



Transition to Sustainable Future Through Training and Education

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Data Management Plan

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Table of contents

EXECUTIVE SUMMARY	5
1 DATA SUMMARY	6
2 FAIR DATA	9
2.1 Making data findable, including provisions for metadata	9
2.2 Making data accessible	9
2.3 Making data interoperable	10
2.4 Increase data reuse	10
3 OTHER RESEARCH OUTPUTS	11
4 ALLOCATION OF RESOURCES	13
5 DATA SECURITY	14
6 ETHICS	15
7 OTHER ISSUES	16
8 CONCLUSION	17

EXECUTIVE SUMMARY

This deliverable is based on the European Horizon Data Management Plan Template Version 1.0 05 May 2021. It presents a detailed aspect of the data collection and how it will be used for the entire TRANSIT project. The objective of the deliverable is to treat the main potential problems of data management during the TRANSIT project and to plan how they should be solved. Deliverable 1.1 is structured into seven main sections (i) Data Summary, (ii) FAIR Data, (iii) Other Research Outputs, (iv) Allocation of Resources, (v) Data Security, (vi) Ethics, (vii) Other Issues. The deliverable is concluded in Section 8 with its summarised considerations.

1 DATA SUMMARY

The H2020 TRANSIT project is a Coordinated and Support Action (CSA) project under the Call: HORIZON-CL5-2021-D3-02. The objectives of the TRANSIT project are:

Objective 1: To determine the relevant externalities in education that might restrict or promote the broader adoption of RE in our local and global context, encompassing the ‘circularity-by-design’ and addressing the social and environmental aspects through a multidisciplinary cooperation approach by experts and stakeholders.

Objective 2: To evaluate the TRANSIT development of supporting activities in RE educational approaches and sustainable aspects towards an enhanced social acceptance and gender balance.

Objective 3: To set up and initiate an open-access structured programme to promote an innovative multidisciplinary approach to teaching, engaging with the sustainability of all forms of renewable energy and emerging energy thematics.

Objective 4: To deliver an industry-academia hands-on training programme, developing human capital, supporting education, revamping and reskilling efforts in RE.

Objective 5: To raise awareness, honour exemplars, collaborate with relevant projects, promote TRANSIT supporting activities and resources and disseminate results, including long-term exploitation and wider understanding of RE sustainability aspects.

The project aims to have open access to data, where possible. Data generation and provision is an integral part of the project, and the generated information aims to enhance new knowledge in the development and implementation of TRANSIT. This deliverable explains how the project coordinator ensures data protection and what kind of data is available to the public under the aegis of the TRANSIT project. The Foundation for Innovation and Research - Malta (FiR.mt), as a project coordinator and host institution of the TRANSIT project, share the responsibility with project partners for data collection, storage, protection, retention and destruction according to the European Union and national legislation. Furthermore, the General Data Protection Regulation (GDPR) is legally binding for all Member States, without the need to be ratified by Member State parliaments. It is a crucial document used as a basis for the discussions and recommendations in this deliverable.

Project partners and participants will be informed about the purpose, methods, and intended purpose of any data collection. In addition, participants will be informed about their participation contributes to the overall project objectives and how potential risks arising from their participation may be mitigated to eliminate all threats of harm to project partners and participants.

This deliverable is D1.1 Data Management Plan of the H2020 TRANSIT project, which forms part of WP1 Management and Task 1.3 Managing Data. This document follows the guidelines on FAIR Data Management in Horizon 2020 and its template for Data Management Plan. This section (section 1) summarises the data which will be collected and generated over the entire duration of the project. Time dedicated to research is supported by individuals, external collaborations or entities' initiatives, while the TRANSIT project directly supports time to disseminate these endeavours. Hence while most of the data collected in terms of registrations, contacts, presentations and feedback are supported directly, some data may be available through TRANSIT. Each TRANSIT partner is bound by their institutional, professional, and national code for research ethics.

The type of data and its purpose of collection/generation, including its relation to the project's objectives, are listed in Table 1. It also includes a description of each dataset.

Table 1: Data type description, purpose and relation to project objective/s

Data Type	Description	Purpose	Objective/s
Stakeholder contacts	The data contains the names and contact of the members of the TRANSIT stakeholder group.	This data are used to contact the stakeholders, organise interviews and disseminate	O1, O4, O5
Website subscriber contacts	The data will contain the names and emails of subscribers to the time-to-time updates of the TRANSIT project website.	To assist dissemination.	O3, O4, O5
Interactive web-app subscriber contacts	The data will contain the names and emails of those who subscribe to the TRANSIT interactive web application.	To assist in dissemination and accessing web application content	O1, O3, O5
Stakeholders' opinions	Stakeholders would likely present their opinions about the future of renewable energy and fuel technologies.	Stakeholders' insights will provide valuable feedback for the methods employed in the project.	O1, O2, O3, O4, O5
Interview responses	Subjects enquired to an opinion about the renewable energy aspects, issues and future goals	Public insights (anonymous) will help in providing sustainable education programmes.	O1, O2, O3, O4
Good practices	IAB and stakeholders would provide examples of good practices in renewable energy and fuel technologies.	The data collected will help to develop a hands-on training approach to revamp industry-academic curricula and to establish a web-enabled platform.	O3, O4, O5
Interactive educational material	Interactive educational material used for the multidisciplinary programme for training and education on the web-enabled platform.	The created models will revamp industry-academic curricula and ensure post-project life.	O1, O4, O5
TRANSIT validation data	TRANSIT outcomes - resources, tools, and materials, including challenges, competitions and awards, validate the project.	High-quality TRANSIT validation data, and post-project life of challenges, competitions and awards, will demonstrate project success.	O3, O5
Impact assessment indicators	A list of potential impacts and their assessment will be generated over and beyond the project.	Noted or determined automatically (using web-platform) impact indicators, or assessed.	O2, O5

The data are collected in the following type/s and format/s as listed in Table 2. The origin of the data, expected size and usefulness are mapped with the implementation of the project as Work Packages (WPs). Simulation models, TRANSIT validation data, and impact assessment indicators data sets are disseminated in a clustered format under the findable, accessible, interoperable and reusable (FAIR) principle on the project webpage and another potential; repository.

Table 2: Data type, origin, format, expected size and usefulness

Data Type	Origin	Format	Size	Usefulness WPs
Stakeholder contacts	Secondary data	Csv, txt, xlsx	kB	1, 2
Website subscriber contacts	Secondary data	Csv, txt, xlsx	kB	2, 6
Interactive web-app subscriber contacts	Secondary data	Csv, txt, xlsx	kB	6
Stakeholders' opinions	Primary data	Docx, csv, wav	kB	1, 3, 4
Interview responses	Primary data	Docx, csv, wav	kB	3, 4, 5, 6
Good practices	Secondary data	Docx, txt, xlsx	kB	3, 4, 5, 6
Interactive educational material	Primary data	Docx, PDF, xlsx, csv, txt, json, source code, jpg, png, svg, mp4	kB	6
TRANSIT validation data	Primary data	Docx, xlsx	kB	1, 4, 5, 6
Impact assessment indicators	Primary data	Docx, txt, xlsx	kB	1, 2, 5, 6

2 FAIR DATA

2.1 Making data findable, including provisions for metadata

This section refers to data generated/produced by the TRANSIT project and research data to be findable, accessible, interoperable and reusable (FAIR) and ensure it is soundly managed. TRANSIT shall ensure an example leading to knowledge discovery and innovation and subsequent data and knowledge integration and reuse.

All knowledge (results) obtained will be reviewed for its exploitation potential by Management Committee. Suppose results are classified as being not potentially commercial. In that case, that is, requiring some form of IP protection. Material is deemed free to be disseminated by a range of means to various stakeholder groups. IP Management and Exploitation, which is implemented by AIT and essentially aims at facilitating a transparent process, clarification of (co-)ownership of results, identifying whether the results are capable of industrial or commercial application, or can be readily disseminated as scientific results preparing IP documentation for evaluation by the Management Committee and Standard Operating Procedures (SOPs) for 1) publications, 2) conference participation, and 3) IPR activities.

The activities employed by the various work packages vary and involve human participants through interviews, questionnaires, and surveys, and participation will be only conducted based on informed consent. That is, participation will be free from coercion and can be revoked at any time. The data stored is retained for a maximum period of 5 years after the project finish. This data retainment applies to those individuals involved in the activities defined for WP1, WP2, WP3, WP4, WP5, and WP6. Participants will be provided with information about the nature of the action, the conditions under which information is provided, and how the findings are presented. Data controllers, Project Manager, Project Coordinator, Work Package and Task leaders responsible for the activities where personal data is collected will ensure that data subjects can rectify, remove or block incorrect data about themselves.

The use of a standard data naming convention will be followed, and clear versioning will be established for the collected data.

Metadata includes Digital Object Identifiers (DOI) for published articles such as title abstract, author/s and keyword/s (IEEE keywords), shared on the TRANSIT web page e-library section. Furthermore, publications are shared in the original repositories in golden open access and repositories such as Research Gate and Linked In.

Metadata clustered for training, skilling and education for current and future generations to enable the energy transition will also be shared on the e-library at the project end. After all, dissemination, exploitations and commercial and personal sensitive data have been reviewed by the consortium. It should be emphasised that this type of data is outside the scope of the TRANSIT project, but it is expected that some sensitive personal data will be generated/produced.

2.2 Making data accessible

Microsoft Platform with uploaded datasheet files will be used for data collection and data exchange between beneficiaries, with uploaded datasheet files uploaded. For some significant TRANSIT scientific publications, the 'golden' open access model will be chosen to guarantee immediate access

to the publications and comply with the EC6 months' embargo deadline. In addition, it allows TRANSIT authors to retain the copyright for their publications, as encouraged by the EC, and to use it for further dissemination activities into the scientific and industrial communities. Immediately after publication, the publication will be made accessible on Openaire.eu. TRANSIT beneficiaries will also check if the publication's metadata is adequate for EU-funded projects and aligns with other exploitation activities without infringement of IPR.

2.3 Making data interoperable

TRANSIT data, mainly collected for reporting and analytics of the project, is exchanged and shared between beneficiaries on the Microsoft Platform with uploaded datasheet files. These files are downloadable. The data is primarily used for internal and external reporting on the project.

TRANSIT published-related data follow the DOI standards and IEEE keywords.

TRANSIT research-related data are saved in .csv files, easily reused by most Matrix-based operating software.

2.4 Increase data reuse

As mentioned, significant TRANSIT publications will apply the 'golden' open access model that will be chosen to guarantee immediate access to the publications and comply with the Open Science policy of Horizon Europe.

TRANSIT research-related data are embargoed for the project's duration and/or until the complete publication of analytics to give time to publish or seek patents. This decision is taken at Consortium Level. This data is then released for reuse by third parties and remains in the project e-library for the next seven years after the project ends.

Quality assurance on the data to be published is provided through the International Scientific Committee members. Among other matters, the process includes (i) handles duplicates and inconsistencies in the data, (ii) designing key metrics to control data quality and (iii) advising on and implementing data governance procedures.

3 OTHER RESEARCH OUTPUTS

TRANSIT aims to use and generate open-source resources, including educational material, libraries and reports, and intends to open collaboration with all relevant knowledge actors. This way, society's challenges addressed in the project can be met. In this process, TRANSIT consortium partners will create several outputs, including scientific publications. Hence numerous Open Science (OS) approaches are seen to boost the impact of our research and foster meaningful interactions with local communities, in particular:

- Early and open sharing of research: is mainly adopted to TRANSIT-supported scientific articles provided through preregistration and applying for registered reports.
- Research output management: is adopted through a dedicated Task 1.3 and deliverable Data Management Plan that provides detailed guidelines on the management of research outputs.
- Measures to ensure the reproducibility of research outputs: are developed through the integration into open-source platforms such as Zenodo, EIRIE, OpenAIRE and InvestigaM.
- Providing open access to research outputs: Educational resources created will be posted on Open Educational Resources (OER) such as OERCommons and/or under Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights to enhance and ease the reuse of the produced material. A trustworthy repository such as Open Research Europe will be used for scientific papers to make them available "green" or "gold" open access, guaranteeing readability online, downloadable and printable. Data created will be put in a trustworthy repository such as Zenodo, EIRIE, OpenAIRE and InvestigaM and comply with the FAIR principles as per the previous approach.
- Participation in open peer review: to be as transparent as feasible, with open names, open reports, and open participation.
- Involving all relevant knowledge actors: including all members of society, public authorities, industry, academia and citizens, with a strong emphasis on industry-academia to policymakers and regulator feeding to local communities.

All personal data during interviews, surveys and use of materials, including photography and recordings taken during TRANSIT activities, will be handled with informed consent following the national, EU and GDPR requirements. The reusability of the data and materials will be enhanced by adopting the FAIR -Findability, Accessibility, Interoperability, and Reusability- principles, thereby helping to maximise the added value gained by digital publishing to ensure transparency, reproducibility, and reusability.

The main guidelines for FAIR adaptation data policy are:

- Data to be collected, processed and/or generated: A catalogue of the data and material that will be processed or generated during the project implementation will be developed.
- Which data will be shared/made open access and how: By default, all the data collected or generated in the project will be open access. The data collected/generated shall be readily accessible with as few limitations as feasible, with necessary vigilance to preserve sensitive data. Stakeholders will be able to access our open data by simply utilising a web browser. Amnesia, OpenAIRE's data anonymisation tool, will be used whenever appropriate.
- How these data will be handled during and after the project life: Data and material will be deposited in an institutional repository ensuring open access during and after the project life. Data deemed open for reuse will be put in a trustworthy repository (e.g., Zenodo) and will be discoverable using a standard identifying method (e.g., essential metadata,



- assignment of Digital Object Identifiers via DataCite). A uniform set of naming standards (for example, utilising the UK
- Data Archive), metadata development based on the Dublin Core Metadata standard, and good data versioning would improve data searchability.
- Which formats or standards will be applied to data: To ease data exchange and reuse of material, the data produced in the project will follow standard formats that ensure interoperability. We will employ metadata vocabularies, standards, and procedures to improve the interoperability of data collected/generated (e.g., Dublin Core Metadata std). Data interchange will be eased by Zenodo since metadata will be kept internally in JSON format following a standardised JSON structure. We will make openly available data under the Creative Commons licencing scheme to allow for reuse by any interested third party, and we will conduct rigorous quality assurance (e.g., peer review of methods and data summaries) and quality control (technical checks on data consistency, integrity, and correctness) activities.
- Costs of making TRANSIT project FAIR: Costs related to open access to research data are eligible as part of the grant and are integrated in the budget

4 ALLOCATION OF RESOURCES

The costs for making data FAIR in the TRANSIT project are within the tasks of WP1 – Management, which FiR.mt leads, and it supports structures of committees, software and hardware. The TRANSIT project covers all expenses, and in Open Access, credit is provided to the project. As mentioned, TRANSIT research-related data remain on the project e-library for the next seven years after the project ends.

Individuals whose Personal Data is processed will be treated fairly, openly, and transparently. Personal Data of individuals will be processed only for those administrative, operational, accounting, and monitoring purposes necessary for the safe and reliable implementation of the TRANSIT project without prejudice to individual rights under the relevant laws. TRANSIT project members will ensure that:

- Personal data processing will be adequate, relevant and not excessive to the purposes for which they are processed.
- Personal Data will be treated accurately and kept up to date.
- Personal Data processed for feedback, and results will always be confidential unless the individual gives explicit and signed consent to publish personal data.
- Appropriate technical and organisational measures will be taken against the accidental loss or destruction of Personal Data.
- Personal Data (name and contact details) will be retained but not published.

Individuals can report suspected breaches of these principles firstly to TRANSIT Project Manager and then TRANSIT Project Coordinator, and then to Data Protection Officer (DPO). TRANSIT members will respond to suspected Personal Data Protection breaches established under mentioned principles promptly and effectively and take the appropriate action where a violation is found to have occurred. The individuals whose personal data is being collected and processed will have the right to:

- Obtain a copy of their Personal Data stored by the TRANSIT partner without delay.
- Request that any Personal Data relating to them shown to be incomplete or inaccurate be rectified.
- Request that on compelling legitimate grounds, processing of their Personal Data should cease.
- Know the contact details of the Project Manager, Project Coordinator and Data Protection Officer to which the individual should direct requests to their rights above.

TRANSIT partners dealing with personnel data derived from interviews, questionnaires or surveys will record the following elements, which will always be confidential:

- Name and contact details of the participant.
- Description of Personal Data processed.
- Purpose or purposes of the processing of Personal Data.

Personal Data will never be transferred to individuals or organisations outside the TRANSIT consortium unless there is an appropriately enforced legal request.

5 DATA SECURITY

The Project Coordinator will ensure that data will be stored securely during the project, and provisions will be made to ensure that the data will be secured safely beyond the lifetime of this project. Confidential information such as personal data on individuals recorded in interviews, questionnaires or surveys (contact data) will never become accessible to the general public. It will be securely stored to prevent breaches of confidentiality. The nature of the activities conducted in the project does not engage in areas where 'incidental findings' have caused primary concern, namely medical ethics. Data will be anonymised where appropriate, and it will always be confidential when personal data is recorded. Names of participants may be published following informed consent and approvals for testimonials.

The project objectives require the collection and analysis of public data that come from very different sources. Sometimes data are publicly available. Other data is inexistent or insufficiently detailed to implement TRANSIT tasks. Therefore, the TRANSIT project involves primary data collection such as interviews, questionnaires, surveys and data sources from the different project partners.

Partners will systematically manage the data generated in the project. As a safer alternative to the intranet, TRANSIT will provide a well-protected password-protected virtual workspace where delicate IP data will be exchanged and stored. All hard drives and servers used by the partners for storing digital data will be backed up regularly, and data generated will be periodically stored in offline systems to avoid data loss. Where possible, electronic lab books and certified data management software are used. The main achievements will be summarised in periodic reports sent to the project coordinator and compiled in the requested reporting periods.

Each beneficiary is responsible for documenting research progress and collaborations. This process may be done through laboratory books, minutes of the meeting, memos, email correspondence, reports, and annual working plans with sufficient detail to identify the significant contribution to the creation of results that is to internationally recognised standards and good practice. The documentation activities begin with implementing guidelines and procedures. These include supporting the consortium in defining IP strategies, refining appropriate business models, planning and managing stakeholder communications and relations and last but not least, starting preparing the training, skilling and education activities/programmes consisting of presentations, manuals, blueprints, and guidelines. The relevant data will be stored in an extra folder on the Virtual E-Workspace.

6 ETHICS

All project activities are designed, undertaken and reviewed as part of the consortium to ensure integrity, quality and transparency. The TRANSIT Management Committee will be responsible for ensuring that the ongoing activities are conducted at the highest integrity, quality, and transparency level. Each work package is embedded within institutional ethics frameworks and committees. The ethics framework that applies to the Project Coordinator, Foundation for Innovation and Research - Malta (FiR), will apply where these bodies do not exist.

The TRANSIT consortium is aware of the General Data Protection Regulation (GDPR) requirements. Data protection is a core research topic of the project. TRANSIT will ensure that for any human data it processes, compliance with the GDPR is guaranteed.

The Project Coordinator will ensure that TRANSIT-related activities follow ethical guidelines:

- Concerns regarding the ethical conduct of activities conducted under the TRANSIT project should be raised, in the first instance, with the TRANSIT Project Manager.
- The Management Committee meetings will devote time to considering emerging activities and ethics issues that are foreseen at the outset of the research.
- Unethical behaviour will not be tolerated and will be raised as part of consortium meetings.
- Depending on the severity, failure to comply may lead to the exclusion from the consortium, following the internal principles defined in the Consortium Agreement. The process of such investigation will be guided by the principles of integrity, fairness, uniformity, confidentiality and no detriment. All TRANSIT consortium members are committed to cooperating and supporting such investigations. They are also committed to consent to the conclusions of such processes and to take appropriate actions subject to proper appeal processes.
- Project members will seek opportunities to train in ethics-related project activities as part of their activities in the TRANSIT consortium. Such opportunities will be encouraged as part of career development opportunities.
- All individuals participating in surveys, questionnaires, and interviews will be fully informed about the purpose, method and intended usage, their contribution to the project activities, and what risks, if any, may arise from participation.
- Project members shall always be ensured confidentiality of the participants' information and the respondents' anonymity, as well as respect at all times the dignity and autonomy of individuals. Individuals will participate voluntarily, without any form of coercion. All activities will be conducted under informed consent; individual participants will not contribute without their knowledge and consent.
- Individual participants will have the right to withdraw at any time.
- Personal Data processing shall not generally involve vulnerable individuals who cannot give informed consent.
- TRANSIT activities will be conducted under the principle of 'informed consent' and under conditions of non-attributability of information to protect the participant's anonymity. The requirements are explicitly set out in the information participant sheet or public event notification. The right to comment does not affect project members' rights to interpret and analyse.
- The project does not offer financial inducements for individuals in activities participation.

7 OTHER ISSUES

Other national/funder/sectorial/departmental procedures for data management during TRANSIT project will not be used.

8 CONCLUSION

This deliverable is based on the European Horizon Data Management Plan Template Version 1.0 05 May 2021. It presents a detailed aspect of the data collection and how it will be used for the entire TRANSIT project. It concludes that the types of data collected for the project will vary. As shown in section 1 (Table 1), nine different types of data will be collected, ranging from personal data to educational material of interactive multidisciplinary programme. The deliverable also emphasised how stakeholders' related data will be imperative for successfully running the TRANSIT project. Other research outputs, allocation of resources, security of data and ethics measures are also considered in the deliverable. It is concluded that data protection and individual privacy protection are significant for the TRANSIT project.