



Advancing Sustainable User-centric
Mobility with Automated Vehicles

DELIVERABLE

D1.2 Project inception report & Data Management Plan - Intermediate Version



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Acronyms

AV *Automated Vehicle*

ADS	Automated Driving Systems	GNSS	Global Navigation Satellite System
AI	Artificial Intelligence	HARA	Hazard Analysis and Risk Assessment
AM	Automated Mobility	IPR	Intellectual Property Rights
API	Application Protocol Interface	IT	Information Technology
AV	Automated Vehicle	ITU	International Telecommunications Union
BM	Bestmile	LA	Leading Author
BMM	Business Modelling Manager	LIDAR	Light Detection and Ranging
CAV	Connected and Automated Vehicles	MEM	Monitoring and Evaluation Manager
CB	Consortium Body	MT	MobileThinking
CERN	European Organization for Nuclear Research	OCT	General Transport Directorate of the Canton of Geneva
D7.1	Deliverable 7.1	ODD	Operational Domain Design
DC	Demonstration Coordinator	OEDR	Object And Event Detection And Response
DI	The department of infrastructure (Swiss Canton of Geneva)	OFCOM	(Swiss) Federal Office of Communications
DMP	Data Management Plan	PC	Project Coordinator
DSES	Department of Security and Economy - Traffic Police (Swiss Canton of Geneva)	PEB	Project Executive Board
DTU test track	Technical University of Denmark test track	PGA	Project General Assembly
EAB	External Advisory Board	PRM	Persons with Reduced Mobility Group
EC	European Commission	PSA	PSA (PSA Peugeot Citroën)
ECSEL	Electronic Components and Systems for European Leadership	PTO	Public Transportation Operator
EM	Exploitation Manager	PTS	Public Transportation Services
EU	European Union	QRM	Quality and Risk Manager
EUCAD	European Conference on Connected and Automated Driving	QRMB	Quality and Risk Management Board
F2F	Face to face meeting	RN	Risk Number
FEDRO	(Swiss) Federal Roads Office	SA	Scientific Advisor
FM	Fleet Management	SAE Level	Society of Automotive Engineers Level (Vehicle Autonomy Level)
FOT	(Swiss) Federal Office of Transport	SAN	(Swiss) Cantonal Vehicle Service
GDPR	General Data Protection Regulation	SDK	Software Development Kit
GIMS	Geneva International Motor Show	SLA	Sales Lentz Autocars
		SMB	Site Management Board
		SoA	State of the Art
		SOTIF	Safety Of The Intended Functionality



SWOT	Strengths, Weaknesses, Opportunities, and Threats.
T7.1	Task 7.1
TM	Technical Manager
TPG	Transport Publics Genevois
	Union Internationale des
UITP	Transports Publics (International Transport Union)
V2I	Vehicle to Infrastructure communication
WP	Work Package
WPL	Work Package Leader

Executive Summary

The deliverable D1.2 Project Inception Report & Data Management Plan – Intermediate Version is the continuation of the work carried out under the work package WP1 – Project Management & Ethics and thus builds on the deliverable D1.1 Project Inception Report & Data Management Plan – First Version by incorporating the initial Data Management Plan of ULTIMO. It presents the updates on the project management plan describing the overall project management and procedures that govern the project execution. Furthermore, it introduces the initial data management plan of the project which is prepared based on the the Guidelines on the principles of Findability, Accessibility, Interoperability, and Reuse of digital assets (the FAIR principles) and define the how the project handles with research data to be collected, processed and/or generated by the consortium partners. In that regard, this intermediate version aims to document the results of the Work Package 1 tasks T1.1, T1.3, T1.4 in accordance with the ULTIMO Grant Agreement no. 101077587.

The ULTIMO governance is implemented in a hierarchical model, with the General Assembly being the highest project authority and where each partner has a single vote. The overall management and supervision of the project is assured by the executive board. The daily operations of the project if followed by the Technical team, composed of the WP leaders and the executive board. An external Advisory board provides the needed external and neutral point of view of the project work. The structure and details of the project management have been included and formalised in the Consortium Agreement signed by all partners.

The novelty in this version is the introduction of the initial data management plan of ULTIMO. The initial plan aims to provide an overview of management policies for the data that will be generated and processed in the ULTIMO project which are shaped in accordance with the Open Science requirements and the FAIR principles. More specifically, it follows the European Commission’s guidelines on Open Science and Open Access to Research Data provided under the Horizon Europe Programme Guide¹ and the legal requirements set forth in the Horizon Europe Regulation². The initial plan further explains the FAIR principles in order to guide the consortium on how to render ULTIMO data Findable, Accessible, Interoperable and Re-usable throughout their entire data lifecycle. Therefore, this version should be considered as initial engagement in the context of the activities of T1.4 IPR & Data Management Planning contributed to increasing consortium’s awareness on the open science and open access requirements, possibly, allowing partners to sharpen any occurring contributions under the following deliverables. In Annex-1, the present document also provides the partner leading the pilot activities a data management template to help the partners to identify the research data as well as to comply with the FAIR principles. Finally, the present document briefly discusses the EU regulatory framework on data that could have impact on the data management in the project.

¹ European Commission, Horizon Europe Programme Guide, Version 2.0, 11 April 2022.

² Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations (EU) No 1290/2013 and (EU) No 1291/2013, OJ L 170/1.



In that regard, this is a critical document for the project activities, especially given the data-driven nature of ULTIMO and thus it has been communicated to all consortium partners in order to facilitate the proper management of ULTIMO data. This initial version of data management plan will be updated and further information on how the collected data were managed during the project and how they will be managed after the end of the project will be provided in the deliverable D1.3 in month 44 of the project in accordance with the work carried out under the task T1.4 IPR & Data Management Planning.

Changes from D1.1

This deliverable completes deliverable D1.1 adding the initial data management plan of ULTIMO, in the new section 4 “Data Management Plan”, and adding section 5 with the overall conclusions.

1 Introduction

During the past few years many projects and initiatives were undertaken deploying and testing Automated Vehicles (AVs) for public transportation and logistics. However, in spite of their ambition, all of these projects stayed on the level of elaborated experimentation and never reached the level of a large-scale commercial deployment of transport services. The reasons for this are many, the most important being the lack of economically viable and commercially realistic models, the lack of scalability of the business and operating models, and the lack of user-oriented services required for large end-user adoption of the solutions.

The ULTIMO project will create the very first economically feasible and sustainable integration of AVs for MaaS public transportation and LaaS urban goods transportation. ULTIMO aims to deploy in three sites in Europe 15 or more multi-vendor SAE L4 AVs per site. A user centric holistic approach, applied throughout the project, will ensure that all elements in a cross-sector business environment are incorporated to deliver large-scale on-demand, door-to-door, well-accepted, shared, seamless-integrated and economically viable CCAM services. We target the operation without safety driver on-board, in a fully automated and mission management mode with the support of innovative user centric passenger services.

ULTIMO's innovative transportation models are designed for a long-term sustainable impact on automated transportation in Europe, around the globe and on society. The composition of the consortium ensures the interoperability between multiple stakeholders by making adoption of new technology at minimum costs and maximum safety. The integration of the ongoing experiments of previous AV-demonstrator projects ensures highest possible technical and societal impacts from the very beginning of the project, as well as during the project lifetime and even long after its completion.

1.1 On-demand Mobility

Public transportation is a key element of a region's economic development and the quality of life of its citizens. Governments around the world are defining strategies for the development of efficient public transport based on different criteria of importance to their regions, such as topography, citizens' needs, social and economic barriers, environmental concerns, and historical development. However, new technologies, modes of transport and services are appearing, which seem very promising to the support of regional strategies for the development of public transport.

On-demand transport is a public transport service that only works when a reservation has been recorded and will be a relevant solution where the demand for transport is diffuse and regular transport is inefficient.

On-demand transport differs from other public transport services in that vehicles do not follow a fixed route and do not use a predefined timetable. Unlike taxis, on-demand public transport is usually also not individual. An operator or an automated system takes care of the booking, planning and organization.

It is recognized that the use and integration of on-demand Automated vehicles has the potential to significantly improve services and provide solutions to many of the problems encountered today in the development of sustainable and efficient public transport.

1.1.1 Fully Automated Vehicles

A self-driving car, referred in the ULTIMO project as a **Fully Automated Vehicle (AV)**, is a vehicle that can sense its environment and moving safely with no human input.

The terms *automated vehicles* and *autonomous vehicles* are often used together. The Regulation 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles defines "automated vehicle" and "fully automated vehicle" based on their autonomous capacity:

An "automated vehicle" means a motor vehicle designed and constructed to move autonomously for certain periods of time without continuous driver supervision but in respect of which driver intervention is still expected or required.

"Fully automated vehicle" means a motor vehicle that has been designed and constructed to move autonomously without any driver supervision.

In ULTIMO we operate **Fully Automated mini and micro shuttles for shared public transportation**. In relation to the SAE levels, the ULTIMO project will operate SAE Level 4 vehicles.



SAE J3016™ LEVELS OF DRIVING AUTOMATION

	SAE LEVEL 0	SAE LEVEL 1	SAE LEVEL 2	SAE LEVEL 3	SAE LEVEL 4	SAE LEVEL 5
What does the human in the driver's seat have to do?	You are driving whenever these driver support features are engaged – even if your feet are off the pedals and you are not steering			You are not driving when these automated driving features are engaged – even if you are seated in “the driver's seat”		
	You must constantly supervise these support features; you must steer, brake or accelerate as needed to maintain safety			When the feature requests, you must drive	These automated driving features will not require you to take over driving	
	These are driver support features			These are automated driving features		
What do these features do?	These features are limited to providing warnings and momentary assistance	These features provide steering OR brake/acceleration support to the driver	These features provide steering AND brake/acceleration support to the driver	These features can drive the vehicle under limited conditions and will not operate unless all required conditions are met		This feature can drive the vehicle under all conditions
	• automatic emergency braking • blind spot warning • lane departure warning	• lane centering OR • adaptive cruise control	• lane centering AND • adaptive cruise control at the same time	• traffic jam chauffeur	• local driverless taxi • pedals/steering wheel may or may not be installed	• same as level 4, but feature can drive everywhere in all conditions
Example Features						

Table 1: SAE Driving Automation levels (©2020 SAE International)

1.2 The ULTIMO dream for public transportation

Our city has a population of 700.000, and the local PTO (Public Transport Operator) deploys 3.000 Km of public transportation services' routes, with 4 backbone tram lines, 8 backbone large bus/trolley lines, and 340 fully automated multi-manufacturer mini and micro-shuttles in an on-demand, door-to-door shared public transport service. The fleet of the 340 automated minibusses is composed of different vehicle generations and models from different manufacturers, as it was purchased in different batches during the last 12 years (it all started with the first 15 bought by a European project in 2023/24). It is today composed of the first 15 twelve-years old vehicles from manufacturer A, 160 eight-years old vehicles from manufacturer B and 160 two-years old vehicles from manufacturer A, which are the new generation of manufacturer's A vehicles. These last 160 vehicles re-placed the last 70 old, driver based, thermic busses that reached the end of their life after 18 years in operation. The change from driver large busses to automated mini-buses and from fixed line service to on-demand, door-to-door, for the last area of the city, was decided 6 years ago, and was based to the great success of the already deployed AV-based services in the other parts of the city.

The integration of new vehicles in the PTO fleet was done within just a few days, thanks to the now standardised APIs of the automate vehicles' connection with the AV fleet management and orchestration service, that allows a plug-and-operate functionality, but also enables the combination of AVs with all other means of transport, offering a seamless citizen centric journey to the users. Similarly, the now standardized High Definition (HD) maps between the vehicle manufacturers, allowed us to reuse the maps created in the past for the 3.000 Kms of routes of the city, with small adaptations for the new vehicle capabilities. At the same time of the purchase of the last 160 AVs, we also switched to a new AV fleet management and orchestration service, from another provider, which offers more precise trip time estimations, considering also traffic jams in the city and weather conditions (that affect traffic in the city). The replacement was made within just two weeks, thanks to the new standardised interfaces between AV fleet management and PTO MaaS services.

Passengers are now able to reserve, via their mobile phone app, on the fly or with pre-reservation trips from one side of the city to another, using the optimal transport mode available for them, with a combination of different transport modes, and having the automated vehicle arriving next (or almost) to their door entrance and bringing them to their final destination or to a backbone transport connection. All trips are offered with highly reliable and accurate transport and arrival times, based on real time, dynamic route changes of the vehicles, responding to the passenger needs. Many passenger services are available in the AVs via a mobile phone app, adapted to all passengers' needs, from special needs passengers (visually impaired, wheel-chair users, pregnant women, elderly, children), to persons transporting suitcases or a baby-stroller, providing adapted information of their trip (where to get-off, PTO general information, and even infotainment, like city related information and historical facts and anecdotes, related to their current position).

With the full suppression of on-board operators, automated in-vehicle monitoring provides a multitude of passenger services, which were, and are developed with a continuous collaboration and innovation between users and the PTO. An on-board unit identifies locally (that is, in the bus) incidents and events, like aggressions, vandalism, forgot-ten objects, littering, accidents, etc., and raises incident alarms to the PTO back-office. The PTO officer at the back-office evaluates the incident and decides, based on the operator policies, what action



to take: dismiss the incident, or stop the vehicle and call one of the intervention teams to go to the vehicle and take the required action. The back-office operator, based on the number of incidents and intervention time legal obligations, can deploy any of the 15 intervention teams available in the city, ready to reach within a few minutes any AV. At the back-office, service operators are able, with one set of screens linked to the fleet management, to follow the vehicle status, trip reservations, routes chosen, open and closed road segments (due to works, accidents, etc. thus adapting dynamically the trip routings), while in a second set of screens, the back-office operators can follow the passenger services' incidents and the status and location of the intervention teams. The two systems, although independent, are linked so that the back-office operator can transfer incidents to intervention teams and turn-on, when possible and under the local legal re-strictions, video connection to inspect the incident.

The public transport services are operating 24/7 with different active vehicles, depending on passenger transport demands. The PTO, being eco-sensible, has defined that the vehicle must have an average occupancy of at least 3 passengers. This of course has implications, especially in off-peak hours, in the transport delays, but it is fully justified for an optimal and eco-responsible operation. Exceptions are made for people with special needs or when the passenger is ready to pay an additional price.

While at peak-hours the full 340 strong fleet of AVs is in service for public transportation, in the off-peak and night hours, due to the reduced transportation needs, part of the fleet is not serving passenger transportation. However, because having a vehicle waiting idly is a waste of resources, the PTO has signed an agreement with Logistics as a Service (LaaS) Service providers. During the off-peak hours the unused vehicles are dynamically chartered by the different LaaS providers to be used for other types of incidental transport of goods or even non-public transportation of passengers. Local shops and enterprises use the service, on demand with dynamic reservation, to offer home delivery of on-line purchases, or B2B delivery of goods from an urban consolidation center to the distribution center (hub, many to one or one to many [7], or even transport their VIP customers directly to their offices or exposition centers. This way they can deliver the goods to their customers in the city, with a delay of just 60 minutes with affordable prices, as the last mile is the most inefficient part of the goods delivery chain. The goods sent can include books from local bookshops or libraries, supermarket bags or even documents exchanged between companies or waste. The local shops are even using the service in the early hours (5 o'clock in the morning) for re-provisioning their shops for the day. The so chartered AVs are "returned" to the PTO for public transport at the peak-hours automatically, at the end of the chartered time period.

1.3 Preamble – Project Management

WP1 is dedicated in the activities related to the overall project management. ULTIMO maintains a set of management structures with clear responsibilities, while policies and procedures are defined assuring that the consortium members will act in a coordinated way and that the necessary quality levels will be met.

In the administrative domain, WP1 sets the basis for coordination of the activities of WP1-7 and the interaction of partners and establishes and maintains links between project partners and the EU. The project management teams are responsible to monitor the progress of the technical outcomes of the project, with emphasis given on project milestones and deliverables.



The deliverable D1.1 presented the organisation of the overall and daily management and control structures of the project, as well as the liaison with the Commission and external organizations. This includes scheduling, organizing and reporting, coordination of information flow, organizing of periodic Project Board meetings for project progress review, decision making and conflict resolution. Another important issue is to coordinate the project controls and procedures definition tasks. It should be noted that the project governing structure and procedures in this deliverable is drafted in accordance with the project Consortium Agreement, which is signed by all partners.

This deliverable D1.2 complements the overall project management plan by updating the project governance structure and by introducing the initial version of the ULTIMO data management plan (DMP) in Chapter 4.

2 The Governance structure

The ULTIMO governance structure is based on a hierarchical model, it is based on good faith among partners and all decisions are to taken based on a consensus among the Partners. The management bodies of the project are :

- **The General Assembly** as the ultimate decision-making body of the consortium chaired by the General Coordinator. The General Assembly will be set up for overall strategic and managerial decisions to address and synchronize high-level management and coordination activities of the Project, which will include technical guidance, financial, exploitation and dissemination issues.
- **The Executive Board** as the supervisory body for the execution of the Project, which shall report to and be accountable to the General Assembly
- **The General Coordinator** as the legal entity acting as the intermediary between the Parties and the Granting Authority. The General Coordinator shall, in addition to its responsibilities as a Party, perform the tasks assigned to it as described in the Grant Agreement and this Consortium Agreement.
- **The Technical Team** is charged with the organization of the technical cooperation, the exchange among the work packages as well as with the technical implementation of the project tasks and related safety issues.
- **The Advisory Board**, which is constituted by external experts in different domains related to the project targets, providing and independent view of the project evolution and achievements.

2.1 General Assembly

The General Assembly is the highest authority of the project. It consists of one representative of each partner. The General Coordinator chairs all meetings of the General Assembly. The general assembly as the highest project authority validates the proposals of the Executive board, Changes to the Consortium Plan, approves modifications to, or withdrawal of, Background, approves entries of new partners, identifies breach of obligations by partners, and nominates the Executive Board Members and the advisory board members.

2.2 Executive Board

The executive board has the overall supervision of the project. It is composed of the General Coordinator, the Associate Coordinator (& Technical Manager) and the Scientific manager. A Secretary General is associated to the executive board, assisting the General coordinator. The executive board is chaired by the General Coordinator.

Table 2 Executive Board composition

Mr. Lars Abeler	General Coordinator	DB Regio
Prof. Dr. Dimitri Konstantas	Associate Coordinator & Technical Manager	University of Geneva
Prof. Dr. Guy Fournier	Scientific Manager	Hochschule Pforzheim - HSPF
Mr. Andreas Fehr	General Secretary	DB Regio

The Executive Board prepares the meetings, propose decisions and prepares the agenda of the General Assembly and is responsible for the proper execution and implementation of the decisions of the General Assembly.

The Executive Board monitors the effective and efficient implementation of the Project.

The Executive Board is also responsible for collecting information on the progress of the Project and assess the compliance of the Project work with the Consortium Plan and, if necessary, propose modifications of the Consortium Plan to the General Assembly.

2.2.1 General Coordinator

The General Coordinator is the executive leader of the project and the intermediary between the Partners and the EU. The General Coordinator is responsible for:

- monitoring compliance by the Parties with their obligations under this Consortium Agreement and the Grant Agreement,
- keeping the address list of Members and other contact persons updated and available,
- collecting, reviewing to verify consistency and submitting reports, other deliverables (including financial statements and related certifications) and specific requested documents to the Granting Authority,
- transmitting documents and information connected with the Project to any other Parties concerned,
- administering the financial contribution of the Granting Authority and fulfilling the financial tasks described in Section 7.2 of the Consortium Agreement,
- providing, upon request, the Parties with official copies or originals of documents that are in the sole possession of the General Coordinator when such copies or originals are necessary for the Parties to present claims.

2.3 Technical Team

The Technical Team is in charge of the daily technical supervision of the project and assist and provides guidance of the project implementation to all partners. The Technical Team monitors the effective and efficient implementation of the Project of the daily operations of the project.

The Technical Team consists of the General Coordinator, the Associate Coordinator & Technical Manager, the Scientific Manager and the work package leaders.

The Technical Team is chaired by the Technical Manager and the General Coordinator.

The project follows a standard structure, composed of seven (7) WPs, each separated in different Tasks. Each WP is led by the most related for the work partner, who is also responsible for the coordination of the WP and Task work.

Table 3 Technical Board WP-leaders members

WP1 Management	Lars Abeler (General coordinator)	DB Regio
WP2 Use Cases	Linda Mathe	SAG
WP3 APIs	Povilas Valiauga	Sensible4
WP4 Services	Antonis Lalas	CERTH
WP5 Deployments	Lars Abeler	DB Regio
WP6 Transformation	Guy Fournier	HSPF
WP7 Impact	Justyna Beckmann	UITP

2.4 Advisory Board (AB)

The Advisory Board is composed of relevant professional experts covering the different domains of the project, assisting and facilitating the discussions and decisions made by the General Assembly.

The ABs main objectives are (1) to consult and support the General Assembly, e.g. by suggesting subject matter experts and providing information required or appreciated to carry out the tasks or to fulfil the objectives of ULTIMO and (2) to ensure stakeholders identify with the project and its outcome. The General Assembly will supply the Advisory Board with relevant documents on a regular basis.

Table 4 Advisory Board

Dr.-Ing. Dipl.-Kfm. Till Ackermann	Association of German Transport Companies e.V. / VDV e.V.
Benno Nager	Federal Roads Office FEDRO of Confederation Suisse
Philippe Chrétien	CEESAR, European Centre for Security Studies & Risk Analysis
Dr. Mara Cole	City of Munich

More advisory boards members will be invited in the first six months of the project to cover all areas of work of the project.

3 Decision Making Overview

The decision-making processes is detailed in the Consortium Agreement. In this section we present an overview of the key elements of how decisions are taken in the project.

3.1 Voting rules and quorum

Each Consortium Body (that is General Assembly, Executive Board, Technical Team) can make a binding decision only if the 2/3s of its members are present or represented (quorum).

If the quorum is not reached, the chairperson of the Consortium Body convenes another ordinary meeting within 15 calendar days. If in this meeting the quorum is not reached once more, the chairperson convenes an extraordinary meeting which can decide even if less than the quorum of Members is present or represented.

Equality of vote: Each Member of a Consortium Body present or represented in the meeting has one vote. All votes have an equal weight.

A decision is validated and becomes obligatory for the project partners if it is approved by a majority of two-thirds (2/3) of the expressed votes cast.

In order to provide protection to possible misuses of IPR, a **veto** right has been introduced. A partner which can show that its own work, time for performance, costs, liabilities, intellectual property rights or other legitimate interests would be severely affected by a decision of a Consortium Body may raise a veto with respect to the corresponding decision or relevant part of the decision.

3.2 Meeting organisation

The different project bodies are meeting in regular intervals, either physically or via on-line meetings (the project has adopted and set up Teams as the meeting and sharing platform).

The minimal frequency of the meetings (defined in the CA) and when and extraordinary meeting can be convened is as follows:

Table 5 Project meeting frequency

	Ordinary meeting	Extraordinary meeting
General Assembly	At least once a year	At any time upon request of the Executive Board or 1/3 of the Members of the General Assembly
Executive Board	At least quarterly	At any time upon request of any Member of the Executive Board
Technical Team	At least quarterly	At any time upon request of any Member of the Technical Team

Minutes of the meetings are taken by the meeting chair and are made available to the partners via the shared working place. A recording of a meeting can also serve as minutes.

4 Data Management Plan

This chapter presents the initial version of the ULTIMO Data Management Plan, and it provides an overview of the datasets collected and/or generated during the lifetime of the project. More specifically, in line with the European Commission's Horizon Europe Programme Guide³ and the FAIR guiding principles⁴, the DMP provided under the ULTIMO project focuses on the data management life cycle for all data to be collected, processed and/or generated by the consortium partners. To this end, the DMP, thus, discusses, among other, the following items:

- a) how research data will be handled during and after the project,
- b) what data will be collected, processed and/or generated,
- c) what methodology and standards will be applied,
- d) what technical and organisational measures implemented for the protection of the data
- e) whether and how data will be shared/made open,
- f) what is the purpose of the managed data, and
- g) how the managed data serve the overarching objectives of ULTIMO.

The creation of this DMP falls under Task 1.4 IPR & Data Management Planning, reflecting the objectives of Work Package 1 on Project Management & Ethics, especially, with respect to providing an appropriate framework for data access, use and re-use. Based on the progress made during the first months of the project, the present document provides an overview of the datasets to be used in the project and the respective data management practices already in place and/or envisioned as of month 6 of the project.

It is intended that the initial version of the DMP will be regularly updated in later phases of the project and the final version of the DMP covering final updates on the various data sets, data flows and related data processing activities will be published in the deliverable D1.3 in month 44 of the project. The discussion on legal, ethical and regulatory issues with respect to the data management, especially, those dictated under the GDPR and the Data Governance Act⁵ is carried out under the task T1.5 Ethical Issues Management and therefore these issues will be mainly discussed under the deliverables D1.4, D1.5 and D1.6 on Quality Assurance, Risk Assessment, Ethics & Regulatory Issues. Therefore, an exhaustive analysis of legal and ethical requirements pertaining to data processing and protection falls outside of the direct aims of the present deliverable. Nevertheless, in order to provide an overview of the European regulatory landscape for data, this initial data management plan briefly touches upon the certain EU laws regulating the use of personal and non-personal data.

³ European Commission, Horizon Europe Programme Guide, Version 2.0, 11 April 2022.

⁴ Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data* 3, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>

⁵ Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act), OJ L 152/1.

4.1 Open Science in Horizon Europe

The Horizon Europe Programme has adopted the open science approach aiming to facilitate open cooperative work and systematic sharing of knowledge and innovations as early and widely as possible in the process. As explained in the European Commission's Guide, the Horizon programme moved from the concept of open access which was the case in the Horizon 2020 programme to the open science in order to increase the quality and efficiency of research and accelerate the advancement of knowledge and innovation by sharing results, making them more reusable and improving their reproducibility.⁶

The legal basis of this approach can be found in Article 14 of the Horizon Europe Regulation. The regulation defines open access as online access, provided free of charge to the end user, to research outputs resulting from actions under the Horizon Europe Programme. According to the Article, the programme ensures that open access to research data and scientific publications resulting from the funded projects is provided in accordance with the principle of "as open as possible, as closed as necessary".⁷ Furthermore, the regulation encourage the partners to make use of the possibilities offered by the European Open Science Cloud⁸ (EOSC) and the European Data Infrastructure and adhere to further open science principles and practices. In that regard, the Horizon Europe Regulation explicitly requires the partner to manage research data generated in ULTIMO in line with the FAIR principles.

However, this open science requirement does not prevent the relevant partners to formulate certain exceptions to the requirement of open access to research data in line with the principle "as open as possible, as closed as necessary", taking into consideration the legitimate interests of the beneficiaries including commercial exploitation and any other constraints, such as data protection rules, privacy, confidentiality, trade secrets, Union competitive interests, security rules or intellectual property rights.⁹

In accordance with the Horizon Europe Regulation, the Model Grant Agreement¹⁰ which is used for the projects funded under the Horizon Europe Programme sets forth specific obligations for the open science requirements. Particularly, Annex 5 of the model agreement requires the partners to provide an open access to peer-reviewed scientific publications relation their results generated in the project and to deposit machine-readable electronic copies in a trusted repository for scientific publications at the latest at the time of publication under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats. However, the partners can exclude commercial uses and derivative works of their publication under the license (e.g., CC BY-NC, CC BY-ND).

⁶ European Commission, Horizon Europe Programme Guide, Version 2.0, 11 April 2022.

⁷ Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations (EU) No 1290/2013 and (EU) No 1291/2013, (Horizon Europe Regulation) OJ L 170/1.

⁸ <https://eosc-portal.eu/about/eosc>

⁹ Horizon Europe Regulation, Article 39(3).

¹⁰ European Commission, EU Grants AGA – Annotated Model Grant Agreement for EU Funding Programmes 2021-2027, 30 November 2021.

Furthermore, Metadata of deposited publications must be open under a Creative Commons Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles in particular machine-actionable, and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output, or any other tools and instruments needed to validate the conclusions of the publication.¹¹

With respect to the digital data generated in the project, the partners are required to provide open access to the research data deposited in a trusted repository under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC 0) or a licence with equivalent rights, following the principle ‘as open as possible as closed as necessary’. In case providing open access would (i) be against the beneficiary’s legitimate interests, including regarding commercial exploitation, or (ii) be contrary to any other constraints, in particular the EU competitive interests or the partner’s obligations under the grant agreement, the relevant partner may be exempted from this requirement provided that this must be justified in the DMP.¹²

4.1.1 Open Science in ULTIMO

ULTIMO takes necessary steps in order to ensure that all the scientific publications that will be produced as results from the implementation of the project will be aligned with the Open Access and Open Science requirements under both the Horizon Europe Regulation and the ULTIMO Grant Agreement No 101077587.

These steps will improve the impact of the ULTIMO since open access will have the following benefits: 1) receiving 20% more citations for the articles than average, 2) increasing visibility, usage and impact of research as it allows the professional, practitioner, business communities, and the interested public, to benefit from the results of the project and 3) improving the speed, efficiency and effectiveness of research, reproducibility and collaborations. Although ULTIMO aims to improve and maximize access to and re-use of scientific data generated by the project (i.e., AI/FL based automotive cybersecurity, training sets, etc.). In cases where exploitation strategies and business sceneries require tighter control, the partners will retain sufficient intellectual property rights and the access to the scientific data generated by the project will be handled in accordance with the ULTIMO Consortium Agreement.

In order to reach the optimum level of impact along with the most cost-efficient method, the partners aim to utilise the Green Open Access strategy which make all the scientific publication freely accessible for everyone under certain restrictions as to how the publication can be reused. This represents the optimal manner of open access, since the level of information is the same as the final version while open access fees are minimized, and the European Commission contribution can be redirected in a more optimal way to enforce other

¹¹ European Commission, EU Grants AGA – Annotated Model Grant Agreement for EU Funding Programmes 2021-2027, 30 November 2021, Annex 5.

¹² European Commission, EU Grants AGA – Annotated Model Grant Agreement for EU Funding Programmes 2021-2027, 30 November 2021, Annex 5, Article 17.

dissemination and exploitation activities. In cases where the Green Open Access is not supported by the online publisher with no embargo period then the Gold Open Access strategy will be followed.

4.1.1.1 ULTIMO Publication Infrastructure

The ULTIMO publication infrastructure is comprised of a knowledge repository, and several web-based publication platforms and online journals that have been selected in order to ensure open access to all publishable and collected project results. The knowledge repository will mainly be used to link all publishable material including deliverables, reports, presentations, and other documentation with the project website <https://ultimo-he.eu/>.¹³ The knowledge repository will be established under Task T7.2 Dissemination Activities and Results Uptake & Stakeholder Opinion Shaping to promote project achievements and results as envisioned in the deliverable D7.1 – Communication and Dissemination Plan, Reports and Materials – First Version.

More specifically, the scientific publications of the project will be published in Open Access Journals which will be initially checked from the Sherpa/Romeo platform (<http://sherpa.ac.uk/romeo/index.php>) and DOAJ (<https://doaj.org/>) to confirm the open access and the copyright policies of specific international journals, and Open Access Repositories (e.g., PubMed, Zenodo, arXiv, etc) which will be identified through platforms as ROAR, OpenDOAR, OpenAIRE and OAD.

Furthermore, to promote open access approach in the project, the ULTIMO Accessibility Guidelines on creating accessible PowerPoint presentation and MS Word Documents has already been prepared and shared with the partners on the project repository.

4.2 FAIR Data Management

FAIR principles underlie the handling of all research data collected and or generated in the context of Horizon Europe Program and they are, therefore, relevant for the ULTIMO project. For the purpose of this deliverable, the focus lies exclusively on the measures taken by the consortium in order to ensure the findability, the accessibility, the interoperability, and the reusability of the research data.

It is intended that ULTIMO consortium handles research data in accordance with FAIR principles as described in the Horizon Europe Programme Guide¹⁴ The project partners' joint pursuit is to maximize access to research data and enhance the wide re-use of the generated research data and the project results. Considering the applicable Guidelines of the European Commission and the explicit legal requirement for the management of research data in accordance with the FAIR principles under the Horizon Europe Regulation, it is intended that the ULTIMO consortium manage research data in accordance with the FAIR principles aiming to render the research data collected and/or generated by the project Findable, Accessible, Interoperable and Reusable.

¹³ Horizon Europe ULTIMO Project website: <https://ultimo-he.eu/>

¹⁴ European Commission, Horizon Europe Programme Guide, Version 2.0, 11 April 2022.

In this context, data management plan of the project will follow the FAIR guiding principles as described in the figure below and all respective decisions and measures taken by the consortium focus on how to render the data concerned Findable, Accessible, Interoperable and Reusable.

DATA MANAGEMENT PLAN- OVERVIEW

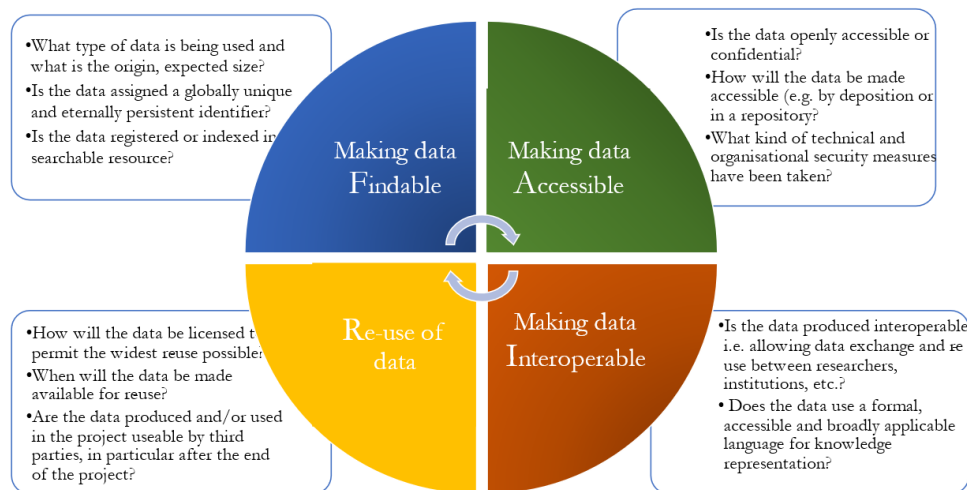


Figure 1 - The FAIR Guiding Principles¹⁵

The following sections will explain the FAIR principles.

4.2.1 Making Data Findable

In general, for data to be findable, it is considered that:

F1. (meta)data are assigned a globally unique and eternally persistent identifier.

F2. Data are described with rich metadata.

F3. metadata are registered or indexed in a searchable resource.

F4. (meta)data specify the data identifier.¹⁶

To the extent feasible, it is intended that all project datasets are described with metadata. Metadata is a set of data that provides context or additional information about other data. Metadata gives the ability to other researchers to find data in an online repository which increases the reusability of the dataset.

¹⁵ Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci Data 3, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>

¹⁶ Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci Data 3, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>.

ULTIMO plan to use a standardized naming convention for all the project datasets that will be constructed using the following characteristics:

- A unique chronological number of the datasets in the project.
- The name of the dataset.
- The acronym of the project.
- The number of the related work package and deliverable/task.
- A version number for each new version of the dataset that will be incremental at each revision.

4.2.2 Making Data Accessible

For data to be accessible, it is considered that:

A1 (meta)data are retrievable by their identifier using a standardized communications protocol.

A1.1 the protocol is open, free, and universally implementable.

A1.2 the protocol allows for an authentication and authorization procedure, where necessary.

A2 metadata are accessible, even when the data are no longer available.¹⁷

To make data generated by the project accessible, ULTIMO aims at making all metadata and data readable by humans and by machines in a trusted repository. In certain cases, however, due to the nature of the data or the nature of the industry that a specific consortium partner is associated to, data may remain confidential and may, thus, not be accessible to third parties.

4.2.3 Making Data Interoperable

For data to be interoperable, it is considered that:

I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.

I2. (meta)data use vocabularies that follow FAIR principles.

I3. (meta)data include qualified references to other (meta)data.¹⁸

It is important to note that data should share a common structure, and metadata should use recognized, formal terminologies for description. The vocabularies of data and metadata, standards and methodologies should be followed in order to enable the interoperability.

¹⁷ Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci Data 3, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>.

¹⁸ Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. Sci Data 3, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>.

4.2.4 Increase Data Re-use

For data to be re-usable, it is considered that:

R1. Meta(data) have a plurality of accurate and relevant attributes.

R1.1. (meta)data are released with a clear and accessible data usage license.

R1.2. (meta)data are associated with their provenance.

R1.3. (meta)data meet domain-relevant community standards.¹⁹

To facilitate re-use of data, clear usage licenses and clear provenance should be determined and data should meet relevant community standards for the domain. ULTIMO should consider providing third parties with the opportunity to access, exploit, reproduce, and disseminate all public datasets. This process could be regulated by using CC licenses. CC licenses may constitute a standardized way to grant the public permission to use ULTIMO work under copyright law. A CC license is one of several public copyright licenses that enable the free distribution of an otherwise copyrighted work. It also enables authors to give other people the right to share, use, and build upon a work that they have created. CC provides an author flexibility and protects the people who use or redistribute an author's work from concerns of copyright infringement if they abide by the conditions that are specified in the license by which the author distributes the work.

4.3 Data Summary

Open Data and Interaction Platforms and Open APIs are a prerequisite to enable access to all the means of transport, their interoperability and intermodality (positive externalities), to ensure balanced win-win situations among all stakeholders and thus a kind of democratization of the AM in a MaaS and LaaS ecosystems.²⁰ This concept, mechanisms and tools are important to avoid “the winner takes it all” phenomenon and increases the attractiveness and ensures the holistic sustainability of the AM in a MaaS and LaaS ecosystems. Open data and open APIs are further a condition to enable innovation and evolution of mobility concepts. These can help combining MaaS and LaaS under a single Intelligent Transportation System (ITS). Using data makes it easier to generate information and knowledge and provide this way the basis for decisions to improve the transport system as a whole. The transport system could become a self-learning system with the support of AI and humans. A “circulus virtuosus” (virtuous cycle/loop) and positive externalities could be created, to guarantee safety and to promote global improvement. Therefore, ensuring availability of data in ULTIMO has utmost importance in order to achieve the project objectives.

Considering the importance of the open data for the development of intelligent transportation systems and the FAIR Principles providing for making the research data findable, accessible, interoperable and reusable, a DMP template is prepared for and presented to the ULTIMO partners leading the use cases in Germany, Norway and Switzerland respectively in Annex-1.

¹⁹ Wilkinson, M., Dumontier, M., Aalbersberg, I. et al. The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data* 3, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>.

²⁰ Coyle, D., S. Diepeveen, J. Wdowin, L. Kay and J. Tennison, 2020, The value of data – policy implications report, Bennet Institute for Public Policy, Cambridge and Open Data Institute.

The inputs to be provided by the relevant partners will allow the project to produce an overview of the DMPs across all three (3) pilot and ensure that the data generated by the project will be available for others in line with the principle of “as open as possible, as closed as necessary”. These DMPs will capture, primarily, the data management practices that are being implemented at the moment of the drafting of the present document and to a lesser extent those that are intended to be pursued later on during the project. The final assessment of the DMPs will be documented in the deliverable D1.3 - Project inception report & Data Management Plan - Final Version in month 44 of the project.

4.3.1 Data overview and Data sources

In the context of the ULTIMO project, the data that will be used consist of both reused data and project-specific generated data. The main goal is to create sufficient volume of data, in the scale of Big Data generation and management (magnitude of tens of GB), to make ULTIMO both a self-sufficient and a data providing project (i.e., being able to consume its own data for the project successful completion, as well as to provide reusable data to other relative projects). The purpose of data generation and reuse is to facilitate the creation of the ULTIMO services and the relevant Key Performance Indicators (KPIs). Data reusability is a main goal for EU-funded projects. However, only a fraction of the existing data is available to the public, as they remain property of the pilot site and stakeholders and the projects’ consortia. Therefore, already existing data will not be sufficient to fulfil the needs of ULTIMO.

The main goal of reused data is to provide indicative format and illustration to the ULTIMO partners considering data generation, as well as to be utilized for service development and deployment in the premature stages of the project (where project-specific and service-specific data have not been acquired yet in the context of this project). The origin of the reused data could be either other EU-funded projects, where the consortia have made their data publicly available, as well as existing data generated by ULTIMO partners outside of the context of this project. The generated data will be provided by the pilot sites and the ULTIMO stakeholders, for the accomplishment of the KPIs, as well as for the ULTIMO-specific services that these stakeholders have shown interest in.

The ULTIMO project will collect a large amount of raw data that will be gathered from various sources such as users, data providers, operators, and other stakeholders. In every instance, the data will be anonymized to guarantee privacy and safeguard the participants' identities. For users, the subjective data mostly pertains to their travel preferences and requirements. The development of tools and new services that utilize Big Data and AI that can also be used for the data management platform (WP5) necessitates the use of additional data sources, as shown in Table 6.

Table 6: Indicative data requirements per category of services

ULTIMO Services Categories	Indicative Data sources
Passenger services	Camera and audio sensor data, environmental sensor data, alarm, GPS, vehicle availability, etc.
Operator services	Operation data (location, delays, routes, demand, etc.), passenger demand, vehicle availability, fleet location data, origin-destination demand data, etc.
Intervention services	GPS, camera, alert notifications, smart city infrastructure feedback, etc.

Vehicle services	Vehicle sensor data, battery state, WiFi/5G connection, ITS, internet channel availability, Vehicle dashboard camera, external audio sensors, GPS, etc.
Management services	WiFi/5G connection, ITS, DDoS prevention, etc.

4.3.2 Datatypes, Datasets and Dataset Categories

This section outlines the data that will be collected, created, and handled in ULTIMO. The data is divided into three distinct categories: data types, datasets, and dataset categories. Data types are linked to the origin of the data, such as vehicle data or traffic data. Datasets are classified based on the file extension of the data, while dataset categories reflect the level of processing that the data has undergone.

The datatypes are intrinsically linked to the data sources, as described previously. One primary category of datatype is derived from the output of Autonomous Vehicles' (AV) sensors. These sensors include cameras, LIDAR, radar, ultrasonic, acceleration, and weather condition sensors, which collectively form a crucial set of datatypes. Such data could prove useful for optimizing driving procedures and other supporting functionalities that are relevant to monitoring a smart city ecosystem.

Additionally, GPS data, information about vehicle availability, deviations from scheduled plans, signal strength, and passenger demand, could be valuable in implementing cutting-edge services. Data from installed infrastructure, such as cameras in traffic lights, intersections, or areas with high traffic volume, can provide a comprehensive picture of life in smart cities.

Regarding the format of the datasets, their polymorphism stems from their diverse nature. The ULTIMO consortium will have access to various types of datasets, including sensor outputs, CSV or Excel files from the operating system's platform, safety drivers' reports, questionnaires from passengers, and external sources of data, such as environmental or signal strength data. The aforementioned data can be classified into three main categories: raw data, context messages, and subjective surveys from passengers. Furthermore, the significance of metadata, which describes the main data, should also be considered. It is worth noting that the aggregation and consolidation of information can create a new category of datasets, as different outcomes may result from their utilization.

4.3.3 Data reusability outside of project

Data generated throughout the project might prove useful after the completion of the project for various interested parties. Data re-use by external researchers and other stakeholder groups will be feasible for selected datasets, which will be according to data providers's wishes and suggestions. The data generated by the ULTIMO project can be used to develop new models and algorithms for transportation planning, optimization, and prediction. Some examples of potential stakeholders outside the ULTIMO project, who may find the data generated by the project useful, are:

- PTOs/PTAs and service providers interested in providing autonomous mobility solutions.
- Urban planners, policy makers and city officials seeking to shape transportation policy and regulation and to improve transportation infrastructure and public transport in general.

- Research institutes and academia interested in analyzing and modeling transportation systems and their impact on society, economy, and environment.

4.4 Ethics

Ethical issues that could have an impact on the project data management will be analysed under several project deliverables. More specifically, the ethical aspects of the project and its data processing activities are regularly assessed in the deliverables D1.4, D1.5 and D1.6 throughout the project in accordance with the task T1.5 Ethical Issues Management. Also, ethics issues and envisioned safeguards are described in Section 4 Ethics & Security of the ULTIMO proposal. Therefore, this section gives rather a brief overview of the ethical implications of processing of data in ULTIMO.

In the ULTIMO activities, the personal data of the project participants will be processed in accordance with the data protection principles set out in the GDPR, including the principles of data minimization, transparency, accountability, lawfulness and fairness and with the national data protection laws applicable to the piloting activities taking place in Germany, Norway and Switzerland. In this context, collaboration between the pilot leadings partners, their DPOs and the project DPO will support compliance of the project data processing operations with the applicable legal and ethical principles. It should be also considered that the GDPR as a rule prohibits transfer of personal data to outside the European Economic Area unless certain conditions and measures ensuring the same level of protection of natural persons as guaranteed in the EU are provided. However, the European Commission has acknowledged that personal data can flow freely from the European Union to the Switzerland, as it benefits from an essentially equivalent level of protection to that guaranteed under EU law, namely, the GDPR.²¹

With respect to management of non-personal data, control or access rights could raise some ethical issues. Although these two topics are often regulated by contractual norms, power imbalances between contracting parties may lead to unfair terms and conditions. However, the proposal for a Data Act²² aims to introduce certain access rights with respect to non-personal data, similar to the data portability rights for personal data set out under the GDPR, for individuals and legal entities. Furthermore, Data Governance Act²³ lays down a supervisory framework for the provision of data intermediation services where certain limitations on data sharing activities including bilateral or multilateral exchanges of data or the creation of platforms or databases enabling the exchange or joint use of data are introduced in order to strengthen the control of individuals and to support them in the exercise of their rights including with respect to the use of certain data including making informed choices. Lastly, Digital Market Act sets forth obligations and limitations for certain group of platform service providers with respect to use of non-personal data generated by the business user or individuals. Overall, these horizontal regulations have a significant impact in data ecosystems

²¹ Commission Decision of 26 July 2000 pursuant to Directive 95/46/EC of the European Parliament and of the Council on the adequate protection of personal data provided in Switzerland (notified under document number C(2000) 2304).

²² European Commission, Proposal for a Regulation of the European Parliament and of the Council on harmonised rules on fair access to and use of data (Data Act), COM/2022/68 final.

²³ Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act), OJ L 152/1.

as they empower the individuals and where applicable businesses over the use of the non-personal data generated by them.

5 Concluding Remarks

This deliverable D1.2 – Project Inception Report & Data Management Plan is the updated version (intermediate version) of the deliverable D1.1 and details the project management approach and structure, including the roles and responsibilities of governance bodies as well as all beneficiaries and members of the Project Consortium in accordance with the ULTIMO Grant Agreement as well as with the Consortium Agreements. It describes the structures, tools, processes, and procedures that WP1 Project Management & Ethics has introduced to ensure that the project runs smoothly and effectively and in accordance with the Grant Agreement and the contractual obligations thereunder. Minor changes to structures and procedures might occur throughout the project lifetime, as a result of the continuous monitoring of activities and processes.

Furthermore, this version outlines the open science requirements and the FAIR principles that the ULTIMO comply with and produces an overview of the ULTIMO data management plan explaining how the research collected and/or generated by the project will be rendered Findable, Accessible, Interoperable and Re-usable during and after the project's lifetime at project level. Therefore, this version could be considered as initial engagement in the context of the activities of T1.4 IPR & Data Management Planning contributed to increasing consortium's awareness on the open science and open access requirements, possibly, allowing partners to sharpen any occurring contributions under the following deliverables. Moreover, the present document briefly discusses the EU regulatory framework on data that could have impact on the data management in the project.

It should be noted that the ULTIMO DMP is a living document and will be enriched along the project's lifetime as new information and decisions arise. Any updates in relation to the data management practices occurring in the course of the project will be captured under the final version, Deliverable D1.3 due in month 44 of the project, together with the final decisions regarding data storage, data ownership, data access, data sharing and repository issues. To prepare for the final version, input from the partner leading the use cases to the data management plan templates will be collected. Based on the analysis of the partners' input, the final version will circulate the necessary guidelines to the consortium as the project progresses, so as to receive updated, valid and precise information before finalising the next deliverable.

6 APPENDIXES

6.1 Annex – 1 Data Management Plan Templates for ULTIMO Pilot Leaders

No	Title of the Dataset	Description ²⁴	Data Source ²⁵	Data Types ²⁶	Data Formats ²⁷	Standards and Metadata ²⁸	Data Users ²⁹	Purpose of Data Processing ³⁰	Data Storage & Retention Period ³¹	Accessibility ³²	Technical and Organizational Measures ³³
1.											
2.											
3.											
4.											
5.											
6.											

²⁴ A brief description of the dataset to give an overview of the data it contains.

²⁵ Please specify where and how you obtain the data including whether the data is raw, pre-processed, generated in the project or is real-time, near real-time, batch or historical

²⁶ Please select one of the following options: Text/image/video/audio/other. If other is selected, please describe.

²⁷ E.g. csv, xml, json, other.

²⁸ Answer should include what data and metadata vocabularies, standards or methodologies will be followed in order to make the data interoperable, which standards the dataset complies with, what type of metadata will be created and how.

²⁹ Please explain who will use/process this data.

³⁰ Please explain for which purposes this data will be processed, why it is useful for ULTIMO and how this purpose is related to the objectives of ULTIMO.

³¹ Please explain where/how the data is stored, for how long or on what condition the data will be deleted.

³² Please select one of the following options: Confidential/Public/Limited Access and please also explain the exact licence that is currently applied.

³³ Please explain the technical and organisation measure implemented by the data users/holders to protect the integrity/confidentiality of the dataset (e.g. data recovery methods, back-up frequency, encryption, server security etc.).