

RE-ROUTE

**IntegRated intElligent multimodal tRanspOrt infrastrUcTurE
: distributed localised decision-making at the network edge**

D1.3: Data Management Plan

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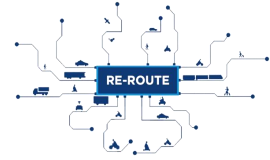
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Consortium – List of Partners

Partner no.	Short name	Name	Country
1	UCD (Coordinator)	UNIVERSITY COLLEGE DUBLIN, NATIONAL UNIVERSITY OF IRELAND, DUBLIN	IRELAND
2	CDV	CENTRUM DOPRAVNIHO VYZKUMU v.v.i.	CZECH REP.
3	CERTH	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	GREECE
4	OULU	OULUN YLIOPISTO	FINLAND
5	PRAGMA	PRAGMA -IOT AE	GREECE
6	WINGS	WINGS ICT SOLUTIONS INFORMATION & COMMUNICATION TECHNOLOGIES IKE	GREECE
7	TCD	THE PROVOST, FELLOWS, FOUNDATION SCHOLARS & THE OTHER MEMBERS OF BOARD, OF THE COLLEGE OF THE HOLY & UNDIVIDED TRINITY OF QUEEN ELIZABETH NEAR DUBLIN	IRELAND
8	ENAC	ECOLE NATIONALE DE L AVIATION CIVILE	FRANCE
9	Seagate	SEAGATE SYSTEMS UK LIMITED	UK
10	IDCC	InterDigital Communications, Inc.	US



EXECUTIVE SUMMARY

The purpose of Deliverable 1.3 is to provide a detailed data management plan for the RE-ROUTE project. The deliverable is associated to work package (WP) 1 which is *project management*. First, we provide data source description including the summary of key data used in the project and the specification of simulated data. Data handled in this project will be in accordance to the FAIR principle which is to make data findable, accessible, interpretable, and re-usable. We also provide RE-ROUTE ethics and integrity policy which is in agreement with the GDPR rules. Following which, we include a detailed data protection impact assessment (DPIA) to answer data protection and privacy related questions. RE-ROUTE privacy policy is available on the project website and is also included in the document for the readability purpose. Then, we detail the data governance plan following a template from the UCD library. At the end, we conclude the document.

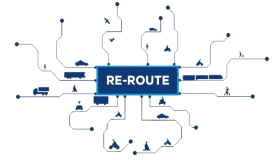


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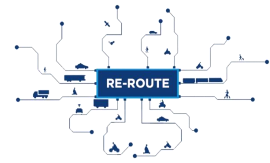
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List of Abbreviations

CVEs	Common Vulnerabilities and Exposures
DMP	Data Management Plan
DOI	Digital Object Identifier
DPIA	Data Protection Impact Assessment
EC	European Commission
GA	Grant Agreement
GDPR	General Data Protection Regulation
ITS	Intelligent transport system
KPI	Key Performance Indicator
M-ITS	Multimode intelligent transport system
OCR	Optical Character Recognition
PB	Partners Board
WP	Work package



1 INTRODUCTION

1.1 Purpose and structure of the document

The objective of this Deliverable is to present the Data Management Plan (DMP) for the RE-ROUTE project. The DMP outlines the data that the Consortium anticipates generating or obtaining throughout the duration of RE-ROUTE, as well as how this data will be handled, shared, analyzed, and stored. Additionally, the DMP details the approaches that will be employed to facilitate the sharing of the data. It is important to note that the DMP is a dynamic document that will be updated as the project progresses and related activities evolve.

The DMP includes the following Sections:

Section 1 provides the purpose of the Deliverable, its intended audience and interrelations with the various activities of the project.

Section 2 provides the RE-ROUTE data summary.

Section 3 provides the FAIR data principles and how RE-ROUTE is going to implement them.

Section 4 provides updates to the RE-ROUTE Ethics.

Section 5 presents the Data Protection Impact Assessment that will be performed in the project.

Section 6 provides updates to the Data Privacy Policy.

Section 7 answers data governance questions.

Section 8 concludes the Deliverable.

Annex 1 provides the privacy policy published on the project website.

1.2 Target audience

The intended readership of this Deliverable encompasses the scientific community, economic transportation stakeholders, end-users, policy makers, and communications standards bodies. As the DMP is publicly available, any individual interested in monitoring the data management, advancement, and projected outcomes of the RE-ROUTE project is also considered part of the target audience.

1.3 Interrelations

This Deliverable pertains primarily to data management, which is a prerequisite for WPs 2, 3, 4, and 5. However, as the document encompasses revisions to policy suggestions, it is also relevant to WP 6.



2 RE-ROUTE DATA SUMMARY

2.1 Data Collection Process

The data will not be collected during the project. The data publicly available from RE-ROUTE partners (CDV, CERTH) will be used in this project. A summary of the data is provided in the next section.

2.2 Summary of RE-ROUTE related key data

Data summary from CERTH is given in Table 1.

Table 1: Data summary from CERTH

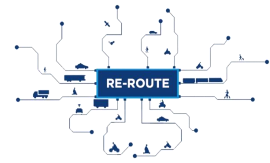
Data	Source	Destination	Data Fields	Description (A short paragraph)
Average speed at different timestamps at different routes in Thessaloniki	Main Website: https://traffichess.imet.gr/ Link for retrieving the data: https://traffichess.imet.gr/exporter.aspx	Open Source	Link_ID, Free_Flow_Speed, Name, Timestamp, Min_speed, Max_speed, Avg_speed, Median_speed, InterquartileMean_speed, GeometricMean_speed, HarmonicMean_speed, Samples, UniqueVehicles.	This data is the average travelling speed, it includes the information related to TAXIs travelling across Thessaloniki, and we look at the historical data collected from 4-June-2022 to 4-June-2023.
CVE Record	https://www.cve.org/	The MITRE Corporation	Name of an affected Product, affected or fixed version(s), CVE ID for the record, one of the following: (Vulnerability Type, Root Cause or Impact), one public reference, a prose description, status of vulnerability affecting only products that are no longer supported	Database contains the list of Common Vulnerabilities and Exposures (CVEs) since September 1999. It is de-facto way to present software vulnerabilities.
Software repository	https://github.com	GitHub, Inc.	Repository name, repository owner, repository URL, repository description, stargazers_count, license, topics	Data about currently publicly available software repositories in GitHub.
Software project	https://gitlab.com	GitLab, Inc.	Project name, project owner, project URL, project description, star_count, license, topics	Data about currently publicly available software projects (repositories) in GitLab.



Data summary from CDV is given in Table 2.

Table 2: Data summary from CDV

Data	Source	Destination	Data Fields	Description (A short paragraph)
National Travel Survey (NTS)	https://www.ceskovpochybu.cz/data/	CDV	"Data on households were recorded in the so-called household questionnaire. The following data were collected about the household: Address; Date; Number of persons in the household (and age); All means of transport in the household; Gross monthly household income. The following data were collected on persons:	Sociodemographic info; Year of birth; Sex; Highest education level; Economic activity; Residence; Work; Nature of working hours; Number of working hours for the last month; Driver's license; Fare subscription and PT discounts; Availability of vehicles; Realization of trips on the decisive day; Reason for not traveling; The address of the start of the first journey on the decisive day. The following data were collected for each car in the household: Vehicle ownership; Number of kilometres travelled in the last year; Year of manufacture; Fuel type; Type of vehicle; Number of seats; Motorway tax sticker; The most frequent vehicle driver among household members. The following data were collected for each trip: The starting point of the journey; Start of the journey time; Time spent in individual means of transport (in minutes); Purpose of travel; Estimated journey length in km; The place of the end; End of journey time; Indication of the last journey on the decisive day."
Magnetic data	Magnetometers	CDV	ID, DEV UID, X1, X2, X3	Magnetic data from magnetometers within pilot area of the city Ostrava within the R&D project. Magnetic data - 3 axes
Accelerometers	Magnetometers	CDV	ID, DEV UID, AZ value	For disruption analysis when vehicle pass by the magnetic detector.
Microwave radar	Wavetronix HD	CDV	Id, dataclass, measurement time, laneid, length, speed, device_id, speed valid	Microwave data from Wavetronix HD detector. Consist data vehicle to vehicle.
Picture analysis data	Camera systems	CDV	id, license plate, OCR confidence, start time, end time, category, colour, model, make, view	Data from Eyedea recognition SW for Furter analysis.



2.3 Evaluation Data in RE-ROUTE

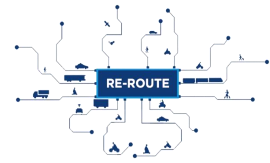
Evaluation data are the data logged, stored, and processed for the purpose of validation, evaluation testing, and impact assessment.

2.4 Personal Data in RE-ROUTE

No personal data will be collected in RE-ROUTE project.

2.5 Dissemination Data in RE-ROUTE

The dissemination data in RE-ROUTE project will originate from posts related to secondments on the RE-ROUTE official website and social media (LinkedIn, Twitter). The secondment related data will be collected from the secondees and will be made public.



3 FAIR DATA PRINCIPLES

The RE-ROUTE project will handle datasets in both raw data and metadata formats, necessitating adherence to the FAIR principles: findability, accessibility, interoperability, and reusability. The project will produce and publish various research outputs, including integrated datasets containing multi-source, multi-modal data related to traffic systems, road network infrastructure, transport user behavior, etc. Additionally, the project will generate federated learning models, service computing, composition and adaptation platforms and algorithms, traffic simulation models, case study models, and their corresponding datasets (raw and metadata). To ensure transparency, the RE-ROUTE open science protocol will guarantee the availability of resulting software, algorithms, experiment outcomes, and publications on major code and data repositories such as GitHub, OpenAire, and IEEE DataPort.

3.1 Findability of data/research outputs

We will guarantee the discoverability, citation, and reusability of our research outputs by utilizing Persistent Identifiers (PIDs) like Digital Object Identifiers (DOIs). Repositories such as Zenodo, which issues DOIs, will be employed to deposit algorithms, data, and models. Additionally, we will employ robust metadata, including Dublin Core, CERIF, and DDI, to enhance data discoverability and reuse. This will offer crucial background information for data interpretation and facilitate automated analysis.

3.2 Accessibility of data/research outputs

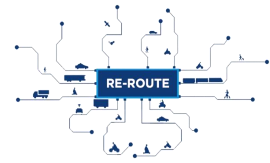
As a component of the RE-ROUTE open science protocol, we have pinpointed several Open Data repositories, such as OpenAIRE, Zenodo, and institutional repositories belonging to project partners. This aligns with the partners' requested sanction periods. The beneficiaries will mutually grant royalty-free access to the background information required for executing their respective duties under the project. Additionally, they will mutually provide access, subject to fair and reasonable conditions, to the background necessary for capitalizing on their individual outcomes. This is especially critical in RE-ROUTE as secondments will be generating outcomes while having access to their host beneficiary's background.

3.3 Interoperability of data/research outputs

Due to RE-ROUTE's reliance on secondments, there is a critical need for research output interoperability to enable the expansion of the project's output by building upon prior outputs. OpenAIRE will be utilized to promote the interoperability of data with other research outputs by utilizing common formats and standards, community-endorsed schemas, controlled vocabularies, keywords, and ontologies. JSON-LD will be utilized as the shared linked data format across project partners to ensure data interoperability. Version control tools and collaborative software development methods will be employed to support regular code peer review and verify the reusability of the created software. The researchers will also document the code through well-commented code and documentation tools such as Read the Docs.

3.4 Reusability of data/research outputs

The research outputs of RE-ROUTE, including data, models, and code generated during each secondment and throughout the project, will be thoroughly documented. A clear license and README file will be included with each output, providing information about the author and a brief description of the output. For instance, the README file may describe an algorithm's functionality through commented lines of code, or



provide processing and execution steps for running the algorithm. Contact details of the author will also be included in the README file.

4 RE-ROUTE ETHICS AND RESEARCH INTEGRITY

The RE-ROUTE project is required to adhere to ethical and research integrity standards in compliance with the General Data Protection Regulation (GDPR) (Regulation EU 2016/679) and other applicable laws, including the EU Charter of Fundamental Rights and the European Convention for the Protection of Human Rights and Fundamental Freedoms and its Supplementary Protocols. The project beneficiaries must ensure that ethical principles, including the highest standards of research integrity, are followed. Additionally, the beneficiaries must comply with the following ethical requirements:

- Adhere to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of persons, the right to non-discrimination, the need to ensure protection of the environment and high levels of human health protection.
- Ensure that the activities carried out under the project have an exclusive focus on civil applications.
- Ensure reliability in the quality of research reflected in the design, methodology, analysis, and use of resources.
- Conduct research with honesty and transparency and avoid bias.
- Respect colleagues, research participants, society, ecosystems, cultural heritage, and the environment.
- Be responsible for the research from idea to publication, including management and organization, training, supervision, and mentoring, and for its wider impacts.
- Ensure that research tasks are carried out following good research practices, including openness, reproducibility, and traceability, and avoid any research integrity violations.
- Comply with additional requirements formulated by the ethics panels for activities that raise ethical issues, including after checks, reviews, or audits.
- Obtain all necessary approvals or mandatory documents required for implementing an action task, including from ethics committees or other bodies such as data protection authorities, before starting the task.
- Keep all required documents on file and submit them to the coordinator upon request. If the documents are not in English, a summary in English must be submitted that shows the documents cover the action tasks and includes the conclusions of the committee or authority concerned (if any).

5 DATA PROTECTION IMPACT ASSESSMENT

In this section, the Data Protection Impact Assessment (DPIA) is created for the RE-ROUTE project. The DPIA is a new requirement under the Article 35 of GDPR (EU) 2016/679 as part of the “protection by design” principle. According to the law:

“Where a type of processing in particular using new technologies, and taking into account the nature, scope, context and purposes of the processing, is likely to result in a high risk to the rights and freedoms of natural persons, the controller shall, prior to the processing, carry out an assessment of the impact of the envisaged processing operations on the protection of personal data.”



Which means that under certain conditions, DPIA is required by law. For the purpose of providing DPIA for the RE-ROUTE project, we have utilized a higher-level GDPR approved template [1].

A PIA is a process which helps assess data protection and privacy risks to individuals in the collection, use and disclosure of information. PIAs help identify privacy risks, foresee problems and bring forward solutions.

5.1 Step 1: Identify the need for a DPIA

Explain broadly what aims to achieve and what type of processing it involves. You may find it helpful to refer or link to other documents, such as relevant deliverables and other supportive documents. Summarize why you identified the need for a DPIA.

1. Explain what the project aims to achieve, what the benefits will be to the organisation, to individuals and to other parties.

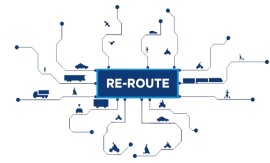
RE-ROUTE is a 48 months duration project, funded by the EU's Horizon program. This project proposes an integRATED intElligent multi-modal tRanspOrt infrastrUcTurE: distributed localised decision-making at the network edge (RE-ROUTE) whose overarching objective is to form an international, interdisciplinary, and inter-sectoral network of research and industry institutions with complementary skills, working on a joint research and knowledge transfer programme in the field of intelligent transport systems. Many cities in Europe and worldwide are witnessing an increasing interest in shared and multi-modal mobility services using modes such as carsharing, bikes, ride-hailing, e-scooters facilitated by the emergence of intermediary mobility-on-demand platforms. Mobility services accessible 'on demand' can be achieved by an integrated Multimodal Intelligent Transport System (M-ITS) incorporating both motorised and non-motorised transport as well as private and public systems through the concept of Mobility as a Service (MaaS) Sustainable mobility alternatives such as a fully integrated and seamless multimodal mobility system that can be made widely available with the communication and computation advancements. RE-ROUTE an integRATED intElligent multi-modal tRanspOrt infrastrUcTurE: distributed localised decision-making at the network edge forms an international, interdisciplinary, and inter-sectoral network of institutions with complementary skills, working on a joint research and knowledge transfer programme to improve the multi-modal Mobility-as-a- Service transport integration through localised Edge-based real-time data sharing, decentralised decision making, and localised network that places the processing at the proximity of data, contribute to evidence-based policy and physical infrastructure development and developing a unique skill set for the participating partners and improving their career prospects in the emerging ITS job market.

2. You may find it helpful to link to other relevant documents related to the project, for example a project proposal.

Relevant documents are namely the Grant Agreement of the project, all project documentation released so far.

3. Also summarise why the need for a PIA was identified (this can draw on your answers to the screening questions).

RE-ROUTE will not directly include any data collection activities, however it will be working with the open and publicly accessible data already collected by CDV, CERTH and TCD, open public transport data, open street maps, road infrastructure data and will use these for model development, validation, case-



study design, and verification.

5.2 Step 2: Describe the processing

Describe the nature of the processing:

1. How are you collecting, using, storing and deleting data?

New data will not be collected in RE-ROUTE project. The existing data available from the partners will be used to develop multimodal transport system.

2. What is the source of the data?

The source of the data is the open and publicly accessible data already collected by CDV and CERTH.

3. Will you be sharing data with anyone?

RE-ROUTE will not directly include any data collection activities, however it will be working with data already collected by CDV and CERTH which is already open and publicly accessible.

4. What types of processing identified as likely high risk are involved?

No high-risk data processing is involved.

Describe the scope of the processing:

1. What is the nature of the data, and does it include special category or criminal offence data?

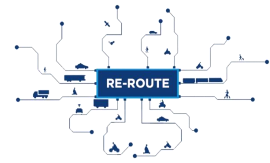
The nature of the data does not include any special category of criminal offence data. Please see the analytic clustering of data presented in section 2 of this document.

2. How much data will you be collecting and using?

RE-ROUTE will not directly include any data collection activities, however it will be working with the open and publicly accessible data already collected by CDV and CERTH, open public transport data, open street maps, road infrastructure data and will use these for model development, validation, case-study design, and verification.

Using data: Data from several open sources will be used depending on the definition of the secondments and their requirements. The sources of these datasets are specified in Section 2.

Generating Data: Some data will be generated using relevant simulators, the synthetic data will be also shared through the data sharing platforms specified previously.



3. How long will you keep it?

Since we don't collect data, we do not need to worry about storing them. However, If some of the data needs to be moved to local repositories for processing they will be kept only for the duration of the secondment and at most for the duration of the project.

Describe the context of the processing:

1. What is the nature of your relationship with the individuals?

No data is collected from individuals.

2. How much control will they have?

Not applicable as no individuals are involved.

3. Would they expect you to use their data in this way?

Not applicable as no individuals are involved.

4. Do they include children or other vulnerable groups?

Not applicable as no individuals are involved.

5. Are there prior concerns over this type of processing or security flaws?

Not applicable as no individuals are involved.

6. Is it novel in any way?

Not applicable as no individuals are involved.

7. What is the current state of technology in this area?

Not applicable as no individuals are involved so we don't need to take care of any technology means.

8. Are there any current issues of public concern that you should factor in?

No public concern related issues exist or are anticipated.

9. Are you signed up to any approved code of conduct or certification scheme (once any have been approved)?

Not applicable because we don't collect data related to individuals.

Describe the purposes of the processing:



1. What do you want to achieve?

The data used in this project will include the open data that is already accessible to everyone, and the purpose of processing will be based on the definition of the secondments to achieve the objectives of the project. This project is mostly concerned about how a cyber physical system like an Intelligent Shared mobility system works, by analyzing various types of data from various sources, to gain an understanding about how such systems work and their gaps when they are integrated into a more complex system.

RE-ROUTE project will aim at:

- i) improving the multi-modal Mobility-as-a- Service transport integration through localised real-time data sharing, decentralised decision making, and localised network that places the processing at the proximity of data (Edge Networks, and Edge Computing paradigm)
- ii) contribute to evidence-based policy and physical infrastructure development decisions based on better data exploitation
- iii) developing a unique skillset for the participating partners through specially designed multi-disciplinary inter-sectoral secondments and improving their career prospects in the emerging ITS job market. RE-ROUTE's consortium consists of partners from 7 countries, six academic institutions including (UCD (Ireland), TCD (Ireland), OULU(Finland), ENAC (France), CERTH (Greece), CDV (Czech Republic)) and four industry partners (Seagate (UK), IDCC (US), PRAGMA (Greece), WINGS (Greece)).

2. What is the intended effect on individuals?

No particular individual will be affected directly by the outcome of the research. However, we will be informing the target audience about the potential of an ideal system that can be built following our research outcomes. Target audiences for our project results include the scientific audience, economic transportation stakeholders, end-users, policymakers and communications standards bodies. By enabling the exploitation of project results, we aim to create impact and value for society. To reach the target audiences, we will build a Target Audience Forum for exploitation comprising of authorities (e.g., Dublin city council, Transport Infrastructure Ireland, Thessaloniki Transport Authority, The Syndicat des Transports d'Ile-de- France, The Finnish Transport Infrastructure Agency, Finnish Transport Safety Agency, ITS Finland), transport stakeholders (e.g. Dublin Bus, Dublin Bike, ATTIKO METRO, Tisséo), Road and rail infrastructure stakeholders (Irish rail, Dublin City Council), Transp.) and communication policy-makers, telecom providers, and the R&D community, transport users including vulnerable road users, and communications standards bodies (ETSI, 3GPP, IEEE, etc.).

3. What are the benefits of the processing – for you, and more broadly?

By Processing the identified datasets, we will gain an understanding on how each of the shared mobility systems work independently. We can analyse such systems requirements in terms of computation and compute through understanding the demand on the system.

Then we will be able to analyse the existing technical gaps for integrating two or more systems, when knowing about the travel behaviour and demand on various modes of transport and if more than one mode is used to finalise a trip. These gaps will then be addressed through other activities of the project.



The benefits include:

- Data informed analysis of the Gaps of an integrated multi-modal transport system.
- Potential design of services and system advancement that is required to match the travel pattern
- Evidence-based recommendation for further development of the system.

5.3 Step 3: Consultation process

Consider how to consult with relevant stakeholders:

1. Describe when and how you will seek individuals' views – or justify why it's not appropriate to do so.

Since we will be focusing on the technical development of an integrated multi-modal system we need to seek for advice from experts in the field and stakeholders. **WHO:** This includes our Ethics Advisor, Stakeholders, Organizations that have provided the data. **WHEN:** We have envisaged to invite the stakeholders to our technical events/ and workshops. For example, we had invited two stakeholders in our kickoff meeting, to establish a strong relationship from the beginning of our project. **HOW:** During the technical meetings we will be discussing the findings of the project and how it might benefit a potential integrated multi-modal system and will ask for their advice related to the current findings and the future plans for further developments.

The Partners Board (PB) which comprises of the project coordinators, academic members, industrial members, and the ethics manager will be involved. The PB makes executive decisions on strategic issues. Major decisions concerning overall technological, innovation and exploitation direction of the project policies, standards, quality, and IPR/knowledge management are within its competence.

2. Who else do you need to involve within your organisation?

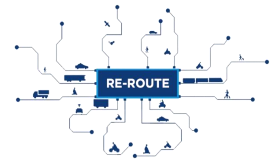
The Partners Board (PB) which comprises of the project coordinators, academic members, industrial members, and the ethics manager will be involved. The PB makes executive decisions on strategic issues. Major decisions concerning overall technological, innovation and exploitation direction of the project policies, standards, quality, and IPR/knowledge management are within its competence. University College Dublin (UCD) Data Protection Office will be consulted upon any need for further guidance regarding data management through Data Protection and GDPR advice clinics they offer.

3. Do you need to ask your processors to assist?

No, as of now, but might change through the advancement of the project at later stages.

4. Do you plan to consult information security experts, or any other experts?

No.



5.4 Step 4: Assess necessity and proportionality

Describe compliance and proportionality measures, in particular:

1. What is your lawful basis for processing?

Data processing will be used for RE-ROUTE solutions' validation, which is an explicit goal of the Contract signed with the EC.

2. Does the processing actually achieve your purpose?

Yes.

3. Is there another way to achieve the same outcome?

There is no other way to reach the same outcome. We ensure the data processed is only used for the purposes defined in the project GA and will remain safe and secure.

4. How will you prevent function creep?

The technologies developed within the project are solely used for mobility and transportation. There will no widening or change of use till the end of the project.

5. How will you ensure data quality and data minimisation?

We are thoroughly considering and outlining the necessary data that we need to achieve our purpose but as we are still very early in the project cycle, not all the exact data are yet well defined and available to the partners of the Consortium. One of the goals of D1.3 is to identify which are the data that need to be collected in all ends in order to be able to fulfil the KPI's defined. Overall, our data minimisation policy ensures that the data is adequate, relevant and limited to the project's purpose.

6. What information will you give individuals?

Not Applicable, as we will not be working with individuals.

7. How will you help to support their rights? What measures do you take to ensure processors comply?

Not Applicable, as we will not be working with individuals.

5.5 Step 5: Identify and assess risks

Although at this early stage of the project a formal risk assessment procedure has not happened yet by all the partners regarding privacy and/or breach of safety, a list of potential risks is provided here that needs to be evaluated, complemented and defined in regards to the severity and likelihood of the potential risks.

5.6 Step 6: Identify measures to reduce risk

No data will be collected from the individuals, so risk is involved.



5.7 Step 7: Sign off and record outcomes

1. Who has approved the privacy risks involved in the project? What solutions need to be implemented?

As mentioned above, no data will be collected from the individuals. However, we will only retain the anonymized data for the duration of the project so no privacy risk is involved.

2. Integrate the PIA outcomes back into the project plan. Who is responsible for integrating the PIA outcomes back into the project plan and updating any project management paperwork? Who is responsible for implementing the solutions that have been approved? Who is the contact for any privacy concerns which may arise in the future?

For any data management or privacy related issues, UCD Library Data Manager is the best person to contact.

Name: Jenny O'Neill

Address: Research Services, Level 2, James Joyce Library, University College Dublin

Email Address: rdm@ucd.ie

For any project management issues, feel free to reach out to the RE-ROUTE project coordinators; contact details of them is mentioned on the project website here:

<https://reroute-project.eu/index.php/team/>.

5.8 Local DPIAs

We will not be using or collecting any data that includes personal data from any of our partners, therefore we do not introduce any risks related to personal data.

6 PRIVACY POLICY

RE-ROUTE privacy policy is available on the project website here: <https://reroute-project.eu/index.php/privacy-policy/> and is also included in ANNEX 1.

7 RE-ROUTE DATA GOVERNANCE

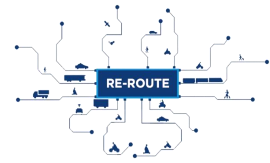
Data governance revolves around ensuring the quality and dependability of data. It encompasses the establishment of regulations, guidelines, and processes that guarantee the accuracy, reliability, compliance, and security of data.

For the data governance purpose, we use the template from the UCD library [2].

7.1 Data description and collection or re-use of existing data

How will new data be collected or produced and/or how will existing data be re-used?

New data will not be collected in this project. The data from CDV and CERTH will be re-used in the project which is already public. For the validation purpose, data will be produced from the simulators like SUMO. SUMO is a good candidate, as it allows modelling of intermodal traffic systems including road vehicles,



public transport and pedestrians. Since all partners have collaborated before on other EU projects where the data was collected. Therefore, it can be re-used for this project.

What data (e.g type; format; volume of data) will be collected or produced?

No data will be collected in this project. However, for the simulation purpose, data will be produced using traffic simulators like SUMO. The produced data will be numeric which will be stored in common formats e.g., XLS, CSV, XML, RData, etc. The volume of data will depend on the simulation parameters. The data used for the simulation purpose will be stored on open-source platforms e.g., GitHub, Google Drive, Novell Drive, OneDrive, etc.

7.2 Documentation and data quality

How will data be organised during the research project?

The data obtained from partners and produced during this project will be organised so that it is easily findable, accessible, interpretable, and re-usable. For example, a proper naming convention will be used to make data files easily findable. Where applicable, data will be update after some time and each version will be stored for the re-use purpose.

What metadata will accompany the data?

Rich metadata, which includes descriptive parts of the data, improves the discoverability, interoperability, and potential reuse of your data. When it is practical, metadata will be made available which is required by the FAIR Principles. The quality of descriptive information, including metadata and documentation, has a substantial impact on the reusability of data. As a result, the possibility for data reuse is significantly increased by the supply of comprehensive documentation and metadata.

What documentation will accompany the data?

A proper documentation of the produced data will be provided to make data FAIR. There are many aspects to that. For example, when data will be organized into folders and versions, a readme file will be created to provide the documentation on how the data is organized.

What data quality control measures will be used?

Modern methods for guaranteeing data quality and privacy will be used, including data verification, anomaly detection, and dealing with data ownership and security. These approaches are subjected to study and evaluation in order to determine which is the best option for M-ITS services in the RE-ROUTE project. Different facts of quality, ownership, and privacy are evaluated using key performance indicators (KPIs) and criteria. In order to achieve a balanced decision-making process, targeted weights are applied, assisting the consortium in deciding on the best course of action for each unique situation.

7.3 Storage and backup during the research project

How will data and metadata be stored and backed up during the research project?

Data will be stored and backed up using open storage platforms e.g, GitHub, Google Drive, Microsoft OneDrive, Novell Drive, etc.

How will data security be taken care of during the research project?

The data processed in this project is open and publicly accessible. Also, data produced from the simulators will also be made public. In this context, risk or security breach is not applicable.



7.4 Legal and ethical requirements, codes of conduct

If personal data are processed, how will compliance with legislation on personal data and protection of sensitive data be ensured?

As a part of RE-ROUTE project, no personal data will be collected or processed.

How will other legal issues, such as intellectual property rights and ownership, be managed? What legislation is applicable?

Open data owned by CDV and CERTH will be used in this project. No new data will be collected so we don't need to worry about any legal issues.

What ethical issues and codes of conduct are there, and how will they be taken into account?

Since, no personal or sensitive data will be collected in this project so there are no ethical issues concerned to this project.

7.5 Data sharing and long-term preservation

How will data for preservation be selected?

The project will repurpose previously released data from partners that is now available to the public. The underlying data produced by simulators, however, will be made available either at the time of publication or shortly thereafter. This data is essential for result validation and inclusion in scientific papers. Any additional data that is not directly related to a publication will be made public before the project is over.

How and where will data be shared? Are there possible restrictions to data sharing or embargo reasons?

The data produced in this project will be made public for the re-use purpose. The open data storage platforms like GitHub will be used to share the data. There are no restrictions to data sharing since the produced data will not involve any personal or sensitive data.

What methods or software tools are needed to access and use data?

There are no specific tools which will be required to access and use data. If any such tool will be required, the relevant details and information will be provided along with the data.

7.6 Data management responsibilities and resources

Who (for example role, position, and institution) will be responsible for data management?

For any data management or privacy related issues, UCD Data Manger is the best person to contact.

Name: Jenny O'Neill

Address: Research Services, Level 2, James Joyce Library, University College Dublin

Email Address: rdm@ucd.ie

For any project management issues, feel free to reach out to the RE-ROUTE project coordinators; contact details of them is mentioned on the project website here: <https://reroute-project.eu/index.php/team/>.

What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?



For data management and making data FAIR, multiple resources will be used. Researchers from the RE-ROUTE project partners will travel from the sending organisation to the host organisation. Each partner will invest their researchers for a duration of 1-4 months. The data processed or produced during the secondment will be made public for the re-use purpose.

Following the lead of the European Commission and Horizon 2020, we will make the RE-ROUTE data FAIR.

Findable – The data will be published online in a searchable resource e.g. a catalogue, data repository or archive. The chosen repository or archive will assign a persistent identifier to the data. Rich metadata will be provided describing data, according to the requirements of the repository or archive.

Accessible – Data will be ‘as open as possible, as closed as necessary’. Wherever data can’t be made openly available, access conditions will be made clear to researchers wishing to re-use your data, e.g. only available for research purposes. Metadata will be accessible, wherever possible, even if the data aren’t.

Interoperable – Data will be provided in suitable file formats for long term access and re-use. The metadata will be provided following relevant disciplinary standards. Controlled vocabularies, keywords, thesauri or ontologies will be used where possible.

Reusable – Data will have a clear and accessible data usage license. Data and metadata will meet relevant disciplinary standards.

For further info and trainings on how to make the data FAIR, please visit the UCD library website at <https://libguides.ucd.ie/FAIR> or contact UCD Data Manager:

Name: Jenny O'Neill

Address: Research Services, Level 2, James Joyce Library, University College Dublin

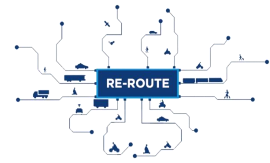
Email Address: rdm@ucd.ie

8 CONCLUSIONS

In this document, we have provided a detailed data management plan for the RE-ROUTE project. We provide a summary of the data re-used from the project partners including CDV and CERTH. Next, we have described the accordance of data processed or produced in the project with the project. We have also noted down the ethical and research integrity principles that are in line with the RE-ROUTE aims and objectives. In accordance with the GDPR requirement, we have filled in and included data protection impact assessment (DPIA) form to provide a detailed data protection assessment for the RE-ROUTE project. We have also reported the privacy policy and data governance methodology for the RE-ROUTE project.

REFERENCES

1. <https://gdpr.eu/data-protection-impact-assessment-template/>
2. https://libguides.ucd.ie/ld.php?content_id=32484988



ANNEX 1 – PRIVACY POLICY

A1.1 Introduction – Privacy Policy Template for RE-ROUTE Website

The privacy policy of the RE-ROUTE PROJECT ("we," "us," or "our") outlines the collection, storage, use, and/or sharing ("processing") of your information when you use our services ("Services"), such as when you:

- Visit any of our websites, including our social media sites, that are linked to this privacy policy
- Engage with us in other related ways, such as participating in events organized by the Consortium, subscribing to our newsletters, or other types of communities endorsed by the Consortium during the project.

A1.2 What information do we collect?

Personal information you disclose to us. The personal information we gather is provided by you voluntarily, either when you register for our services, express interest in obtaining information about our products and services, participate in activities on the Services, or contact us in other ways.

Personal Information provided by you. The type of personal information we gather varies depending on how you engage with us and the Services, the options you select, and the specific products and features you use. Some examples of personal data we may collect include your name, email address, job title, username, password, contact preferences, and mailing address.

Sensitive Information. We don't handle any sensitive personal data, including information that could reveal racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership, genetic or biometric data for uniquely identifying individuals, health data, or data on an individual's sex life or sexual orientation.

When visiting the RE-ROUTE website

During the ordinary operation of this website's designated IT systems and applications, certain data is automatically detected through the use of internet communication protocols. This data is not directly associated with identifiable users. Examples of this data may include cookies, IP addresses of the computers used to access the site, Uniform Resource Identifier (URI) addresses of requested resources, the time of the request, the method used to send the request to the server, the size of the file obtained in response, the numerical code indicating the status of the server's response, and other parameters related to the user's operating system and IT environment.

When filing a question/request via our contact form

Additional personal information we collect includes information provided by the user/visitor when communicating with us through the email addresses listed on our website or by filling out our online contact form. If a user chooses to send personal information through email on a voluntary and explicit basis to the addresses provided on this website, the sender's email address is then collected to respond to the request, along with any other personal data contained in the message.

When you register to receive Newsletters

Our website provides a service for creating and distributing project newsletters and managing subscriptions. The personal data we collect for this purpose include email address, first name, last name, entity, and position in entity.



Social Media Login Data. We may offer the option of registering with us using your social media account details, such as Facebook, Twitter, or other social media accounts. If you decide to register in this manner, we will obtain the information mentioned in the section about social logins below. You are required to provide accurate, truthful, and complete personal information, and you must inform us of any changes to such information.

A1.3 How do we process your information?

We process your personal information for a variety of reasons, depending on how you interact with our services, including:

- **To facilitate account creation and authentication and otherwise manage user accounts.** We may process your information so you can create and log in to your account, as well as keep your account in working order.
- **To communicate RE-ROUTE achievements, informing about project events and sending invitations for participation or diffusing project outcomes**

A1.4 What legal bases do we rely on to process your information?

The General Data Protection Regulation (GDPR) requires us to explain the valid legal bases we rely on in order to process your personal information. As such, we may rely on the following legal bases to process your personal information:

- **Consent.** We may process your information if you have given us permission (i.e., consent) to use your personal information for a specific purpose. You can withdraw your consent at any time.
- **Legitimate interests.** Where it is necessary for our legitimate interests (or those of a third party) and your interests and fundamental rights do not override those interests.
- **Legal Obligations.** We may process your information where we believe it is necessary for compliance with our legal obligations, such as to cooperate with a law enforcement body or regulatory agency, exercise or defend our legal rights, or disclose your information as evidence in litigation in which we are involved.

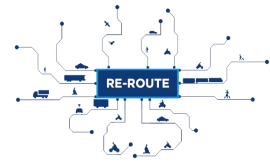
We will only send you direct newsletters, emails, or text if we have your consent. You have the right to withdraw that consent at any time by contacting us.

A1.5 When and with whom do we share your personal information?

Your personal data may be shared with recipients for the following reasons:

- When required by law, contract, or regulatory decision, the Consortium may be obligated or entitled to notify public and independent administrative authorities, judicial authorities, and public officials.
- To achieve specific purposes related to the administration and relevant services of the Consortium.

The Consortium is bound by national laws and will not disclose, assign, exchange, grant, or dispose of personal data to third parties without the user/visitor's consent, except in the cases mentioned above.



A1.6 Do we use cookies and other tracking technologies?

We may utilize cookies and comparable tracking technologies such as web beacons and pixels to obtain or save information. You can refer to our cookies policy for detailed information on how we use these technologies and how you can opt-out of certain cookies.

A1.7 How your personal data is collected

All personal data collected and processed by us are done so in accordance with applicable laws and regulations, including the General Data Protection Regulation (Regulation (EU) 2016/679) of the European Parliament and of the Council of 27 April 2016. We are committed to complying with data protection laws and principles, which means that your personal data will be:

- Used in a lawful, fair, and transparent manner
- Collected only for valid purposes that we have clearly explained to you, and will not be used in a way that is incompatible with those purposes
- Relevant and limited to the purposes we have informed you about
- Accurate and kept up to date
- Kept only for as long as necessary to fulfil the purposes we have informed you about
- Kept secure to prevent unauthorized access, loss, destruction or damage to your personal data.

A1.8 How do we handle your social logins?

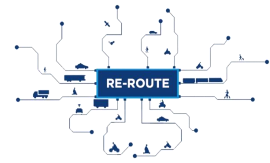
Our Services allow you to register and sign in by using your social media account details from third-party providers such as Facebook or Twitter. If you choose to register using your social media account, we will receive certain information about you from the social media provider, which may include your name, email address, friends list, profile picture, and any other information that you choose to make public on the social media platform.

We will only use the information we receive for the purposes described in this privacy notice or as otherwise specified on our Services. Please note that we cannot control or be held responsible for any other uses of your personal information by your social media provider. We suggest that you review their privacy notice to understand how they collect, use, and share your personal information and how you can manage your privacy settings on their platforms and applications.

A1.9 How long do we keep your information?

We will retain your personal information only for as long as it is necessary to achieve the purposes stated in this privacy notice, unless a longer retention period is required or permitted by law (e.g., for tax, accounting, or other legal reasons), but no longer than five years after the project's conclusion. None of the purposes described in this notice require us to keep your personal information beyond the time when you have an account with us.

If we no longer have a legitimate business reason to process your personal information, we will either delete or anonymize it. If this is not feasible, such as in the case of backup archives, we will securely store your personal information and prevent any further processing until it can be deleted.



A1.10 How do we keep your information safe?

Your personal data is processed using electronic means in compliance with the provisions of Article 32 of GDPR 2016/679 and national law, and in line with the principles of data confidentiality, integrity, and availability. We transfer your personal data in an encrypted manner using the widely used and secure TLS (Transport Layer Security) encryption standard. You can recognize a secure TLS connection by the additional "s" after "http" (i.e., https://..) in the address bar of your browser or the lock icon. In addition, we use appropriate technical and organizational measures, which are regularly updated, to protect your data against accidental or intentional manipulation, partial or complete loss, destruction, or unauthorized access by third parties.

Despite our efforts to secure your information, no electronic transmission over the Internet or information storage technology can be guaranteed to be 100% secure. Therefore, we cannot promise or guarantee that unauthorized third parties such as hackers or cybercriminals will not be able to defeat our security measures and improperly collect, access, steal, or modify your information. While we will take all necessary precautions to protect your personal information, any transmission of personal information to and from our Services is at your own risk. It is recommended that you access our Services only within a secure environment.

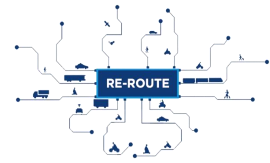
A1.11 Do we collect information from minors?

Our Services are not intended for use by individuals under 18 years of age, and we do not knowingly collect personal information from children under this age. By using our Services, you represent and warrant that you are at least 18 years of age or, if you are not, that you have obtained the consent of your parent or legal guardian to use the Services. If we become aware that we have inadvertently collected personal information from a child under 18 years of age, we will take steps to promptly delete the information and terminate the child's account.

A1.12 What are your rights?

You are entitled to the following rights:

- To request information on whether we possess any personal information about you and, if so, what that information is and why we have it.
- To access your personal information. This allows you to obtain a copy of the personal information we hold about you and to verify that we are processing it lawfully.
- To request the rectification of any incomplete or inaccurate personal information we hold about you.
- To request the erasure of your personal information. This allows you to ask us to delete or remove your personal information where there is no good reason for us to continue processing it.
- To request the restriction of processing of your personal information. This enables you to ask us to suspend the processing of your personal information.
- To request the transfer of your personal information in an electronic and structured form to you or to another party (the right to "data portability"). This allows you to take your data from us in an electronically usable format and transfer it to another party in an electronically usable format.
- To withdraw your consent at any time. Please note that this does not affect the processing of your data that is based on the consent you gave before withdrawing. Once we receive notice that you have



withdrawn your consent, we will no longer process your personal information for the purpose(s) you initially agreed to.

However, please note that this will not affect the lawfulness of the processing before its withdrawal nor the processing of your personal information conducted in reliance on lawful processing grounds other than consent.

You may exercise any of these rights at any time by contacting us at the contact information provided on the website.

Account Information

If you would at any time like to review or change the information in your account or terminate your account, you can:

- Log in to your account settings and update your user account.

Upon your request to terminate your account, we will deactivate or delete your account and information from our active databases. However, we may retain some information in our files to prevent fraud, troubleshoot problems, assist with any investigations, enforce our legal terms and/or comply with applicable legal requirements.

Cookies and similar technologies

Most Web browsers are set to accept cookies by default. If you prefer, you can usually choose to set your browser to remove cookies and to reject cookies. If you choose to remove cookies or reject cookies, this could affect certain features or services of our Services.

If you have questions or comments about your data protection rights, you may email us at GDPR@UCD.IE

A1.13 Do we make updates to this notice?

We may update this privacy notice from time to time. The updated version will be indicated by an updated "Revised" date and the updated version will be effective as soon as it is accessible. If we make material changes to this privacy notice, we may notify you either by prominently posting a notice of such changes or by directly sending you a notification. We encourage you to review this privacy notice frequently to be informed of how we are protecting your information.

A1.14 How can you contact us about this notice?

If you have questions or comments about this notice, you may contact our DPO by emailing us at GDPR@UCD.IE or by post to:

RE-ROUTE PROJECT

ADDRESS: UNIVERSITY COLLEGE DUBLIN, BELFIELD, DUBLIN 4

ZIP CODE: D04 V1W8

TOWN: DUBLIN

COUNTRY: IRELAND