



D1.1 -PROJECT MANAGEMENT PLAN

Date: 30/12/2022



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Horizon Europe Grant agreement N° 101075714.

Deliverable details

Title	WP	Version
Project Management Plan	1	2.0

Contractual delivery date	Actual delivery date	Delivery type*
31/12/2022		R

*Delivery type: R: Document, report; DEM: Demonstrator, pilot, prototype; DEC: Websites, patent fillings, videos, etc; OTHER; ETHICS: Ethics requirement; ORDP: Open Research Data Pilot.

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Version	Date	Person	Action	Status*	Dissemination**
0.1	02/12/2022	Ugo Stecchi	Table of content	Draft	CO
0.2	07/12/2022	Ugo Stecchi	First preliminary version of the document	Draft	CO
0.3	13/12/2022	Ugo Stecchi	First preliminary version with all sections drafted	Draft	CO
0.4	15/12/2022	Aris Dimeas, Aleksandra Krkoleva	Peer review	Draft review	CO
0.5	20/12/2022	Ugo Stecchi	Updated version after comments from reviewers	Updated draft	CO
1.0	21/12/2022	Ugo Stecchi	Final version integrating reviewers' comments	Final version	PU
2.0	27/06/2024	Ugo Stecchi	Risk table updated after review comment	Final version	PU

*Status: Draft, Final, Approved, Submitted (to European Commission).

Dissemination Level: **PU: Public; **CO**: Confidential, only for members of the consortium (including the Commission Services); **EU-RES** Classified Information - restraint UE; **EU-CON**: Classified Information - confidential UE; **EU-SEC**: Classified Information - secret UE

Executive Summary

The Project Handbook is a document that establishes the foundation for the project cooperation processes and defines all aspects that must be taken into account in order to assure an efficient and coherent management of the project, including: a brief description of the project, its objectives and the scope; the contacts of all partners involved in the project and the coordinator details; guidelines and recommendations regarding the communication

activities of R2D2 and the Quality Assurance Plan. Concerning the dissemination of the project results, the publication procedure that must be followed by all partners is included.

Specific attention is paid to the Quality Assurance Plan, which describes the roles of the different actors in the project management, meeting schedules and gives guidelines for performing the day-to-day project management actions. The internal reviewing procedure is of great importance since it is one of the main tools to guarantee the quality of the results. R2D2 will follow a procedure based on the peer review of the project deliverables which must ensure they are submitted to the EC with the highest quality.

The second part of the deliverable is dealing with risk assessment. Throughout the duration of the project, the management process will identify and monitor technical, managerial, financial and ethical risks that might affect the project's progress towards its objectives, in order to carry out mitigation actions as early as possible.

While the Work Package (WP) Leaders are responsible for the risk assessment and monitoring within their WPs, the Project Coordinator (PC) will be ultimately responsible for the oversight of the entire project against milestones and for the risk management effectiveness. The methodology to explain and assess risk impact is explained in this document, along with the procedure to continuously update the risk management plan tables.

The final part of the deliverable briefly considers the preliminary management of the intellectual property management and exploitation agreements. During the negotiation phase, and before the official starting of the project, all the partners that are part of R2D2 consortium, have agreed and signed a Consortium Agreement (CA) in order to set out the rights, obligations and responsibilities among beneficiaries. The CA is an internal agreement setting out the management guidelines for the consortium partners that deals with the rights and responsibilities between the beneficiaries themselves, concerning the execution of the project, specifically those related to the internal management of Intellectual Property (IP). The CA is thus envisaged as an instrument to develop and supplement aspects that are specific to the project and that are not completely covered in the Grant Agreement (GA), in particular issues related to the future exploitation and dissemination of results. Thus, the summary of the most important sections of the CA related to the management of the IP and the R2D2 results is presented in this report.

Keywords

Project Management, Project handbook, coordination, Grant Agreement, Consortium Agreement, Risk management, IP.

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1 Index

1	Index	5
1.1	list of tables.....	7
1.2	List of Figures.....	7
1.3	Acronyms	7
2	Introduction	9
2.1	Purpose of the Document	9
2.2	Scope of the Document.....	9
2.3	Structure of the Document.....	9
3	Project Summary.....	11
3.1	objectives	11
3.2	Partners.....	12
4	Work Plan.....	14
4.1	project report.....	15
4.1.1	Six-monthly report.....	15
4.1.2	Periodic report	16
5	Quality Management Plan	17
5.1	Management Structure.....	17
5.2	Internal Reviewing Procedure.....	20
6	Communication Policies.....	22
6.1	Electronic COmmunications.....	22
6.2	Guidelines for documents	23
6.2.1	Deliverables	24
6.3	Project Repository.....	25
6.4	Acknowledge EU Support	25
6.5	R2D2 LOGO and acronym.....	26
6.6	Presentation, poster and graphical material.....	27
6.7	Notification Procedure	27
7	Risk Management.....	29
7.1	Definitions	29
7.2	Risk Management Organisation And Responsibilities	31
7.3	Risk Management Process.....	31
7.3.1	Risk Assessment	32

7.3.1.1	Risk Identification Process and Procedure.....	32
7.3.1.2	Risk Indicators.....	32
7.3.1.3	Risk Analysis Process and Procedure	33
7.3.1.4	Evaluation of Risks	35
7.3.1.5	Quantitative Analysis.....	35
7.3.2	Risk Monitoring	35
7.3.2.1	Risk Monitoring Process	35
7.3.2.2	Risk Monitoring Procedure.....	35
7.3.3	Contingency Plan.....	36
7.3.3.1	Risk Handling Process.....	36
7.3.3.2	Risk Handling Procedure	37
7.4	Risk Table.....	37
8	Ethical Principles in R2D2 project.....	43
8.1	Legislation Framework.....	43
8.1.1	Security measures that will be implemented to prevent unauthorized access to personal data.....	45
8.1.2	Personal Data Transfer From An Eu To A Non-Eu Country.....	45
8.1.3	Personal Data Transfer From A Non-Eu To An Eu Country.....	45
8.2	Ethical Principles.....	46
8.2.1	Ethical Policy.....	46
8.2.2	R2D2 DMP (Data Management Plan)	46
8.2.3	Data Handling Procedures.....	46
8.2.4	Data Collection And Storage	47
8.2.5	Data Protection.....	47
9	Intellectual Property Management Strategy.....	49
9.1	Backgrounds	49
9.2	General Principles.....	49
9.3	Access Rights for Implementation.....	50
9.4	Access Rights for Exploitation	50
9.5	Additional Access Rights.....	50
9.6	Access Rights for Parties Entering or Leaving the Consortium	50
9.6.1	New Parties Entering the Consortium.....	50
9.6.2	Parties Leaving the Consortium	50
9.7	Specific Provisions for Access Rights to Software	51
	References.....	52
	Annexes.....	53

Annex A: Reviewers per deliverable	53
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1.1 LIST OF TABLES

Table 1: Beneficiaries	12
Table 2: Affiliated Entities	13
Table 3: Associated Partner	13
Table 4: internal periodic technical report	15
Table 5: internal periodic financial report	16
Table 6: Project Management Roles	19
Table 7 – Risk Table	38
Table 8: Peer reviewers of deliverables	54

1.2 LIST OF FIGURES

Figure 1: PERT chart.....	14
Figure 2: Gantt chart.....	15
Figure 3: Project Management and Coordination structure	18
Figure 4: procedure for deliverable preparation, review and submission	21
Figure 5 R2D2 logo on different project corporative palettes.....	26
Figure 6: risk management procedure	32
Figure 7: risk assessment matrix.....	34

1.3 ACRONYMS

Acronym	Full text
DoA	Document of Actions
EC	European Commission

WP	Work Package
GA	Grant Agreement
CA	Consortium Agreement
PC	Project Coordinator
IP	Intellectual Property
EPES	Electric Power and Energy System
PM	Project Manager
TM	Technical Coordinator
PPR	Project Periodic Report
DCOM	Dissemination and Communication Manager
BIM	Business Innovation Manager
DEM	Demonstration Activities Manager
LEPI	Legal and Policy Issues Officer
CBA	Cost Benefit Analysis
PMB	Project Management Board
AI	Achievement Indicator
SO	Specific Objective
IA-CBA	Impact assessment – Cost Benefit Analysis
GDPR	General Data Protection Regulation
DMP	Data Management Plan

2 Introduction

2.1 PURPOSE OF THE DOCUMENT

This deliverable presents the foundation for the project management processes providing a clear route to success. It covers all relevant aspects, from a basic description of the scope of the project any party involved in the project should be aware of, to the most detailed description of how the project will be executed, monitored and controlled, making it easy to visualize project management timelines.

The project handbook contains all the relevant information to facilitate the execution and control of the different tasks of the project and it may, therefore, be considered key for the overall success of R2D2. It will ensure that the consortium meets all the requirements related to the contract with the European Commission (EC), controlling that the tasks start and finish according to the project work plan and that the project deliverables are submitted in due time. In addition, this deliverable presents the methodology for management of assessed risks and Intellectual Property (IP) along the project lifetime.

2.2 SCOPE OF THE DOCUMENT

This document is aimed to outline a clear picture of the structure of the project, the work plan and the overall management approach, ensuring tasks are completed on time, resources are allocated appropriately, and to help measure project performance.

The document will allow the team leaders within each organisation, researchers and heads of administration to have at any moment a clear vision of what and when project's objectives are to be achieved, by showing the list of work packages/tasks, timing, deadlines, responsible partners and resources required for the project execution.

As any other document in the project, but with particular interest to D1.1, this deliverable should not contradict the project contract – and, in particular, the provisions made at the Document of Actions (DoA) with regards to project schedule and efforts allocated.

Finally, this deliverable briefly considers the preliminary management of ethics and IP rights. During the negotiation phase, and before the official starting of the project, all the partners that are part of R2D2 consortium, have agreed and signed a CA in order to set out, among others, the rights and responsibilities among partners, specifically those related to the internal management of IP. The CA is thus envisaged as an instrument to develop and supplement aspects that are specific to the project and that are not completely covered in the Grant Agreement, in particular issues related to the future exploitation and dissemination of results. Thus, the summary of the most important sections of the Consortium Agreement related to the management of the IP and the R2D2 results is presented in this report

2.3 STRUCTURE OF THE DOCUMENT

This document is structured as follows:

- Section 3 describes main information of the project, including objectives and type of partners;
- Section 4 provides indications on the workplan and reports (internal and periodic);
- Section 5 describes the quality management plan;
- Section 6 sets the main rules on communication means internal to the consortium and others dissemination guidelines;
- Section 7 deals with the Risk Management for the whole project, while
- Section 8 and 9 provide guidelines and rules for ethical and IP management.

3 Project Summary

R2D2 strategic goal is to improve the resilience and reliability of current Electrical Power and Energy Systems (EPES) against a growing number of threats and vulnerabilities that may affect such critical infrastructure, exposing weaknesses with harmful and damaging effects on different stakeholders and final customers. This will be done through the deployment of four tools dedicated to the prevention, protection and restoration of EPES in two different independent but complementary scenarios in the energy value-chain – from regional coordination between TSOs, to privacy of LV customers. The project will build on top of strong energy coordination actions in South-East Europe (SEE), following EU legislation and in alignment with the recent activities promoted by ENTSO-E about cyber-security in transmission systems. Through the demonstration and integration of the innovative solutions proposed by R2D2, it will be possible to achieve a more secure, reliable and resilient energy system in Europe, making a positive and tangible impact throughout the European EPES value chain. In this context, R2D2 will deliver a palette of complementary solutions synthesised into four Products: “Multi-risk assessment framework for power system” (P1 – C3PO), “Resilience suite for TSO & DSO” (P2 – IRIS), “Prevention Systems For Energy Infrastructures Security” (P3 – PRECOG) and “Enhanced Assets Maintenance And Management Toolkit” (P4 – EMMA).

3.1 OBJECTIVES

R2D2 aim can be mapped into 7 S.M.A.R.T. (Specific, Measurable, Achievable, Realistic, and Timely) Specific Objectives (SO). Each objective has a set of Achievement Indicators (AI), which will be used to measure its successful achievement compared to the baseline (that can be empty when it is not applicable). Furthermore, each AI has two values associated: AI1 (realistic scenario) and AI2 (ambitious scenario).

- S01. To contribute to the improvement of the overall security and resiliency in power system;
- S02. To deliver a toolkit to model the impact of high impact – low frequency events on power system in order to assess its resilience and determine the optimal operational planning measures and investments to enhance power system resilience;
- S03. To increase the cyber-security and cyber-resilience in operational and information technologies of the EPES;
- S04. To enhance coordination, interaction, and information exchanges at regional level between TSO-TSO and TSO-DSO during critical and emergency conditions;
- S05. To deliver a toolkit to improve the reliability of electrical assets and to contribute to the enhancement of the resilience of the network's components through advanced data-driven solution and automated & robotic technologies;

- S06. To demonstrate project impact and replicability potential during the project and beyond the project activities;
- S07. Contribute to the development of a shared knowledge.

Description of the objectives and AI threshold as in the Grant Agreement.

3.2 PARTNERS

The R2D2 work plan comprises four main phases that encompass the work from specification up to validation and impact assessment of the demonstration sites. Table 1 to Table 3 below show the list of partners (beneficiaries, affiliated entity, and associated partner) and their main project roles.

Table 1: Beneficiaries

#	Organisation	Country	Short Name	Main Role
1	ETRA INVESTIGACIÓN Y DESARROLLO S.A.	ES	ETRA	Project Coordination, technology provider, WP leader
2	S2 GRUPO DE INNOVACION EN PROCESOS ORGANIZATIVOS SLU	ES	S2	technical provider
3	ELPROS ELEKTRONSKI IN PROGRAMSKI SISTEMI DOO	SLO	ELPROS	WP leader, technology assistance to demo site
4	GUARDTIME OU	EST	GUARD	technology provider, WP leader
5	CYBER NOESIS IKE	GR	CYBER	technology provider,
6	INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS	GR	ICCS	technology provider, WP leader
7	SS. CYRIL AND METHODIUS UNIVERSITY IN SKOPJE	NM	UKIM	technology provider
8	CENTAR ZA KOORDINACIJU SIGURNOSTI SCC DOO BEOGRAD-VOZDOVAC - SECURITY COORDINATION CENTRE SCC LTD BELGRADE	SRB	SCC	Demo partner
9	EMS SERVICES DOO	SRB	EMS	Demo partner, WP leader
10	DIACHEIRISTIS ELLINIKOU DIKTYOU DIANOMIS ELEKTRIKIS ENERGEIAS AE	GR	HEDNO	Demo partner
11	ELEKTRO LJUBLJANA, PODJETJE ZA DISTRIBUCIJO ELEKTRIČNE ENERGIJE, D.D.	SLO	ELEK	Demo partner
12	ELEKTRO LJUBLJANA OVE, INZENIRING SPODROČJA OBNOVLJIVIH VIROV ENERGIJE, D.O.O.	SLO	ELOVE	Demo partner

13	CNET CENTRE FOR NEW ENERGY TECHNOLOGIES SA	PT	EDP	Demo partner, WP leader
14	INSTITUT MIHAJLO PUPIN	SRB	IMP	technology provider
15	UNIVERSITY OF CYPRUS	CYP	UCY	technology provider
16	RTE INTERNATIONAL	FR	RTE-i	technical provider, WP leader

Affiliated Entity:

Table 2: Affiliated Entities

#	Organisation	Country	Short Name	Main Partner	Main Role
13.1	EDP ESPAÑA, S.A.U.	ES	EDP Spain	CNET CENTRE FOR NEW ENERGY TECHNOLOGIES SA	Spanish Demo partner

Associated Partner:

Table 3: Associated Partner

#	Organisation	Country	Short Name	Main Role
17	IMPERIAL COLLEGE LONDON	UK	ICL	technology provider

4 Work Plan

The R2D2 work plan comprises four main phases that encompass the work from specification generation up to validation and impact assessment of the demonstration sites:

- Phase 1: Diagnostics, Analysis and Design (WP2): this phase aims at establishing the foundation for the rest of the project, including use cases definition, business requirements and architecture design.
- Phase 2: Technology Configuration and Prototyping (WP3-WP6): the second phase builds upon the results of the previous one and encompasses the customization, configuration and integration of the technological solutions for the implementation of the integrated technology framework.
- Phase 3: Integration and Deployment (WP7): this phase is devoted to the project demonstrators, from roll-out to impact assessment. Overall Evaluation of the entire project and its achievements, along with individual evaluations of the demonstrators, cost-benefit assessments and comparative pilot analyses, will assess the project's success against the initially set objectives and performance criteria.
- Phase 4: Business Innovation (WP8): this phase comprises horizontal, supporting activities of the project namely (i) Dissemination and Exploitation; (ii) Business Innovation Planning, and (iii) Standardization and Policy/ Market reform activities.

The relationships between the WPs are presented on the PERT chart in Figure 1. The timeline and duration of each WP is presented on the Gantt chart on Figure 2

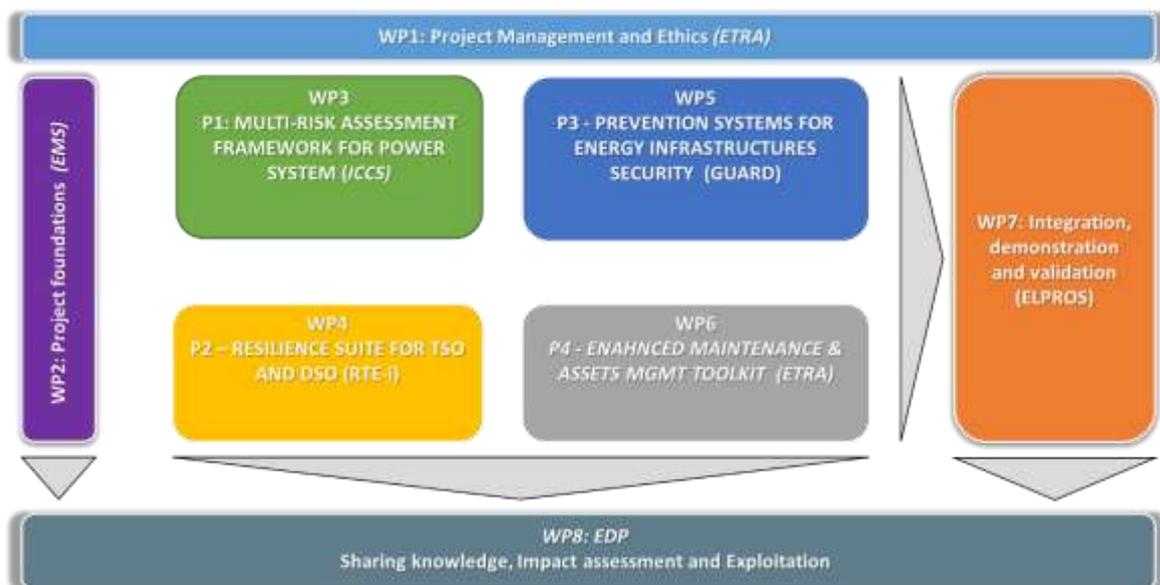


Figure 1: PERT chart

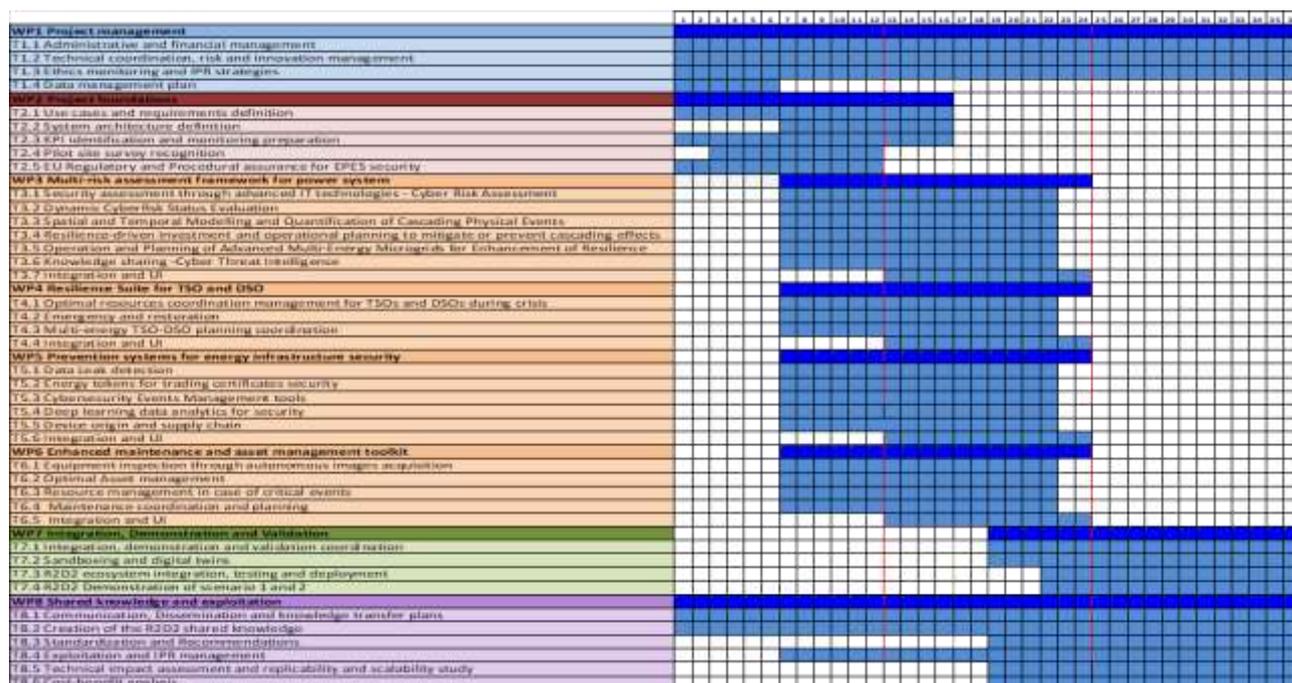


Figure 2: Gantt chart

4.1 PROJECT REPORT

4.1.1 Six-monthly report

As part of an internal monitoring activity, every six months the coordinator will ask the partners to complete two documents to gather the (possibly estimated) basic information on the resources spent per partner and the work performed.

- For preparation of the Technical Report, the following table will be filled by each partner:

Table 4: internal periodic technical report

Main Activities (per task)	Description (include contributions to deliverables)	Progress (not started, delayed, ongoing, finished)

- The financial data from each partner will be collected using the template presented in the Table 5 below:

Table 5: internal periodic financial report

WP	Personnel		Other Direct Costs
	PM	Cost (€)	Cost (€)
WP1			
WP2			
WP3			
WP4			
WP5			
WP6			
WP7			
WP8			
TOTAL		€	€

The Six-monthly Report shall be available no later than 3 weeks after the end of the designated period. The project coordinator will analyse the reports, taking the requested actions in case of need.

4.1.2 Periodic report

Two reporting periods are defined within R2D2 project work plan:

- Interim Period: M1-M18, October 2022 – March 2024
- Final Period: M19-M36: April 2024 – September 2025

In order to provide timely project reporting to the EC, as well as efficient and accurate financial data, the cost statements will be aggregated by each partner in the Project Periodic Report (PPR), which will be completed within the next 60 days from the end of period. The Project Periodic Report will follow the template provided by the EC for the Horizon Europe Programme, following the information required in the EC participant portal. All partners are committed to deliver their contributions in time for the PPR preparation and submission.

5 Quality Management Plan

The main goal of project management is to provide a focused, lean, but effective framework to support the partnership in achieving the scientific, technical and business objectives of the project. Efficient decision-making processes and swift responsiveness to changing circumstances are required.

The quality of the project management is ensured by the Quality Assurance Plan. This section describes how R2D2 will put into operation - from a very pragmatic perspective -, all the previously described principles, taking into consideration the specific strengths and constraints of the consortium. The goal is to define the management structure as well as the principles and procedures that, whilst being as flexible, agile and cost-efficient as possible, leave no room to subjective interpretation.

As a part of the Quality Assurance Plan, the project will apply an internal reviewing procedure to guarantee the quality of its results.

Moreover, a key aspect within the quality management is the project's risk management process, which is described in Section 7. A continuous risk assessment will allow that in case of problems, the required corrective actions are initiated in co-operation with the concerned partners.

5.1 MANAGEMENT STRUCTURE

R2D2 will be implemented by 18 partners (including 1 affiliated entity and 1 associated partner). Its nature puts greater emphasis on decision-making mechanisms. Hence a shallow management hierarchy with transparency in the information flow is proposed to facilitate a team of empowered and motivated individuals to respond to the needs of new product development and commercialization. The management structure will have the following characteristics:

- Goal orientation – the project requires a determined management with a strong desire to “get things done”.
- Agility – to allow adaptation to fast-moving technology dynamics and end-user demands.
- Empowerment/productivity – shallow hierarchy, information transparency and well-defined objectives.

The work to be done within R2D2 is structured into a set WPs (led by WP leaders) which are at the same time divided into a set of tasks, led by Task Leaders (TL). The overall project management and coordination structure is presented in Figure 3.

The Project Coordinator (PC) takes responsibility for the overall project management. This includes interactions with the EC on contract-related issues as well as chairing regular management meetings, setting administrative and financial tasks - representing the project in the contract negotiation, and in relation to the Commission's Project Officer, representing the consortium in workshops and official meetings, etc.

The PC relies on the support of the Project Manager (PM) on the day-to-day management activities of the project, such as the collection of administrative reports from partners, preparing and updating the CA between the participants, administering project resources and project spending, managing the overall ethical and gender issues, etc.

The PC and PM are supported in several management tasks such as monitoring the project's performance, managing the technical audits and supervising the preparation of the final deliverables by some additional roles:

- the Technical Coordinator (TC), who is responsible for the technical project aspects, e.g. strategic decisions regarding technical designs and implementations together with the PC, for the consistency of project results throughout all project phases;
- the Dissemination and Communication Manager (DCOM), who is responsible for all dissemination and communication activities and direct interaction with end-users, mass media and energy sector stakeholders, as well as for the management of the project website structure, content and functionalities.
- the Business and Innovation Manager (BIM), who is in particular responsible for the exploitation activities and innovation management.
- the Demonstration activities Manager (DEM), who is responsible for the coordination of the demonstration activities of the project;
- the Legal and Policy Issues Officer (LEPI), who coordinates all the activities related to legal and policy issues that may arise in the project.
- Impact Assessment and CBA leader (IA-CBA), who is responsible for the supervision of the overall impact of the project's outcomes and its feasible application in real life scenarios.

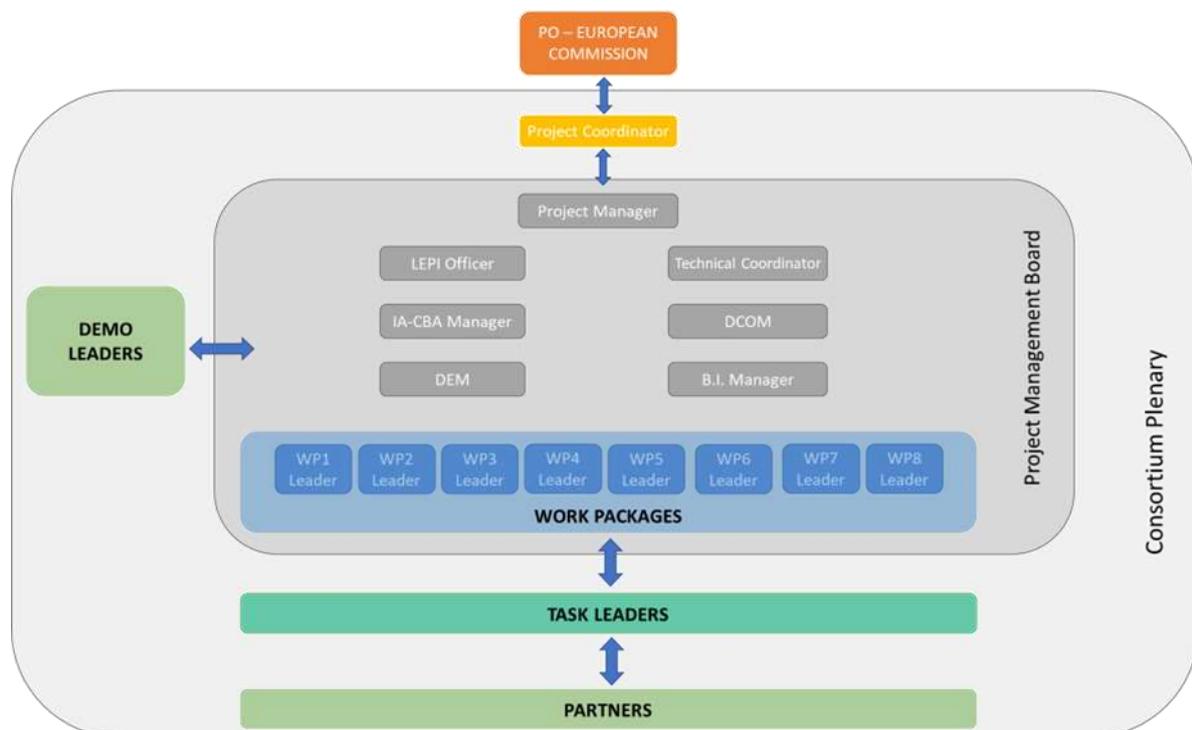


Figure 3: Project Management and Coordination structure

Reasons for any deviations from the project plan will be identified and the necessary corrective actions will be agreed by the PMB. Any differences between participants will be resolved by the PMB as they arise. Major changes in the project plan, such as reallocation of resources, may be done within the limits of agreements, by the decision of the PMB as put forward by the PC. The PMB will convene at least every two months, using available remote meeting options, in order to provide a quick and efficient response to the events that may arise during the project. The PMB meetings will precede the Plenary Meetings aiming to prepare them and increase efficiency in project implementation.

Demo Leaders play a key role in this management structure, as R²D² is a project with a strong presence of demo sites and with a clear orientation to large scale demonstrations. This manner of organization ensures that each demo site has a partner in charge, who is responsible for representing the site. The Demo Leader will respond in case of specific requirements coming from the WPs or the project additional roles (for example DCOM, BIM, etc), as well as prepare presentations for the demo site during consortium meetings and various dissemination activities.

Table 6: Project Management Roles

ROLE	Name	Organisation
Project Coordinator	Ugo Stecchi	ETRA
Technical Coordinator	Aris Dimeas	ICCS
Dissemination and Communication Manager	Raquel Castán	ETRA
Business and Innovation Manager	Maricarmen Bueno	ETRA
Demonstration activities Manager	Tadeja Babnik	ELPROS
LEPI Officer	Aleksandra Krkoleva	UKIM
Impact assessment and CBA Leader	Gisela Mendes	EDP

Since R2D2 objectives are ambitious, it cannot be exactly planned beforehand for its whole life span. This makes continuous planning and refinement of the project plan necessary. It is expected that a full cycle: planning -> execution -> analysis -> revision -> planning, etc. should take 3 months. The project Coordinator, ETRA, is certified with the standards ISO 9001:2015 [1], which specifies requirements for an effective quality management system at the scale that the R2D2 project requires. Therefore, the management of the project will be inspired on the main principles of the aforementioned standard to assure the quality and conformity of the solutions and knowledge generated.

The R2D2 PMB has agreed on a monthly based system for follow-up and analysis of the tasks performed according to the project work plan. Therefore, online PMB meetings are arranged on a monthly base, where WP leaders present the work in progress and discuss about blocking issues or interdependencies between tasks. This is a very efficient tool to perform the quality management cycle as described above, since it allows to revise the status of the work and adopt corrective measures in case they are needed, while ensuring that barriers are detected and even anticipated.

5.2 INTERNAL REVIEWING PROCEDURE

The internal reviewing procedure is among the main tools to guarantee high quality of the results.

Each WP leader will be responsible for the quality of the results, which will be subject to a peer review by at least two additional experts. The peer review team must check deliverable quality (not including the periodic progress reports), before the final submission to the EC. ETRA, as PC, will review the progress reports containing resource-reporting information, as the last stage check, before submission to the EC.

The coordination team has elaborated a table which defines the partners in charge of the internal review of R2D2 deliverables, ensuring a balanced workload for all of them not only in terms of the number of reports to be reviewed by each partner but also creating enough space in time to avoid several deliverables to be reviewed by the same partner in a short period of time. The table is shown in Annex A and it is also available in the Alfresco document library. Just to add that, even if this is not included in the table, both ICCS as TC and ETRA as PC will review the relevant deliverables when a project milestone is related.

Each partner responsible for a deliverable will provide (or upload in the repository) the proposed table of contents at least 60 days before the submission date. A preliminary full version of the deliverable will be sent to the WP leader as well as to the peer reviewers allocated in the table at least three weeks in advance of the due date. The PC and the TC will be also informed. It needs to be noted that early draft versions of the deliverable should be periodically circulated in order to confirm that the work progresses as expected, and progress update will be reported during the monthly PMB meetings.

The peer reviewers will review the document and send comments within one week using the peer review report template available at the repository as well as using the track changes mode in the draft version of the document. In case they encounter that the document does not fulfil the requirements for such document, they will notify accordingly the WP leader and the deliverable responsible partners within one week after the request.

The new version of the document will be again available for the deliverable responsible partner who will modify the document accordingly. Upon confirming with the peer reviewers that their comments have been effectively addressed, the final version will be sent to the PC at least 2 working days before the delivery date.

In case the deliverable fulfils the required objectives, the PC will submit it to the EC.

Whether the deliverable responsible partner fails to deliver the document, or the document does not fulfil the objectives, the Project Steering Committee will take the required actions according to the provisions of the Consortium Agreement and Contract.

The process of internal review is summarized in the following diagram:

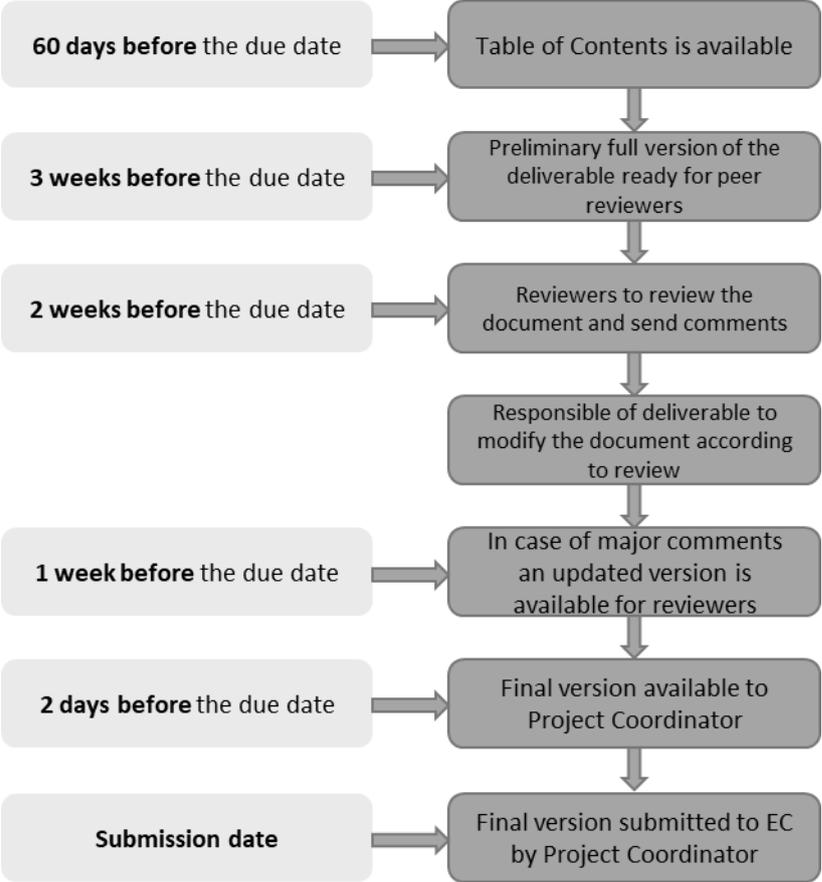


Figure 4: procedure for deliverable preparation, review and submission

6 Communication Policies

Communication will normally take place via e-mail, telephone or online tool (TEAMS). This section contains a set of best practices to be followed in order to make the communication process easier.

6.1 ELECTRONIC COMMUNICATIONS

Electronic mail is used extensively by the partners to communicate with each other. It will be used preferably through the mailing list created by the PC.

Based on the list of project participants available at the project repository, and considering the project structure, the following mailing lists have been elaborated:

R2D2 Consortium Plenary

all@r2d2project.eu

WP(s) mailing list, with all partners involved in each SP:

- wp1@R2D2project.eu
- wp2@R2D2project.eu
- wp3@R2D2project.eu
- wp4@R2D2project.eu
- wp5@R2D2project.eu
- wp6@R2D2project.eu
- wp7@R2D2project.eu
- wp8@R2D2project.eu

Each partner has sent the PC a list of people of their organizations involved in each WP. Thus, people are just receiving the e-mails in the WPs they are interested in. The mailing lists can be updated as needed at any time.

If required, the consortium is using Microsoft Teams, or other available teleconference services (as Webex), for regular monthly/bi-monthly and ad-hoc meetings as an alternative to face-to-face meetings. All of them provide several modes of communication regardless of the application used, e.g. chat, voice, message board, data conferencing and file transfer. It can be used in a multiple-user mode so groups can hold online conferences.

To reduce the information exchange effort, project information will be exchanged by use of electronic communications. The intention of the guidelines below is to make efficient use of electronic communications in the project, in order to:

- Ensure that all partners get the information they need in a timely manner,
- Avoid e-mail spamming and information overload,
- Minimise travelling costs.

Note: to allow some flexibility however, only these rules are mandatory:

General rules:

- Only relevant information (strictly related to the R2D2 project) is sent to the appropriate project participants, using the respective mailing list.
- Each mail will have a specific subject (field "Subject"), with the following elements:
 - The project acronym (R2D2).
 - The WP-number, preceded with a hyphen "-",
 - The subject, describing the content/intent of the mail in a concise manner.

When using the mailing list created by the project, the mandatory pieces of information will be included automatically by the mailing list server.

- Each mail must contain one topic only. The topic must be clearly expressed in the subject field.
 - If it is not practical to separate multiple topics, then the different topics in the e-mail must be separated by clear heading. In this case, if the mail is long (more than can be seen on a screen) then it should start with a list of contained topics at the beginning.
- Communication of relevance to a particular group (such as comments and votes) will be given as group replies so as to give all group members the opportunity to receive a clear view of every partner's opinion, in an effort to speed up and harmonise the agreement process.
- The e-mails will be answered within two days maximum after the reception of the original mail. If no answer can be provided, a simple acknowledgment of reception by the responsible partner will be enough.
- Deadline for definitive reply - In the case there is no response to a message by a project participant within fifteen calendar days, the message will be considered as read, and response will be considered as positive.
- e-Mail messages sent in response to a message should quote the relevant parts of the initial message, in such a way that the receiver can easily and clearly understand what the initial message was about (what issues were raised) and what the added comments are.

6.2 GUIDELINES FOR DOCUMENTS

Documents of project-wide relevance are stored the project repository. They are not generally and necessarily distributed by e-mail to the whole project membership. Project participants are notified by e-mail and invited to consult the documents on the repository.

All the text documents exchanged within the project must observe the following rules:

- The required format is *.docx/doc (Word or equivalent) or *.pdf.
- To enable easier review and follow-up, track of changes should be activated (in case of word file).
- After a final deliverable has passed the peer review, the PC submitting the document to the EC will generate the PDF file, properly secured.

- Attachments should not be sent to mailing lists, but rather placed on the project repository. Then, the person who has uploaded the document will notify it via e-mail to the appropriate mailing list, announcing the location where the document can be retrieved.
- A logical structure of the repository has been organised in order to facilitate the retrieval of all the documents. All the partners will continue using this structure and create new directories in the same logical way whenever it is needed.
- The presentations will use the *.pptx/ppt format (or equivalent) according to a template available at the repository.
- All the documents to be forwarded outside the Consortium, including the presentations and the final deliverables, will use ONLY PDF format, properly secured and authorizing only printing, no editing, no copy and no annotation.
- The 18-months periodic reports have specific templates.
- The deliverables, interim milestone brief reports and documents must follow the format and styles indicated in the template available in the corresponding section of R2D2 repository.
- These templates can evolve according to the project needs.

6.2.1 Deliverables

The deliverables are classified according to the following types:

- R - Document, report.
- DEM - Demonstrator, pilot, prototype.
- DEC - Websites, patent fillings, videos, etc.
- OTHER.
 - ETHICS - Ethics requirement.
 - ORDP - Open Research Data Pilot.

With respect to the confidentiality of deliverables and other documents, including presentations, the following five levels of security are considered:

- PU - Public.
- CO - Confidential, only for members of the consortium (including the Commission Services).

In order to facilitate the common browsing and storage in different platforms and operating systems, no spaces nor dots or special characters will be used in the document names, and instead, the underscore character “_” will be used.

For the same reason, only lower-case characters will be used – except for the project acronym.

To facilitate the quick identification and indexing, all these documents will be named and numbered according to the following rules:

<dateYYYYMMDD>-<orgshortname>-R2D2- v<ver>.docx

<dnm>-<docshortname>-<security>_v<ver>.pdf

All the documents names should start with the delivery date of the document, followed by the acronym of the organisation responsible for the document and the word "R2D2". The reason for this approach is to facilitate the identification compared to other projects documents, and to raise the awareness of the project among all who will download the documents from the public website.

Versions 0_X will indicate that the document is still a draft and not approved by the internal reviewers. The official document to be sent to the EC will be numbered as v1_0. Further revisions or new issues of a deliverable will make use of the following format: v1_X, vY_X.

In order to facilitate the work and localisation of the documents, all the documents will be posted in the repository as soon as possible.

6.3 PROJECT REPOSITORY

A document repository has been set up in order to facilitate the exchange of information. The tool selected has been Alfresco[2]. The platform is built on an open-source core with open APIs and open standards support for easy integration and extension and long-term flexibility.

The repository is hosted in the same server used for the web-tools used by the consortium and the project web site. R2D2 uses Alfresco to maintain current and historical versions of files such as source code and documentation.

The repositories can be accessed via web. The connection URL is: <https://tecbox.etra-id.com>

A new project-based URL will be used once the project web site is activated.

Each partner in the consortium has been granted with a user password to access and modify the repository. The current structure includes a folder per WP, where all the information produced by the consortium or relevant to the project can be uploaded. Moreover, a specific folder to hold any information relevant to meetings (venues and minutes) has been created, jointly with a folder to keep a copy of the contract related documents – e.g. CA.

The structure can and will be updated as the project evolves aiming to organize the information in the most efficient way.

At the implementation phase, git service will be set up in order to share common source code. In case of need, adopting a cloud based storage could be considered, allowing online and shared editing of documents.

6.4 ACKNOWLEDGE EU SUPPORT

Any notice or publication by the partners, in whatever form and on or by whatever medium, must specify that the project has received research funding from the European Union. When displayed in association with a logo, the European emblem should be given

appropriate prominence stated in Grant Agreement Articles 17.2 and 17.3. Besides, must include the following mention and disclaimer:



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them. Horizon Europe Grant agreement N° 101075714.

The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands, or text. Apart from the emblem, no other visual identity or logo may be used to highlight the EU support.

6.5 R2D2 LOGO AND ACRONYM

A specific project logo has been developed for the project identity. The logo will be included in all project promotional materials as factsheets, website, etc. The adopted logo is presented on Figure 5,



Figure 5 R2D2 logo on different project corporate palettes

The project has adopted the following recommendations for reproduction quality and visibility:

- To use only the logos that can be downloaded from the document repository Alfresco and do not copy them from any other place. Reproduction quality needs to be ensured.
- It is advised that the R2D2 logo appears in all R2D2 related documents. Any material co-funded with the project budget shall make explicit reference to it and if possible, make use of the R2D2 logo.

- The Acronym of the project – i.e., R2D2 – is the main representative mark and must be written always in the same way. When possible, it has to be used with the above-mentioned logo, respecting the font and colours.

The Brand Guidelines Book will be created by month 6 and will define in detail the corporate image and guide on how to use R²D²'s brand properly.

6.6 PRESENTATION, POSTER AND GRAPHICAL MATERIAL

Any presentation related to the project work (both in progress and results) will be created from the corporative presentation template available at the repository.

In addition to the available template, the consortium has prepared a number of alternative materials to help disseminate and present the project results in a coherent and effective way. These materials include (but are not limited to):

- A general presentation has been compiled to provide a quick look at the project objectives and contents. This set of slides will be updated periodically with the new results as the project advances.
- A brochure will be prepared to promote and enhance the visibility of the project.
- A roll-up to present the project at conferences and poster sessions will be prepared.

6.7 NOTIFICATION PROCEDURE

As a general procedure, any notification sent to the PC should be in two signed copies, according to the following procedure:

- The person signing the document should be accordingly empowered to do it.
- Always sign the document by the authorised person: people in part 2 of the proposal, administrative and/or technical representative, according to the nature of the notification.
- In case he/she is not available, find an alternate authorised person empowered to sign the document. In that case, additionally send to the project coordinator two copies of a letter explaining that the person is authorised and the empowerment by which he/she is authorised.
- Send a copy in advance, before the declared deadline.
- Paper copies should follow by express courier and a notification by e-mail to the PC the day it was sent. A scanned copy in PDF format of the signed document may be sent by e-mail if needed/requested (the general requirements for document security apply).
- In case any problem arises, the PC should be contacted to solve the eventual situation.

In the event of a partner's bank account changes, the project coordinator should be notified within 2 weeks in advance of any payment. The EC banking details template will be available in the Alfresco repository



The bank stamp and the signature of the bank representative are generally required. However, with an attached copy of a RECENT bank statement, the stamp of the bank and the signature of the bank's representative are not required. The signature of the account-holder and the date are ALWAYS mandatory.

7 Risk Management

The consortium's experience in managing complex international projects in conjunction with its technological competence on communication and networking, permits to identify the following main areas of possible risks:

- Technical: lack of competence to overcome unexpected difficulties.
- Financial: deterioration of the economic situation of a partner, which imposes a stop or an unacceptable reduction of all its activities.
- Key resources availability: Resources having key roles to abandon the project.

Various combinations of these three main negative factors could increase their overall impact on the project.

The level of technical risk is intrinsically reduced by the composition of the R2D2 Consortium, thanks to the participation of a well-assorted set of primary Industries and Research Centres, with a demonstrable consolidated experience as leaders in the technological areas in which each of them contributes to the project.

In case of financial problems or lack of resources availability, the corrective measures will include distributing the activities which are not fulfilled to the remaining partners, subcontracting them to a third party, or a combination of the two. The corrective measures will be chosen after an evaluation of their impact and relevance on the project. Furthermore, in order to minimise the potential impact of these unlikely situations, each WP leading partner will have a backup leading partner in case the initial WP leader becomes unavailable.

For the R2D2 project, a risk is defined as an event that may or may not occur in the future, which could potentially have an adverse effect on a team's progress and success. A risk has a severity of impact and a probability of occurrence. The formal definition can be found in next section [3].

7.1 DEFINITIONS

Risk

Risk is a measure of the inability to achieve overall project objectives within defined cost, schedule, and technical (performance and quality) constraints and has two components:

1. The probability of failing to achieve a particular outcome and
2. the consequences (impact) of failing to achieve that outcome.

For R2D2, the risk is a measure of the difference between actual performance of a process and the known best practice for performing that process.

A risk can also be the potential that a given threat will exploit vulnerabilities of an asset or group of assets, to cause loss of, or damage to the assets. It is ordinarily measured by a combination of its effect and likelihood of occurrence.

Risk Event

Risk events are those events within R2D2 that, if they go wrong, could result in problems in the development of the expected research results, production and assessment of the prototypes, and dissemination of the results. Risk events should be defined to a level such that the risk and causes are understandable and can be accurately assessed in terms of likelihood/probability and consequence to establish the level of risk.

Type of Risk

A **Technical Risk** is the risk associated with the evolution of the research results and the prototypes development of R2D2 affecting the level of performance necessary to meet the requirements of the DoA.

A **Financial Risk** is associated with the ability of the project to achieve its cost objectives as determined in the DoA. Two risk areas related to project costs are:

1. the risk that the cost estimates and objectives are not accurate and reasonable, and
2. the risk that project execution will not meet the cost objectives as a result of a failure to mitigate technical risks.

Schedule Risks are those associated with the adequacy of the time estimated and allocated for the development, production, and fielding of the system. Two risk areas bearing on schedule risk are:

1. The risk that the schedule estimates and objectives are not realistic and reasonable and
2. the risk that program execution will fall short of the schedule objectives as a result of failure to mitigate technical risks.

Risk Ratings

This is the value that is given to a risk event (or the overall project) based on the analysis of the likelihood/probability and impact of the event. For R2D2, risk ratings of Low, Moderate, or High are assigned based on the following criteria:

- **Low Risk:** Has little or no potential for increase in cost, disruption of schedule, or degradation of performance. Actions within the scope of the planned project and normal management attention should result in controlling acceptable risk.
- **Moderate Risk:** May cause some increase in cost, disruption of schedule, or degradation of performance and/or quality. Special action and management attention may be required to control acceptable risk.

- **High Risk:** Likely to cause significant increase in cost, disruption of schedule, or degradation of performance and/or quality. Significant additional action and high priority management attention will be required to control acceptable risk. This type of risk may be subject to a report to the Commission.

Contingency Plan

Once identified and assessed, it is essential to trace risks both in their status (Risk Monitoring) and with respect to necessary activities. A contingency plan should cover the registration and reaction to the change of environmental conditions to avoid risk events.

7.2 RISK MANAGEMENT ORGANISATION AND RESPONSIBILITIES

The R2D2 PC is the overall risk manager and responsible for:

- Briefing the consortium on the status of R2D2 risks during CP meetings.
- Tracking efforts to reduce high risk to acceptable levels.
- Facilitating consortium-level risk assessments during PMB meetings.
- Combining risk briefings, reports, and documents as delivered by the WP leaders and required for project reviews by the Commission.

The PMB, and in particular the TM, assists the PC with:

- Maintaining this section of the Project Management Plan - Risk Management - updated (as a supporting process) for R2D2.
- Provision and maintenance of the risk information form.

The WP Leaders are responsible for the risk assessment within their work packages:

- Risk identification.
- Risk analysis.
- Risk handling.
- Risk information to the PC (in case of moderate or high risk).
- Risk monitoring.
- Briefing the respective WP members on the status of risks.
- Tracking efforts to reduce low and moderate risk to acceptable levels.
- Preparing risk briefings, reports, and documents required for project reviews during PMB meetings.

7.3 RISK MANAGEMENT PROCESS

This section describes the R2D2 risk management process and provides an overview of the R2D2 risk management approach. Figure 6 Shows, in general terms, the overall risk management process that is followed in R2D2. Each of the risk management functions shown in Figure 6 is discussed in the following paragraphs, along with specific procedures for executing them.



Figure 6: risk management procedure

7.3.1 Risk Assessment

Risk assessment includes the identification of critical risk events/processes, which could have an adverse impact on the project, and the analysis of these events/processes to determine the likelihood of occurrence/process variance and consequences.

Risk assessment is an iterative process. Each risk assessment is a combination of risks identified/analysed in the previous phase and the identification/analysis of risks on current milestones/deliverables according to the DoA.

7.3.1.1 Risk Identification Process and Procedure

Risk identification is the first step in the assessment process. The basic process involves searching through the entire R2D2 project plan to determine those critical events that would prevent the project from achieving its objectives.

All identified risks will be documented in the Risk Table – see section 7.4–, with a statement of the risk and a description of the conditions or situations causing concern and the context of the risk.

Risks will be identified by all individuals in the R2D2 project, particularly by the WP Leaders.

The basic procedure of identifying risks consists of the following steps:

1. Understand the requirements and the overall project quality and performance goals. Examine the operational (functional and environmental) conditions under which the values must be achieved by referring or relating to the DoA.
2. Identify the processes and activities (tasks) that are needed to produce the results.
3. Evaluate each activity/task against sources/areas of risk.

7.3.1.2 Risk Indicators

Following indicators are helpful for identifying risks:

- Lack of stability, clarity, or understanding of requirements: Requirements drive the research and the design of the prototypes. Changing or poorly stated requirements guarantees the introduction of performance, cost, and schedule problems.
- Failure to use best practices virtually assures that the project will experience some risk. The further the deviation from best practices, the higher the risk.
- Insufficient or inadequate resources: people, funds, schedule, and tools are necessary ingredients for successful implementation of a process. If any are inadequate, to include the qualifications of the people, there is a risk.
- Test Failure may indicate that a corrective action is necessary. Some corrective actions may not fit available resources, or the schedule, and (for other reasons as well) may contain risk.
- Negative trends or forecasts are cause for concern (risk) and may require specific actions to turn around.

Communication is a critical success factor for R2D2. Failure to provide (push) available information actively as well as to demand (pull) required information actively will both introduce considerable risk.

7.3.1.3 Risk Analysis Process and Procedure

Risk analysis is an evaluation of the identified risk events to determine possible outcomes, critical process variance from known best practices, the likelihood of those events occurring, and the consequences (impact) of the outcomes. Once this information has been determined, the risk event may be rated against the project's criteria and an overall assessment of low, moderate, or high may be assigned.

The basic procedure for analysing risks comprises of the following steps:

1. Gather all identified risks.
2. Assignment of likelihood/probability and consequence to each risk event to establish a risk rating.
3. Prioritisation of each risk event relative to other risk events.
4. Quantitative analysis.

For each risk identified during the risk identification process, an assignment using likelihood/probability- and impact-assessments will be performed. To provide a quantitative approach for this process, a risk assessment matrix is used for R2D2. The structure of the risk assessment matrix is presented on Figure 7.

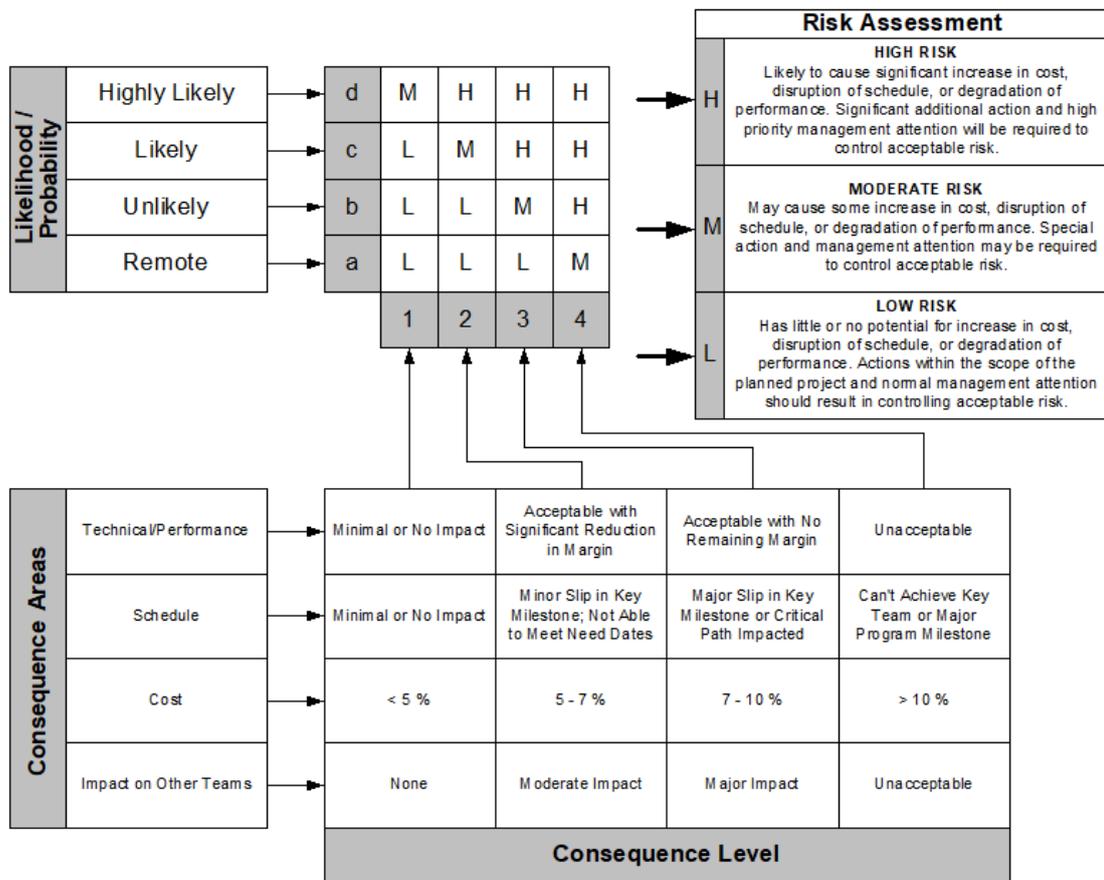


Figure 7: risk assessment matrix

The following items provide more details on the most important issues of the risk assessment matrix:

- **Likelihood/Probability:** For each risk area identified, the likelihood/probability of the risk must be determined. There are four levels (a-d) in the R2D2 risk assessment process, with the corresponding criteria of Remote, Unlikely, Likely and Highly Likely. If there is zero likelihood of an event, there is no risk per our definition.
- **Consequence/Impact:** For each risk area identified, the following question must be answered: Given the event occurs, what is the magnitude of the consequence? There are four levels of consequence (1-4) for this project. Further, there are four areas that we will evaluate when determining consequence: technical performance, schedule, cost, and impact on other teams (WPs). At least one of the four consequence areas need to apply for there to be a risk; if there is not adverse consequence in any of the areas, there is not risk at all.
 - **Technical Performance:** this category refers to content and includes all requirements that are not included in the other three metrics of the consequence table.
 - **Schedule:** this category refers to impacts in the overall time framework of the project. It is important to avoid excluding a consequence level from

consideration just because it does not affect the work plan of a specific team/WP – i.e. try to have the whole R2D2 consortium in mind.

- Cost: since costs vary significantly within R2D2, the percentage criteria shown in the matrix may not strictly apply at the lower levels of the work breakdown structure. Therefore, the WP leaders may set the percentage criteria that best reflect the situation in their WP, but have to report any deviation from the matrix to the PC.
- Impact on Other Teams (WPs): both the consequence of a risk and the mitigation actions associated with reducing the risk may impact another team. This may involve additional coordination or management attention (resources) and may therefore increase the level of this type of risk or the risk related to costs.

7.3.1.4 Evaluation of Risks

During Risk Analysis, it is possible that identified scenarios of occurring risk events cause impact to several impact areas. In this case, a consequence combination may be present and the worst case of the risk assessment (high risk, moderate risk, low risk) is applicable and influences the required actions as described in the matrix. Of course, all identified consequence areas to a risk event must be recorded and the consequence area which caused the final assessment has to be clearly identified.

7.3.1.5 Quantitative Analysis

After completion of the risk analysis, the quantitative analysis takes place and assigns a rating to each risk (low, medium, high). This finally yields an overview on the risk status over the entire course of the project and is part of the risk table in section 7.4.

7.3.2 Risk Monitoring

7.3.2.1 Risk Monitoring Process

Risk monitoring systematically tracks and evaluates the performance of risk-handling actions. It is part of the management board function and responsibility and will not become a separate discipline. Essentially, it compares predicted results of planned actions with the results actually achieved to determine the status and the need for any change in risk-handling actions.

To ensure that significant risks are effectively monitored, risk-handling actions will be reflected in the risk table and analysed at each CP meeting. Identifying these risk-handling actions and events in the context of the work breakdown structure establishes a linkage between them and specific WPs, making it easier to determine the impact of actions on cost, schedule, and performance.

7.3.2.2 Risk Monitoring Procedure

Each member of the consortium is responsible for monitoring and reporting the effectiveness of the handling actions for the risks assigned.

Risks rated as High will be reported to the PC, who will handle and track them until the risk is considered Medium or Low and recommended for "Close Out".

Risks rated as Moderate will be reported to WP Leaders, who will also track them until the risk is considered Low and recommended for "Close Out". However, the risk will be handled within the WP under the responsibility of the WP leader.

Risks rated as Low are tracked within the WP and monitored continuously to ensure they stay low.

The risk management process is continuous. Information obtained from the monitoring process is fed back for reassessment and evaluations of handling actions to improve the process itself in co-operation with the risk manager and the quality manager.

7.3.3 Contingency Plan

7.3.3.1 Risk Handling Process

After the project's risks have been identified and assessed, the approach to handle each significant risk must be developed. There are essentially four techniques or options for handling risks:

- Avoidance (application of tasks in order to avoid the risk event).
- Control (watch the changes in conditions from the environment/project implementation eco-system for influences on an already assessed risk).
- Transfer (application of tasks to set a risk to a lower level).
- Assumption (base a decision for handling plans on the assumption the risk event happens).

For all identified risks, the various handling techniques should be evaluated in terms of feasibility, expected effectiveness, cost and schedule implications, the effect on the system's technical quality/performance and the most suitable technique selected.

The results of the evaluation and selection will be included and documented in the risk table. This documentation will include:

- What must be done,
- the level of effort and materials required,
- the estimated cost to implement the plan,
- a proposed schedule showing the proposed start date,
- the time phasing of significant risk reduction activities,
- the completion date,
- their relationship to significant Project activities/milestones,
- recommended metrics for tracking the action,

- a list of all assumptions,
- the person responsible for implementing and tracking the selected option (usually the responsible work package leader).

7.3.3.2 Risk Handling Procedure

The respective work package leader or (in case of high risk) the PC is responsible for evaluating the risk handling options that are best fitted to the project's circumstances. Once approved, these are included in the WPs or project's strategy or management plans, as appropriate.

For each selected handling option, the responsible project team member will develop specific tasks that, when implemented, will handle the risk. The task descriptions should explain what has to be done, the level of effort, and identify necessary resources. The team member should also provide a proposed schedule to accomplish the actions including the start date, the time phasing of significant risk reduction activities, the completion date, their relationship to significant Project activities/milestones and a cost estimate. The description of the handling options should list all assumptions used in the development of the handling tasks.

7.4 RISK TABLE

The main tool to keep track of the different identified risks is the Risk Table (Table 7). It contains all the fields to correctly assess, monitor and mitigate a risk.

The table is structured considering the WPs in R2D2 in order to create a direct connection between the risks and the responsible of its control. It could be the case that the risk manager – or WP leader – is not the same as the risk responsible – partner that should provide an action plan and mitigate the problem.

The risk table provides an easy way to quantify the severity of the problem. It implements the risk assessment matrix described above and a global risk indicator that considers the assessment of the four consequence areas as a whole.

In this way, the partner identifying a risk, only has to indicate the probability of the risk (HL=Highly Likely=4; L=Likely=3; U=Unlikely=2; R=Remote=1) and the impact in each of the consequence areas (1 Minimum, 4 Maximum). The table is capable of translating the assessment into the three categories (high risk, moderate risk, low risk) and calculate the global indicator as an average of the different areas (0 Minimum, 4 Maximum).

As explained before, a low global indicator may still imply a high risk, since the worst case should be always considered. A high risk in a single area will imply a low global indicator; however, it requires the maximum priority and attention. The global indicator serves to prioritize and order risks with the same qualification but affecting more than one area.

Table 7 – Risk Table

Nr	WP leader or Risk Manager	Date		Activities affected		Risk description	Type of Risk (Technical/Financial/Schedule)	Risk responsible	Milestone or deliverable affected	Probability HL/L/U/R	Consequence/Impact 1=Minimum-4=Maximum				Risk Assessment	Global Risk Indicator 0=Minimum 4=Maximum	Contingency Plan or link to document
		Identification	Last update	WP	Task						Technical Performance	Schedule	Cost	Impact on other teams			
1	ETRA	04/10/2022		1	1.1	Technical/administrative disagreement among consortium partners	Technical, Schedule	ETRA	v v	1	1	2	1	2	LOW	0,375	Continuous communication between all the partners / Project and Technical Coordinators are responsible for solving conflicts. If necessary, the consortium will decide the solution according to the CA
2	ETRA	04/10/2022	12/09/2023	2	2.1	Insufficient details in the requirements specifications that lead to incomplete information models or poor interoperability among systems	Technical	EMSS	MS2, D2.1	1	2	1	1	1	LOW	0,3125	All relevant partners will participate in the iterative process of the definition of information models and interoperability specification in line with overall project rationale.
3	ETRA	04/10/2022	12/03/2023	3,4,5,6	x.1-5	Access to data set from demo sites (data volume, time availability, etc) for training and testing data driven algorithm	Technical, Schedule	ETRA, ICCS	v v	2	2	3	1	1	MODERATE	0,875	Define rules for data privacy and security and identify synthetic data set for algorithm training

4	ETRA	04/10/2022		1	1.3	Legal aspects restricting private data usage or problems with data access	Technical	UKIM, ETRA	MS5-8	1	1	2	2	1	LOW	0,375	Data anonymization and aggregation described in GDPR and ethical, to allow data sharing in a restricted manner
5	ETRA	04/10/2022		1	1.2	Difficulties to achieve the required level of maturity for the main technical products	Technical	ETRA, ICCS	MS6	1	3	1	1	3	LOW	0,5	technology development monitored in periodic meeting focused in this aspect
6	ETRA	04/10/2022		1	1.2	Significant deviations from the planned technical expectations	Technical	ICCS	MS5, 6	1	2	3	1	1	LOW	0,4375	Under the supervision of the technical coordinator, the progresses of the technical development activities will be monitored in periodic meetings.
7	ETRA	04/10/2022	17/10/2023	8	8.3, 8.4	Knowledge share platform fails its objective	Technical, scheduling	ETRA, EDP	MS9, D8.3	1	2	1	1	2	LOW	0,375	Partners will be incentivised to update the platform with knowledge materials. Tailored activities will be carried out to disseminate the platform and keeping the stakeholders interested in its contents and activities such forums and webinars

9	ETRA	04/10/2022		3 - 7	7.1-4	Demonstration tasks are limited due to constraints of infrastructure availability, market and regulatory framework.	Technical	ELPROS	MS7	1	3	2	1	2	LOW	0,5	We have already a good understanding of the infrastructure, markets and regulatory framework obtained from previous EU projects like CROSSBOW
10	ETRA	04/10/2022		7	7.1-4	Demonstration activities being limited to laboratory testing due to inaccessibility of real-life infrastructure of end-users.	Scheduling	ELPROS	MS7	1	3	1	1	1	LOW	0,375	Real-life demonstration is ensured with participation of end users (namely the TSOs) and trust has already been established in several previous H2020 projects.
11	ETRA	04/10/2022	12/09/2023	8	8.1 and 8.2	COVID crisis will cancel dissemination activities such as presentations in conferences or the organization of workshops.	Schedule	ETRA	D8.1 and D8.2	1	2	2	1	2	LOW	0,4375	Some of these activities will be done virtually, and some others will be postponed.
12	ETRA	04/10/2022	12/09/2023	1	1	Balancing of resources according to the actual effort needed by partners	Schedule, Financial	ETRA	MS10	1	2	2	2	3	LOW	0,5625	Constant monitoring by coordinator. If needed, resources will be reallocated by coordinator with approval of WP leaders
13	ETRA	04/10/2022	12/09/2023	3-6	1	Unethical use of publications, data from public databases and other resources for preparation of deliverables	technical	UKIM	MS6	1	2	2	2	1	LOW	0,4375	The Deliverables Will be revised by partners who are not engaged in the investigation

																		s of a certain task to ensure their quality and proper referencing of used work
14	ETRA	04/10/2022	12/09/2023	8	8,3	Difficulties in engaging international standardization organizations and regulatory bodies	technical	UKIM	MS9	1	3	1	1	1	LOW	0,375		The Project Will act pro-actively, implement a developed communication strategy and work on establishing the links throughout the whole duration of the Project.
15	ETRA	04/10/2022	12/09/2023	8	9,3	Necessity to access data from targeted stakeholders to assess the R&S (replicability and scalability) of the project	technical	ETRA	MS8	1	3	1	1	1	LOW	0,375		To mitigate this risk, the project consortium will reach to required data through their network of contacts, demo partners, previous project partners, as well as involved networks in the consortium such as BRIDGE.
16	ETRA	04/10/2022		8	8.1 and 8.2	Difficulty in achieving the expected Dissemination and Communication activities.	Schedule	ETRA	D8.1 and D8.2	2	2	1	1	2	LOW	0,75		
17	ETRA	21/12/2023	17/04/2024	1,2,6,7,8		EDP has changed the pilot site. Event though the new site has the same features and specs of the previous one, we are still in lack of data	Technical, Scheduling, financial	EDP, ETRA	MS4, MS7	3	3	3	1	4	HIGH	2,0625		Pilot must be replaced. The change may lead to a GA amendment. Partners accepted the EDP Redes proposal and it will be

8 Ethical Principles in R2D2 project

The information collected and processed by the project during its implementation may be of private or confidential nature. To this end, a sound and correct ethical management will be put in place under T1.3.

A complete ethics self-assessment was carried out during the GA preparation phase with the objective to identify and deal correctly with any ethics issues that may arise from R2D2.

8.1 LEGISLATION FRAMEWORK

Regarding the EC legislation, the R2D2 consortium takes into account the following:

- The Universal Declaration of Human Rights and the Convention 108 for the Protection of Individuals with regard to Automatic Processing of Personal Data.
- General Data Protection Regulation (GDPR) (EU) 2016/679 [3] regarding issues about data protection and privacy for all individuals within the European Union (EU) and the European Economic Area (EEA).
- Article 19 “Ethics” of 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. [5]
- All the research and innovation activities carried out under Horizon Europe shall comply with ethical principles and relevant national, Union and international legislation, including the Charter of Fundamental Rights of the European Union and the European Convention on Human Rights and its Supplementary Protocols.
- The Charter of Fundamental Rights of the European Union (2000/C 364/01) [6] as well as with any relevant EU standard in the fields of privacy and data protection.
- Any legal guidelines regarding ethical conducts within the countries involved with the project that are not listed above.

In addition to this, to further ensure that the fundamental human rights and privacy needs of participants are met whilst they take part in the project, in the Evaluation Plans a dedicated section will be delivered for providing ethical and privacy guidelines. In order to protect the privacy rights of participants, a number of best practice principles will be followed. These include:

- No data will be collected without the explicit informed consent of the individuals under observation. This involves being open with participants about what they are involving

themselves in and ensuring that they have agreed fully to the procedures/research being undertaken by giving their explicit consent.

- No data collected will be sold or used for any purposes other than the current project.
- A data minimization policy will be adopted at all levels of the project and will be supervised by each responsible pilot demonstration. This is imposed by the GDPR and aims at ensuring that no data, which is not strictly necessary for the completion of the current study, will be collected.
- Any shadow (ancillary) personal data obtained during the course of the research will be immediately deleted. However, the plan is to minimize this kind of ancillary data as much as possible. Special attention will also be paid to complying with the GDPR, Art.9.
- Compensation, if and when provided, will correspond to a simple reimbursement for working hours lost as a result of participating in the study. Special attention will be paid to avoid any form of unfair inducement.
- If employees of partner organizations are to be recruited, specific measures will be in place to protect them from a breach of privacy/confidentiality and any potential discrimination. In particular, their names will not be made public and their participation will not be communicated to their managers.

The GDPR was intended to unify data privacy legislation across Europe, so as to reinforce data privacy of all EU citizens and reformulate the perception of organizations and enterprises towards data protection. One of the major purposes of EU GDPR is “ensuring a consistent and high level of protection of natural persons and to remove the obstacles to flows of personal data in the Union”. The concept of regulation instead of a directive is to limit the regulatory interventions by member states and national data protection authorities.

The innovation of GDPR in comparison with the previous European actions is that it combines the regulatory aspects with organizational and technological perspectives.

The GDPR framework refers to natural persons, but not to anonymized data (data which do not allow the identification of a data subject). According to article 4, par. 1 of the GDPR, the personal data is defined as “any information relating to an identified or identifiable natural person (data subject)”.

The GDPR makes also a distinction between the anonymisation and the pseudo-anonymisation. The latter refers to reversible de-identification of personal data, for example in case where it is allowed to re-identify hashed identifiers. Moreover, according to Art n° 26 of the GDPR, “The principles of data protection should apply to any information concerning an identified or identifiable natural person. Personal data which have undergone pseudonymisation, which could be attributed to a natural person by the use of additional information, should be considered to be information on an identifiable natural person. To determine whether a natural person is identifiable, account should be taken of all the means reasonably likely to be used, such as singling out, either by the controller or by another person to identify the natural person directly or indirectly. The principles of data protection should therefore not apply to anonymous information, namely information which does not relate to an identified or identifiable natural person or to personal data rendered anonymous in such a manner that the data subject is not or no longer identifiable. This Regulation does not therefore concern the processing of such anonymous information, including for statistical or research purposes”.

During the pilot survey phase (T2.4 and T2.5), the regulatory and legislation framework for all pilot sites, will be defined in detail, including any additional requirements for data protection.

8.1.1 Security measures that will be implemented to prevent unauthorized access to personal data

According to the definition of “Personal Data” provided in the GDPR, R2D2 is not supposed to handle personal data during its lifespan.

In case any potential personal data is treated during the project, it will be related only to dissemination and communication activities (just as part of the pictures and videos from the participation in different R2D2 campaigns).

This data can also be stored in the online repository of the project (Alfresco, as stated in section 6.3). Alfresco also states that they perform the required procedures for secure treat of the data they collect: <https://www.alfresco.com/information-governance/gdpr-compliance>.

Partners storing this kind of data will apply appropriate technical and organizational measures to ensure a level of security appropriate to the risk, including, as appropriate, the measures referred to in Article 32(1) of the GDPR.

8.1.2 Personal Data Transfer From An Eu To A Non-Eu Country

According to the definition of “Personal Data” provided in the GDPR, R2D2 is not supposed to handle personal data during its lifespan.

In case any potential personal data is treated during the project, it will be related to dissemination and communication activities (just as part of the pictures and videos from the participation in different R2D2 campaigns). In such case art 44 of GDPR will be applied, stating that:

“Any transfer of personal data which is intended for processing after transfer from an EU to a non-EU country or to an international organisation will be compliant with Chapter V of the General Data Protection Regulation.”

It is noteworthy mentioning nevertheless, that all partners in the project – including the ones located in non-member states – have signed a form confirming that they will comply with the ethical standards and guidelines of Horizon Europe.

8.1.3 Personal Data Transfer From A Non-Eu To An Eu Country

According to the definition of “Personal Data” provided in the GDPR, R2D2 is not supposed to handle personal data during its lifespan.

In case any potential personal data is treated during the project, it will be related to dissemination and communication activities (just as part of the pictures and videos from the participation in different R2D2 campaigns). In such case art.44 of GDPR will be applied, which states that:

“Any transfer of personal data which is intended for processing after transfer from a non-EU to an EU country will be compliant with the laws of the country in which the data was collected.”

8.2 ETHICAL PRINCIPLES

8.2.1 Ethical Policy

R2D2 will take into account the considerations of various expert committees in the field, as for example the European Group on Ethics (EGE) in science and new technologies to the European Commission. Furthermore, all national legal and ethical requirements of the Member States, where the research is conducted will be covered within the execution of the project. Any data collection involving humans will be strictly kept confidential at any time of the research. This implies that:

All the test subjects will be informed and given the opportunity to provide their explicit and unambiguous consent to any monitoring and data acquisition process, that all the subjects will be strictly volunteers and all test volunteers will receive detailed oral information; and no personal or sensitive data will be centrally stored. In addition, data will be scrambled where possible and abstracted in a way that will not affect the final project outcome.

In addition, they will receive in their own language:

- a commonly understandable written description of the project and its goals;
- the planned project progress and the related testing and evaluation procedures; and
- advice on unrestricted disclaimer and opt out rights on their agreement.

8.2.2 R2D2 DMP (Data Management Plan)

Due to the fact that the project will manage user-related data (i.e. smart meter data), the consortium will have to comply with all European and national legislation and directives relevant to the country where the data collections are taking place. After the action has started, a data management plan (DMP) will be elaborated in M6, that describes the data management life cycle for the data to be collected, processed and/or generated by the project. DMP will be fully synchronised with the principles of the project's ethical management and with the FAIR principle in order to make research data findable, accessible, interoperable and reusable.

The consortium's approach will be in full compliance with the EU legislative and regulatory framework for data protection and the national legislative and regulatory framework for data protection of each project member country. However, the R2D2 project does not introduce any critical ethical issues or problems; nevertheless, several considerations typical to ICT applications and on-site pilot trials shall be taken into account. The consortium is fully aware of these and has the necessary experience to address them seamlessly.

8.2.3 Data Handling Procedures

Data processing procedures of personal data will take place within the demonstration framework. The pilot site partners will define the steps to be followed in pilot site activities, in order to ensure that secure data handling will be performed.

The data produced from the pilot sites activities will be anonymized using a combination of relevant techniques in order to eliminate any possibility of reidentification. All the consortium members are committed to treat the data anonymously, while taking into account the reidentification risks.

According to the article 4 of the GDPR, two major roles are defined concerning the data handling activities, the data controllers and the data processors. During the procedures of data collection, processing and transmission within the R2D2 activities, the pilot site partners will act as controllers, while the other partners will have the role of processors. The clear definition of these two terms is presented in GDPR as follows:

- Controller means the natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of personal data. The purposes and means of such processing are determined by Union or Member State law and the controller or the specific criteria for its nomination may be provided for by Union or Member State law.
- Processor means a natural or legal person, public authority, agency or other body which processes personal data on behalf of the controller.

According to the GDPR, the controllers (the pilots) and the processors (the other partners) will work together in order to be compliant with the Article 28 stating that: “Where processing is to be carried out on behalf of a controller, the controller shall use only processors providing sufficient guarantees to implement appropriate technical and organisational measures in such a manner that processing will meet the requirements of this Regulation and ensure the protection of the rights of the data subject”.

8.2.4 Data Collection And Storage

Overall collected data will be stored in servers with security level applied by partners in accordance with the corporate, national and EU governance on data protection. To ensure proper data collection, some general guidelines can be followed for the data's quality assurance:

- Technical measures should be taken for the transfer of data from field devices to repositories for supporting further analysis.
- Secure transfer protocols and tools can be used including SCP (Secure copy) and SFTP (Secure File Transfer Protocol).

Concerning storage, data encryption is a secure method to keep data safe and there are plenty of open-source tools that can be used.

In any case, all data that will be considered confidential from the pilots will be discarded by the project completion, whereas only the public models and respective datasets that will be described in detail in the DMP will be kept open.

8.2.5 Data Protection

In order to protect the collected data and control unauthorised access to the R2D2 data repositories, only authenticated personnel will have access to pilot-specific data collected. During the proposed system lifecycle, a holistic security approach will be followed, in order to protect the pillars of information security (confidentiality, integrity, availability) from a misuse perspective. The security approach will be identified by a methodical assessment of security risks followed by their impact analysis. This analysis will be performed on the personal information and data processed by the proposed system, their flows and any risk associated to their processing.

Towards the protection of personal data of volunteer pilot participants, the following issues will be taken into account:

- All data associated with a recognizable person will be held private.
- Individual data on subjects will be used in strictly confidential terms and will only be published as statistics (anonymously).
- Any data or information about a person will be held private, regardless of how this data was acquired. Therefore, data obtained incidentally within R2D2 project will be handled with confidentiality. This phrase “accidental obtainment” does not substitute the compulsory procedure, in which researchers need each participant’s explicit consent to obtain, store and use information about them.
- All individual information will be anonymized (or coded) in full and at the earliest possible point in time during data processing.
- The acquired data will under no circumstances be used for commercial purposes.
- No collection or processing of the personal data of a child will take place.

9 Intellectual Property Management Strategy

During the negotiation phase, and before the official starting of the project, all the partners that are part of R2D2 consortium, have agreed and signed a CA to set out the rights, obligations and responsibilities among beneficiaries. The CA is an internal agreement setting out the management guidelines for the consortium partners that deals with the rights and responsibilities between the beneficiaries themselves, concerning the execution of the project, specifically those related to the internal management of IP. The CA is thus envisaged as an instrument to develop and supplement aspects that are specific to the project and that are not completely covered in the GA, in particular issues related to the future exploitation and dissemination of results. Thus, the summary of the most important sections of the CA related to the management of the IP and the R2D2 results are shown in this report. The R2D2 CA is based on Horizon Europe DESCA Model [7] model version 1.1.

9.1 BACKGROUNDS

The Partners have identified and agreed on the Background for the Project and have also, where relevant, informed each other that Access to specific Background is subject to legal restrictions or limits. Anything not identified shall not be the object of Access Right obligations regarding Background.

Any Partner may add further own Background during the Project by written notice to the other Partner. However, approval of the Consortium Plenary is needed should a Partner wish to modify or withdraw its Background.

When another Partner's Background is not published, its use for dissemination activities by other Partners is not permitted without written approval by the owning Partner.

9.2 GENERAL PRINCIPLES

Each partner shall implement its tasks in accordance with the Consortium Plan and shall bear sole responsibility for ensuring that its acts within the Project do not knowingly infringe third party property rights.

Any Access Rights granted expressly exclude any rights to sublicense unless expressly stated in writing otherwise.

Access Rights shall be free of any administrative transfer costs.

Access Rights are granted on a non-exclusive basis.

Results and Background shall be used only for the purposes for which Access Rights to it have been granted.

All requests for Access Rights shall be made in writing. The granting of Access Rights may be made conditional on the acceptance of specific conditions aimed at ensuring that

these rights will be used only for the intended purpose and that appropriate confidentiality obligations are in place.

The requesting Party must show that the Access Rights are needed.

9.3 ACCESS RIGHTS FOR IMPLEMENTATION

Access Rights to Results and Background needed for the performance of the own work of a Party under the Project shall be granted on a royalty-free basis, unless otherwise agreed for Background.

9.4 ACCESS RIGHTS FOR EXPLOITATION

Access Rights to Results if needed for Exploitation of a Party's own Results shall be granted on Fair and Reasonable conditions.

Access Rights to Results if needed for internal research activities of a Party's own Results shall be granted on a royalty-free basis.

Access Rights to Background if needed for Exploitation of a Party's own Results, including for research on behalf of a third party, shall be granted on Fair and Responsible conditions.

A request for Access Rights may be made up to six months after the end of the Project or, in the case of Section 9.7.2.1.2 of the CA, after the termination of the requesting Party's participation in the Project.

9.5 ADDITIONAL ACCESS RIGHTS

For the avoidance of doubt any grant of Access Rights not covered by the GA or the CA shall be at the absolute discretion of the owning Party and subject to such terms and conditions as may be agreed between the owning and receiving Parties.

9.6 ACCESS RIGHTS FOR PARTIES ENTERING OR LEAVING THE CONSORTIUM

9.6.1 New Parties Entering the Consortium

As regards Results developed before the accession of the new Party, the new Party will be granted Access Rights on the conditions applying for Access Rights to Background.

9.6.2 Parties Leaving the Consortium

Access Rights granted to a Defaulting Party and such Party's right to request Access Rights shall cease immediately upon receipt by the Defaulting Party of the formal notice of the decision of the Consortium Plenary to terminate its participation in the consortium.

A non-defaulting Party leaving voluntarily and with the other Parties' consent shall have Access Rights to the Results developed until the date of the termination of its participation.

It may request Access Rights within the period of time specified in the CA.

Any Party leaving the Project shall continue to grant Access Rights pursuant to the GA and the CA as if it had remained a Party for the whole duration of the Project.

9.7 SPECIFIC PROVISIONS FOR ACCESS RIGHTS TO SOFTWARE

For the avoidance of doubt, the general provisions for Access Rights provided in this section are applicable also to Software.

Parties' Access Rights to Software do not include any right to receive Source Code or Object Code ported to a certain hardware platform or any right to receive Source Code, Object Code or respective Software Documentation in any particular form or detail, but only as available from the Party granting the Access Rights.

References

- [1] <https://www.iso.org/obp/ui/#iso:std:iso:9001:ed-5:v1:es>
- [2] <https://tecbox.etra-id.com/share/page/site/heu-cl5-2021-d3-02-07r2d2/dashboard>
- [3] [https://www.sebokwiki.org/wiki/Risk_\(glossary\)](https://www.sebokwiki.org/wiki/Risk_(glossary)) (accessed on December 2022)
- [4] General Data Protection Regulation (GDPR) (EU) 2016/679 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679>
- [5] 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 <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32021R0695> (accessed on December 2022)
- [6] CHARTER OF FUNDAMENTAL RIGHTS OF THE EUROPEAN UNION (2016/C 202/02) <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12016P/TXT&rid=3> (accessed on December 2022)
- [7] <https://www.desca-agreement.eu/desca-model-consortium-agreement/desca-models/> (accessed on December 2022)



Annexes

ANNEX A: REVIEWERS PER DELIVERABLE

The following table shows the allocation of partners in charge of reviewing the SYNERGY deliverables.

Nr	Leader	Due date	ETRA	S2	ELPROS	GUARD	CYBER	ICCS	UKIM	SCC	EMSS	HEDNO	ELEK	ELOVE	EDP NEW	EDP SPAIN	IMP	UCY	RTE-i	ICL
D1.1	ETRA	M03						X	X											
D1.2	ETRA	M06						X	X											
D2.1	EMSS	M10		X	X															
D2.2	ELEK	M12										X				X				
D2.3	EMSS	M16		X	X															
D3.1	ICCS	M12															X		X	
D3.2	ICCS	M24															X		X	
D4.1	RTE-i	M12						X										X		
D4.2	RTE-i	M24						X										X		
D5.1	GUARD	M12	X								X									
D5.2	GUARD	M24	X								X									
D6.1	ETRA	M12				X														X
D6.2	ETRA	M24				X														X
D7.1	ELPROS	M24					X						X							
D7.2	ELPROS	M36					X						X							
D7.3	ELPROS	M30												X	X					
D7.4	ELPROS	M36	X											X						
D8.1	ETRA	M06										X				X				
D8.2	ETRA	M18								X					X					
D8.3	UKIM	M36								X	X									
D8.4	EDP NEW	M36			X							X								

Table 8: Peer reviewers of deliverables



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Horizon Europe Grant agreement N° 101075714.