EV) charging stations in service across the French national road network, specifically focusing on stations with at least one charging point of 50 kW or higher. This page includes locations of chargers along motorways and national roads as well as those within 1,000 meters of highway entrances/exits.	FR UC5 UC10 UC19
	Concessioned Truck Parking Areas	Webpage	It provides a detailed catalogue of truck-parking areas in Catalonia that are managed under concession by the Department.	UC22
Catalonia Gov.	**GHG Emissions**	Webpage	It presents a comprehensive greenhouse-gas (GHG) emissions inventory for Catalonia, reporting total emissions (in CO_2-equivalent) from 1990 through 2023, broken down by sectors (transport, industry, energy, agriculture, etc.) and by provincial demarcations.	

	Road Data	Webpage	It provides open, raw and processed data about the road network including daily traffic counts by vehicle type and direction from traffic-count stations, historical and current information on road characteristics, classification (motorway, conventional road, local/regional+/basic network), management regime (direct or concessioned), and detailed inventories of road sections (km-by-km).	
	Roads Network	Webpage	It presents a detailed "catalogue" of the roads (by functional and technical classification: basic roads, comarcal roads, local roads, segregated roads vs conventional roads, plus tunnels, bridges and associated infrastructure) along with interactive maps and a "road-network viewer" that allows users to explore the spatial distribution, management regime (direct or concession), and km-by-km breakdown by region/territory.	
	Urbanistic Map of Catalonia (MUC Viewer)	Web platform	It includes a georeferenced viewer (map) showing current urban planning regulations and classifications, the ability to search by municipality, cadastral reference, or address, downloadable urban planning data sets in multiple formats, and web map services (WMS).	
Catalonia Metropolitan Institute	**2025 Weekday Mobility Survey (EMEF 2025)**	Web platform	This presents mobility surveys and it is designed to collect and analyse data on how and why people move, including their travel habits, transport mode choices, trip motivations, origins/destinations, and users' perceptions of public transport and mobility services.	UC22
CRTM	**ArcGIS REST Services Directory for CRTM**	REST API	It is a service catalogue that hosts the endpoint for accessing information and data related to: Public transport (Metro, train, stations), parkings, and BiciMAD.	UC3

	ArcGIS web map for CRTM Public transport services	Web platform	It exposes spatial datasets such as transport infrastructure, service areas, administrative boundaries, stops, lines, and other mobility-related elements for the geospatial data related to public transport in the Madrid region.	
DGT	**2024 General Information for Municipality Data**	Web platform	Consolidated data on the composition of the vehicle fleet and its age, as well as on the driver's registry.	UC3 *
Electromaps	**Electric Vehicle Charging Map**	Web platform	It includes a global collection of charging point records aggregated from multiple sources. Each record in the dataset represents a specific charging station location and includes attributes such as the geographical coordinates, address, types of electric connectors available (e.g., Type 2, CCS, CHAdeMO), number of charging points, available power levels, operational status, and sometimes pricing and payment information.	UC19
EMT Madrid	**Open Data Portal for EMT Madrid**	Web platform	It offers a variety of transport-related data, including bus lines and stops, annual service calendars, GTFS files for buses, real-time bus information, parking locations and availability, demand statistics (daily rider counts), historical bike-sharing (BiciMAD) trip records and station data in GBFS format, fleet information, service incidents, and other datasets in formats like CSV, GeoJSON, KML, JSON, and ZIP.	UC3
ENEDIS - Observatoire Français de la Transition Écologique	**Localized indicators on sustainable mobility for territorial authorities such as CA du Pays Basque 64**	Web platform	It includes data on the evolution and deployment of electric vehicle charging infrastructure, such as the number of public and private charging points and their installed electrical capacity and tracks the penetration of electric and plug-in hybrid vehicles within the territory relative to broader national trends.	FR UC5 UC10 UC18
EU	**Safe and Secure Truck Parking Areas**	Webpage	Article about the topic that include some data.	
EUSKOTREN	**-**	Excel document	It collects the number of trips made using PASSBASK tickets	FR

			(Euskotren + TER Nouvelle-Aquitaine) and EUSKOPASS tickets (Euskotren + Txik Txak) between 2019 and 2024.	UC5
Extremadura Gov.	**Traffic Counts**	ZIP file	A ZIP file containing the fact sheets of traffic count detectors in Extremadura. The dataset includes monthly Average Daily Traffic (ADT) information, disaggregated by vehicle type, allowing for detailed analysis of traffic volumes and vehicle composition over time.	PR UC5 UC10 UC18 UC19
		Web platform	A visual representation of the available traffic count stations, including the station name, the associated road, the average ADT in 2024, and the percentage of light and heavy vehicles.	
	Extremadura Sustainable Mobility Plan	Website	The plan analyses current mobility patterns, transport infrastructure, and public transport services, and proposes measures to enhance connectivity, reduce environmental impacts, and improve access to key services such as healthcare, employment, and education. It incorporates transport modelling, territorial zoning, accessibility analyses, and stakeholder participation to support informed decision-making and long-term sustainable mobility policies.	
IGN France	**BD Carto**	Web platform	It provides topographic and administrative vector datasets for the whole of France. It is designed for mapping, spatial analysis, GIS applications, and official cartographic production.	FR UC5 UC10 UC18
INE	**-**	Web platform	It provides a set of datasets related to the comprehensive collection of statistical data covering social, economic, demographic, and environmental aspects.	
Madrid City Council	**Open Data Portal of the Madrid City Council**	Web platform	It includes structured data on topics such as traffic and mobility, air quality and meteorology, public services, municipal budgets and expenditures, accident statistics, urban infrastructure and street	UC3

			maps, cultural and demographic information, and more, with datasets available in multiple machine-readable formats (CSV, JSON, XML, XLS, RDF, etc.) and access via APIs and visualizations to support analysis, apps, and civic use.	
Ministère de l'Aménagement du Territoire et de la Décentralisation	**French Transport Open Data Portal** **French National Access Point Data**	Web platform	It provides a centralised platform for datasets, APIs, and tools related to all modes of transportation in France, including road, rail, air, maritime, public transit, and active mobility. The portal offers georeferenced and structured data such as timetables, traffic flows, vehicle locations, transport infrastructure, mobility services, and electrification networks. Data are published in machine-readable formats (CSV, JSON, GeoJSON, GTFS, Shapefile, etc.) and can be accessed via APIs, downloads, or web services.	FR UC5 UC10 UC18
MITECO	**Online Report**	Web platform	It publishes official statistics and reports across several sectors: construction, transport, infrastructure, traffic, ports, civil aviation, and more.	
	National Air Quality Index (ICA)	Web platform	This portal offers real-time visualization of air quality across the country based on data from the national air monitoring network.	UC16 UC21 UC18
	REVE Map - Location of Electric Vehicle Charging Points in Spain	Web platform	It provides a public, interactive database of electric-vehicle charging stations in Spain, with detailed data for each charging point: geographic location (map coordinates), the operator managing it, the type of connector, charging power, and real-time status (available, occupied, out of service).	UC19
MITMS	**Big Data Mobility Studies**	Web platform	It describes a national-scale mobility study conducted by MITMS using anonymized mobile-phone data and Big Data techniques to map and analyse travel patterns across Spain, replacing traditional surveys; it offers open datasets with daily,	

			monthly, and road-route mobility indicators.	
	Hermes	Web platform	This is the access node to the National Transport System and includes information on all modes.	
	National Access Point (Multimodal Transport)	Web platform	It includes data on all modes of transport (road, rail, maritime, inland waterway, and air) in both interurban and urban contexts. It covers both scheduled or regular transport services as well as discretionary and on-demand services.	
	Winter Road Maintenance Parking Areas	Web platform		NEW
Mowiz	**TRUCK – Network of Truck Parking**	Website	It includes lists of parking areas (such as mowiz TRUCK Oiartzun, Montseny, Porta de Barcelona, Astigarraga, Fuente de San Luis, Puerto de Almería, and Manises), the number of available spaces at each location, and the services offered (security, rest areas, showers, restaurant, Wi-Fi, vehicle services, etc.).	UC22
Navarra Gov.	**Traffic intensity**	Website	These pages present the results of the Traffic Count Plan for roads managed by the Government of Navarre. The information includes Average Daily Traffic (ADT) values for different road sections, as well as detailed hourly, weekly, and monthly traffic distributions at stations where such data are available.	NEW
	Interurban Public Bus Transport	Website	This dataset contains authorized interurban public bus services managed by the Government of Navarre, provided in **GTFS (General Transit Feed Specification)** format. It includes information on concessions, operating companies, routes, itineraries, stops, calendars, and timetables. Services that extend beyond the boundaries of the Navarre region are also included when the majority of their route runs within Navarre.	UC5 UC13 UC10 UC18 UC19
	Meteorology and Climatology	Website	The website includes maps of past weather conditions, meteorological bulletins, detailed	

			weather maps, and climatological summaries.	
	Global public registry of electric vehicle (EV) charging stations	Website	It consists of detailed records for individual EV charging stations. Each record typically includes the station's geographic coordinates (latitude and longitude), address, types of electrical connectors available (such as Type 2, CHAdeMO, CCS), the number of charging points, power rating, operator name, access restrictions, pricing information (if available), and last updated timestamps.	
OCM	**Global public registry of electric vehicle (EV) charging stations**	Website	It consists of detailed records for individual EV charging stations. Each record typically includes the station's geographic coordinates (latitude and longitude), address, types of electrical connectors available (such as Type 2, CHAdeMO, CCS), the number of charging points, power rating, operator name, access restrictions, pricing information (if available), and last updated timestamps.	FR UC19
ORTR	**Regional Road Traffic Observatory for Nouvelle Aquitaine** **Traffic Data Atlases**	Website	It includes numeric indicators of traffic volume, such as counts of vehicles per day, separate metrics for light and heavy vehicles, time series across multiple years, and visualizations in charts and maps.	FR UC5 UC10 UC18
Révéo	**Electric Vehicle Charging Stations Map and Data**	Web platform	It lists listing electric vehicle (EV) charging stations deployed across the Reveo network in southern France (Occitanie/Pyrénées-Méditerranée) and includes geospatial data (coordinates of stations), attributes of each charging point (connectors and power levels), and pricing information that can be filtered or queried through the map interface.	FR UC19
Transport Data Gouv.	**Datasets**	Website	This site serves as the France's official open data portal hosting public sector information under open licenses. As part of this platform, the Datasets page	

			aggregates metadata about economic statistics, geographic data, transport data, demographic figures, environmental indicators, administrative boundaries, and more.	
UGE	**National Logistics Observatory – Summary Notebook of the National Logistics Dashboard – 2024 Edition.**	PDF documents	It reports multiple datasets and indicators related to the logistics sector. It summarizes data on freight transport volumes across different modes (road, rail, fluvial, maritime, and air), cost and price trends, infrastructure performance, market dynamics such as warehousing and real estate data, and other logistics performance metrics.	FR UC10
Valencian Gov.	**City Hall - Valencia Open Data Portal**	Web platform	It is a public open-data hub where the Valencia City Council publishes hundreds of datasets covering a broad array of domains from urban planning and infrastructure to transport, traffic and mobility metrics, environment, social services, economy, and public administration.	UC21
	Open Data Catalog	Website	It is a public repository where the regional government publishes hundreds of datasets covering a wide range of topics such as health zones, employment, infrastructure, tourism, and social statistics.	
	Road Traffic Counts	Webpage	This section of the Valencian Gov. webpage provides access to traffic monitoring data collected on the regional road network, including annual reports, traffic intensity figures, and maps showing measured traffic volumes.	
	Valencian Air Quality Monitoring and Control Network (RVVCCA)	Website	It is an automated system designed to monitor air pollution levels across the Valencian Community in Spain. It consists of a network of fixed and mobile monitoring stations distributed throughout urban, industrial, and rural areas. These stations continuously measure the concentration of major air pollutants in real time and send	

			the data to a central control center for tracking air quality, detect pollution episodes, and take timely action when necessary.	
Valencian Municipal Fact Sheets	-	Web platform	It provides municipal-level statistical fact sheets for all municipalities in the Valencian Community; each sheet summarizes key multisectoral indicators covering territory, demography, society, economy and public finances.	UC21

Table 7: Dataset Inventory.

FR = France, PR = Portugal.

Additional information for each dataset, including detailed specifications, contextual notes, and access links, is provided in the corresponding form templates included as annexes #2 to this document. These annexes offer extended documentation that complements the summary presented in Table 7, allowing for a more comprehensive understanding of the datasets and their applicability.

3.1 Potential and limitations of the data

The success of this project depends largely on the ability to identify, access, and exploit a wide range of mobility-related datasets originating from multiple providers and territorial levels. These datasets form the foundation for the analytical and modelling work required across national, regional, metropolitan, and cross-border use cases. While many data sources show strong potential for reuse across contexts—offering opportunities to support diverse mobility assessments and strategic planning—certain limitations remain, particularly in terms of availability and reusability. This section outlines the key strengths and untapped potential of the data collected to date, followed by a description of the main limitations observed during the initial phases of work.

3.1.1 Potentials

The availability of diverse data sources across national, regional, and local levels opens up valuable opportunities for reuse and cross-application. Several datasets collected in this project—particularly those from national authorities and multi-regional sources—offer strong potential to support a wide variety of use cases. Their versatility enables consistent application across different geographic and operational contexts, facilitating integrated analysis and more efficient use of resources.

- **Opportunities for Multi-Use:** A key opportunity is the reuse of common data sources across different use cases. Infrastructure data like road networks or public transport routes, and mobility demand data such as MITMS's interprovincial travel matrices, can be used as baseline inputs for many applications (traffic simulation, demand modelling, policy analysis, etc.). Re-utilising these common datasets reduces duplication of effort and ensures consistency in analysis results across local, national, and cross-border studies. For instance, MITMS's Big Data mobility study offers detailed origin–destination matrices—including cross-border flows between Spain, France, and Portugal—which apply to both national mobility modelling and cross-border transport integration scenarios. Similarly, regional datasets from the Basque Government and the Government of Navarre can support analyses in both the national pilot and the cross-border pilot, illustrating their cross-scalar relevance.

- **Integration and New Insights:** There is substantial untapped potential in integrating diverse datasets to gain deeper insights. By linking data from multiple sources, stakeholders can perform richer analyses than using any single source alone. Indeed, enabling the combination of open data with proprietary data is seen as a major value proposition in emerging mobility data spaces. Integrating datasets can uncover complex mobility patterns (such as multi-modal travel behaviour, or cross-border commuting flows) and enable more accurate models. These integrations can also support the development of advanced mobility models (micro- to macro-scale), as the project intends, providing a more holistic view of transport systems across different regions.

3.1.2 Technical limitations

Despite the value and variety of data sources gathered for this project, several technical limitations constrain their effective use. One key issue is the variability in **data structure and quality** across providers. Datasets originate from a mix of national, regional, and private entities, and often differ in format, nomenclature, granularity, and update frequency. For instance, location references may vary between datasets (provinces vs. municipalities), and traffic counts might be aggregated at different time intervals. These inconsistencies complicate data interpretation and limit their reusability in contexts that require uniform inputs.

Another challenge is **data completeness and currency**. Some datasets are outdated, incomplete, or lack sufficient metadata, particularly when sourced from local-level initiatives. This makes it difficult to integrate them with more robust national datasets or use them for longitudinal analyses. Additionally, the project encountered **data gaps** in several use cases—especially at the local and cross-border levels—where required datasets were either unavailable or never collected.

Limited reusability is also a constraint for datasets that are highly localised or narrowly scoped. These may only be applicable in a specific territorial or thematic context and offer little value beyond their original use case. Moreover, some datasets are **difficult to handle** due to their format (e.g. PDFs, web-only viewers), restricted access mechanisms, or lack of documentation.

Further insights into data harmonisation and interoperability challenges will be addressed in the following section.

Finally, **legal and access restrictions** further limit the potential use of certain datasets. While many public datasets are openly licensed, others—particularly those from private providers—are subject to restrictive terms, including limited redistribution rights. In addition, datasets involving personal mobility traces must comply with strict privacy regulations, often requiring high levels of aggregation that reduce analytical depth.

3.2 Challenges for data harmonisation and interoperability

The harmonisation and interoperability of mobility data present significant challenges, particularly when integrating heterogeneous datasets originating from multiple agencies, data providers and national contexts such as Spain, Portugal and France. Mobility data relevant to this project—including traffic count records, GTFS feeds, public transport operational data and freight-related information—are typically produced for local operational needs rather than for cross-border analytical purposes. As a result, they differ widely in structure, semantics, resolution, update frequency and quality. This heterogeneity complicates any attempt to combine the datasets into a unified framework that enables consistent interpretation, comparative analysis or the development of integrated mobility services.

In the context of this project, Deliverable 3.2 focuses on an in-depth analysis of the harmonisation and interoperability plan. However, the general challenges identified so far are listed below.

Key challenges include:

- **Lack of Common Standards and Formats:** Even though some mobility domains have established formats—such as GTFS for public transport timetables or DATEX II for traffic and road information—these are not applied uniformly, and in many cases, national or regional variations persist. In other areas, such as traffic count datasets or freight-related registers, no widely adopted international standard exists, resulting in bespoke data structures defined independently by each operator or authority. Differences in variable definitions, naming conventions, spatial referencing systems, temporal resolutions and units of measurement can lead to substantial discrepancies that hinder interoperability.
- **Inconsistencies Across Sources:** Even when datasets cover similar mobility indicators, they frequently diverge in their internal organisation and semantic conventions. Variations in classification systems, spatial referencing methods, temporal granularity and naming conventions produce datasets that describe comparable phenomena in fundamentally different ways. For instance, one traffic sensor dataset might report hourly counts while another gives daily averages, or transit feeds may use different naming conventions and languages. These semantic and structural mismatches complicate direct comparison and hinder cross-border interoperability.
- **Data Quality Issues (Nulls, Missing or Invalid Values):** Integrating mobility data requires confronting missing entries, null fields, and erroneous values that are common in real-world datasets. Different data sources may have gaps (e.g. sensor outages leading to no data for certain periods) or use placeholder values inconsistently. Null or invalid values not only reduce data completeness but can also propagate errors in analysis if not handled. Ensuring data quality is therefore a core challenge – each dataset must be cleaned of errors, validated, and made consistent (for example, resolving invalid coordinates or timestamps, and standardising how empty values are represented) before harmonisation.

Addressing these challenges requires a combination of methodological, technical and organisational strategies. At a methodological level, data transformation and standardisation processes must be designed to translate heterogeneous structures into a common data model that supports coherent integration without distorting the underlying information. This includes establishing mappings between different schemas, aligning variable definitions and resolving discrepancies in classification systems. Technically, harmonisation can be facilitated through ETL pipelines, validation routines and metadata-driven workflows that identify and correct errors, normalise formats and ensure consistency across sources. Automated or semi-automated mechanisms for detecting missing or invalid values, harmonising units, and converting coordinate systems are essential to ensure that all datasets converge toward a unified representation.

From an organisational perspective, improvements in interoperability depend on fostering collaboration among data providers and promoting the adoption of shared standards and guidelines. Establishing common data dictionaries, agreeing on quality benchmarks and defining procedures for the regular publication of metadata can significantly reduce variability and facilitate integration. Even when full standardisation is not immediately achievable, coordination mechanisms that encourage alignment around best practices can contribute to progressively reducing fragmentation. These efforts lay the foundation for more advanced harmonisation strategies, which will be addressed in depth in Deliverable 3.2.

4 Data model for metadata representation

Metadata – often described as “data about data” – provides essential context and descriptive information for datasets, enabling them to be accurately understood, efficiently managed, and effectively reused. It plays a central role in ensuring that data assets are *findable*, *accessible*, *interoperable*, and *reusable* (FAIR), which are core principles for modern data governance across both public and private sectors.

Well-structured metadata captures key details such as a dataset’s origin, structure, purpose, update frequency, and licensing. This descriptive layer transforms raw data into a meaningful asset that can be discovered across platforms and integrated into broader systems. Conversely, poor-quality or incomplete metadata often results in datasets being underused or misinterpreted, significantly limiting their value and impact.

The evolution of metadata standards in Europe is closely tied to the broader development of the Web, digital information management practices, and, more recently, data-driven public sector innovation. During the mid-1990s, when digital information began proliferating across emerging web infrastructures, organisations started recognising the need for a common vocabulary to describe online resources. It was in this context that **Dublin Core** emerged (1995), proposing a simple, universal set of elements capable of describing nearly any digital object. Its success resulted from its intentionally minimalistic design and its early adoption by libraries, repositories, and documentation systems, which converted it into one of the first global metadata standards.

As the Web matured and governments shifted towards open data and interoperability agendas (especially in the 2010–2020 decade), new standards became necessary. While Dublin Core offered a basic descriptive layer, it lacked the structural, semantic, and domain-specific richness needed for cataloguing datasets at scale. Consequently, the **World Wide Web Consortium (W3C) developed DCAT**, a vocabulary specifically tailored to describe datasets, their distributions, and the catalogues that contain them. DCAT’s structure, grounded in semantic web principles, supported the federation of catalogues and enabled machine-to-machine metadata harvesting.

In parallel, within the same European interoperability context, there was also a need to describe not only datasets, but **interoperability assets themselves**—such as data models, vocabularies, schemas and specifications used to build digital public services. This led to the definition of the **Asset Description Metadata Schema (ADMS)** under the ISA² programme. ADMS reused and extended DCAT concepts to provide a common way to document standards, code lists and semantic assets, enabling their publication and discovery on platforms such as Joinup. In this way, while DCAT focused on datasets in data catalogues, ADMS addressed the catalogue of *standards and building blocks* that underpin interoperability.

Europe quickly recognised that a harmonised profile was needed to ensure that public data portals across Member States could interoperate. This led to the creation of the **DCAT-Application Profile (DCAT-AP)** in 2013 under the ISA²/SEMIC programme of the European Commission, establishing a common metadata baseline for public sector datasets. DCAT-AP rapidly became the backbone for cross-border interoperability, and today it is the metadata language of the European Data Portal and national open data catalogues across the EU.

Meanwhile, in parallel sectors such as geospatial information, the EU pursued a regulatory approach. The **INSPIRE Directive (2007)** mandated the use of ISO-based metadata (notably ISO 19115) for spatial datasets, imposing conformity across environmental and cartographic information. This introduced a more complex, domain-specific metadata ecosystem that later required bridges to DCAT, such as **GeoDCAT-AP**, to align geospatial and open-data infrastructures.

More recently, with the rise of intelligent transport systems (ITS), multimodal mobility services, and data-driven transport policy, Europe identified the need for a metadata model capable of representing the specificities of mobility datasets. This resulted in **mobilityDCAT-AP**, developed within NAPCORE to harmonise the way National Access Points describe their datasets and services. mobilityDCAT-AP represents the latest step in a long lineage of standardisation efforts: starting from generic resource description (Dublin Core), moving to dataset interoperability (DCAT), then to European harmonisation (DCAT-AP), and finally to domain-specific specialisation (mobilityDCAT-AP).

4.1 Description of Core Metadata Standards and Vocabularies

4.1.1 Dublin Core

Dublin Core originated in the mid-1990s as a grassroots effort to improve the discovery of information on the early World Wide Web. In March 1995, a multidisciplinary workshop hosted at OCLC (in Dublin, Ohio) brought together librarians and technologists to agree on a **core set of descriptive metadata elements** for online resources. The goal was to establish a small, simple set of common metadata terms – akin to a digital *card catalogue* – that could be embedded in web pages to make content easier to find. The success of that first "DC1" workshop led to the formation of the Dublin Core Metadata Initiative (DCMI), which continues to maintain and evolve the standard. By the late 1990s, Dublin Core became an official standard (adopted as ANSI/NISO Z39.85 in 2001 and later ISO 15836 in 2009) and gained broad international support.

The standard Dublin Core Metadata Element Set consists of **15 core elements** that cover the fundamental aspects of a resource's description. These elements (often referred to as *simple Dublin Core*) are:

1. **Title** – the name of the resource.
2. **Creator** – the primary entity (person or organisation) responsible for making the resource.
3. **Subject** – the topic of the resource (keywords or themes).
4. **Description** – a textual description or abstract of the resource.
5. **Publisher** – the entity responsible for making the resource available.
6. **Contributor** – additional entities who contributed to the resource.
7. **Date** – a date associated with the resource (e.g. creation or publication date).
8. **Type** – the nature or genre of the resource (e.g. text, image, dataset).
9. **Format** – the file format or physical medium of the resource (e.g. PDF, JPEG).
10. **Identifier** – an unambiguous reference or unique ID for the resource.
11. **Source** – a reference to a source from which the current resource is derived.
12. **Language** – the language of the resource's content.
13. **Relation** – a reference to a related resource.
14. **Coverage** – the spatial or temporal scope of the resource (e.g. location, time period).
15. **Rights** – information about rights or usage permissions for the resource.

Notably, the Dublin Core standard imposes no strict hierarchy or required order for these fields – each element can be used independently. **No element is mandatory** in the base standard: in other words, all elements are optional, and all can be repeated as needed within a metadata record.

Although universally applicable, Dublin Core is intentionally generic: it provides no structural information, no concept of dataset versions or distributions, and no domain-specific semantics. For this reason, while Dublin Core remains a key component reused by other standards (including DCAT, which incorporates *Dublin Core Terms* extensively), it is not sufficient to describe datasets in a complex, data-space-oriented environment.

4.1.2 Inspire

The INSPIRE metadata standard originates from the *Infrastructure for Spatial Information in the European Community (*INSPIRE*)* Directive (Directive 2007/2/EC of 14 March 2007). This EU Directive established a legal framework for a pan-European Spatial Data Infrastructure to make geospatial information more accessible and interoperable across member states. INSPIRE's foundation is rooted in environmental policy support – it covers 34 spatial data themes (from environmental data to addresses and land use) to facilitate cross-border data sharing for environmental protection and other public needs. The Directive's requirements are implemented through specific regulations, including an INSPIRE Metadata Regulation (Commission Regulation EC 1205/2008) that defines the common metadata elements all member states must use.

The INSPIRE metadata standard is built on well-established international standards, notably ISO 19115 for geographic information metadata (for datasets) and ISO 19119 (for services), with an implementation based on the ISO 19139 XML schema. In practice, INSPIRE metadata is essentially a profile of ISO 19115/19139 adopted Europe-wide. This means it uses the same core schema as ISO, ensuring global compatibility, but it also defines certain elements as mandatory or with specific code lists to meet EU requirements.

INSPIRE metadata also integrates with broader open data initiatives. Recognising that many European open data portals use the DCAT standard (Data Catalogue Vocabulary) for datasets, the community developed **GeoDCAT-AP** – an extension that maps INSPIRE/ISO19115 metadata to the DCAT-AP profile used by European data portals.

4.1.3 DCAT (Data Catalogue Vocabulary)

The *Data Catalogue Vocabulary* (DCAT) is a metadata standard developed under the *World Wide Web Consortium* (W3C) to describe datasets in data catalogues. It emerged from early open-data initiatives and was first standardised as a W3C Recommendation in 2014.

DCAT is an RDF-based vocabulary designed to make data catalogues on the web interoperable. By providing a common model for dataset metadata, DCAT enables different catalogue systems to exchange information seamlessly. This standardisation **increases the discoverability of datasets** and supports their reuse, as metadata from multiple sources can be aggregated and searched uniformly. In practice, DCAT allows a decentralised network of data catalogues to function as one: publishers describe their datasets in a consistent way, so that federated search and cross-portal discovery become possible across various sites and organisations.

DCAT was not created in isolation – it builds upon well-established metadata standards, notably Dublin Core. Rather than reinventing basic terms, DCAT **reuses many Dublin Core elements** (from the DCMI Metadata Terms) for common properties like title, description, dates or creator.

At its core, DCAT defines a model with a few **key classes** that capture the relationships between catalogues, datasets, and distributions. The primary classes in DCAT include:

- **Catalogue** – represents a data catalogue or repository as a whole. A Catalogue is essentially a curated collection of dataset descriptions (metadata records). It corresponds to a portal or catalogue website that lists multiple datasets.
- **Dataset** – represents a single dataset. A Dataset is a collection of data published or curated by an organisation, described by metadata. This could be a data file, database, or any data collection, and is an item contained in a Catalogueehttps://www.w3.org/TR/vocab-dcat-2/.
- **Distribution** – represents an accessible form of a dataset. A Distribution provides a specific format or instance in which the dataset is available, such as a downloadable file (CSV, JSON, etc.), an API endpoint, or a feed URL. Datasets can have multiple distributions, corresponding to different file formats or access methods for the same data.
- **DataService** – represents a data service or API that provides access to one or more datasets. A DataService is essentially an online service (for example, a REST API or SPARQL endpoint) through which data can be queried or retrieved. This class was introduced in later versions of DCAT to account for modern data APIs as first-class catalogue entries.

These components allow DCAT to describe the hierarchy of a data catalogue: a **Catalogue** contains **Datasets**, each Dataset can have multiple **Distributions** (files or links), and optionally **DataServices** providing access. This structure organises metadata in a way that mirrors how data is published and accessed in the real world.

4.1.3.1 ADMS

The *Asset Description Metadata Schema* (ADMS) is a specialised **profile of DCAT** developed to describe **semantic assets**—that is, reusable components such as XML schemata, generic data models, code lists, taxonomies, dictionaries, and controlled vocabularies. These types of resources are critical building blocks for designing and implementing interoperable eGovernment systems. Unlike traditional datasets, which typically contain raw or processed data intended for analysis, semantic assets represent the **standards and structures that govern how data is defined, exchanged, and understood**.

Unlike traditional datasets, which typically contain actual data for analysis or operational use, ADMS focuses on describing the **resources that define data**—in other words, **ADMS does not describe the data itself, but rather the information about the resources that describe data**. These include technical specifications, conceptual models, or reference vocabularies that enable consistent interpretation and sharing of data across systems and domains.

4.1.3.2 DCAT-AP

DCAT-AP stands for the *DCAT Application Profile for data portals in Europe*. It was developed under the *European Commission's interoperability initiatives* (ISA/ISA² programme) as a specification based on W3C's DCAT. The primary purpose of DCAT-AP is to enable public sector datasets from different countries and sectors to be described in a common way, making them searchable and shareable across borders. In practice, its *basic use case* is to allow "cross-portal" dataset searches – so that a user can find datasets on one portal even if they are hosted on another – by exchanging standardised dataset descriptions among data portals. This profile emerged around 2013, spurred by the growing number of open data catalogues in Europe and the need for a **"thin layer of commonly agreed metadata"** to facilitate data cross-reference and interoperabilityhttps://op.europa.eu/en/web/eu-vocabularies/dcat-ap. By harmonising how datasets are described, DCAT-AP increases the value of open data: data becomes easier to discover, understand, and ultimately reuse on a pan-European scale.

In metadata standards, an application profile tailors a base standard to specific needs by mandating certain elements and recommending controlled vocabularies. While DCAT-AP does not introduce many entirely new properties beyond those defined in the core DCAT vocabulary,

it plays a crucial role in operationalising interoperability by establishing a **clear set of mandatory and recommended metadata elements**. These constraints are not present in the original DCAT specification, which is intentionally flexible and leaves most elements optional. By contrast, DCAT-AP defines which fields must be present—such as the dataset's title, description, and publisher—and which should be included to enhance discoverability and reuse, such as keywords, licenses, and contact points.

4.1.3.3 mobilityDCAT-AP

mobilityDCAT-AP is a domain-specific metadata specification developed to describe transport and mobility datasets across Europe. It was created to support *National Access Points* (NAPs) and other mobility-related data portals by establishing a common, interoperable standard for metadata in the mobility domain. The profile was initiated under the EU-funded NAPCORE project, which coordinates and harmonises the efforts of NAPs across Member States.

Before the introduction of mobilityDCAT-AP, metadata practices varied widely across countries and platforms. Different portals used incompatible schemas, which limited the discoverability and reuse of mobility data—particularly in cross-border contexts. mobilityDCAT-AP addresses this fragmentation by offering a harmonised, structured, and semantically interoperable way to describe datasets, with a strong focus on data generated by *Intelligent Transport Systems* (ITS) and other transport-related services.

Technically, mobilityDCAT-AP is implemented as an extension of DCAT-AP, the EU-wide metadata profile for open data portals. It retains the core structure of DCAT-AP—centred around Catalogues, Datasets, Distributions, and Data Services—and then augments it with mobility-specific elements. This means mobilityDCAT-AP remains fully compatible with DCAT-AP: any metadata record conforming to mobilityDCAT-AP can still be interpreted by generic DCAT-AP-compliant systems, ensuring broad interoperability.

To ensure metadata consistency and improve dataset discoverability across platforms, mobilityDCAT-AP defines a set of mandatory metadata fields that go beyond those required by DCAT-AP. These required elements ensure that all datasets include essential information relevant to the mobility domain. The following section outlines the mandatory fields specified by the profile:

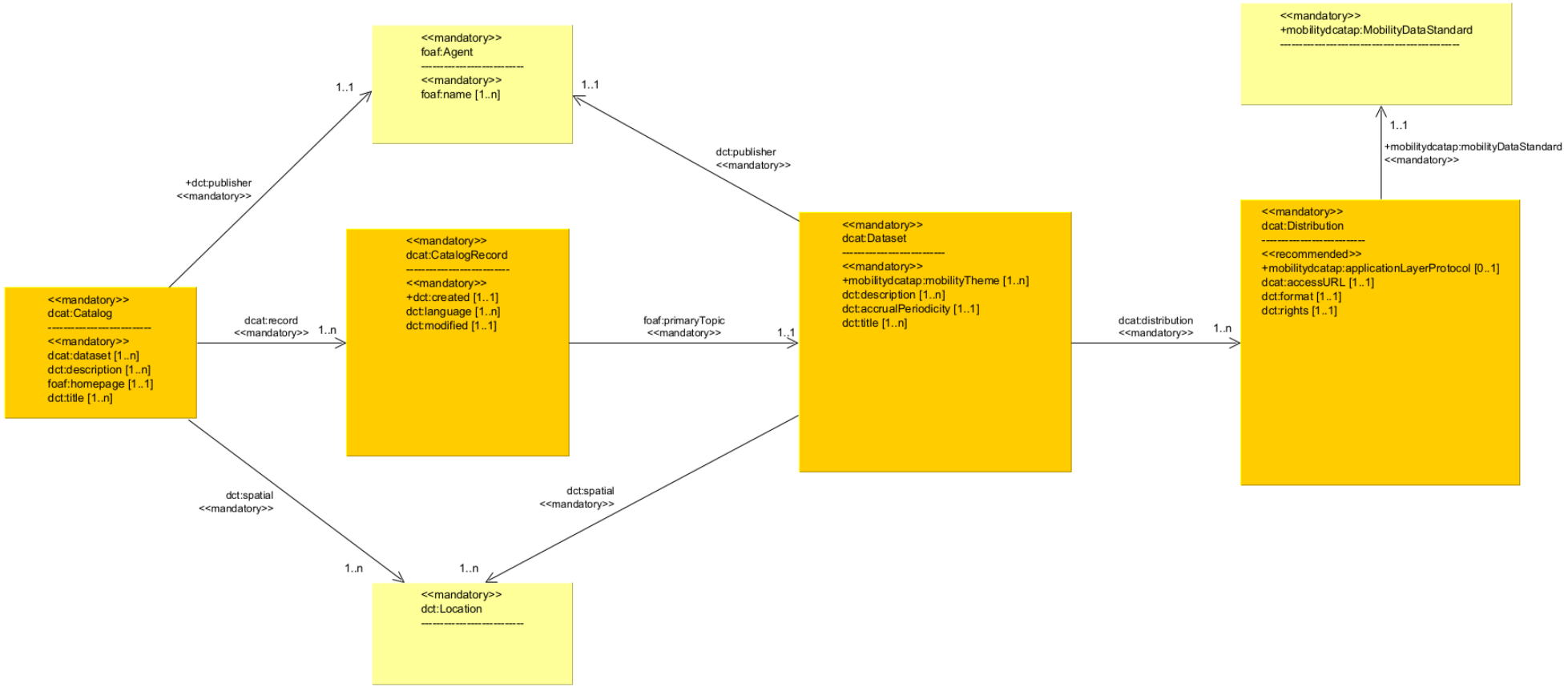
- **Title** (dct:title): A clear name of the dataset (provided in one or more languages) that uniquely and unambiguously identifies the data resource.
- **Description** (dct:description): A brief free-text summary of the dataset's content and purpose.
- **Publisher** (dct:publisher): The organisation or entity responsible for publishing the dataset. MobilityDCAT-AP elevates the publisher to a required field (whereas it was only recommended in DCAT-AP) to ensure the data provider is always indicated.
- **Distribution** (dcat:distribution): At least one distribution (download link or API endpoint) must be provided for each dataset. This means every dataset entry should link to a data file or service where the actual data can be accessed.
- **Update Frequency** (dct:accrualPeriodicity): How often the dataset is updated (e.g. daily, weekly, "on occurrence"). This field is required so that data users know the update schedule of the mobility data. A controlled vocabulary of frequency values is used to avoid ambiguity.
- **Mobility Theme** (mobilitydcatap:mobilityTheme): One or more subject categories describing the dataset's content within the mobility domain. This is a new property introduced by mobilityDCAT-AP to classify datasets with standardized mobility themes. A two-level controlled vocabulary is provided to tag the dataset's topic.
- **Spatial Coverage** (dct:spatial): The geographic area or region that the dataset covers. In mobilityDCAT-AP, at least one location must be specified for each dataset – for

example, a country, region, city, or a bounding box – because knowing the coverage area is essential for mobility data discovery. The location can be given using a named place (with a URI or code from a geospatial vocabulary, such as a country code or NUTS region) or a coordinate reference, and the profile provides guidance and suggested vocabularies for expressing this information.

In addition to the dataset-level requirements, mobilityDCAT-AP defines specific mandatory fields for each **distribution**, which represents the actual data files or services made available. Each distribution must include an **Access URL** (dcat:accessURL) that points to the location where the data can be retrieved, as well as a declaration of the **mobility data standard used** (mobilitydcatap:mobilityDataStandard). This field identifies the specification or format that the dataset complies with, such as DATEX II for road traffic data or GTFS for public transport schedules. If the data does not follow a recognised standard, it should be indicated accordingly.

Furthermore, the distribution must specify its format using a controlled media type vocabulary, ensuring that the data consumer understands how the content is structured. A statement on **rights** or access conditions (dct:rights) is also mandatory, providing essential information about how the data can be used. Optionally, a more specific licence can be referenced through the dct:license property. Together, these fields ensure that data consumers can clearly determine how to access the data, in what format, under what legal terms, and according to which data standard—facilitating reliable reuse of mobility data across platforms and borders.

Figure 1. Mandatory classes and properties of the mobilityDCAT-AP. Source: Documentation of mobilityDACT-AP – Version 1.1.0.



4.2 Model selection criteria

When assessing the different metadata models, several key criteria were defined to guide the selection and ensure that the chosen model meets the needs of open mobility data and remains sustainable in the long term within the European context:

- Semantic and technical interoperability: the model must allow different catalogues and systems to “speak the same language” in terms of metadata, enabling automated integrations. This requires the use of standard vocabularies, unique identifiers, and a common structure, so that distributed catalogues can understand each other unambiguously. The ability to federate metadata from multiple sources was considered essential for a federated data space such as DS4MOBMODELS.
- Alignment with EU open data policies: it was highly valued that the model complies with or is aligned with current European regulations, particularly Directive (EU) 2019/1024 on open data and the re-use of public sector information, as well as Implementing Regulation (EU) 2023/138 on High-Value Datasets (HVD). A regulation-aligned model ensures that metadata can correctly describe and catalogue the High-Value Datasets defined by the European Commission, and that it also complies with national technical interoperability frameworks. This guarantees legal conformity and facilitates the publication of open data according to EU requirements.
- Support and adoption across Europe: selecting a standard endorsed by the European Commission and widely adopted by European open data portals was considered crucial. A model used by platforms such as datos.gob.es or data.europa.eu implies greater maturity, an active community, and available tools. This reduces risks and facilitates integration with existing infrastructures. A commonly adopted model also improves federation: a catalogue publishing metadata in this schema can be easily harvested by the European Data Portal and others, increasing the visibility of the data.
- Use in similar projects: the team reviewed which models are used in analogous initiatives, such as other data spaces or mobility-related projects. Reusing a schema already tested in similar contexts increases confidence. These references indicate that the model should be sufficiently flexible for mobility data and ideally already proven in that area.
- Scalability and extensibility: the selected schema must handle an increasing volume and variety of metadata, covering multiple types of resources (tabular datasets, real-time APIs, simulation models, etc.) without losing performance or clarity. The ability to extend the model to cover new needs without breaking compatibility was also valued. A good model provides a stable core while allowing additional extensions or profiles for specific use cases.
- Descriptive richness and metadata quality: finally, the assessment examined how well each model enables the capture of complete and high-quality metadata that improve data discoverability. A model rich in metadata elements (for example, not only title and date but also spatial/temporal coverage, dataset relationships, data quality, etc.) contributes to making datasets easier to find and reuse. Priority was given to a schema that promotes standardised and detailed metadata, improving searchability and understanding of the resources. Likewise, the presence of controlled vocabularies (standardised lists of values for themes, formats, licences, etc.) was considered positive, as it increases consistency and filtering capacity across international catalogues.

4.3 Specifications of the selected model

For the DS4MOBMODELS project, the selected metadata model is **mobilityDCAT-AP**. This choice is not incidental, but the result of a deliberate evaluation process guided by the strategic and technical priorities outlined in the previous section. mobilityDCAT-AP offers a robust and future-oriented

foundation for describing datasets within the European mobility ecosystem. It is specifically designed to capture the nuances of transport and Intelligent Transport Systems (ITS) data while maintaining full compatibility with broader open data infrastructures through its inheritance from DCAT-AP. This dual advantage—domain specificity combined with general interoperability—makes it especially well-suited for the complex landscape that DS4MOBMODELS addresses.

Beyond its technical suitability, mobilityDCAT-AP reflects a shared European commitment to harmonised data sharing in the mobility sector. Its adoption by numerous National Access Points and its endorsement under the NAPCORE framework give it both institutional support and practical maturity. In the context of DS4MOBMODELS, which aims to foster interoperability, reuse, and federation of mobility-related data assets, mobilityDCAT-AP enables consistent metadata publication across regions and platforms. It supports discoverability, ensures semantic clarity, and allows for scalable integration of diverse data sources—three pillars that are critical to the success and sustainability of the project

5 Summary and follow-up for D3.2 Interoperability and Harmonisation Plan

This document first provides a comprehensive compilation of the selected pilots and their respective use cases, totalling 14, including two for the national pilot, one for each regional pilot (3), one for the local pilot, and four for each cross-border pilot. In addition, a general overview of all data providers is offered, organized by country (Spain, France, and Portugal) and classified according to their type of association: public, private, or open source. Following this, a table is presented that links each use case to the data required for its implementation, with the corresponding data providers identified. Finally, a catalogue of the identified datasets is created to serve as an inventory of the data that can potentially be collected. The information compiled in this deliverable originates from interviews with stakeholders and other participants conducted as part of the methodology outlined in D2.3, complemented by independent research and desk-based investigation. It should be noted that many of these interviews, as well as the ongoing process of identifying additional useful datasets, are progressive and remain under development.

On the other hand, based on the datasets inventory, the analysis of metadata models for the DS4MOBMODELS project has highlighted the critical importance of using a harmonised and interoperable specification for describing mobility datasets across Europe. The evolution of metadata standards—from general-purpose schemas like Dublin Core to domain-specific profiles like mobilityDCAT-AP—demonstrates a clear progression towards increased semantic precision, policy alignment, and cross-border interoperability.

The project has evaluated key reference standards including Dublin Core, DCAT, ADMS, DCAT-AP, INSPIRE, and mobilityDCAT-AP, identifying their structure, usage contexts, and suitability for mobility-related data. Particular attention was given to DCAT-AP as the de facto standard for open data metadata in Europe, and to its specialised extension, mobilityDCAT-AP, developed under the NAPCORE initiative. This latter profile provides the necessary granularity and domain alignment for describing transport datasets and services in a harmonised manner.

Based on the selection criteria defined in Section 4.2—including interoperability, EU policy alignment, community adoption, extensibility, and metadata richness—mobilityDCAT-AP has been selected as the most appropriate metadata model for the project. Its ability to support both general and domain-specific metadata needs ensures compatibility with EU-wide data portals and regulations, including the Open Data Directive and High-Value Datasets framework.

mobilityDCAT-AP enables consistent, machine-readable descriptions of mobility datasets, ensuring they can be discovered, understood, and reused across different platforms and national boundaries. By adopting this profile, DS4MOBMODELS positions itself within a broader European ecosystem of interoperable data spaces, facilitating the integration and reuse of mobility data for both public and private stakeholders.

This metadata foundation will serve as a key enabler for the project's goals: enhancing the discoverability of transport data, fostering cross-border collaboration, and supporting data-driven innovation in mobility services.

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7 Annexes

The annexes correspond to extensive tables resulting from the data collection methodology followed within the project. In the following sections can be found these tables filled with the information identified until the development of this deliverable.

7.1 Model templates for collecting data

Two templates were used to interview stakeholders and data providers in order to identify the different datasets available for the project. These templates enabled the collection of a comprehensive overview of the data characteristics, including contextual and governance specifications, privacy and security aspects, and information related to data availability and accessibility. In addition, technical specifications were gathered, covering metadata details such as title, description, geographical and temporal coverage, keywords, and maintenance information. The templates used for this process are named as **Template 1** and **Template 2**.

- **Template 1:**

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)	Data Source (Database, Data Warehouse, Datalake, etc.)	Type of Data (raw, processed, enrichment)	Data Models (GTFS, Netex, DCAT-AP...)	Data Format (CSV, JSON, XML..)	API or type of data interchange (REST, SOAP, GraphQL)	Authentication and authorization (OAuth2, API Keys)	Licences (CC BY, CC0)	Agreements (NDA - SLA...)
Category 1	Data 1																
	Data 2																
	Data 3																
	...																
Category 2	Data 1																
	...																

Authors: CPS.

- **Template 2:**

Pilot: ... Use Case : .... Meeting with ...														
		Contextual and Governance Specifications												
		Governance								Privacy & Security				
Data Category	**Data**	**Ownership**	**Owner - Organization**	**Accessibility**	**Licensing**	**Access rights**	**Roles and permissions**	**Policies (usage and legal compliance)**	**Cross-reference**	**Privacy regulations**	**Sensitive data**	**GDPR - Other**	**Anonymization**	**Safeguards**
Category 1	Data 1													
	Data 2													
	Data 3													
	...													
Category 2	Data 1													
	...	Technical Specifications												
		Metadata												
		Title dataset	**Description of the dataset**	**Owner / Provider / Creator**	**Geographical coverage**	**Temporal coverage**	**Keywords/Tags**	**Data Maintenance**	**Links: Related datasets**	**Contact Info.**				

Authors: UPM.

7.2 Data collected from interviews with the stakeholders and data providers

A comprehensive Excel document was developed to centralise the collected information and ensure traceability throughout the interactive process of gathering data from the different data providers and stakeholders. As previously explained, the methodology followed consisted of interviewing each stakeholder to identify the required datasets and to collect information on the relevant governance and technical aspects.

The document includes one sheet for each pilot–use case combination. In each sheet, the corresponding information is detailed following **Template 1**, as presented in the previous section. Complementary information for some use cases has also been collected using **Template 2**. This additional data is referenced with their corresponding pilot and related use case as follows:

- Metropolitan Pilot – UC3 Madrid: ***Interview with Metropolitan CRTM Madrid.***
- Metropolitan Pilot – UC3 Barcelona: ***Interview with Metropolitan ATMB Barcelona.***

- Cross-border Pilot with Ibero-region (Portugal) – UC5, UC10, UC18, UC19:
  - ***Interview with CCDR Centro, CCDR Alentejo, IMT and NAP Portugal, and Junta Extremadura.***
- Cross-border Pilot with Euroregion (France) – UC5, UC10, UC18, UC19:
  - ***Interview with Euroregion Aquitania.***
  - ***Interview with Gobierno Vasco.***

The tables for each pilot–use case combination are presented in the sub sections below.

7.2.1 Metropolitan Pilot – UC3 Madrid:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)	Data Source (Database, Data Warehouse, Datalake, etc.)	Type of Data (raw, processed, enrichment)	Data Models (GTFS, Netex, DCAT-AP...)	Data Format (CSV, JSON, XML..)
1	Public transport supply	Routes, stops and timetables of public transport services	Yes	Yes	CRTM			https://datos.crtm.es/	No		Processed	GTFS	
2	Public transport demand (ticketing)	Boarding data by transport mode	Yes	Yes	CRTM				No		Processed		csv
3	Mobility Survey (2018)	EDM 2018	Yes	Yes	CRTM	Survey		https://www.crtm.es/conocenos/enlaces-y-documentacion/edm2018/	No		Processed		excel
4	Synthetic mobility survey (macrozones) 2024	Synthetic survey with OD trips by mode (macro zones)	Yes	Yes	CRTM		Low spatial granularity		No		Processed		excel
5	Road network characteristics	Complete road network	Yes	Yes	Dirección General de Carreteras	OSM			No		Processed		
6	Land use	Land use data	Yes	Yes	Dirección General de Urbanismo			https://www.comunidad.madrid/servicios/urbanismo-medio-ambiente/sistema-informacion-territorial-visor-sit	No		Processed		
7	Socioeconomic data	Population data	Yes	Yes	INE				No		Processed		excel
8	Traffic data	IMD	Yes	Yes	Administration	Traffic maps			No		Processed		csv
9	Parking occupancy		Yes	No			Required to calculate KPI but not for pilot development itself		No		Processed		
10	Public bicycle data		Yes	No			Required to calculate KPI but not for pilot development itself		No		Processed		
11	Charging points	Location of electric vehicle charging points	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	No		Processed		

12	Emission factors	Emission factors	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No		Processed		
13	Vehicle fleet composition	Vehicle fleet composition	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No		Processed		
14	Points of interest	Inventory of logistics platforms	Yes	No			Required to calculate KPI but not for pilot development itself		No		Processed		

Interview with Metropolitan CRTM Madrid:

Pilot: Metropolitan pilot Use Case: Intermodal node demand analysis Meeting with CRTM

		Contextual and Governance Specifications				
		Governance				
Data Category	**Data**	**Ownership**	**Owner - Organization**	**Accessibility**	**Licensing**	**Access rights**
Public transport supply	Routes		CRTM	Open	No license	
	Stops					
	Schedules					
Ticketing data	Boarding counts per mode		CRTM	Restricted	no	At their discretion
Characteristics of roads of interest	Lentgh					
	Number of lanes					
	Speed limits					
Land use	Urban development and zoning data		Comunidad de Madrid		All openly available	
Socioeconomic data INE	Datasets on population					
Traffic intensity	Total traffic intensity on roads of interest					
Parking occupancy	Regulated parking occupancy data		CRTM has 2 parking facilities			
Public bicycle data	Public bicycle system usage data		Municipalities			
	Public bicycle stations inventory					
Sustainability data	Emission factors					
	Location of electric charging points					
	Vehicle fleet composition data					
Points of interest	Logistics platforms inventory					
Big Data Contract	Availability for the project currently under evaluation					
Synthetic Survey	Pending validation of methodology and applicability		CRTM	Restricted		
Household Mobility Survey (EDM 2018)						

7.2.2 Metropolitan Pilot – UC3 Barcelona:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)	Data Source (Database, Data Warehouse, Datalake, etc.)	Type of Data (raw, processed, enrichment)	Data Models (GTFS, Netex, DCAT-AP...)	Data Format (CSV, JSON, XML..)
1	Public transport supply	Routes, stops and timetables of public transport services	Yes	Yes	ATM			https://t-mobilitat.atm.cat/web/t-mobilitat/datos-abiertos/catalogo-de-datos	No		Processed	GTFS	
2	Public transport demand (ticketing)	Boarding data by transport mode	Yes	Yes	ATM				No		Processed		csv
3	Mobility Survey (EMEF)	2023 travel survey	Yes	Yes	ATM		Although the EMEF for 2025 exists, only the 2023 database is currently available, so the results may be outdated. It has been requested, but it is unlikely that we will receive it.	https://ca-sermetra.atm.cat/es/web/observatori/w/encuesta-emef	No		Processed		excel
4	ATM trip planner data	User data from the trip planning app	No	Yes	ATM		Low spatial granularity		No		Processed		excel
5	Road network characteristics	Complete road network	Yes	Yes	SCT	OSM			No		Processed		
6	Land use	Land use data	Yes	Yes				https://territori.gencat.cat/ca/06_territori_i_urbanisme/observatori_territori/mapa_urbanistic_de_catalunya/?utm_source=chatgpt.com	No		Processed		
7	Socioeconomic data	Population data	Yes	Yes	INE				No		Processed		excel
8	Traffic data	IMD	Yes	Yes	SCT	Traffic Maps			No		Processed		csv
9	Parking occupancy		Yes	No			Required to calculate the KPI, but not for the pilot development itself		No		Processed		
10	Public bicycle data	Public bicycle system supply	Yes	Yes				https://gbfs.nextbike.net/maps/gbfs/v2/nextbike_bs/gbfs.json	No		Processed		
11	Charging points	Location of electric vehicle charging points	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	No		Processed		
12	Emission factors	Emission factors	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No		Processed		
13	Vehicle fleet composition	Vehicle fleet composition	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No		Processed		

14	Points of interest	Inventory of logistics platforms	Yes	No			Required to calculate the KPI, but not for the pilot development itself		No		Processed		

Interview with Metropolitan ATMB Barcelona:

		Contextual and Governance Specifications	
		Governance	
Data Category	**Data**	**Owner**	**Accessibility**
Public transport supply	Routes	ATMB	
	Stops	ATMB	
	Schedules	ATMB	
Ticketing data	Boarding counts per mode	ATMB	Restricted
Characteristics of roads of interest	Length	SCT	
	Number of lanes	SCT	
	Speed limits	SCT	
Land use	Urban development and zoning data	Catalan urban map (vectorial…)	Open
Socioeconomic data INE	Datasets on population		
Traffic intensity	Total traffic intensity on roads of interest		
Parking occupancy	Regulated parking occupancy data	Renfe	Open
Public bicycle data	Public bicycle system usage data	Bicing y AMB Bici	Open
	Public bicycle stations inventory	Bicing y AMB Bici	Open
Sustainability data	Emission factors		
	Location of electric charging points		
	Vehicle fleet composition data		
Points of interest	Logistics platforms inventory		
Household Mobility Survey (EDM)		ATMB	Open
Mobility app (planner)			

7.2.3 Regional Pilot – UC16 Andalusia Region:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs
1	Road network characteristics	Length, speed limits and number of lanes of the regional road network	Yes	Yes	Open Data	no	Low	https://www.openstreetmap.org/
2	AADT (light and heavy vehicles)	Traffic intensities for different road sections	Yes	Yes	Administration	no	Low	https://www.juntadeandalucia.es/organismos/fomentoarticulaciondelterritorioyvivienda/areas/infraestructuras-viarias/trafico/paginas/planes-aforos-2024.html
3	Historical AADT (light and heavy vehicles)	Historical traffic intensities for different road sections	Yes	Yes	Administration	Seasonal data	Low	https://www.juntadeandalucia.es/organismos/fomentoarticulaciondelterritorioyvivienda/areas/infraestructuras-viarias/trafico/paginas/planes-aforos-2024.html
4	Mobile phone data	Analysis of mobility patterns	Yes	Yes	Private	EDM	Low	https://www.kidodynamics.com/big-data/
5	Household Mobility Surveys	Daily trips, including purpose and transport mode	Yes	Yes	CPS	Mobile phone data and modal split statistics	Low	
6	Public transport vehicles by fuel type	Public transport fleet by fuel type in Andalusia	Yes	Yes	Administration	no	Low	https://www.juntadeandalucia.es/institutodeestadisticaycartografia/badea/informe/anual?CodOper=b3_151&idNode=23204
7	Fleet age	Average age of public transport fleet by municipality	Yes	Yes	Public	Regional or national averages	Low	https://paneldatos.dgt.es/MicroStrategyLibraryGuest/app/A21CBE7011EC42DC71650080EF457DF5/34900D0CAA457AEBCB3A5CA8A28A885A/K3469807EE14C3C9F62E942BFF0ED0763--KC0BCB9BDC346CEBB2A5499A7DCE0B0D5
8	Private vehicle fleet composition	Distribution of vehicle fleet by province	Yes	Yes	Administration	no	Low	https://www.juntadeandalucia.es/institutodeestadisticaycartografia/badea/informe/anual?CodOper=b3_151&idNode=23204
9	Commercial vehicle fleet composition	Distribution of commercial vehicle fleet by province	Yes	Yes	Administration	no	Low	https://www.juntadeandalucia.es/institutodeestadisticaycartografia/badea/informe/anual?CodOper=b3_151&idNode=23204
10	Emissions data	Andalusian Greenhouse Gas Emissions Inventory	Yes	Yes	Administration	no	Low	https://www.juntadeandalucia.es/medioambiente/portal/landing-page-documento/-/asset_publisher/jXKpcWryrKar/content/inventario-andaluz-emisiones-gei-1990-2023/20151
				Yes	Open Data	no	Low	https://climatetrace.org/explore#admin=&gas=co2e&year=2024&timeframe=100&sector=&asset=
11	Public transport supply data		Yes	Yes	Administration	no	Low	https://www.juntadeandalucia.es/organismos/fomentoarticulaciondelterritorioyvivienda/areas/servicios-transporte/transporte-publico.html
12	Interchange nodes capacity		no	no			Low	
13	Charging infrastructure data	Location of charging points	no	Yes	Open Data		Low	webtool.datex2.eu/wizard
				Yes	Overpass Turbo (Python code)		Low	https://overpass-turbo.eu/
14	Freight vehicles by body type	Registered vehicles by body type	no	Yes	Instituto de Estadística y Cartografía de Andalucía	Use of standard typologies	Low	https://www.juntadeandalucia.es/institutodeestadisticaycartografia/badea/informe/anual?CodOper=b3_151&idNode=23204
15	National freight transport statistics	National freight transport statistics	no	Yes	Public	Regional assumptions	Low	https://otle.transportes.gob.es/
16	Logistics hubs and service areas	Logistics hubs, facilities and service areas	no	Yes	Administration		Low	https://www.juntadeandalucia.es/organismos/redlogistica.html

17	Port infrastructure data	Information on ports and logistics areas	no	Yes	Public		Low	https://apps.fomento.gob.es/Boletinonline/?nivel=2&orden=04000000
18	Port waiting area occupancy rate (OPE)	Saturation level of waiting areas at port access points	no	no		Traffic data at port access (DGT or regional)	Medium	
19	Density of parking areas for freight vehicles in TEN-T corridors	Availability of safe parking infrastructure along strategic corridors	no	Yes	Public Open Data	Service or rest areas for heavy vehicles	low	https://visorcarreteras.transportes.gob.es/AparcamientosSeguros https://snapacc.com/es/mapa/?gad_source=1&gad_campaignid=22819887049&gclid=CjwKCAiAkbbMBhB2EiwANbxtbV0IfCe5eZVe9Dz649yl76kxSBHUNvzO8tOGm95yqCdjHOUrqfdfZxoCwUYQAvD_BwE

7.2.4 Regional Pilot – UC21 Valencia Region:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs
1	LEZ delimitation	Boundary of the defined Low Emission Zone (LEZ)	Yes	Yes	Administration	ZBE Project	Low	
2	Municipality surface area	Surface area of the municipality	No	Yes	CNIG/GVA		Low	https://centrodedescargas.cnig.es/CentroDescargas/informacion-geografica-referencia https://dadesobertes.gva.es/dataset/delimitacion-territorial-municipios-de-la-comunitat-valenciana
3	Population	Number of registered inhabitants in the municipality	No	Yes	INE		Low	https://www.ine.es/jaxiT3/Tabla.htm?t=2856&L=0
4	Characteristics of roads of interest (Length, number of lanes, speed limits)	Length, number of lanes and speed limits	Yes	Yes	Administration/Ministerio/OSM/CNIG		Low	https://www.openstreetmap.org - https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte
5	Length of pedestrian infrastructure	Total length (km) of pedestrian infrastructure	No	Yes	Administration	ZBE/OSM Project	Low	https://www.openstreetmap.org
6	Bicycle lanes (location, length)	Georeferenced location and length of bicycle lane network	Yes	Yes	Administration	ZBE/OSM Project	Low	https://www.openstreetmap.org
7	Historical traffic intensities on roads of interest (Light vehicles, heavy vehicles)	Traffic intensities (light and heavy vehicles)	Yes	Yes	Ministerio/GVA/Diputación		Low	https://mapadetrafico.transportes.gob.es/ https://mediambient.gva.es/es/web/carreteras/aforos-car/mapas-trafico-car
8	Air quality monitoring stations data	Pollutant data from air quality monitoring stations	No	Yes	Administration/RVVCCA		Low	https://rvvcca.pica.gva.es/es
9	Number of vehicles accessing the LEZ	Number of vehicles entering the LEZ	Yes	?	Administration		Low (input for the model, not strictly required)	
10	Mobility surveys	Mobility surveys	Yes	?	Administration	ZBE Project	Low (modal split data available from LEZ project)	
11	Traffic counts (cars, motorcycles, bicycles, personal mobility vehicles, buses)	Counts of cars, motorcycles, bicycles, PMVs, buses	Yes	?	Administration		Low (data already available)	
12	Environmental labelling of municipal vehicle fleet	Distribution of vehicle fleet by environmental label	Yes	Yes	DGT/ GVA Statistical Portal		Low	https://pegv.gva.es/es/fichas

13	Age of municipal vehicle fleet	Average age of vehicle fleet	Yes	Yes	DGT		Low	https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/
14	Public transport passenger data	Number of public transport users	Yes	?	Administration	Operators	Medium (requires bus, commuter rail and node data)	
15	Number of zero-emission buses in circulation	Number of zero-emission buses in operation	Yes	?	Administration	Operators	Medium	
16	Public transport line data (routes, stops, frequencies, journey times, location and identification of regional and national intermodal nodes)	Public transport supply (routes, stops, frequencies, timetables). Location and identification of regional and national intermodal nodes.	Yes	?	Administration	Own digitalisation	Low	
17	Freight transport data	Freight transport data						
18	Parking location	Georeferenced location of parking facilities	No	?	Administration	ZBE/OSM Project	Low	https://www.openstreetmap.org
19	Number of parking spaces by type	Number of parking spaces by type	No	?	Administration	ZBE/OSM Project	Low	https://www.openstreetmap.org
20	Parking occupancy data	Parking occupancy data	No	?	Administration		High (no alternative if unavailable)	
21	Location of electric charging points	Georeferenced location of EV charging stations	No	Yes	Ministerio/Electromaps		Low	https://www.mapareve.es/mapa-puntos-recarga/emplazamiento/5a5c4452-3126-4e5a-b636-c368a80278e3 https://map.electromaps.com/es/
22	Number of electric chargers	Number of EV chargers	No	Yes	Ministerio/Electromaps		Low	https://www.mapareve.es/mapa-puntos-recarga/emplazamiento/5a5c4452-3126-4e5a-b636-c368a80278e3 https://map.electromaps.com/es/
23	Location of bicycle parking facilities	Georeferenced location of bicycle parking	No	?	Administration	Bicielx	Low	https://bicielx.es/
24	Number of bicycle parking facilities	Number of bicycle parking facilities	No	?	Administration	Bicielx	Low	https://bicielx.es/
25	Location of loading and unloading zones	Georeferenced location of loading/unloading zones	Yes	?	Administration	ZBE/OSM Project	Low	https://www.openstreetmap.org
26	Operating hours of loading and unloading zones	Operating hours for loading/unloading	No	?	Administration	Local regulations	Low	
27	Types of loading and unloading vehicles	Types of freight vehicles	No	No	Stakeholder		Low	
28	Location of cargo distribution centers	Location of distribution centers	Yes	?	Administration	Google Maps/OSM	Low	
29	Delivery company routes	Freight delivery routes	Yes	No	Stakeholder	Can be inferred from traffic counts	Low	
30	Operational restrictions	Restrictions for loading/unloading operations	Yes	No	Administration	Local regulations	Low	
31	Floating Phone Data	Origin-Destination matrices	Yes	Yes	CPS		Low	
30	Floating Car Data (number, consumption, range)	Vehicle data (number, consumption, range)	No	Yes	Private		Low	
31	Emission factors	GHG emissions by vehicle type and transport mode (tons CO_2 eq/year)	Yes	Yes	Open data		Low	
32	Active trips	Number of trips by active modes (walking, cycling, PMV)	Yes	Yes	Administration	ZBE/OSM Project	Low (modal split available if needed)	

33	Total number of vehicles	Total registered vehicles	No	Yes	DGT/Portal Estadístico GVA		Low	https://pegv.gva.es/es/fichas https://www.dgt.es/menusecundario/dgt-en-cifras/

7.2.5 Nacional Pilot – UC12 Winter Services:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs
1	**Emergency parking capacity**	Total number of available spaces in emergency parking areas.	YES	YES	Open Data		Low	https://visorcarreteras.transportes.gob.es/VialidadInvernal
2	**Real-time availability/occupancy of spaces in emergency parking**	Real-time status of occupied and available spaces in emergency parking areas.	NO	NO	Private	Capture through WIFI / BT sensors along corridors	Medium	
3	**Characteristics of roads of interest**	Structural and functional information about the roads (type, lanes, limits, length, etc.).	YES	YES	Administration		Low	https://www.openstreetmap.org
4	**Traffic intensity on roads of interest**	Level of traffic on monitored roads, typically expressed as volume or density.	YES	YES	Administration	Capture through WIFI / BT sensors along corridors	Medium	NAP Spain (DGT 3.0)
5	Floating Car Data	Data collected from moving vehicles, providing speed, routes, and travel times.	NO	NO	Private		Low	Traffic Index and Area Analytics in action (Europe focus) | TomTom
6	Active incidents	Records of active traffic incidents such as accidents, roadworks, or breakdowns.	NO	YES	Administration		Low	DATEX II webtool > step 3
7	Location of Variable Message Signs	Geographical location of variable message signs.	NO	YES	Administration		Low	TBC (platform recently changed URL)
8	Typology of Variable Message Signs	Classification of variable message signs by type, technology, or function.	NO	UNKNOWN	Administration		Low	TBC (platform recently changed URL)
9	Real-time operation of Variable Message Sign	Real-time status and displayed content of variable message signs.	NO	NO	Administration			
10	Meteorological data	Weather data relevant to mobility, such as rain, wind, temperature, and visibility.	NO	YES	Open Data			
11	Floating Phone Data	Aggregated and anonymized mobility data derived from mobile devices.	YES		Private	Capture through WIFI / BT sensors along corridors		
12	Emissions data	Data on pollutant emissions related to traffic or specific areas.	YES	YES	Open Data			COPERT VI METHODOLOGY
13	Charging infrastructure data	Location and characteristics of electric vehicle charging points.	YES	YES	Administration			DATEX II webtool > step 3
14	Location of logistics platforms	Geographical location of logistics and freight distribution platforms.	YES	UNKNOWN	Administration			
15	Cross-border public transport supply	Availability of cross-border public transport services, including routes and frequencies.	NO	YES	Administration	GTFS		https://files.mobilitydatabase.org/
16	Traffic counts at cross-border roads	Vehicle counts on cross-border roads, broken down by time period and vehicle type.	NO	NO	Administration	NO LPR PUBLICLY AVAILABLE		

7.2.6 Nacional Pilot – UC13 Congestion:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs
1	**Characteristics of roads of interest**	Structural and functional information about the roads (type, lanes, limits, length, etc.).	YES	YES	Administration		Low	https://www.openstreetmap.org
2	Location of detectors on roads of interest	Geographical position of traffic sensors installed on the monitored roads.	YES	YES	Administration		Low	
3	Location of toll sections of interest	Spatial location of toll road segments and tolling points.	YES	YES	Administration		Medium	NAP Spain (DGT 3.0)
4	**Traffic intensity on roads of interest**	Current traffic volume or density on selected road segments.	YES	YES	Administration	Capture through WIFI / BT sensors along corridors	Medium	Traffic Index and Area Analytics in action (Europe focus) | TomTom
5	**Historical traffic intensities on roads of interest**	Archived traffic volume data over time for trend and pattern analysis.	YES	YES	Administration	Floating Car Data or Capture through WIFI / BT sensors along corridors	Medium	NAP Spain (DGT 3.0)
6	Floating Car Data	Vehicle-based mobility data providing speeds, trajectories, and travel times.	NO	NO	Private		Low	Traffic Index and Area Analytics in action (Europe focus) | TomTom
7	Active incidents	Information on ongoing traffic incidents such as accidents, works, or disruptions.	NO	YES	Administration		Low	DATEX II webtool > step 3
8	Meteorological data Open Data	Publicly available weather data relevant to traffic and mobility conditions.	NO	YES	Open Data		Low	AEMET.ES
9	Floating Phone Data Private	Privately sourced, aggregated, and anonymized mobility data from mobile devices.	YES	NO	Private	Capture through WIFI / BT sensors along corridor		
10	Connected vehicle data Private	Data generated by connected vehicles, including position, speed, and driving events.	NO	NO	Private	Floating Car Data or Capture through WIFI / BT sensors along corridor		Traffic Index and Area Analytics in action (Europe focus) | TomTom
11	**Special Traffic Operations calendar Open Data**	Schedule of planned traffic operations for special events, holidays, or campaigns.	NO	unknown	Open Data			
12	Emissions data Open Data	Public data on traffic-related pollutant emissions.	YES	YES	Open Data			COPERT VI METHODOLOGY
13	Charging infrastructure data Administration	Administrative data on the location and characteristics of EV charging points.	YES	YES	Administration			DATEX II webtool > step 3
14	Location of logistics platforms Administration	Administrative records of freight and logistics hub locations.	YES	UNKNOWN	Administration			
15	Cross-border public transport supply Administration	Information on cross-border public transport services, routes, and frequencies.	NO	YES	Administration	GTFS		https://files.mobilitydatabase.org/
16	Traffic counts at cross-border roads	Measured vehicle volumes on cross-border road sections by time and vehicle type.	NO	NO	Administration	NO LPR PUBLICLY AVAILABLE		

7.2.7 Cross-border Pilot – Portugal:

UC5 Passenger Transit:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)
1	Characteristics of roads of interest	Spanish Transport Network	Yes	Yes	Ministerio/OSM/IGN			https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Yes
		Transport Networks of Portugal	Yes	Yes	Direção-Geral do Território			https://inspire-geoportal.ec.europa.eu/srv/api/records/70ea24cf-ef0b-4fd0-810c-8d3ea95acb6d	Yes
2	Traffic counts at cross-border roads		Yes	No		Buy data or require to DGT	Medium. Depend on DGT		
	Traffic intensity of roads of interest	Traffic intensity at Extremadura network 2023	Yes	Yes	Junta de Extremadura			https://www.juntaex.es/documents/77055/621269/Fichas_AfoEX_2023.zip	No
		Traffic intensity at Portugal Network	Yes	Yes	IMT, I.P.			https://www.imt-ip.pt/biblioteca/reportorio-geral/estatisticas-repertorio-geral/relatorios-setoriais-imt/#rede-nacional-de-autoestradas	No
3	Big Data study (2023) provided by the Extremadura Regional Government		Yes	Yes	Junta de Extremadura			Big Data Extremadura - Diagnostico_PEMS_2025.pdf	No
4	Cross-border public transport supply	Public transport routes and schedule in Portugal	Yes	Yes	NAP Portugal			https://nap-portugal.imt-ip.pt/nap/multimodalsupply	Yes
		Static GTFS long distance FlixBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1	Yes
		Static GTFS long distance BlablacarBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen	Yes
5	Bilateral mobile phone data (ES-PT)	Mobility study using Big Data	Yes	Yes	MITMS		Only for Spanish users	https://www.transportes.gob.es/ministerio/proyectos-Yesngulares/estudios-de-movilidad-con-big-data/opendata-movilidad	Yes
6	Vehicle fleet composition data	Vehicle fleet by municipality Portugal	Yes	Yes	ASF			https://www.asf.com.pt/estat%C3%ADsticas/seguros/estat%C3%ADsticas-anuais/parque-autom%C3%B3vel-seguro	No
		Vehicle fleet by municipality Spain	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No
7	EmisYeson factors	Spatial Distribution of National Emissiesons in Portugal	Yes	Yes	APA			https://apambiente.pt/clima/distribuicao-espacial-de-emissoes-nacionais-0	No
		GHG Emissiesons Inventory in Spain	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/Yesstema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No
8	Vehicle registration/nationality data		Yes	No	Dato stakeholder	No	Medium. Depend on DGT		
9	Secure parking facilities inventory	Secure parking facilities inventory Spain	No	Yes	MITMS			https://visorcarreteras.transportes.gob.es/AparcamientosSeguros#map	No
10	Location of electric charging points	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes

UC10 Freight Transit:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)
1	Freight transport surveys	Survey on Road Freight Transport 2024 in Spain	Yes	Yes	MITMS			https://www.transportes.gob.es/el-ministerio/informacion-estadistica/transporte/transporte-de-mercancias-por-carretera/publicaciones-encuesta-permanente-transporte-mercancias-por-carretera/EPTMC2024	No
2	Freight flow data (volume, routes, origin-destination)	Spain–Portugal Cross-Border Observatory	Yes	Yes	MITMS			https://www.transportes.gob.es/informacion-para-el-ciudadano/observatorios/observatorios-de-transporte-internacional/observatorio-transfronterizo-espan%CC%83a-portugal	No
		Freight transported by foreign vehicles in Portugal	Yes	Yes	INE Portugal			https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0014572&contexto=bd&selTab=tab2	No
3	Traffic intensity at border crossings (light vehicles, heavy vehicles)	Traffic intensity at Extremadura network 2023	Yes	Yes	Junta de Extremadura			https://www.juntaex.es/documents/77055/621269/Fichas_AfoEX_2023.zip	No
		Traffic intensity at Portugal Network	Yes	Yes	IMT, I.P.		There is not splitted between heavy and light but could be required to IMT	https://www.imt-ip.pt/biblioteca/reportorio-geral/estatisticas-repertorio-geral/relatorios-setoriais-imt/#rede-nacional-de-autoestradas	No
4	Existing models: Spanish National Transport Model								
5	Planned infrastructure projects and studies relevant to new or upgraded corridors	Sustainable Mobility Plan of Extremadura	No	Yes	Junta de Extremadura			https://www.movilidadextremadura.es/wp-content/uploads/2024/12/Diagnostico_PEMS_2025.pdf	No
6	Cross-border public transport routes and schedules	Public transport routes and schedule in Portugal	Yes	Yes	NAP Portugal			https://nap-portugal.imt-ip.pt/nap/multimodalsupply	Si
		Static GTFS long distance FlixBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1	Si
		Static GTFS long distance BlablacarBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen	Si
7	Vehicle nationality at border points		Yes	No		No	Medium. Depend on DGT		
8	Road infrastructure characteristics	Spanish Transport Network	Yes	Yes	Ministerio/OSM/IGN			https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Si
		Transport Networks of Portugal	Yes	Yes	Direção-Geral do Território			https://inspire-geoportal.ec.europa.eu/srv/api/records/70ea24cf-ef0b-4fd0-810c-8d3ea95acb6d	Si
9	Vehicle fleet composition data	Vehicle fleet by municipality Portugal	Yes	Yes	ASF			https://www.asf.com.pt/estat%C3%ADsticas/seguros/estat%C3%ADsticas-anuais/parque-autom%C3%B3vel-seguro	No
		Vehicle fleet by municipality Spain	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No
10	Emission factors	Spatial Distribution of National Emissions in Portugal	Yes	Yes	APA			https://apambiente.pt/clima/distribuicao-espacial-de-emissoes-nacionais-0	No
		GHG Emissions Inventory in Spain	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No
11	Secure parking facilities inventory	Secure parking facilities inventory Spain	No	Yes	MITMS			https://visorcarreteras.transportes.gob.es/AparcamientosSeguros#map	No
12	Location of electric charging points	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Si

UC18 – Freight Emissions:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)
1	Characteristics of roads of interest (length, number of lanes, speed limits)	Spanish Transport Network	Yes	Yes	Ministerio/OSM /IGN			https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Si
		Transport Networks of Portugal	Yes	Yes	Direção-Geral do Território			https://inspire-geoportal.ec.europa.eu/srv/api/records/70ea24cf-ef0b-4fd0-810c-8d3ea95acb6d	Si
2	Traffic intensity on roads of interest (Light vehicles, Heavy vehicles)	Traffic intensity at Extremadura network 2023	Yes	Yes	Junta de Extremadura			https://www.juntaex.es/documents/77055/621269/Fichas_AfoEX_2023.zip	No
		Traffic intensity at Portugal Network	Yes	Yes	IMT, I.P.		It is not separated into light and heavy vehicles, but it will be requested from IMT	https://www.imt-ip.pt/biblioteca/reportorio-geral/estatisticas-repertorio-geral/relatorios-setoriais-imt/#rede-nacional-de-autoestradas	No
3	Historical traffic intensities on roads of interest (Heavy vehicles)	Traffic intensity at Extremadura network 2023	Yes	Yes	Junta de Extremadura			https://www.juntaex.es/documents/77055/621269/Fichas_AfoEX_2023.zip	No
		Traffic intensity at Portugal Network	Yes	Yes	IMT, I.P.		It is not separated into light and heavy vehicles, but it will be requested from IMT	https://www.imt-ip.pt/biblioteca/reportorio-geral/estatisticas-repertorio-geral/relatorios-setoriais-imt/#rede-nacional-de-autoestradas	No
4	Meteorological data	Meteorological data Spain	Yes	Yes	AEMET			https://opendata.aemet.es/centrodedescargas/inicio	Yes
		Meteorological data Portugal	Yes	Yes	IPMA			https://api.ipma.pt/#	Yes
5	Floating Phone Data	Mobility study using Big Data	Yes	Yes	MITMS	Private source	Spanish users only	https://www.transportes.gob.es/ministerio/proyectos-singulares/estudios-de-movilidad-con-big-data/opendata-movilidad	Yes
6	Vehicle fleet data	Vehicle fleet by municipality Portugal	Yes	Yes	ASF			https://www.asf.com.pt/estat%C3%ADsticas/seguros/estat%C3%ADsticas-anuais/parque-autom%C3%B3vel-seguro	No
		Vehicle fleet by municipality Spain	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No
7	Freight transport data	Survey on Road Freight Transport 2024 in Spain	Yes	Yes	MITMS			https://www.transportes.gob.es/el-ministerio/informacion-estadistica/transporte/transporte-de-mercancias-por-carretera/publicaciones-encuesta-permanente-transporte-mercancias-por-carretera/EPTMC2024	No
		Spain–Portugal Cross-Border Observatory	Yes	Yes	MITMS			https://www.transportes.gob.es/informacion-para-el-ciudadano/observatorios/observatorios-de-transporte-internacional/observatorio-transfronterizo-espan%CC%83a-portugal	No
		Freight transported by foreign vehicles in Portugal	Yes	Yes	INE Portugal			https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0014572&contexto=bd&selTab=tab2	No
8	Emission factors databases	Spatial Distribution of National Emissions in Portugal	Yes	Yes	APA			https://apambiente.pt/clima/distribuicao-espacial-de-emissoes-nacionais-0	No
		GHG Emissions Inventory in Spain	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No
9	Emission factors		Yes	No	Derived from simulation data				

10	Secure parking facilities inventory	Secure parking facilities inventory Spain	No	Yes	MITMS			https://visorcarreteras.transportes.gob.es/AparcamientosSeguros#map	No
	Location of electric charging points	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
11	Vehicle nationality at border points		Yes	No		No	Medium (dependent on DGT)		
12	Cross-border public transport routes and schedules	Static GTFS long distance FlixBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1	Yes
		Static GTFS long distance BlablacarBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen	Yes

UC19 – Charging Infrastructure:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)
1	Characteristics of roads of interest	Spanish Transport Network	Yes	Yes	Ministerio/OSM/IGN			https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Yes
		Transport Networks of Portugal	Yes	Yes	Direção-Geral do Território			https://inspire-geoportal.ec.europa.eu/srv/api/records/70ea24cf-ef0b-4fd0-810c-8d3ea95acb6d	Yes
2	Historical traffic intensities on roads of interest	Traffic intensity at Extremadura network 2023	Yes	Yes	Junta de Extremadura			https://www.juntaex.es/documents/77055/621269/Fichas_AfoEX_2023.zip	No
		Traffic intensity at Portugal Network	Yes	Yes	IMT, I.P.		It is not separated into light and heavy vehicles, but it will be requested from IMT	https://www.imt-ip.pt/biblioteca/reportorio-geral/estatisticas-repertorio-geral/relatorios-setoriais-imt/#rede-nacional-de-autoestradas	No
3	Connected vehicle data from electric vehicles		No	No					
4	Current location of chargers	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
5	Number of chargers at each location	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
6	Power of each charger	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
	Electric fleet (labelled) by province/municipality	Vehicle fleet by municipality Portugal	Yes	Yes	ASF			https://www.asf.com.pt/estat%C3%ADsticas/seguros/estat%C3%ADsticas-anuais/parque-autom%C3%B3vel-seguro	No
		Vehicle fleet by municipality Spain	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No
8	Projection of electric vehicles by country	Global Electric Vehicle Outlook 2025	Yes	Yes	IEA			https://www.iea.org/data-and-statistics/data-tools/global-ev-data-explorer	No
9	TEN-T corridor electric charging stations	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
10	Highway electric charging stations	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
11	Charging station usage patterns		No	No					
12	Charging infrastructure types	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
13	Electric vehicle type distribution (passenger, commercial, heavy…)	Vehicle fleet data panel Spain	Yes	Yes	DGT		Spanish users only	https://paneldatos.dgt.es/MicroStrategyLibraryGuest/app/A21CBE7011EC42DC71650080EF457DF5/34900D0CAA457AEBCB3A5CA8A28A885A/K3469807EE14C3C9F62E942BFF0ED0763--KC0BCB9BDC346CEBB2A5499A7DCE0B0D5	No
14	Vehicle nationality at border points		Yes	No		No	Medium (dependent on DGT)		
15	Cross-border public transport routes and schedules	Static GTFS long distance FlixBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1	Yes
		Static GTFS long distance BlablacarBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen	Yes
16	Secure parking facilities inventory	Secure parking facilities inventory Spain	No	Yes	MITMS			https://visorcarreteras.transportes.gob.es/AparcamientosSeguros#map	No
17	Emission factors databases	Spatial Distribution of National Emissions in Portugal	Yes	Yes	APA			https://apambiente.pt/clima/distribuicao-espacial-de-emissoes-nacionais-0	No
		GHG Emissions Inventory in Spain	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No

Interview with CCDR Centro, CCDR Alentejo, IMT and NAP Portugal, and Junta de Extremadura:

ID	UC	Required data	Necessary?	Comments	Identified publisher	Identified datasets	Identified links
1	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Characteristics of roads of interest	yes		Direção-Geral do Território	Transport Networks of Portugal	https://inspire-geoportal.ec.europa.eu/srv/api/records/70ea24cf-ef0b-4fd0-810c-8d3ea95acb6d
2	UC5				Ministerio/OSM/IGN	Spain information	https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte
3	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Speed limits by section					-
4	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Traffic counts at cross-border roads					
5	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Traffic intensity of roads of interest					
		Traffic detectors : Frequency, real-time?, counts, public access?	yes				
6					Junta de Extremadura	Traffic intensity at Extremadura network 2023	https://www.juntaex.es/documents/77055/621269/Fichas_AforEX_2023.zip
7	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Location of traffic count detectors in Portugal	yes				
8	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Historical traffic intensities on roads of interest	yes				
9	UC5 Port	Cross-border public transport demand					
10		Cross-border public transport supply	yes				
	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Cross-border public transport routes and schedule		Ask for own private passenger services - Long distance between Badajoz - Lisbon	Flixbus	Static GTFS long distance FlixBus	https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1
					Blablacar bus	Static GTFS long distance BlaBlaCar Bus	https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen
13	UC Winter|UC13 Nac|UC5 Port	Public transport routes and schedule in Portugal					
					NAP Portugal ??		
14					NAP transporte multimodal	Static GTFS for Interurban Public Transport Extremadura	https://nap.transportes.gob.es/Files/Detail/1516
15	UC5 Port|UC18 Port	Floating Phone Data	yes	Something similar to HERMES ??			
16	UC5				MITMS - Only Spanish users		https://www.transportes.gob.es/ministerio/proyectos-singulares/estudios-de-movilidad-con-big-data/opendata-movilidad
17	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Vehicle fleet composition data			ASF	Vehicle fleet by municipality in Portugal	https://www.asf.com.pt/estat%C3%ADsticas/seguros/estat%C3%ADsticas-anuais/parque-autom%C3%B3vel-seguro
18	UC10					DGT - Info Spain	https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2023/
19	UC19	Vehicle fleet - Electric	yes			DGT in figures - Info Spain	https://sede.dgt.gob.es/es/ https://paneldatos.dgt.es/MicroStrategyLibraryGuest/app/A21CBE7011EC42DC71650080EF457DF5/34900D0CAA457AEBCB3A5CA8A28A885A/K3469807EE14C3C9F62E942BFF0ED0763--KC0BCB9BDC346CEBB2A5499A7DCE0B0D5
20	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Emission factors		Emissions from traffic (	APA	Spatial Distribution of National Emissions in Portugal	-
21					MITECO	GHG Emissions Inventory in Spain	https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html
22	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Secure parking facilities inventory	yes				
23	UC10				Euro Parkings		https://eu-parkings.eu/sstpas/sstpas-map/
24	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Electric vehicle charging infrastructure			Open Charge Map	Electric vehicle charging infrastructure	https://openchargemap.org/develop#api
25	UC10 Port|UC18 Port	Freight transport surveys	yes				
26	UC5					Observatorio Transfronterizo España/Portugal	https://cdn.transportes.gob.es/portal-web-transportes/ministerio/actividades_y_servicios/observatorios/hipano-portugues/observatorio_otep_no_9_esp5.pdf

27	UC10 Port|UC18 Port	Freight flow data (volume, routes, origin-destination)	yes		OTEP	Road freight transport flows	https://cdn.transportes.gob.es/portal-web-transportes/ministerio/actividades_y_servicios/observatorios/hipano-portugues/ObsESPOR.pdf
28					INE Portugal	Freight transported by foreign vehicles in Portugal	https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0014572&contexto=bd&selTab=tab2
29					MITMS	Domestic road freight transport by Spanish-registered vehicles (tonnes and tonne-kilometres). Origin–destination relationships by autonomous community.	https://otle.transportes.gob.es/datos-graficos-mapas/datos-anuales/logistica/transporte-mercancias/carretera/flujos-transporte
30	UC10 Port	Planned infrastructure projects and studies relevant to new or upgraded corridors	yes		Junta de Extremadura	EX-A1 motorway, from Navalmoral de la Mata to Portugal	https://doe.juntaex.es/pdfs/doe/2025/620o/25080502.pdf
31	UC5 Port|UC10 Port|UC18 Port|UC19 Port	Vehicle nationality at border points	yes				
32	UC18 Port	Meteorological data	yes		IPMA	Meteorological data Portugal	https://api.ipma.pt/
33	UC18				AEMET	Spain	https://opendata.aemet.es/centrodedescargas/inicio
34	UC19	Pollution generated in TEN-T Corridors	yes		AQICN MITECO - Calidad del Aire	Spain	https://aqicn.org/map/world/es/ https://ica.miteco.es/
35	UC19 Port	Projection of electric vehicles by country	yes				
36	UC19				Agencia Internacional de la Energía (IEA) Informes	Spain	https://www.iea.org/reports/global-ev-outlook-2023
37	UC19 Port	Charging station usage patterns (Peak usage hours, Average charging duration, Charger availability)					
38	UC5	Location of Charging Stations Types of chargers	yes			Ministerio de la transición ecológica. Mapa REVE	https://www.mapareve.es/mapa-puntos-recarga/emplazamiento/5a5c4452-3126-4e5a-b636-c368a80278e3
39						Electromaps	https://map.electromaps.com/es/
40	UC19	Charging Stations in TEN-T Corridor	yes		EAFO / European Alternative Fuels Observatory (mapa estaciones recarga sobre TEN-T)	European information	https://webgate.ec.europa.eu/tentec-maps/web/public/screen/home https://www.mapareve.es/mapa-puntos-recarga/emplazamiento/5a5c4452-3126-4e5a-b636-c368a80278e3 https://transport.ec.europa.eu/ten-t-network-map_en
41	UC19 Port	Connected vehicle data from electric vehicles (Consumption, Range, Charging time)					

7.2.8 Cross-border Pilot – France:

UC5 Passenger Transit:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)
1	Characteristics of roads of interest	Spanish Transport Network	Yes	Yes	IGN			https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Yes
		Transport Networks of France	Yes	Yes	IGN France			https://geoservices.ign.fr/bdcarto	
2	Traffic counts at cross-border roads	Traffic counts at detectors in Euskadi	Yes	Yes	Gobierno Vasco			AWS-EJIE	Yes
3	Traffic intensity of roads of interest	Traffic volumes on Euskadi	Yes	Yes	Gobierno Vasco			https://opendata.euskadi.eus/catalogo/-/densidad-de-trafico-en-euskadi-durante-el-2024-aforos/	Yes
		Annual Average Daily Traffic on the French national road network	Yes	Yes	Ministère de la Transition écologique			https://www.data.gouv.fr/datasets/trafic-moyen-journalier-annuel-sur-le-reseau-routier-national	Yes

		Road traffic on the main corridors in Nouvelle-Aquitaine	Yes	Yes	DREAL Nouvelle-Aquitaine			https://www.nouvelle-aquitaine.developpement-durable.gouv.fr/les-trafics-routiers-sur-les-corridors-a14037.html?lang=fr	No
4	Cross-border public transport supply	Static GTFS long distance FlixBus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1	Yes
		Static GTFS long distance Blablacar Bus	Yes	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen	Yes
		Static GTFS for Interurban Public Transport Aquitania	Yes	Yes	Syndicat des Mobilités Pays Basque-Adour			https://transport.data.gouv.fr/datasets/offre-transport-du-reseau-txik-txak	Yes
5	Vehicle fleet composition data	Vehicle fleet by municipality Spain	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No
		Vehicle fleet by municipality in France	Yes	Yes	SDES			https://www.statistiques.developpement-durable.gouv.fr/donnees-sur-le-parc-automobile-francais-au-1er-janvier-2025	No
6	Emission factors	GHG Emissions Inventory in Spain	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No
		Emission factors for different road transport modes in France	Yes	Yes	ADEME			https://www.data.gouv.fr/datasets/etude-facteurs-demissions-des-differents-modes-de-transport-routier	Yes
7	Vehicle registration/nationality data	Anonymized LPR data in Euskadi	Yes	Yes	Gobierno Vasco			AWS-EJIE	Yes
8	Secure parking facilities inventory	Secure parking facilities inventory Spain	No	Yes	MITMS			https://visorcarreteras.transportes.gob.es/AparcamientosSeguros#map	No
		Heavy goods vehicle parking areas in France	No	Yes	Bison Futé			https://www.bison-fute.gouv.fr/directive-sti,id_sous_rubrique10423.html	No
9	Location of electric charging points	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes

UC10 Freight Transit:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)
1	Freight transport surveys	Survey on Road Freight Transport 2024 in Spain	Yes	Yes	MITMS			https://www.transportes.gob.es/el-ministerio/informacion-estadistica/transporte/transporte-de-mercancias-por-carretera/publicaciones-encuesta-permanente-transporte-mercancias-por-carretera/EPTMC2024	No
2	Freight flow data (volume, routes, origin-destination)	Freight by mode and origin region in France	Yes	Yes	Ecolab			https://www.data.gouv.fr/datasets/tonnes-kilometres-de-marchandises-transportees-par-mode-ferroviaire-fluvial-routier-par-region-dorigine	Yes
		Data on road freight transport (TRM) in France and Europe.	Yes	Yes	SDES			https://www.statistiques.developpement-durable.gouv.fr/donnees-sur-le-transport-routier-de-marchandises-trm-en-france-et-en-europe	No
3	Traffic intensity at border crossings (light vehicles, heavy vehicles)	Traffic volumes on Euskadi	Yes	Yes	Gobierno Vasco			https://opendata.euskadi.eus/catalogo/-/densidad-de-trafico-en-euskadi-durante-el-2024-aforos/	Yes
		Annual Average Daily Traffic on the French national road network	Yes	Yes	Ministère de la Transition écologique			https://www.data.gouv.fr/datasets/trafic-moyen-journalier-annuel-sur-le-reseau-routier-national	Yes
		Road traffic on the main corridors in Nouvelle-Aquitaine	Yes	Yes	DREAL Nouvelle-Aquitaine			https://www.nouvelle-aquitaine.developpement-durable.gouv.fr/les-trafics-routiers-sur-les-corridors-a14037.html?lang=fr	No

4	Existing models: Spanish National Transport Model								
5	Planned infrastructure projects and studies relevant to new or upgraded corridors		No	No		No	Low. Only affects simulations		
6	Cross-border public transport routes and schedules	Static GTFS long distance FlixBus	No	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1	Yes
		Static GTFS long distance Blablacar Bus	No	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen	Yes
		Static GTFS for Interurban Public Transport Aquitania	Yes	Yes	Syndicat des Mobilités Pays Basque-Adour			https://transport.data.gouv.fr/datasets/offre-transport-du-reseau-txik-txak	Yes
7	Vehicle nationality at border points	Anonymized LPR data in Euskadi	Yes	Yes	Gobierno Vasco			AWS-EJIE	Yes
8	Road infrastructure characteristics	Spanish Transport Network	Yes	Yes	IGN			https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Yes
		Transport Networks of France	Yes	Yes	IGN France			https://geoservices.ign.fr/bdcarto	
9	Vehicle fleet composition data	Vehicle fleet by municipality Spain	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No
		Vehicle fleet by municipality in France	Yes	Yes	SDES			https://www.statistiques.developpement-durable.gouv.fr/donnees-sur-le-parc-automobile-francais-au-1er-janvier-2025	No
10	Emission factors	GHG Emissions Inventory in Spain	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No
		Emission factors for different road transport modes in France	Yes	Yes	ADEME			https://www.data.gouv.fr/datasets/etude-facteurs-demissions-des-differents-modes-de-transport-routier	Yes
11	Secure parking facilities inventory	Secure parking facilities inventory Spain	No	Yes	MITMS			https://visorcarreteras.transportes.gob.es/AparcamientosSeguros#map	No
		Heavy goods vehicle parking areas in France	No	Yes	Bison Futé			https://www.bison-fute.gouv.fr/directive-sti.id_sous_rubrique10423.html	No
12	Location of electric charging points	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes

UC18 – Freight Emissions:

ID	Data	Dataset description	Necessary?	Available?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)
1	Characteristics of roads of interest (length, number of lanes, speed limits)	Spanish Transport Network	Yes	Yes	IGN			https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Yes
		Transport Networks of France	Yes	Yes	IGN France			https://geoservices.ign.fr/bdcarto	
2	Traffic intensity on roads of interest (Light vehicles, Heavy vehicles)	Traffic volumes on Euskadi	Yes	Yes	Gobierno Vasco			https://opendata.euskadi.eus/catalogo/-/densidad-de-trafico-en-euskadi-durante-el-2024-aforos/	Yes
		Annual Average Daily Traffic on the French national road network	Yes	Yes	Ministère de la Transition écologique			https://www.data.gouv.fr/datasets/trafic-moyen-journalier-annuel-sur-le-reseau-routier-national	Yes
		Road traffic on the main corridors in Nouvelle-Aquitaine	Yes	Yes	DREAL Nouvelle-Aquitaine			https://www.nouvelle-aquitaine.developpement-durable.gouv.fr/les-trafics-routiers-sur-les-corridors-a14037.html?lang=fr	No
3		Traffic volumes on Euskadi	Yes	Yes	Gobierno Vasco			https://opendata.euskadi.eus/catalogo/-/densidad-de-trafico-en-euskadi-durante-el-2024-aforos/	Yes

	Historical traffic intensities on roads of interest (Heavy vehicles)	Annual Average Daily Traffic on the French national road network	Yes	Yes	Ministère de la Transition écologique			https://www.data.gouv.fr/datasets/trafic-moyen-journalier-annuel-sur-le-reseau-routier-national	Yes
		Road traffic on the main corridors in Nouvelle-Aquitaine	Yes	Yes	DREAL Nouvelle-Aquitaine			https://www.nouvelle-aquitaine.developpement-durable.gouv.fr/les-trafics-routiers-sur-les-corridors-a14037.html?lang=fr	No
4	Meteorological data	Meteorological data Spain	Yes	Yes	AEMET			https://opendata.aemet.es/centrodedescargas/inicio	Yes
		Meteorological data France	Yes	Yes	Meteo France			https://portail-api.meteofrance.fr/web/fr/	Yes
5	Floating Phone Data	Mobility study using Big Data	Yes	Yes	MITMS	Private source	Only Spanish users	https://www.transportes.gob.es/ministerio/proyectos-singulares/estudios-de-movilidad-con-big-data/opendata-movilidad	Yes
6	Vehicle fleet data	Vehicle fleet by municipality Spain	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No
		Vehicle fleet by municipality in France	Yes	Yes	SDES			https://www.statistiques.developpement-durable.gouv.fr/donnees-sur-le-parc-automobile-francais-au-1er-janvier-2025	No
7	Freight transport data	Survey on Road Freight Transport 2024 in Spain	Yes	Yes	MITMS			https://www.transportes.gob.es/el-ministerio/informacion-estadistica/transporte/transporte-de-mercancias-por-carretera/publicaciones-encuesta-permanente-transporte-mercancias-por-carretera/EPTMC2024	No
		Freight by mode and origin region in France	Yes	Yes	Ecolab			https://www.data.gouv.fr/datasets/tonnes-kilometres-de-marchandises-transportees-par-mode-ferroviaire-fluvial-routier-par-region-dorigine	Yes
		Data on road freight transport (TRM) in France and Europe.	Yes	Yes	SDES			https://www.statistiques.developpement-durable.gouv.fr/donnees-sur-le-transport-routier-de-marchandises-trm-en-france-et-en-europe	No
8	Emission factors databases	GHG Emissions Inventory in Spain	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No
		Emission factors for different road transport modes in France	Yes	Yes	ADEME			https://www.data.gouv.fr/datasets/etude-facteurs-demissions-des-differents-modes-de-transport-routier	Yes
9	Emission factors		Yes	No		Data from simulations			
10	Secure parking facilities inventory	Secure parking facilities inventory Spain	Yes	Yes	MITMS			https://visorcarreteras.transportes.gob.es/AparcamientosSeguros#map	No
		Heavy goods vehicle parking areas in France	Yes	Yes	Bison Futé			https://www.bison-fute.gouv.fr/directive-sti,id_sous_rubrique10423.html	No
11	Location of electric charging points	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
12	Vehicle nationality at border points	Anonymized LPR data in Euskadi	Yes	Yes	Gobierno Vasco			AWS-EJIE	Yes
13	Cross-border public transport routes and schedules	Static GTFS long distance FlixBus	No	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1	Yes
		Static GTFS long distance Blablacar Bus	No	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen	Yes
		Static GTFS for Interurban Public Transport Aquitania	Yes	Yes	Syndicat des Mobilités Pays Basque-Adour			https://transport.data.gouv.fr/datasets/offre-transport-du-reseau-txik-txak	Yes

UC19 – Charging Infrastructure:

ID	Data	Dataset description	Necessary?	Available ?	Specific Data Source	Other options to access	Risk	URLs	Automatically (Yes/No)
1	Characteristics of roads of interest	Spanish Transport Network	Yes	Yes	IGN			https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Yes
		Transport Networks of France	Yes	Yes	IGN France			https://geoservices.ign.fr/bdcarto	
2	Historical traffic intensities on roads of interest	Traffic volumes on Euskadi	Yes	Yes	Gobierno Vasco			https://opendata.euskadi.eus/catalogo/-/densidad-de-trafico-en-euskadi-durante-el-2024-aforos/	Yes
		Annual Average Daily Traffic on the French national road network	Yes	Yes	Ministère de la Transition écologique			https://www.data.gouv.fr/datasets/trafic-moyen-journalier-annuel-sur-le-reseau-routier-national	Yes
		Road traffic on the main corridors in Nouvelle-Aquitaine	Yes	Yes	DREAL Nouvelle-Aquitaine			https://www.nouvelle-aquitaine.developpement-durable.gouv.fr/les-trafics-routiers-sur-les-corridors-a14037.html?lang=fr	No
3	Connected vehicle data from electric vehicles		No	No					
4	Current location of chargers	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
5	Number of chargers at each location	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
6	Power of each charger	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
7	Electric fleet (labelled) by province/municipality	Vehicle fleet by municipality Spain	Yes	Yes	DGT			https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/Datos-municipales-informacion-general-2024/	No
		Vehicle fleet by municipality in France	Yes	Yes	SDES			https://www.statistiques.developpement-durable.gouv.fr/donnees-sur-le-parc-automobile-francais-au-1er-janvier-2025	No
8	Projection of electric vehicles by country	Global Electric Vehicle Outlook 2025	Yes	Yes	IEA			https://www.iea.org/data-and-statistics/data-tools/global-ev-data-explorer	No
9	TEN-T corridor electric charging stations	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
10	Highway electric charging stations	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
11	Charging station usage patterns		No	No					
12	Charging infrastructure types	Electric vehicle charging infrastructure	Yes	Yes	Open Charge Map			https://openchargemap.org/develop#api	Yes
13	Electric vehicle type distribution (passenger, commercial, heavy…)	Vehicle fleet data panel Spain	Yes	Yes	DGT		Spanish users only	https://paneldatos.dgt.es/MicroStrategyLibraryGuest/app/A21CBE7011EC42DC71650080EF457DF5/34900D0CAA457AEBCB3A5CA8A28A885A/K3469807EE14C3C9F62E942BFF0ED0763--KC0BCB9BDC346CEBB2A5499A7DCE0B0D5	No
14	Vehicle nationality at border points	Anonymized LPR data in Euskadi	Yes	Yes	Gobierno Vasco			AWS-EJIE	Yes
15	Cross-border public transport routes and schedules	Static GTFS long distance FlixBus	No	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/flixbus-horaires-theoriques-du-reseau-europeen-1	Yes

		Static GTFS long distance Blablacar Bus	No	Yes	transport.data.gouv.fr			https://transport.data.gouv.fr/datasets/blablacar-bus-horaires-theoriques-et-temps-reel-du-reseau-europeen	Yes
		Static GTFS for Interurban Public Transport Aquitania	Yes	Yes	Syndicat des Mobilités Pays Basque-Adour			https://transport.data.gouv.fr/datasets/offre-transport-du-reseau-txik-txak	Yes
16	Secure parking facilities inventory	Secure parking facilities inventory Spain	Yes	Yes	MITMS			https://visorcarreteras.transportes.gob.es/AparcamientosSeguros#map	No
		Heavy goods vehicle parking areas in France	Yes	Yes	Bison Futé			https://www.bison-fute.gouv.fr/directive-sti,id_sous_rubrique10423.html	No
17	Emission factors databases	GHG Emissions Inventory in Spain	Yes	Yes	MITECO			https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/inventario-gases-efecto-invernadero.html	No
		Emission factors for different road transport modes in France	Yes	Yes	ADEME			https://www.data.gouv.fr/datasets/etude-facteurs-demissions-des-differents-modes-de-transport-routier	Yes

Interview with Aquitania Region:

Pilot: Cross-border pilot Use Case : UC5, UC10, UC18, UC19 Meeting with EUROREGION.						
	Data closed to required.					
	There is data but not in Database format.			**Contextual and Governance Specifications**		
	Data probably available but not by a public source. Need to be consulted.					
	Data no found			**Governance**		
Data Category	**Data**	**Link**	**Comments**	**Ownership**	**Owner - Organization**	**Accessibility**
Characteristics of roads of interest	Lentgh	BD CARTO® | Géoservices	On the website, download the dataset corresponding to department "64 - Pyrénées Atlantiques". The road network database can be visualized in QGIS.	**Public**	IGN	Open
	Number of lanes	BD CARTO® | Géoservices	On the website, download the dataset corresponding to department "64 - Pyrénées Atlantiques". The road network database can be visualized in QGIS.	**Public**	IGN	Open
	Speed limits	BD CARTO® | Géoservices	In the same dataset, only average speeds per road segment can be visualized, not the maximum permitted speeds.	**Public**	IGN	Open
	Forecast of cross-border infrastructure projects		There is no dedicated database. However, information could be requested from different administrations: City of Hendaye; Basque Mobility Syndicate (SMPBA, for road public transport); Département des Pyrénées-Atlantiques (road infrastructure and parking); Nouvelle-Aquitaine Region (regional and national infrastructure, road and rail); Ministry of Transport (national infrastructure such as high-speed rail or motorways). Ongoing projects include Irun station remodeling, Basque Y, third rail San Sebastián–Irun–Hendaye. Future projects include Hendaye station remodeling, Bidart station creation, and in the long term the Dax–Basque Country high-speed line.			
Connected vehicle data from electric vehicles	Consumption					
	Range					
	Charging time					

Electric charger	Location	https://transport.data.gouv.fr/datasets/base-nationale-des-irve-infrastructures-de-recharge-pour-vehicules-electriques		**Public**	Transport.Data.Gouv	Open
	Number of chargers	https://transport.data.gouv.fr/datasets/base-nationale-des-irve-infrastructures-de-recharge-pour-vehicules-electriques	In that data.gouv dataset, using the GeoJSON format in QGIS, the number of chargers can be visualized in the "nbre_pdc" column ("number of charging points") for each station.	**Public**	Transport.Data.Gouv	Open
	Power of each charger	https://transport.data.gouv.fr/datasets/base-nationale-des-irve-infrastructures-de-recharge-pour-vehicules-electriques	Refer to column "horaires".	**Public**	Transport.Data.Gouv	Open
	Multiple vehicle simultaneous					
	Average service time	https://transport.data.gouv.fr/datasets/base-nationale-des-irve-infrastructures-de-recharge-pour-vehicules-electriques	In that dataset, refer to the "horaires" column.	**Public**	Transport.Data.Gouv	Open
	Types (fast, ultra fast, standard chargers)					
	Connector types (CCS, CHAdeMO, Type 2, etc.)	https://transport.data.gouv.fr/datasets/base-nationale-des-irve-infrastructures-de-recharge-pour-vehicules-electriques	Refer to columns from "prise_type_ef" to "prise_type_autre".	**Public**	Transport.Data.Gouv	Open
Charging station usage patterns	Peak usage hours					
	Average charging duration					
	Charger availability	Carte - Reveo	The availability of each station can be visualized on an interactive map.	**Private**	Révéo	Open
Electric fleet	Electric fleet (labelled) by province/municipality	CA du Pays Basque : le point sur la transition écologique | Enedis | Observatoire Français de la Transition Écologique	Data available for Nouvelle-Aquitaine region and Pyrénées-Atlantiques department. For more detail at the Basque Country agglomeration level, use Agence ORE data (electric vehicles registered annually 2020–2025). (https://opendata.agenceore.fr/explore/dataset/voitures-par-commune-par-energie/table/?q=bayonne$)	**Public**	ENEDIS	Open
	Projection of electric vehicles by country	Voiture électrique : quelle stratégie bas-carbone en France	They can rely on the guidelines of the “Stratégie Nationale Bas Carbone”, whose main objectives are the decarbonisation of the mobility sector and the increase in the electric vehicle fleet (target: 2/3 of vehicles sold in 2030 and 15% of the active fleet to be electric by that same horizon).	**Public**	ENEDIS o Ministères Ecologie Energie Territoires	Open
	TEN-T corridor electric charging stations Public Administration	Trafic - Recharge électrique - Bison Futé	Shows availability and characteristics of stations along European transport corridors (mainly near motorways/service areas).	**Public**	Bison Futé	Open
Cross-border public transport routes and schedules	GTFS	https://transport.data.gouv.fr/datasets/region/75?utf8=%E2%9C%93&locale=en&q=gtfs-rt	For public urban and interurban road transport services.	**Public**	Transport.Data.Gouv	Open
		Réseau SNCF TGV, Intercités et TER - Données (GTFS, NeTEx, SIRI Lite, gtfs-rt) ouvertes - France	For regional rail public services (TER), national public services (Intercités), and commercial services (TGV).	**Public**	SNCF	Open
		LINIA - Cartographie	For long-distance commercial bus services (FlixBus and BlaBlaBus). Alsa International routes are integrated into the BlaBlaBus offering.	**Public**	Transport.Data.Gouv	Open
	Number of passengers crossing the border	Excel file attached to my response email.	There is an urban bus line (Line 15 of Txik Txak, Plaza San Juan – EHPAD Zahar Etxea) connecting Irún and Hendaye, managed by SMPBA. There is no public traffic data available for this line. For railway traffic data, refer to the Excel file attached to the response email. It only includes the number of trips made using PASSBASK tickets (Euskotren + TER Nouvelle-Aquitaine) and EUSKOPASS tickets (Euskotren + Txik Txak) between 2019 and 2024.	**Public**	Euskotren	Restricted

Secure parking facilities inventory	Location	Donnees_statiques_aire_PL_2025_SCA.xlsx		**Public**	Bison Futé	Open
	Capacity	Donnees_statiques_aire_PL_2025_SCA.xlsx		**Public**	Bison Futé	Open
Historical Traffic intensity	Light vehicles	https://www.nouvelle-aquitaine.developpement-durable.gouv.fr/observatoire-regional-des-trafics-routiers-r4743.html?lang=fr		**Public**	Developpement Durable,Gouv	Open
	Heavy vehicles	https://www.nouvelle-aquitaine.developpement-durable.gouv.fr/observatoire-regional-des-trafics-routiers-r4743.html?lang=fr		**Public**	Developpement Durable,Gouv	Open
	LPR					
Sustainability data	Emission factors	Quelques facteurs d'émissions | Chiffres clés du climat - Édition 2025				
	Fleet data by emission category	Etude - Facteurs d'émissions des différents modes de transport routier				
Freight transport flows	Identified freight transport routes	Utilisation du Réseau Ferré National - Open Data ART	Railway freight corridors can be identified.	**Public**	Autorité de Régulation des Transports	Open
		Marché du transport ferroviaire de marchandises - Open Data ART	Macro-level data (market share, main O/D flows).	**Public**	Autorité de Régulation des Transports	Open
	Freight transport modes	Tableau_de_bord_national_de_la_logistique_edition_2024_-_Cahier_de_synthese_du_Tableau_de_bord.pdf	On the same website, more detailed data can be accessed for each French region (Cahier des Territoires 2024 (https://splott.univ-gustave-eiffel.fr/fileadmin/redaction/SPLOTT/documents/divers/Tableau_de_bord_national_de_la_logistique_edition_2024_-_Cahier_des_territoires.pdf)	**Public**	Université Gustave Eiffel	Open
	Freight transport O/D matrix	Tonnes-kilomètres de marchandises transportées par mode (ferroviaire, fluvial, routier) par région d'origine	Dataset appears not to load properly in Excel.	**Public**	Transport.Data.Gouv	Open
	Freight transport emissions	Tableau_de_bord_national_de_la_logistique_edition_2024_-_Cahier_des_politiques_publiques.pdf		**Public**	Université Gustave Eiffel	Open
Floating Phone Data						
Special operations calendar						

Interview with Gobierno Vasco:

Pilot: Cross-border pilot Use Case : UC5, UC10, UC18, UC19 Meeting with BASQUE GOVERNMENT.					
			Contextual and Governance Specifications		
			Governance		
Data Category	**Data**	**Link**	**Ownership**	**Owner - Organization**	**Accessibility**
Characteristics of roads of interest	Lentgh	https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Public	IGN	Open
	Number of lanes	https://centrodedescargas.cnig.es/CentroDescargas/redes-transporte	Public	IGN	Open

	Speed limits				
	Forecast of cross-border infrastructure projects				
Connected vehicle data from electric vehicles	Consumption				
	Range				
	Charging time				
Electric charger	Location	https://openchargemap.org/site	Public	Open Charge Map Contributors	Open
	Number of chargers	https://openchargemap.org/site	Public	Open Charge Map Contributors	Open
	Power of each charger	https://openchargemap.org/site	Public	Open Charge Map Contributors	Open
	Multiple vehicle simultaneous				
	Average service time				
	Types (fast, ultra fast, standard chargers)	https://openchargemap.org/site	Public	Open Charge Map Contributors	Open
	Connector types (CCS, CHAdeMO, Type 2, etc.)	https://openchargemap.org/site	Public	Open Charge Map Contributors	Open
Charging station usage patterns	Peak usage hours				
	Average charging duration				
	Charger availability				
Electric fleet	Electric fleet (labelled) by province/municipality				
	Projection of electric vehicles by country				
	TEN-T corridor electric charging stations Public Administration				
Cross-border public transport routes and schedules	GTFS	https://opendata.euskadi.eus/catalogo/-/moveuskadi-datos-de-la-red-de-transporte-publico-de-euskadi-operadores-horarios-paradas-calendario-tarifas-etc/	Public	ATTG	Open
	Number of passengers crossing the border				
Secure parking facilities inventory	Location	https://eu-parkings.eu/sstpas/sstpas-map/	Public	European Commision	Open
	Capacity	https://www.mowiztruck.com/es	Private	Mowiz	Restricted
Historical Traffic intensity	Light vehicles		Public	Gobierno Vasco	Restricted
	Heavy vehicles		Public	Gobierno Vasco	Restricted
	LPR		Public	Gobierno Vasco	Restricted
Sustainability data	Emission factors				
	Fleet data by emission category				
Freight transport flows	Identified freight transport routes				
	Freight transport modes				
	Freight transport O/D matrix				
	Freight transport emissions				