Deliverable 1.3: Project Management Plan (v2)

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opentunity

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Keywords

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Executive Summary

Research and development long-term projects carried out by contractors distributed all around Europe, requires a clear definition of the scope of the project and internal coordination mechanisms.

The project management plan defines how the OPENTUNITY project will be executed, monitored and controlled providing a summarized framework of the project and its purpose. The management plan represent the foundations for executing the project, including (i) project work plan together with pert chart and Gantt chart; (ii) work breakdown structure (WBS) detailing tasks, schedule, responsible partners and related deliverables; and (iii) required project efforts in person-months per work package and per task.

Moreover, the project management plan describes the roles of different actors in the project management structure, the meeting schedules and template agendas for meetings and gives guidelines for performing the day-to-day project management activities, including (i) instructions and templates for technical reporting on activity and WP level; (ii) instructions and templates for administrative reports; and (iii) templates and naming/numbering conventions for technical and administrative files and documents

Copyright statement

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1 Introduction

1.1 Purpose of the document

This document establishes the foundation for the project management processes providing a clear route to success. It covers 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 management plan 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 OPENTUNITY. In addition, 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.

Here, **the consortium also aimed to include the modifications of the project due to an amendment signed in April 2024.**

1.2 Scope of the document

Deliverable 1.1 is the first document produced by the OPENTUNITY consortium. It is produced within the Coordination work package (WP1) in order 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 serve to the team leaders within each organization, researchers and administrative responsible 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 D1.3, this deliverable should not contradict the project contract – and, in particular, the provisions made at the DoA with regards to project schedule and efforts allocated.

This is the second version of this deliverable.

1.3 Structure of the document

The document includes a first section with a basic summary of the project key facts and expected results. The following sections are specific tools to facilitate the execution and control of the project including project work plan together with PERT chart and Gantt chart, work breakdown structure (WBS) detailing tasks, schedule, responsible partners and related deliverables, and required project efforts in person-months per work package and per task. The Project Management procedures –i.e. reporting, quality and risk management, communication and dissemination guidelines, etc. – are also part of this deliverable. Finally, a section summarizing an amendment signed in April 2024 is also included.

2 Project Summary

2.1 OPENTUNITY KEY FACTS

Topic: HORIZON-CL5-2022-D3-01-12 Replicable solutions for a cross sector compliant energy ecosystem.

Type of Action: HORIZON Innovation Action.

Project start: 1st January 2023.

Duration: 48 months from 01.01.2023 to 31.12.2026 (Article 4 GA).

Project Coordinator: ETRA INVESTIGACIÓN y DESARROLLO S.A.

Consortium: 21 organizations from 7 countries

2.2 OPENTUNITY IN SHORT

OPENTUNITY (OPENing the electricity ecosystem to multiple actors in order to have a real decarbonization opporTUNITY), is an EC funded project led by ETRA I+D, whose mission is to create a flexibility ecosystem reducing interoperability barriers and favoring the use of standards in order to decarbonize EU grids and put the end-user in the spotlight.

Grid operators, prosumers, market actors etc. will be supported by OPENTUNITY via innovative methodologies backed by advanced, interoperable software modules, in order to provide them with new features and services related to:

- Technologies to boost flexibility in prosumer's environment.
- Technologies for grid operators to better manage grid operations.

OPENTUNITY will also evolve, adapt and integrate Federated Data Space infrastructure in which actors from different fields will share services and find synergies among them in order to create a reliable energy system in which different verticals (electromobility, gas, OEM etc.) will be able to seamlessly collaborate with each other.

OPENTUNITY will be demonstrated in 4 different countries (Greece, Slovenia, Spain and Switzerland), benefitting 26.852 citizens and reducing 91,22 MtCO2eq GHG emissions and energy poverty by 30% by 2032.

OPENTUNITY project is funded by the Research and Innovation Program of the European Commission, Horizon Europe with 8,5 million euros. 21 partners from 7 European countries participate in the project that started in January 2023 and will have a duration of 4 years.

2.3 OPENTUNITY CONSORTIUM AND EXTENDED CONSORTIUM

2.3.1 Partners

OPENTUNITY consortium comprises 21 partners from 8 different countries. It is composed of a balanced team of complementary organisations including industrial partners, universities, public institutions and electricity system players. The list of all OPENTUNITY partners is shown in the next Table, together with their main role in the project.

Table 1. List of OPENTUNITY partners.

No	Participant organization name	Country	Short N.	Main Role in OPENTUNITY
1	ETRA Investigación y Desarrollo S.A.	Spain	ETRA	Coordinator.
2	Institute Of Communication and Computer Systems	Greece	ICCS	Technical coordinator and IT developer for grid-related technologies
3	QUE Technologies Kefalaiouchiki Etaireia	Greece	QUE	Data Space provider
4	Hypertech Kentro Epistimonikon Kai Technologikon Erevnon Aeiforias Astiki Mi Kerdoskopiki Etaireia	Greece	HYP	IT provider for flexibility related-technologies
5	Univerza v Ljubljani	Slovenia	UL	Demonstration leader
5.1	Inovacijsko-razvojni inštitut Univerze v Ljubljani	Slovenia	IRI UL	Support for demonstration activities
6	Diacheiristis Ellinikou Diktyou Dianomis Elektrikis Energeias Ae	Greece	HEDNO	DSO and demo leader of the Greek pilot
7	Estabanell Y Pahisa Energia Sa	Spain	EYPESA	DSO and demo leader of the Spanish pilot
8	Estabanell Y Pahisa Impulsa	Spain	IMPULSA	Retailer part of the Spanish Pilot
9	Joanneum Research Forschungsgesellschaft Mbh	Austria	JR	Socioeconomic expert
10	Asociacion Espanola De Normalizacion	Spain	UNE	Standardization body

11	Nodes As		NODES	Independent Local Flexibility Market developer and operator
12	Kolektor Setup, storitve energetskega upravljanja, d.o.o.	Slovenia	SETUP	Aggregator, IT developer and demo leader of the Slovenian Pilot
13	Amibit, energetski sistemi, d.o.o.	Slovenia	Amibit	Technical supporter of the Slovenian Pilot
14	Elektro Primorska, podjetje za distribucijo električne energije, d. d.	Slovenia	EP	Slovenian Pilot
15	Avant car poslovni inzeniring d.o.o.	Slovenia	AVANTCAR	eCarsharing company of the Slovenian Pilot
16	Elektro Ljubljana, podjetje za distribucijo električne energije, d. d.	Slovenia	EL	DSO part of the Slovenian pilot
17	Independent Power Transmission Operator Sa	Greece	IPTO	TSO part of the Greek pilot
18	Blue Sun Automation Limited	Cyprus	BSA	OEM and developer of a Plug and Play methodology for flexibility assets recognition
19	Azienda Elettrica Di Massagno (Aem) Sa	Swiss	AEM	DSO and demo leader of the Swiss Pilot
20	Hive Power Sa	Swiss	HIVE	Technical supporter of Swiss Pilot for grid innovations
21	Scuola Universitaria Profession Ale Della Svizzera Italiana	Swiss	SUPSI	Technical supporter of Swiss Pilot for prosumers' innovations

3.3.2. Associated Partners

The following entities which cooperate with a beneficiary will participate in the action as 'associated partners':

- Azienda Elettrica Di Massagno (Aem) Sa (AEM).
- Hive Power Sa (HIVE).
- Scuola Universitaria Professionale Della Svizzera Italiana (SUPSI).

The three parties are fully integrated in the consortium, participating in its meetings and with a clear allocation of resources – see section 3.3.2.

3 OPENTUNITY Workplan

The work plan in OPENTUNITY has been structured in eight Work Packages. The first one, **WP1 Project Management**, led by ETRA as project coordinator, will tackle activities to ensure the achievement of project objectives, assuring the coordination and IPR management of the whole project and keeping the project schedule to guarantee the objectives execution. The project will start with the **foundations** being defined at **WP2 Project foundations. Use cases, requirements, architecture and legal** boundaries will be analyzed within this WP. **Security and interoperability issues** of the project components will be analyzed in order to detect potential barriers in the future stages of the project. The technical WPs will specify and implement the OPENTUNITY results: **FEDERATED ENERGY DATA SPACE (WP3), TECHNOLOGIES TO BOOST FLEXIBILITY IN PROSUMER'S ENVIRONMENT (WP4), TECHNOLOGY FOR GRID OPERATORS (WP5).** The tasks identified in these WPs will not be performed in an isolated way, but **will interact with each other, running in parallel.** This means that the different WPs will share a common infrastructure to promote interoperability and an open approach. **Two different versions of the results (M26 and M34) will be released**, in order to be able to properly test them. Then, in **WP6 Deployment and demonstration activities**, the innovations developed and the assets to be protected will be integrated and deployed, to demonstrate them in real conditions in the four pilot sites for 12 months. With data gathered during the validation phase, in **WP7 Project evaluation and replication strategy**, the technical and socio-economic impact of the project integrated solution will be evaluated and it will also be defined the Scalability and replicability potential of the project. **WP8 Knowledge transfer, will cover the dissemination and promotion of the project results** and further transfer of these products to marketable and profitable solutions. Resources for end-users to actively collaborate on the adaptation of OPENTUNITY results have been allocated in all relevant tasks. This leads to the involvement of all the stakeholders in all stages of the project, and especially in the demonstration scenarios.

3.1 OPENTUNITY PERT

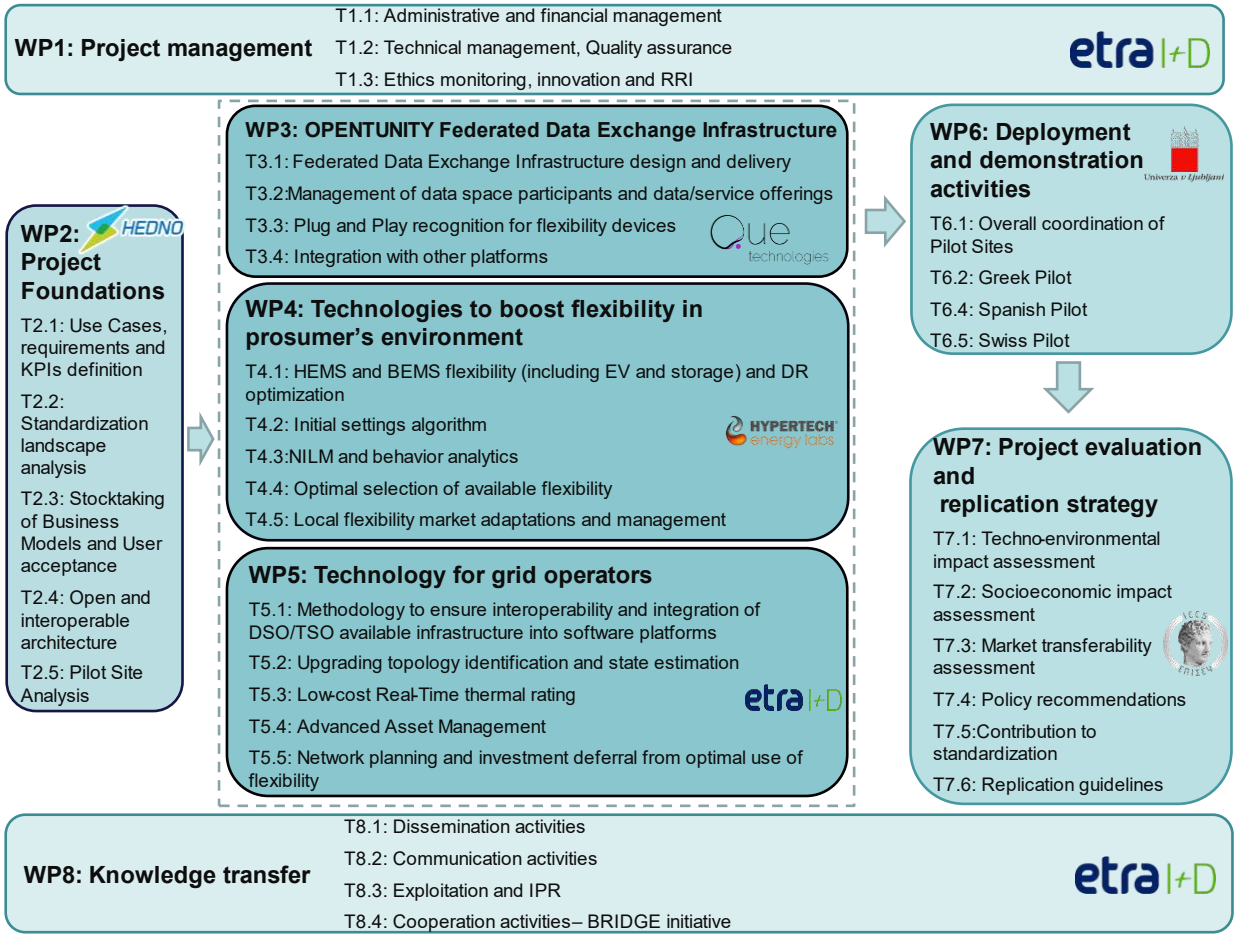
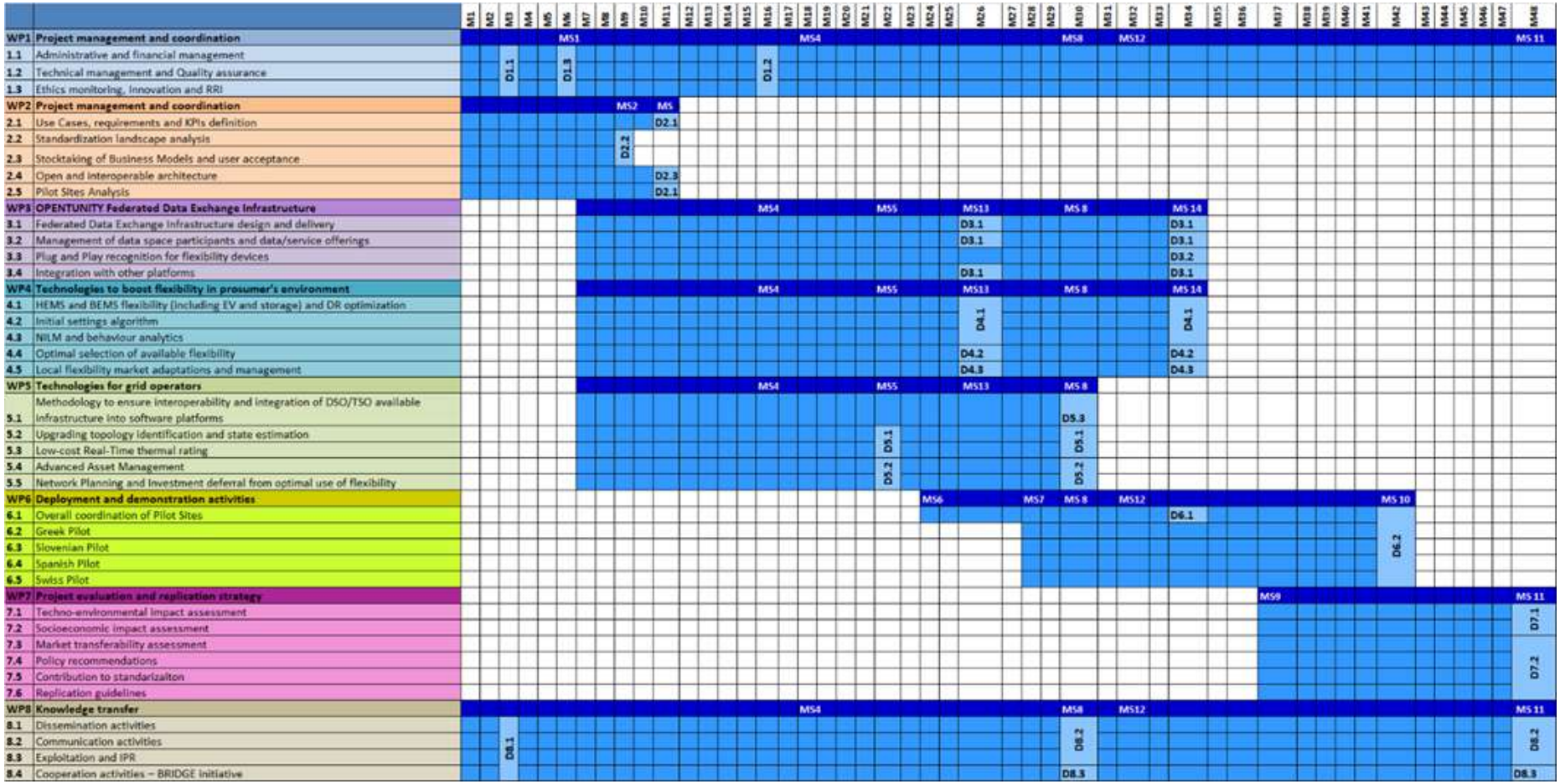


Figure 1 OPENTUNITY PERT.

3.2 OPENTUNITY GANTT

Table 2. OPENTUNITY GANTT



3.3 WORK BREAKDOWN STRUCTURE (WBS)

3.3.1 OPENTUNITY Tasks Breakdown

Table 3. OPENTUNITY tasks, schedule, involved partners and deliverable.

WP	Task	Start	End	Leader	Involved partners	Related deliverable
1	1.1 Administrative and financial management	01/01/2023	31/12/2026	ETRA	ALL	D1.1 - Project Management Plan v1 [M3] D1.3 – Project Management Plan v2 [M6]
1	1.2 Technical management, Quality assurance	01/01/2023	31/12/2026	ICCS	ETRA	D1.1 - Project Management Plan v1 [M3] D1.2 - Data Management Plan [M6] D1.3 – Project Management Plan v2 [M6]
1	1.3 Ethics monitoring, innovation and RRI	01/01/2023	31/12/2026	ETRA	ICCS, HYP	D1.1 - Project Management Plan [M3]

						D1.2 - Data Management Plan [M6] D1.3 – Project Management Plan v2 [M6]
2	2.1 Use Cases, Requirements and KPIs Definition	01/01/2023	30/11/2023	ETRA	ALL	D2.1 - Technical foundations [M11]
2	2.2 Standardization landscape analysis	01/01/2023	30/09/2023	UNE	ETRA, ICCS, HYP, AMIBIT, BLUE	D2.2 - Standardization landscape and socioeconomic context [M9]
2	2.3 Stocktaking of Business Models and User acceptance	01/01/2023	30/09/2023	JR	ETRA, ICCS, HYP, UL, JR, NODES, SETUP, BLUE	D2.2 - Standardization landscape and socioeconomic context [M9]
2	2.4 Open and interoperable architecture	01/01/2023	30/11/2023	ICCS	ETRA, HYP, UL, NODES, AMIBIT	D2.3 - Open architecture report [M11]
2	2.5 Pilot Site Analysis	01/01/2023	30/11/2023	HEDNO	ETRA, ICCS, HYP, UL, EYPESA, IMPULSA, JR, NODES, SETUP, AMIBIT, EP,	D2. 1 - Technical foundations [M11]

					AVANTCAR, AEM, HIVE, SUPSI, EL, IPTO	
3	3.1 Federated Data Exchange Infrastructure design and delivery	01/07/2023	31/10/2025	QUE	ICCS, HEDNO, EYPESA, IMPULSA, NODES, SETUP, AMIBIT, EP, AEM, HIVE, SUPSI, EL, IPTO, BLUE	D3.1 -Federated Data Exchange Infrastructure Architecture (v1) [M26] D3.2 - Federated Data Exchange Infrastructure Architecture(v2) [M34]
3	3.2 Management of data space participants and data/service offerings	01/07/2023	31/10/2025	QUE	ETRA, HYP, NODES, SETUP, AMIBIT	D3.1 -Federated Data Exchange Infrastructure Architecture (v1) [M26] D3.2 - Federated Data Exchange Infrastructure Architecture(v2) [M34]
3	3.3 Plug and Play recognition for flexibility devices	01/07/2023	31/10/2025	BLUE	ETRA, QUE, HYP, JR, AMIBIT, HIVE, SUPSI	D3.3 -Plug and Play Asset Registration [M34]

3	3.4 Federated Data Exchange Infrastructure Architecture	01/07/2023	31/10/2025	QUE	ETRA, HYP, UL, IRI UL, JR, NODES, SETUP, AMIBIT, AVANTCAR	D3.1 -Federated Data Exchange Infrastructure Architecture (v1) [M26] D3.2 - Federated Data Exchange Infrastructure Architecture(v2) [M34]
4	4.1 HEMS and BEMS flexibility (including EV and storage) and DR optimization	01/07/2023	31/10/2025	HYP	ETRA, QUE UL, HEDNO, EYPESA, IMPULSA, JR, NODES, SETUP, AMIBIT, EP, AVANTCAR, AEM, HIVE, SUPSI, EL, BLUE	D4.1 - Enhanced, user-friendly EMS for residential/building flexibility discovery and delivery (v1) [M22] D4.2 -Enhanced, user-friendly EMS for residential/building flexibility discovery and delivery (v2) [M30]
4	4.2 Initial settings algorithm	01/07/2023	31/10/2025	HYP	ETRA, QUE, JR, AVANTCAR, BLUE	D4.1 - Enhanced, user-friendly EMS

						for residential/building flexibility discovery and delivery (v1) [M22] D4.2 -Enhanced, user-friendly EMS for residential/building flexibility discovery and delivery (v2) [M30]
4	4.3 NILM and behaviour analytics	01/07/2023	31/10/2025	ETRA	HYP, BLUE	D4.1 - Enhanced, user-friendly EMS for residential/building flexibility discovery and delivery (v1) [M22] D4.2 -Enhanced, user-friendly EMS for residential/building flexibility

						discovery and delivery (v2) [M30]
4	4.4 Optimal selection of available flexibility	01/07/2023	31/10/2025	UL	ETRA, HYP, UL, IRIUL, IMPULSA, JR, NODES, SETUP, AVANTCAR, IPTO, BLUE	D4.3 - Optimal selection of available flexibility (v1) [M22] D4.4 - Optimal selection of available flexibility (v2) [M30]
4	4.5 Local flexibility market adaptations and management	01/07/2023	31/10/2025	NODES	ETRA, QUE, ICCS, HYP, HEDNO, EYPESA, IMPULSA, JR, SETUP, AMIBIT, AVANTCAR, AEM, HIVE, SUPSI, IMTP, BLUE	D4.5 - OPENTUNITY flexibility market (v1) [M22] D4.6 - OPENTUNITY flexibility market (v2) [M30]
5	5.1 Methodology to ensure interoperability and integration of DSO/TSO available infrastructure into software platforms	01/07/2023	30/06/2025	ETRA	ICCS, UL, HEDNO, EYPESA, JR, EP, AEM, HIVE, SUPSI, EL, IPTO	D5.5 – OPENTUNITY Grid integration methodology [M30]

5	5.2 Upgrading topology identification and state estimation	01/07/2023	30/06/2025	ETRA	ICCS, UL, HEDNO, EYPESA, EP, AEM, HIVE, SUPSI, EL	D5.1 - OPENTUNITY power flow developments (v1) [M22] D5.2 - OPENTUNITY power flow developments (v2) [M30]
5	5.3 Low-cost Real-Time thermal rating	01/07/2023	30/06/2025	ICCS	ETRA, HEDNO, IRI UL, EYPESA, AEM, HIVE, SUPSI, IPTO	D5.1 - OPENTUNITY power flow developments (v1) [M22] D5.2 - OPENTUNITY power flow developments (v2) [M30]
5	5.4 Advanced Asset Management	01/07/2023	30/06/2025	ICCS	ETRA, UL, IRI UL HEDNO, EYPESA, EP, AVANTCAR, AEM, HIVE, SUPSI, EL, IPTO, BLUE	D5.3 - OPENTUNITY asset and planning developments (v1) [M22] D5.4 - OPENTUNITY

						asset and planning developments (v2) [M30]
5	5.5 Network planning and investment deferral from optimal use of flexibility	01/07/2023	30/06/2025	ICCS	ETRA, HEDNO, EYPESA, JR, EP, AVANTCAR, AEM, HIVE, SUPSI, EL, IPTO	D5.3 - OPENTUNITY asset and planning developments (v1) [M22] D5.4 - OPENTUNITY asset and planning developments (v2) [M30]
6	6.1 Overall coordination of Pilot Sites	01/12/2023	30/06/2026	UL	ETRA, ICCS, QUE, HYP, HEDNO, EYPESA, IMPULSA, NODES, SETUP, AMIBIT, EP, AVANTCAR, AEM, HIVE, SUPSI, EL IPTO, BLUE	D6. 1 – Deployment and demonstration plan [M34] D6. 2 – Demonstration activities report [M42]
6	6.2 Greek Pilot	01/02/2024	30/06/2026	HEDNO	ETRA, ICCS, QUE, HYP, IRI UL, HEDNO, JR, NODES, IPTO, BLUE	D6. 2 – Demonstration activities report [M42]
6	6.3 Slovenian Pilot	01/02/2024	30/06/2026	EL	ETRA, ICCS, QUE, HYP, UL, IRI UL JR,	D6. 2 – Demonstration

					SETUP, AMIBIT, EP, AVANTCAR, EL, BLUE	activities report [M42]
6	6.4 Spanish Pilot	01/02/2024	30/06/2026	EYPESA	ETRA, ICCS, QUE, HYP, IRI UL, IMPULSA, JR, NODES, BLUE	D6. 2 – Demonstration activities report [M42]
6	6.5 Swiss Pilot	01/02/2024	30/06/2026	AEM	ETRA, ICCS, QUE, HYP, IRI UL, JR, NODES, AEM, HIVE, SUPSI, BLUE	D6. 2 – Demonstration activities report [M42]
7	7.1 Techno-environmental impact assessment	01/01/2026	31/12/2026	ICCS	ETRA, QUE, HYP, UL, HEDNO, EYPESA, IMPULSA, NODES, SETUP, AMIBIT, EP, AVANTCAR, AEM, HIVE, SUPSI, EL IPTO, BLUE	D7. 1 – Impact Assessment [M48]
7	7.2 Socioeconomic impact assessment	01/01/2026	31/12/2026	JR	ETRA, ICCS, QUE, HYP, IRI UL, HEDNO, EYPESA, IMPULSA, NODES, SETUP, EP, AVANTCAR, AEM, HIVE, SUPSI, EL IPTO	D7. 1 – Impact Assessment [M48]

7	7.3 Market transferability assessment	01/01/2026	31/12/2026	JR	ETRA, ICCS, QUE, HYP, IRI UL, JR, NODES, SETUP, AMIBIT, BLUE	D7.2 - Replication strategy [M48]
7	7.4 Policy recommendations	01/01/2026	31/12/2026	JR	ETRA, ICCS, QUE, HYP, IRI UL, HEDNO, EYPESA, IMPULSA, JR, NODES, SETUP, EP, AVANTCAR, AEM, HIVE, SUPSI, EL IPTO, BLUE	D7.2 - Replication strategy [M48]
7	7.5 Contribution to standardization	01/01/2026	31/12/2026	UNE	ETRA, ICCS, QUE, HYP, IRI UL NODES, AMIBIT, BLUE	D7.2 - Replication strategy [M48]
7	7.6 Replication guidelines	01/01/2026	31/12/2026	ETRA	ICCS, QUE, HYP, IRI UL, JR, SETUP	D7.2 - Replication strategy [M48]
8	8.1 Dissemination activities	01/01/2023	31/12/2026	ETRA	ALL	D8.1 - Plan for Dissemination, Communication and Exploitation of Results [M3] D8.2 - Dissemination and Communication activities Report (v1) [M18]

						D8.3 - Dissemination and Communication activities Report (v2) [M30] D8.4 - Dissemination and Communication activities Report (v3) [M48]
8	8.2 Communication activities	01/01/2023	31/12/2026	ETRA	ICCS, QUE, HYP, UL, IRI UL, HEDNO, EYPESA, IMPULSA, JR, NODES, SETUP, AMIBIT, EP, AVANTCAR, AEM, HIVE, SUPSI, EL, IPTO, BLUE	D8.1 - Plan for Dissemination, Communication and Exploitation of Results [M3] D8.2 - Dissemination and Communication activities Report (v1) [M18] D8.3 - Dissemination and Communication activities Report (v2) [M30] D8.4 - Dissemination and

						Communication activities Report (v3) [M48]
8	8.3 Exploitation and IPR	01/01/2023	31/12/2026	ETRA	ICCS, QUE, HYP, UL, JR, NODES, SETUP, AMIBIT, AVANTCAR, BLUE	D8.1 - Plan for Dissemination, Communication and Exploitation of Results [M3] D8.2 - Dissemination and Communication activities Report (v1) [M18] D8.3 - Dissemination and Communication activities Report (v2) [M30] D8.4 - Dissemination and Communication activities Report (v3) [M48]
8	8.4 Cooperation activities – BRIDGE initiative	01/01/2023	31/12/2026	ETRA	ICCS, QUE, HYP, UL, IRI UL, HEDNO, EYPESA, IMPULSA, JR, SETUP,	D8.1 - Plan for Dissemination, Communication

					AVANTCAR, AEM, HIVE, SUPSI, IPTO	and Exploitation of Results [M3] D8.5- OPENTUNITY exploitation and IPR Management (v1) [M30] D8.6 - OPENTUNITY exploitation and IPR Management (v2) [M48]

3.3.2 Project effort in Person-months

3.3.2.1 Extended PM Breakdown (per task)

Table 4. OPENTUNITY Effort per task and partner.

		Lead	ETRA	ICCS	QUE	HYP	UL	*IRI UL*	HEDNO	EYPESA	IMPULSA	JR	UNE	NODES	SETUP	AMIBIT	EP	AVANTCA	EL	IPTO	BSA	AEM	HIVE	SUPSI	TOTAL
WP 1	**Project Management**	**ETRA**	**42**	**17**	**3**	5	**2**	**1**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**118**
1.1	Administrative and financial management	ETRA	24	3	3	3	2	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	84
1.2	Technical management, Quality assurance	ICCS	10	12																					22
1.3	Ethics monitoring, innovation and RRI	ETRA	8	2		2																			12
WP 2	**Project Foundations**	**HEDNO**	**23**	**23**		**16**	6	-	**23**	**10**	**10**	**14**	**5**	**7,5**	**6**	**7**	**4**	**4**	**4**	**5**	**6**	**10**	**5**	**5**	**194**
2.1	Use Cases, Requirements and KPIs Definition	ETRA	8	5		4	4		8	4	4	2		2	2	2	2	2	2	2	2	4	1	1	61
2.2	Standardization landscape analysis	UNE	1	1		2	-						5			1					2				12
2.3	Stocktaking of Business Models and User acceptance	JR	4	2		2	2					10		2	2						2				26
2.4	Open and interoperable architecture	ICCS	8	12		6								2		2									30
2.5	Pilot Site Analysis	HEDNO	2	3		2			15	6	6	2		2	2	2	2	2	2	3		6	4	4	65
WP3	**OPENTUNITY Energy Blockchain**	**QUE**	**18**	**4**	**42**	**14**	**2**	**2**	**4**	**2**	**2**	**4**	**0**	**5**	**6**	**14**	**4**	**4**	**4**	**4**	**16**	**2**	**5**	**5**	**163**
3.1	Decentralized data exchange and cybersecurity aspects	QUE		2	14		-		4	2	2			1	2	3	4		4	4	4	2	2	2	52
3.2	Management of APP's historical data	QUE	6		12	6	-							1	2	2									29

3.3	Plug and Play recognition for flexibility devices	BLUE	6		6	4	-					2				6					12		3	3	42
3.4	Adaptation and integration with other platforms	QUE	6	2	10	4	2	2				2		3	2	3		4							40
WP 4	**Technologies to boost flexibility in prosumer's environment**	**HYP**	**24**	**4**	**14**	**28**	**6**	**4**	**12**	**12**	**12**	**8**	**0**	**12**	**18**	**8**	**4**	**15**	**4**	**6**	**13**	**12**	**6**	**6**	**228**
4.1	HEMS and BEMS flexibility (including EV and storage) and DR optimization	HYP	6		6	12	2		4	4	2	2		1	2	6	4	4	4		3	4	3	3	72
4.2	Initial settings algorithm	HYP	2		4	8						2						2			3				21
4.3	NILM and behaviour analytics	ETRA	10			2	-														3				15
4.4	Optimal selection of available flexibility	UL	2			2	4	4			4	2		2	14			6		2	2				44
4.5	Local flexibility market adaptations and management	NODES	4	4	4	4	-		8	8	6	2		10	2	2		3		4	2	8	3	3	77
WP5	**Technologies for grid operators**	**ETRA**	**44**	**32**	**0**	**0**	**2**	**10**	**22**	**18**	**0**	**4**	**0**	**0**	**0**	**0**	**8**	**4**	**8**	**16**	**4**	**18**	**9**	**9**	**208**
5.1	Methodology to ensure interoperability and integration of DSO/TSO available infrastructure into software platforms	ETRA	14	4					2	2		2					2		2	2		2	1	1	34
5.2	Upgrading topology identification and state estimation	ETRA	12	4					6	6							2		2			6	3	3	44
5.3	Low-cost Real-Time thermal rating	ICCS	8	8			-	5	6	2										8		2	1	1	41
5.4	Advanced Asset Management	ICCS	4	8			2	5	2	2							2	2	2	2	4	2	1	1	39
5.5	Network planning and investment deferral from optimal use of flexibility	ICCS	6	8					6	6		2					2	2	2	4		6	3	3	50
WP6	**Deployment and demonstration activities**	**UL**	**24**	**20**	**24**	**22**	**20**	**8**	**23**	**19**	**15**	**12**	**0**	**26**	**13**	**7**	**5**	**9**	**5**	**9**	**9**	**19**	**9**	**9**	**307**

6.1	Overall coordination of Pilot Sites	UL	4	2	8	2	12		1	1	1			2	1	1	1	1	1	1	1	1	1	1	43
6.2	Greek Pilot	HEDNO	4	12	4	4		2	22			3		8						8	2				69
6.3	Slovenian Pilot	EL	4	2	4	4	8	2				3		0	12	6	4	8	4		2				63
6.4	Spanish Pilot	EYPESA	8	2	4	4		2		18	14	3		8							2				65
6.5	Swiss Pilot	AEM	4	2	4	8		2				3	0	8							2	18	8	8	67
WP 7	**Project evaluation and replication strategy**	**ICCS**	**18**	**24**	**21**	**16**	**4**	**10**	**10**	**8**	**6**	**24**	**8**	**5**	**8**	**4**	**8**	**3**	**8**	**5**	**7**	**8**	**5**	**5**	**215**
7.1	Techno- environmental impact assessment	ICCS	6	14	7	6	4		4	4	2			2	2	2	4	1	4	3	2	4	3	3	77
7.2	Socioeconomic impact assessment	JR	4	4	2	4		2	4	2	2	8		2	2		2	1	2	1		2	1	1	46
7.3	Market transferability assessment	JR	2	2	4	2		2				8		1	1	1					2				25
7.4	Policy recommendations	JR	1	1	3	1		2	2	2	2	6		1	2		2	1	2	1	1	2	1	1	34
7.5	Contribution to standardization	UNE	1	1	2	1		2					8	1		1					2				19
7.6	Replication guidelines	ETRA	4	2	3	2		2				2			1										16
WP 8	**Knowledge transfer**	**ETRA**	**36**	**12**	**9**	**12**	**8**	**4**	**13**	**13**	**11**	**16**	**4**	**6**	**6**	**5**	**6**	**6**	**6**	**3**	**3**	**11**	**7**	**7**	**204**
8.1	Dissemination activities	ETRA	10	4	3	4	2	2	4	4	2	4	4	2	2	2	2	1	2	1	1	2	4	4	66
8.2	Communication activities	ETRA	12	2	2	2	2		8	8	8	6		2	1	1	4	3	4	1	1	8	2	2	79
8.3	Exploitation and IPR	ETRA	6	2	2	2	2					2		2	2	2		1			1				24
8.4	Cooperation activities – BRIDGE initiative	ETRA	8	4	2	4	2	2	1	1	1	4			1			1		1		1	1	1	35
TOTAL			**229**	**136**	**91**	**113**	**50**	**39**	**110**	**85**	**59**	**85**	**20**	**64,5**	**60**	**48**	**42**	**48**	**42**	**51**	**61**	**83**	**49**	**49**	**1.636,5**

4.3.2.2. Summarised PM Breakdown (per Work Package)

Table 5. OPENTUNITY PM breakdown per WP

		WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	TOTAL
1	ETRA	42	23	18	24	44	24	18	36	229
2	ICCS	17	23	4	4	32	20	24	12	136
3	QUE	3	0	42	14	0	24	21	9	113
4	HYP	5	16	14	28	0	22	16	12	113
5	UL	2	6	2	6	2	20	4	8	50
5.1	IRI UL	1	0	2	4	10	8	10	4	39
6	HEDNO	3	23	4	12	22	23	10	13	110
7	EYPESA	3	10	2	12	18	19	8	13	85
8	IMPULSA	3	10	2	12	0	15	6	11	59
9	JR	3	14	4	8	4	12	24	16	85
10	UNE	3	5	0	0	0	0	8	4	20
11	NODES	3	7,5	5	12	0	26	5	6	64,5
12	SETUP	3	6	6	18	0	13	8	6	60
13	AMIBIT	3	7	14	8	0	7	4	5	48
14	EP	3	4	4	4	8	5	8	6	42
15	AVANTCAR	3	4	4	15	4	9	3	6	48
16	AEM	3	10	2	12	18	19	8	11	83
17	HIVE	3	5	5	6	9	9	5	7	49
18	SUPSI	3	5	5	6	9	9	5	7	49
19	EL	3	4	4	4	8	5	8	6	42
20	IPTO	3	5	4	6	16	9	5	3	51
21	BSA	3	6	16	13	4	9	7	3	61
	TOTAL PM	118	194	163	228	208	307	215	204	1636,50

4 Communication guidelines

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

4.1 ELECTRONIC COMMUNICATION

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 Project Coordinator (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:

- OPENTUNITY Consortium Plenary (CP) where the administrative, financial and coordination contact list, containing all administrative and technical contacts for all partners is found:
  - plenary@opentunityproject.eu
- OPENTUNITY Project Management Board (PMB) where the members of the PMB are included:
  - pmb@opentunityproject.eu
- WP(s) mailing list, with all partners involved in each SP:
  - wp1@opentunityproject.eu
  - wp2@opentunityproject.eu
  - wp3@opentunityproject.eu
  - wp4@opentunityproject.eu
  - wp5@opentunityproject.eu
  - wp6@opentunityproject.eu
  - wp7@opentunityproject.eu
  - wp8@opentunityproject.eu

Each partner has shown to the PC who are the people of their organizations involved in each WP. Thus, people are receiving the e-mails in just the WPs they are interested in. The mailing lists can be updated as needed at any time. The e-mail subject will start with the name of the project and the respective list. For example: *[OPENTUNITY][WP2]* - . This will be very helpful for easily identifying and classifying the messages.

If required, the consortium will use TEAMS (https://www.microsoft.com/es-es/microsoft-teams/log-in) or WEBEX (www.webex.com) teleconference services for ad-hoc meetings as an alternative to face to face meetings – see section 5.3 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.

5.1.1 Guidelines for Effective Electronic Communication

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 the rules in bold are mandatory.

General rules:

- **Only relevant information (strictly related to the OPENTUNITY project) is sent to the appropriate project participants, using the relevant mailing list.**
- Each mail will have a specific subject (field "Subject"), with the following elements:
  - **The project acronym (OPENTUNITY).**
  - **The WP-number, preceded with a hyphen "-"**,
  - The subject,
- 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 will be enough.
- Deadline for definitive reply. In the case of no response to a message within fifteen (15) calendar days, 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.
- **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 website.

4.2 DOCUMENT EXCHANGE FORMAT

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

- Format *.docx/doc (Word or equivalent) or *pdf.
- Track of changes activated (in case of Word file).
- After the final document has passed the peer review, the project coordinator 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 Web site.
- All the documents to be forwarded outside the Consortium, including the presentations and the final deliverables, will use only PDF format (exceptions may be made regarding papers for conferences if the organizers require them in another format).
- The biannual 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 OPENTUNITY repository.
- These templates can evolve according to the project needs.

4.3 DOCUMENT NUMBERING AND NAMING CONVENTION

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 two levels of security are considered:

- PU Public.
- SEN – Sensitive, limited under the conditions of the Grant Agreement

In order to facilitate common browsing and storage in different platforms and OS's, 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).

All these documents will be named and numbered according to the following rules, in order to facilitate the quick identification and indexing:

<dateYYYYMMDD>-<orgshortname>-OPENTUNITY- d<dnum>-<docshortname>-<security>_v<ver>.pdf

All the documents' names start with the delivery date of the document, followed by the acronym of the organisation responsible for the document and the word "OPENTUNITY", in order to facilitate the identification with other projects documents, and to raise the awareness or the project within a number of people that will download the documents from the public website.

Versions 0_X will indicate that the document is still a draft 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.

For example, deliverable D1.1 Project Management Plan, being ETRA the responsible organisation, security level confidential usage, to be delivered for example on 30th December 2024, would be named in the following way:

20241230-etra-OPENTUNITY- d1_1-Project Management Plan- co_v1_0.docx

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

4.4 DOCUMENT REPOSITORY

A document repository has been set up in order to facilitate the exchange of information. **The tool selected has been Alfresco** [1]. 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 will be hosted in the same server used for the web-tools used by the consortium and the project website. OPENTUNITY will use 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:

- http://tecbox.etra-id.com. A new project-based URL will be used once the project website 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., Consortium Agreement.

The structure can and will be updated as the project evolve in order to organize the information in the most efficient way for the partners.

At the implementation phase, git service will be set up to share common source code.

4.5 OPENTUNITY LOGO AND ACRONYM USAGE

Figure 2 Main OPENTUNITY Logo

Figure 3 Secondary OPENTUNITY Logo

Figure 4 OPENTUNITY isotype

It is advised to use the main logo as first option. The OPENTUNITY logo must appears in all OPENTUNITY related documents. Any material co-funded with the project budget needs to make explicit reference to it – see section 9.1 – and, if possible, make use of the OPENTUNITY logo. It has been developed in two different types to be able to use it in different formats and for different purposes.

In this way, the first logo is the official and corporative image of the project to be used by default. The second one is reserved to formats where the information has to be represented horizontally.

The isotype of the project can be used as a complementary icon in official documents. Always the isotype is used the main or secondary logo of OPENTUNITY should also appear (as an example we can find the word and ppt template using the isotype as page footer/header.

The acronym of the project – i.e., OPENTUNITY – is the main representative mark. When possible, it has to be used with the abovementioned logos, respecting the font and colors. Otherwise, it should be written in capital letters.

4.6 NOTIFICATION PROCEDURE

5.6.1 Guidelines for Effective Electronic Communication

As a general procedure any notification sent to the project coordinator 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: 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 the person is authorised and the empowerment by which he/she is authorised.
- Send a copy in advance.
- Paper copies should follow by express courier and a notification by e-mail to the project coordinator the day it was sent.
- In case any problem arises, the project coordinator should be contacted to solve the eventual situation.

5.6.2 Bank account: notification of changes

In the event of a partner's bank account changes, the project coordinator should be notified within 2 weeks in advance of any payment.

4.7 PARTICIPANT CONTACTS

5.7.1 Organisations

Table 6. Partners Contact List.

Part. Nr.	Organisation	Address	Short Name	Country
1	ETRA Investigación y Desarrollo S.A.	C/ TRES FORQUES 147 – 46014- VALENCIA (Spain)	ETRA	ES
2	Institute Of Communication and Computer Systems	PATISSION STR. 42, 10682, ATHINA, (Greece)	ICCS	EL
3	QUE Technologies Kefalaiouchiki Etaireia	62 ANDREA PAPANDREOU STREET,, 15230, ATHENS, (Greece)	QUE	EL
4	Hypertech Kentro Epistimonikon Kai Technologikon Erevnon Aeiforias Astiki Mi Kerdoskopiki Etaireia	PERIKLEOUS 32, 152 32, CHALANDRI ATTIKIS, (Greece)	HYP	EL

5	Univerza v Ljubljani	KONGRESNI TRG 12, 1000, LJUBLJANA, (Slovenia)	UL	SI
5.1	Inovacijsko-razvojni inštitut Univerze v Ljubljani	KONGRESNI TRG 12, 1000, LJUBLJANA, (Slovenia)	IRI UL	SI
6	Diacheiristis Ellinikou Diktyou Dianomis Elektrikis Energeias Ae	PERRAIVOU 20 KALLIRROIS ODOS 5, 117 43, ATHINA, (Greece)	HEDNO	EL
7	Estabanell Y Pahisa Energia Sa	CALLE PONENT, 7, 08401, GRANOLLERS, (Spain)	EYPESA	ES
8	Estabanell Y Pahisa Impulsa	C/ REC 26, 08400, GRANOLLERS BARCELONA, (Spain)	IMPULSA	ES
9	Joanneum Research Forschungsgesellschaft Mbh	LEONHARDSTRASSE 59, 8010, GRAZ, (Austria)	JR	AT
10	Asociacion Espanola De Normalizacion	CALLE GENOVA 6, 28004, MADRID, (Spain)	UNE	ES
11	Nodes As	STRANDVEIEN 17, 1366, LYSAKER, (Norway)	NODES	NO
12	Kolektor Setup, storitve energetskega upravljanja, d.o.o.	ROVSNIKOVA ULICA 7, 1210, LJUBLJANA, (Slovenia)	SETUP	SI
13	Amibit, energetski sistemi, d.o.o.	ŠALEŠKA CESTA 2A, 3320, VELENJE, (Slovenia)	AMIBIT	SI
14	Elektro Primorska, podjetje za distribucijo električne energije, d. d.	ERJAVCEVA ULICA 22, 5000, NOVA GORICA, (Slovenia)	EP	SI
15	Avant car poslovni inzeniring d.o.o.	DUNAJSKA CESTA 140, 1000, LJUBLJANA, (Slovenia)	AVANTCAR	SI
16	Elektro Ljubljana, podjetje za distribucijo električne energije, d. d.	SLOVENSKA CESTA 58, 1516, LJUBLJANA, (Slovenia)	EL	SI
17	Independent Power Transmission Operator Sa	DYRRACHIOU STR. & KIFISOU 89, 10443, ATHENS, (Greece)	IPTO	EL
18	Blue Sun Automation Limited	ARCH.MAKARIOS III AVE.2nd Floor 2223, LATSIA, (Cyprus)	BSA	CY
19	Azienda Elettrica Di Massagno (Aem) Sa	VIA LISANO 3 6900, MASSAGNO, (Switzerland)	AEM	CH
20	Hive Power Sa	VIA CANTONALE 18, 6928 MANNO, (Switzerland)	HIVE	CH

21	Scuola Universitaria Profession Ale Della Svizzera Italiana	STABILE LE GERRE/ VIA POBIETTE 11 po box: 000, 6928, MANNO, (Switzerland)	SUPSI	CH

5.7.2 Project Coordinator Details

Table 7. Coordinator details.

OPENTUNITY Coordinator Contact Details	
OPENTUNITY Coordinator	Antonio Marqués
Organisation	ETRA I+D
Postal address	Tres Forques, 147 46014 Valencia (Spain)
Telephone	+34 96 313 40 82
Fax	+34 96 350 32 34
e-mail	amarques.etraid@grupoetra.com

5 Meetings

In order to, coordinate and manage the various activities of the OPENTUNITY project, a 2-days meeting will be held at a regular time basis, at least 2 times/year. This meeting will allocate time for the CP and PMB meetings. The PC will set up and updating (each year) a calendar of meetings –that may include dedicated WP meetings. Further project meetings may be planned whenever urgent issues will need to be resolved.

The project intends to run virtual electronic meetings whenever feasible and appropriate using information and communication technologies available as described in section 4.1. Face to face meetings will be organised by the project partners in rotation. The following subsections clarify who will make invitations, how meeting decisions are to be taken, and how meetings are to be recorded. When specific decisions must be taken in the short term, extraordinary meetings may be held by audio-conferencing, including management aspects that may have as consequence the request of an amendment to the Grant Agreement; in this case, the voting shall be held via e-mail.

In terms of attendance, and for all OPENTUNITY PMB meetings, the presence of the Technical Manager (TM) and WP Leaders (or any representatives of their respective companies), is required.

In relation to the CP meetings all partners must attend.

5.1 MEETING REQUESTS

Meetings are invited by the corresponding chair: the WP leader for a WP workshop or meeting (and even Work Package and Task leader if required), the responsible of each innovation/UC (Use Case), and the PC for a PMB meeting and a CP meeting.

The host of the meeting will provide logistics and accommodation information to the participants. In the case of meetings in a dedicated location in Brussels, the PC will organise the meeting.

The following tables summarize the main issues about preparation and organization of meetings:

6.1.1 Convening meetings

Table 8. Convening meetings.

	Ordinary meeting	**Extraordinary meeting**
Consortium Plenary	At least twice a year	At any time upon written request of the PMB or 1/3 of the Members of the CP.
Project Management Board	In the same dates of the CP.	At any time upon written request of any Member of the PMB
Other meetings		At any time upon written request of partner who chair the meeting

6.1.2 Notice of a meeting

Table 9. Notice of a meeting.

	Ordinary meeting	Extraordinary meeting
Consortium Plenary	45 calendar days	15 calendar days (10 calendar days in case of meetings by teleconference or another telecommunication means)
Project Management Board	14 calendar days	7 calendar days
Other meetings	14 calendar days	7 calendar days.

6.1.1 Agenda definition

Table 10. Agenda definition for a meeting.

	Ordinary meeting	Extraordinary meeting
Consortium Plenary	21 calendar days. Partners may add items to the agenda until 14 calendar days before the meeting	10 calendar days for an extraordinary meeting. Partners may add items to the agenda until 7 calendar days before the meeting
Consortium Plenary	7 calendar days. Partners may add items to the agenda until 2 calendar days before the meeting	3 calendar days. Partners may add items to the agenda until 2 calendar days before the meeting
Other meetings	7 calendar days. Partners may add items to the agenda until 2 calendar days before the meeting	3 calendar days or at the same time of the meeting notice. Partners may add items to the agenda until 2 calendar days before the meeting

5.2 MEETINGS SCHEDULE

Considering the project Work Plan and the budget constraints for meeting purposes, a preliminary schedule for the meetings during the entire lifetime of the project has been created. As stated in section 5, this plan will be updated on a yearly basis.

For practical reasons, the following schedule only identifies the most convenient month to host each meeting, the exact dates and venue will be decided by the PMB considering availability of partners, rooms and progress of activities.

Table 11. Meetings Schedule.

Year	Meeting	Month	
2023	CP0 (KO-VALENCIA (ES))	Jan 23	M1
	CP1	May 23	M5
	CP2	September 23	M9
2024	CP3	Jan 24	M13
	CP4	May 24	M17
	CP5	September 24	M21
2025	CP6	Jan 25	M25
	CP7	May 25	M29
	CP8	September 25	M33
2026	CP9	Jan 26	M37
	CP10	May 26	M41
	CP11	September 26	M45

5.3 VIRTUAL MEETINGS

The Project Coordinator has established a Microsoft Teams service for the management of virtual meetings. If necessary, other tools – as Skype, Webex or phone calls – can also be used.

The virtual meetings will be used for the monitoring of the project progress – i.e. biweekly PMB meetings – or specific work sessions – i.e. webinars. Some basic recommendations to be followed when organising/participating at the virtual meeting can be found hereafter:

- Virtual meetings will be limited in duration. It is recommended to avoid long meetings – no longer than 1 hour.
- All partners are requested to connect to the virtual meeting service 5 minutes in advance, to solve any potential technical problems.
- All microphones must be muted when the partner is not actively participating in the discussion.
- Any partner joining or leaving the meeting is requested to announce it, preferably through the chat tool.
- Even if the service enables the sharing of a screen, it is recommended to circulate in advance – i.e., upload to the project repository – all the material to be used during the meeting.

5.4 MEETING MINUTES

The following rules will apply to minutes:

Recording: Minutes must be recorded for every official project meeting. A rapporteur is appointed at the start of the meeting. Meeting minutes will be taken in turn in the following manner:

- **CP and PMB meeting minutes** are recorded by the chairperson of the meeting, supported by at least one designed member of a Consortium partner.
- **Other meeting minutes** are recorded by the member organisation hosting the meeting.

A copy of the minutes will be archived in the project repository.

Consolidation / Approval: As a general procedure, the draft meeting minutes will be circulated to all Members by the chairperson within 10 calendar days of the meeting.

The minutes shall be considered as accepted if, within 15 calendar days from sending, no Member has sent an objection in writing to the chairperson.

Circulation / Distribution: The chairperson will circulate the final version of the minutes all the partners that were call to the meeting and to the PC.

Content: The minutes must at least contain:

- The meeting attendance list;
- The approved meeting agenda, including date and venue;
- Decisions taken, including motivations as far as possible;
- An action list containing for each action a short description, a responsible and a time schedule (if an action was given to a person not attending the meeting, a person for contacting that person needs to be given);
- A list of agreed upcoming events;
- If appropriate, a list of related documents (appendixes).

6 Reporting Procedure

6.1 DELIVERABLE, DOCUMENTS

Any deliverable or document, including presentations, must follow the rules herein specified.

The ultimate responsibility for the quality of deliverables resides with the peer review team that must check the quality of all deliverables (not including the periodic progress reports), before the final submission to the EC.

ETRA, as Project Coordinator, will review the progress reports containing resource reporting information, as the last stage before submission to the EC.

Deliverables will normally fall within the work to be done in the work packages, and as such, a work package leader or activity leader will be assigned the production and editing of a particular deliverable.

Once the project coordinator has submitted the deliverable to the project officer, he/she will upload simultaneously the PDF version in the restricted web server. Once the document is approved by the EC, in the case of a public deliverable, the document will be made available in the public web site.

At least the project coordinator will keep an additional copy for backup and security reasons.

The deliverables will be submitted electronically to the Project Officer.

Each partner responsible of a deliverable should send (or upload in the repository) a preliminary version of the deliverable to the WP coordinator fifteen days in advance of due date (1 month in case of major revision needed)

The WP leader will forward it to the peer reviewers, who will review the document and send comments within one week using the peer review report template available at the repository. The deliverable responsible partners will modify the document accordingly and send it to the project coordinator at least 5 working days before the delivery date. The document shall contain all the logos and it will be formatted according to this project management plan recommendations.

The peer review team will review the deliverable. In case they encounter the document does not fulfil the requirements for such document, they will notify the deliverable responsible partners within one week after the request, and by means of the peer review report. Whether the deliverable responsible partner fails to deliver the document, or the document does not fulfil the objectives, the PMB will take the required actions accordingly to the provisions of the Consortium Agreement and Contract. In case the deliverable fulfils the required objectives, the project coordinator will send it to the Commission.

A deliverable template (initially referring to all deliverables except if explicitly mentioned) is available in the project repository. This template is to be used for all technical deliverables. It may also be used for non-technical reports and other project documents. The first two pages will contain information that are necessary for the identification of the document including its status, editor(s) and contributors, the companies they belong to, version history and date. For official deliverables, the title page must contain the name of the deliverable as defined in the DoA annexed to the Contract (GA).

For public deliverables, these initial pages will be substituted for public release versions, avoiding project terminology and, whenever possible, making use of pictures/ graphic design for a more attractive appearance.

For **all deliverables**, the following the following mention and disclaimer must be included:

Funded by
the European Union

This project has received funding from the

European Union's Horizon Europe research and innovation programme under the Grant agreement N° 101096333.

Additionally, all documents, must include the Copyright Statement:

6.2 PRESENTATION, POSTERS AND GRAPHICAL MATERIAL

Any presentations of contents obtained from the project may make use of 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 disseminating and presenting the project results in a coherent and effective way:

- A general presentation has been compiled to provide a quick look to the project objectives and contents. This set of slides will be updated periodically with the new results as the project advances.
- A flash animation/video will be available for presentation purposes. The animation is embedded in the web site and provides an artistic vision of the project approach.
- Two different poster templates are available in A3 format to present the project at conferences and poster sessions.
- A newsletter template is also available for dissemination. The consortium will produce a minimum of six newsletters (two per reporting period).
- A brochure template has been prepared to promote and enhance the visibility of the project.

Last but not least, the project will make use of other means, as video reports, to support the dissemination of the tests in the pilot sites. Free tools as YouTube will be employed to make those reports available to the broad public. The general rules applying to the reporting procedures in OPENTUNITY, should also be observed when preparing video material.

6.3 BIANNUAL REPORT

Every six months the coordinator will ask the partners to complete a simple form to gather the (possibly estimated) basic information on the resources spent per partner and the work performed.

The Biannual Report shall be available no later than 4 weeks after the end of the period. The project coordinator will analyse the reports, taking the requested actions in case of need.

6.4 PROJECT PERIODIC REPORT

In order to provide timely project reporting to the Commission, efficient and accurate financial data, the periodic cost statements will be aggregated by each partner in the Project Periodic Report, making use of the Participant portal and the continues reporting tool provided by the EC.

The Project Periodic Report (PPR) has to be consistent with the biannual reports provided both at technical and administrative levels.

ETRA, as project coordinator will check the data of the PPR and the data from the biannual reports. If any difference arises, the partner should correct them within two weeks from notification.

ETRA will submit the Progress Periodic Report to the EC once the information from all partners is retrieved. If a partner cannot meet the deadline established by the EC – i.e., 60 days after the end of the reporting period – the Coordinator will submit the PPR with the available information in order not to jeopardise the work of the rest of the consortium.

7 Quality Management

The main goal of project management is to provide a focused, lean but effective framework to support the partnership in achieving the scientific and technical objectives of the project. Efficient decision-making processes and swift responsiveness to changing circumstances are required. This is what the theory says, but it is not so easy to achieve since experience shows that outstanding –and very often too complex- quality management plans fail simply because they are very difficult to apply in practise.

In the following section, it is described how OPENTUNITY will put into operation -from a very pragmatic perspective-, all these principles, but taking into consideration the specific strengths and constraints of OPENTUNITY consortium.

The goal has been to define a management structure and a set of principles and procedures which, whilst being as flexible, agile and cost-efficient as possible, leave as little room as possible to subjective interpretation.

7.1 MANAGEMENT STRUCTURE

The project management structure is based in a shallow management hierarchy with transparency in the information flow in order to facilitate a team of empowered and motivated individuals to respond to the needs of new product development and large demonstrations. The goal will be to define a management structure and a set of principles and procedures which, whilst being as flexible, agile and cost-efficient as possible, leave as little room as possible to subjective interpretation.

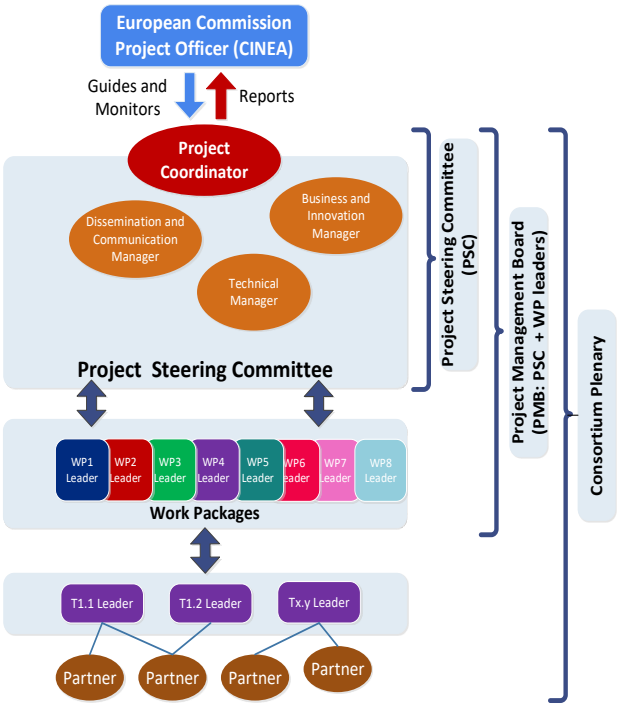


Figure 5 OPENTUNITY Management Structure

The work to be done within OPENTUNITY is structured into a set of WPs (led by WP leaders) which are at the same time divided into a set of tasks, led by Task Leaders (TL) as shown in Figure 5. The **Project Coordinator (PC)** takes responsibility for overall project management. This includes interactions with the EC on contract-related issues as well as chairing regular management meetings, set of 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, collecting administrative reports from partners and forwarding periodical reports to the Project Officer, preparing and updating the consortium agreement between the participants, administering project resources and project spending, managing the overall ethical and gender issues, etc.

The PC is supported in monitoring the project's performance, managing the technical audits, supervising the preparation of the final deliverables by the **Project Steering Committee (PSC)**. Reasons for any deviations from the project plan will be identified and the necessary corrective actions will be agreed by the PSC. Roles comprised by the PSC are the **Technical Manager (TM)**, who supports the PC in technical matters, e.g. strategic decisions regarding technical designs and implementations; the **Dissemination and Communication Manager (DCOM)** who will be responsible for all dissemination activities and direct interaction with end-users and mass media, the DCOM will lead the definition of the project website structure and functionalities, being part of the project website the project repository, i.e. a collaboration working space for the exchange, sharing and storage of project documentation (deliverables, white papers, agendas, minutes, reports, etc.). The **Business and Innovation Manager (BIM)** will be leading the business modelling activities and innovation management. **WP leaders (WPL)** are responsible of activities and objectives specified in the project plan, as well as for carrying out the respective deliverables on time, and ensuring no delays in the accomplishment of the tasks. WPLs will coordinate the activities within the WPs and will work in close cooperation with the SPLs. Together with the PSC the WPLs form the **Project Management Board (PMB)** which will convene twice a month to discuss the progress of the individual WPs. Within each work package the **Task leaders (TL)** will be the direct responsible for the day-to-day work needed to carry out the tasks related to their specific activity. Their coordination work is not subject to any additional administrative or reporting burden; instead, they will act as team leaders of all the individuals from the different partners involved in a specific task. 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 Project Coordinator.

Last but not least, all the partners are represented in the **Consortium Plenary (CP).** The CP is the key liaison between the project and partner organisations. In the CP meetings the Project Coordinator will present the project's status and plans for the next period. Representatives of the partner organisations will be able to voice their opinions and ask for more elaborated information on the progress and plans. The CP meetings shall take place twice a year and, when possible, in conjunction with the scientific and technical dissemination activities of the project.

Table 12. Project Management Board.

Project Management Board			
Project Coordinator	Antonio Marqués (ETRA)	WP3 leader	Yannis Syrimpeis (QUE)
Deputy Project coordinator (WP1 leader)	Álvaro Nofuentes (ETRA)	WP4Leader	Giorgos Pitsiladis (HYPERTECH)
Technical Manager	Aris Dimeas (ICCS)	WP5 leader	Lucas Pons (ETRA)
Dissemination Manager (WP8 Leader)	Raquel Castán (ETRA)	WP6 Leader	Janez Gregor Golja (UL)
Business and Innovation Manager	Camilla Neumann (JR)	WP7 Leader	Rebekka Gkogkou (ICCS)
WP2 Leader	Vassilis Boglou (HEDNO)	WP8 Leader	Raquel Castán (ETRA)

7.2 CONFLICT RESOLUTION

All partners of the OPENTUNITY Consortium share the perception that in order to ensure smooth project implementation, formal and pragmatic decision-making mechanisms must be in place to resolve potential disputes. Decisions regarding a technical issue of major importance, affecting the input, work content or the final outcome are expected to be made by the PSC led by the Project Coordinator and the Technical Manager. In general, all major technical issues and the related decisions are announced to all partners, even if the issue is not directly connected to their participation. Decision making for important matters within the frame of the Grant Agreement and the Consortium Agreement, especially when such decisions may affect the agreements reached in these two contracts, will be addressed by the PSC. Decision making in the administrative domain is the responsibility of the PC with the support of the PSC. Individual financial issues are primarily the responsibility of the partner itself. In accordance with the CA provisions for decision making, the main principles are: (i) All partners have the same voting rights independently of their economic and technical contribution, and; (ii) Decisions to be taken in the PSC (min. quorum 3/4 of the members) will be taken upon 3/4 of the votes.

Identification of any conflicts lies in the responsibility of each project participant. Any signs of disagreement between project participants should be solved amicably between those partners involved. If not resolved at that level, and only if it is strictly necessary, conflict resolution process must be enforced. Then Project participants will escalate the issue to higher management levels until it is resolved (to TL or WPL), consensus to solve the problem will be seek at each level. Eventually, if still not resolved, the PSC will take care of the issue applying the same rules as in the decision-making process.

7.3 QUALITY ASSURANCE

As a part of this Project Management Plan, the project will apply an internal reviewing procedure to guarantee the quality of its results. Each WP leader will be responsible for the quality of the results – especially deliverables - of his WP, which will be subject to a peer review by at least two experts, one of whom will be another WP leader – the one which will take as input the results of the WP being reviewed. Furthermore, Backup WP leaders have been nominated in order to ensure quality process enforcement and reduce risks during project implementation.

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 WPLs as well as to the peer reviewers allocated in the table at least four weeks in advance of the due date. The Project Coordinator and the Technical Coordinator 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 PSC meetings.

Peer reviewers will review the document and send comments within one week 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 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 one week before the delivery date.

In the case that 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 PSC will take the required actions according to the provisions of the consortium agreement and contract.

The peer review reports, the PMB meetings and the biannual meetings described in section 6.3 are the main tools in OPENTUNITY to monitor the progress and quality of the project.

8 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**: abandon of the participation to the project of resources with key roles.

Various combinations of these three main negative factors could also happen with the effect to increase their impact.

The level of technical risk is intrinsically reduced by the composition of the OPENTUNITY 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 or resources availability, the corrective measures will include distributing to the remaining partners the activity not fulfilled or to subcontract them to a third party (via amendment), 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 leader will have a backup leader in case the initial WP leader becomes unavailable.

For the OPENTUNITY 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 – formal definition can be found in next section.

8.1 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:

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

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

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 effect and likelihood of occurrence.

Risk Event

Risk events are those events within OPENTUNITY that, if they occur, they could result in problems in the development of the expected outputs of the project. Risk events should be defined in a way 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 OPENTUNITY 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 DoW. Two risk areas bearing on cost are:

- The risk that the cost estimates and objectives are not accurate and reasonable and
- 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:

- The risk that the schedule estimates and objectives are not realistic and reasonable and
- 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 OPENTUNITY, 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.

8.2 RISK MANAGEMENT ORGANISATION AND RESPONSIBILITIES

The OPENTUNITY Project Coordinator (**PC**) is the overall risk manager and responsible for:

- Briefing the consortium on the status of OPENTUNITY 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 OPENTUNITY.
- Provision and maintenance of the risk information form.

The **Work Package 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 Work Package 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 PSC meetings.

8.3 RISK MANAGEMENT PROCESS

This section describes the OPENTUNITY risk management process and provides an overview of the OPENTUNITY risk management approach. This section shows, in general terms, the overall risk management process that will be followed in OPENTUNITY. Each of the risk management functions shown in this section are discussed in the following paragraphs, along with specific procedures for executing them.

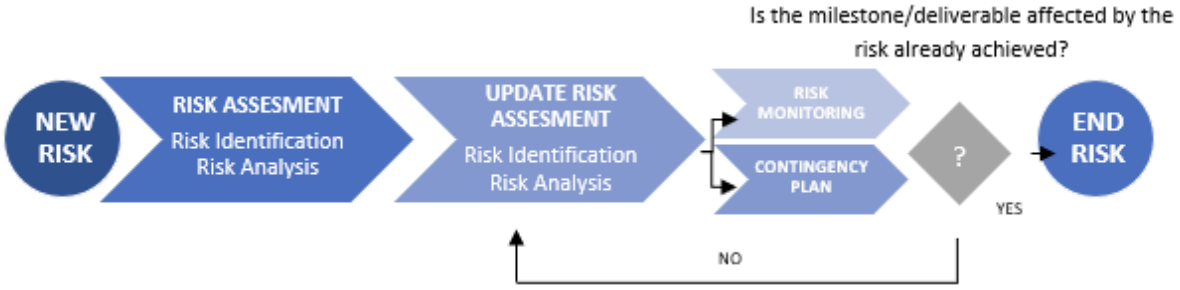


Figure 6 Risk Management Process.

9.3.1 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.

9.3.1.1 Risk Identification Process and Procedure

Risk identification is the first step in the assessment process. The basic process involves searching through the entire OPENTUNITY 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 8.4 -, 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 OPENTUNITY project, *particularly by the Work Package 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.

9.3.1.2 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 successfully implementing a process. If any are inadequate, to include the qualifications of the people, there is risk.
- Test Failure may indicate 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 OPENTUNITY. Failure to provide (push) available information actively as well as to demand (pull) required information actively will both introduce considerable risk.

9.3.1.3 Risk Analysis Process and Procedure

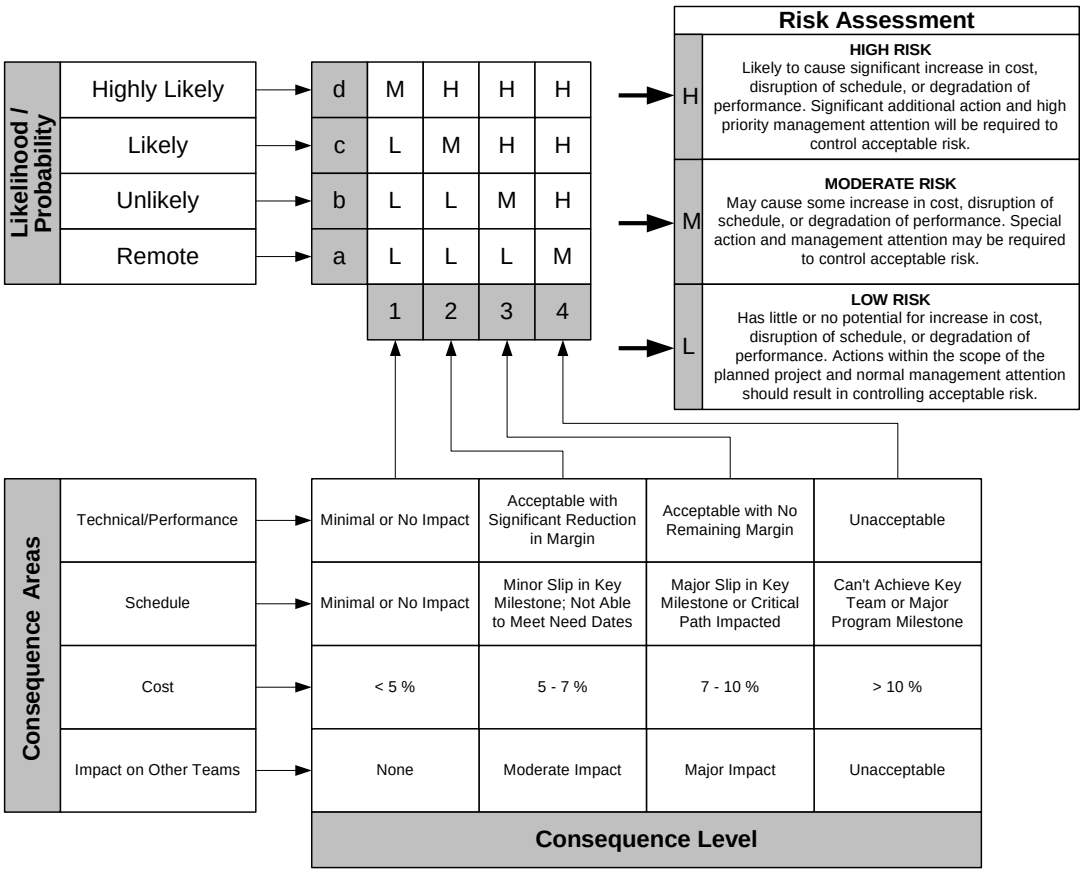
Risk analysis is an evaluation of the identified risk events to determine possible outcomes, critical process variance from known best practices, the likelihood of those events occurring, and the consequences (impact) of the outcomes. Once this information has been determined, the risk event may be rated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

The basic procedure for analysing risk comprises 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. Prioritization 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. A risk assessment matrix is used for OPENTUNITY, to provide a quantitative approach for this process.

Table 13. Risk Assessment Matrix.



The following items provide some 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 OPENTUNITY 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 (work packages). At least one of the four consequence areas needs to apply for there to be a risk; if there are no adverse consequences in any of the areas, there are no risks 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/work package – i.e. try to have the whole OPENTUNITY consortium in mind.
- **Cost**: since costs vary significantly within OPENTUNITY, the percentage criteria shown in the matrix may not strictly apply at the lower levels of the work breakdown structure. Therefore, the work package leaders may set the percentage criteria that best reflect their situation, but have to report any deviation from the matrix to the PC.
- **Impact on Other Teams (work packages)**: 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 risk.

9.3.1.4 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 is 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 caused the final assessment has to be clearly identified.

9.3.1.5 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 8.4.

9.3.2 Risk Monitoring

9.3.2.1 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 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 work packages, making it easier to determine the impact of actions on cost, schedule, and performance.

9.3.2.2 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 Work Package 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 work package under the responsibility of the work package leader.

Risks rated as **Low** are tracked within the work package 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.

9.3.3 Contingency Plan

9.3.3.1 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 risky events).
- Control (watch the environmental conditions for influences to 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).

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 work packages 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.

8.4 RISK TABLE

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

The table is structured considering the WPs in OPENTUNITY in order to create a direct connection – by default – 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. The risk table will be available at the project repository and will be update with the whole consortium inputs during the project lifetime.

The following risk table is available at the project repository. It has been updated since project start.

	Nº Risk	WP Leader or Risk manager	Date		Risk description	Type of Risk (Technical/Financial/Schedule)	Risk responsible	Milestone affected	Probability HL/L/U/R	Consequence/Impact 1=Minimum-4=Maximum				Risk Assessment	Global Risk 0=Minimum-4=Maximum	Dates and trends			Contingency Plan or link to document
			Identification	Last update						Technical Performance	Schedule	Cost	Impact on other teams			Open	Trend (+ - =)	Close	
WP1 - Management and Coordination	1	ETRA	01/01/2023		COVID (or similar) crisis will cancel dissemination activities such as presentations in conferences or the organization of	Managerial	ETRA	All (1 to 12)	1	1	1	2	1	LOW	0,3125	01/01/2023	-		Some of these activities will be done virtually, and some others will be postponed.
	2	ETRA	01/01/2023		Balancing of resources according to the actual effort needed by partners	Managerial	ETRA	All (1 to 12)	1	2	1	3	2	LOW	0,5	01/01/2023	=		Constant monitoring by coordinator. If needed, resources will be reallocated by coordinator with approval of WP leaders.
WP2 - Project Foundations	3	HEDNO	01/01/2023		Project outcomes not compatible with existing market procedures expressed through standards	Managerial	HEDNO	2;3	1	3	5	5	5	MODERATE	1,125	01/01/2023	-	x	A detailed overview on the relevant standards will be prepared at early project stage and will be considered during the development of the tools and processes.
WP3 - OPENTUNITY Energy Blockchain	4	QUE	01/01/2023	10/05/2024	Technical difficulties in integrating private keys with assets such as HVAC, etc.	Technical	QUE	13,14	2	3	3	2	1	MODERATE	1,125	01/01/2023	=		Use of gateway device connected to asset that will hold the private key of the asset and manage the communication of the asset with the DDHub.
	5	QUE	01/01/2023	10/05/2024	Interoperability issues among the different systems and components developed within OPENTUNITY	Technical	QUE	13,14	3	2	2	2	2	MODERATE	1,5	01/01/2023	=		Proper selection of components and additional resources to develop ad-hoc solutions
	18	QUE	10/05/2024		Further delays in WP3 (and WP4) developments due to the change from Blockchain to Data Spaces	Technical	QUE	13,14	1	1	4	1	3	MODERATE	0,5625	10/05/2023			Even before the submission of the Grant Agreement, the consortium has received a lot of information regarding Data Spaces and more workshops are expected.
WP4 - Technologies to boost flexibility in prosumer's environment	6	HYP	01/01/2023		Technical roadblocks to integration of energy assets to HEMS/BEMS, e.g. closed APIs.	Technical	HYP	5;8	2	3	2	3	2	MODERATE	1,25	01/01/2023	=		The necessary information and actuation capabilities can usually be obtained via purpose-designed IoT system
	7	HYP	01/01/2023		Interoperability issues among the different systems and components developed	Technical	HYP	5;8	3	2	2	2	2	MODERATE	1,5	01/01/2023	=		Proper selection of components and additional resources to develop ad-hoc solutions

	Nº Risk	WP Leader or Risk manager	Date		Risk description	Type of Risk (Technical/Financial/Schedule)	Risk responsible	Milestone affected	Probability H/L/U/R	Consequence/Impact 1=Minimum 4=Maximum				Risk Assessment	Global Risk 0=Minimum 4=Maximum	Dates and trends			Contingency Plan or link to document
			Identification	Last update						Technical Performance	Schedule	Cost	Impact on other teams			Open	Trend (+ - =)	Close	
WP5 - Technologies for grid operators	8	ETRA	01/01/2023		Interoperability issues among the different systems and components developed within OPENTUNITY	Technical	ETRA	5;8	3	2	2	2	2	MODERATE	1,5	01/01/2023	-		Proper selection of components and additional resources to develop ad-hoc solutions
WP6 - Deployment and Demonstration activities	9	UL	01/01/2023		Technical roadblocks to integration of energy assets to HEMS/BEMS, e.g. closed APIs.	Technical	UL	6;7;10	2	3	2	3	2	MODERATE	1,25	01/01/2023			The necessary information and actuation capabilities can usually be obtained via purpose-designed IoT system
	10	UL	01/01/2023		Insufficient equipment and facilities to perform all use cases.	Technical	UL	6;7;10	2	1	3	1	2	MODERATE	0,875	01/01/2023			Careful specification of the tests will be performed. The already installed equipment will be completed with the necessary equipment to run the demonstrators.
	11	UL	01/01/2023		Regulatory framework blocks demonstration activities	Technical	UL	6;7;10	1	3	4	3	3	MODERATE	0,8125	01/01/2023			The partners have extensive experience in demonstration activities and they will design procedures in advance that do not violate the regulatory framework
	12	UL	01/01/2023		Insufficient or corrupted raw measurement data collected from demonstrations to be used for the evaluation process.	Technical	UL	6;7;10	2,5	2,25	1,5	1	2	MODERATE	0,976563	01/01/2023			Use of several sources and conduct a pre-evaluation procedure of the data to identify possible corruption and repeat part of the measurements if required.
WP7 - Project evaluation and replication strategy	13	ICCS	01/01/2023		Future standards will exclude or limit the applicability.	Managerial	ICCS	9;11	1	3	3	4	3	MODERATE	0,8125	01/01/2023			The project and its results will be disseminated to the relevant standardization technical committees. Based on the project outcomes, a broad contribution to future standardization will be made.
	14	ICCS	01/01/2023		Necessity to access data from targeted stakeholders to assess the R&S (replicability and scalability) of the project	Managerial	ICCS	9;11	2	3	3	2	3	MODERATE	1,375	01/01/2023			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.
	15	ICCS	01/01/2023		Insufficient or corrupted raw measurement data collected from demonstrations to be used for the evaluation process.	Technical	ICCS	9;11	2,5	2,25	1,5	1	2	MODERATE	0,976563	01/01/2023			Use of several sources and conduct a pre-evaluation procedure of the data to identify possible corruption and repeat part of the measurements if required.
WP8 - Knowledge Transfer	16	ETRA	01/01/2023		COVID (or similar) crisis will cancel dissemination activities such as presentations in conferences or the organization of workshops. It also may	Managerial	ETRA	11	1	1	1	1	1	LOW	0,25	01/01/2023	-		Some of these activities will be done virtually, and some others will be postponed.
	17	ETRA	01/01/2023		Future standards will exclude or limit the applicability	Managerial	ETRA	11	1	3	3	4	3	MODERATE	0,8125	01/01/2023			The project and its results will be disseminated to the relevant standardization technical committees. Based on the project outcomes, a broad contribution to future

9 Dissemination

The following sections provide the basic procedures and information regarding Dissemination in OPENTUNITY. The complete analysis of the dissemination plans will be covered at D7.1 Plan for Exploitation and dissemination of results.

9.1 PUBLICATION PROCEDURE

In order to coordinate the participation of partners in dissemination activities and conferences (both in Europe and outside Europe) and properly notify the Commission of any event, the following criteria apply for the consideration for such activities:

- It is essential that adequate time for considering the publication or participation in an event is given. Therefore, the notification may be circulated as soon as possible and no less than **30 days in advance** of the event. The notification may be submitted to the coordinator making use of the spreadsheet available at the repository. It is advised to upload relevant Call for Papers (CFPs) asap in the repository \WP7\CFP in a Year-Month-Day_Event format (where the first part indicates the deadline for papers submission).
- The application may include, if possible, a copy of the conference program together with a rationale describing the conference and explaining the proposed role of OPENTUNITY – i.e. networking, presentation of results, poster session, etc.
- Any partner in the consortium can publish its own results without previous permission, it only needs to notify the dissemination manager and fulfil the EC requirements hereafter identified. It is however preferred that common publications arise as result of cooperation among the partners.
- Unless the Commission requests otherwise, any notice or publication by the contractors about the project, including at a conference or seminar, must specify that the project has received research funding from the European Union's Horizon Europe Research and Innovation Programme and may display the European Commission. When displayed in association with a logo, the European emblem should be given appropriate prominence (contract article 17). A pre-print or an abstract of the paper should be sent to the coordinator with the application.
- Any notice or publication by the partners, in whatever form and on or by whatever medium, must specify that it reflects only the author's view and that the Community is not liable for any use that may be made of the information contained therein (contract article 17).
- If a result is shared by several partners, the publication needs the approval of all the partners involved. The notification submitted to the PC will have to be circulated to all the partners involved. If there is no response, approval is granted.
- Participants may provide to the coordinator, a copy of the concise written report produced for the project within two weeks of the event.
- The attendee may provide, where possible, a copy of the Conference proceedings or a suitable extract to the coordinator.

- The provisions of the Contract and the Consortium Agreement should be taken into account in dissemination of results of the project.
- A quote like the following one should be included in any dissemination document produced by a partner:
- The authors would like to thank for their support the partners of the European Commission co-funded HE project OPENTUNITY (101096333).
- The cost and frequency of the conference attendance should always be minimised and kept in proportion to the size and resources of the Project.
- Conferences out of the EU territory require previous approval of the EC.

9.2 PROJECT PUBLICATIONS AND COMMUNICATIONS

All project publications and communications (scientific/technical or not) regardless of their consideration of "dissemination" or "communication" must include the following mention and disclaimer:

Funded by the European Union

This project has received funding from the

European Union's Horizon Europe research and innovation programme under the Grant agreement N° 101079888.

This [insert type of activity] 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

All sorts of external communication are encouraged to promote the OPENTUNITY project and its results. The dissemination strategy of OPENTUNITY is streamlined through a Dissemination Master Plan. The person leading the OPENTUNITY Dissemination and Communication activities (WP8) is:

Dissemination Manager (DM): Raquel Castán (ETRA).

Provisions are made to provide coordination, consistency and quality of publications for the benefit of the project's reputation. A second purpose is to give visibility within the project to any public relation activities of the partners.

Any evidence of a dissemination activity must be stored on the project repository (i.e. "Full Paper" version and presentation material) and uploaded in the Participant Portal.

In general, the dissemination activities, including but not restricted to publications and presentations shall be governed by Article 17 of the Grant Agreement. The CA defines also the dissemination rules in section 8.4. Specifically, partners will be responsible for including the EU emblem, acknowledgement of EU funding, and disclaimers.

9.2.1 Press Releases and other media contacts.

All partners can send out press releases on their own markets.

Press releases should be done to cover all major milestones of the project. As DM, ETRA will coordinate the press releases for the milestones. Partners willing to issue their own press releases must contact first with the DM in order to cross-check if something is already available on the subject.

For all other public project related communication, the use the OPENTUNITY logo and design is mandatory. When it comes to IPR, all publication must follow the Grant Agreement and the Consortium Agreement.

9.2.2 Image rights and quality.

Notes on image quality and image rights needs to be paid attention at all publication activities. The general recommendation for the image quality is shown in the following table. In the case of picture rights, the origin of the picture as well as the creator must be mentioned. During the project, the author is always responsible for obtaining appropriate image rights, whether for printing publications or web-based publications. The general recommendations are:

Table 14. Image rights and quality.

Quality	Images for publications, 300 dpi (Size 100 x 150mm) Images for web, 160 dpi (Size 60 x 60mm)
Rights	© Institution/Company or author, origin

A specific colour palette will be provided as part of D8.1.

9.3 OPEN ACCESS TO OPENTUNITY SCIENTIFIC PUBLICATIONS

10.3.1 Introduction to Open Access to scientific publications in Horizon Europe

The official "**Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020**" (**no HORIZON Europe guidelines published yet**) explain what is considered Open Access, and which the ways to achieve it are:

http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

The following extract introduces Open Access, as well as "green" and "gold" modalities of open access provision:

10.3.2 What is open access (OA)?

Open access can be defined as the practice of providing on-line access to scientific information that is free of charge to the end-user and that is re-usable. In the context of research and innovation, 'scientific information' can refer to (i) peer-reviewed scientific research articles (published in scholarly journals) or (ii) research data (data underlying publications, curated data and/or raw data).

(i) **Open access to scientific publications** refers to free of charge online access for any user. Legally binding definitions of 'open access' and 'access' in this context do not exist, but authoritative definitions of open access can be found in key political declarations on this subject. These definitions describe 'access' in the context of open access as including not only basic elements such as the right to read, download and print, but also the right to copy, distribute, search, link, crawl, and mine.

There are two main routes towards open access to publications:

A. **Self-archiving** (also referred to as 'green' open access) means that the published article or the final peer-reviewed manuscript is archived (deposited) by the author - or a representative - in an online repository before, alongside or after its publication. Repository software usually allows authors to delay access to the article ('embargo period').

B. **Open access publishing** (also referred to as 'gold' open access) means that an article is immediately provided in open access mode as published. In this model, the payment of publication costs is shifted away from readers paying via subscriptions. The business model most often encountered is based on one-off payments by authors. These costs (often referred to as Author Processing Charges, APCs) can usually be borne by the university or research institute to which the researcher is affiliated, or to the funding agency supporting the research. In other cases, the costs of open access publishing are covered by subsidies or other funding models.

(ii) **Misconceptions about open access to scientific publications.** In the context of research funding, open access requirements in no way imply an obligation to publish results. The decision on whether or not to publish lays entirely with the project partners. Open access becomes an issue only if publication is elected as a means of dissemination.

Moreover, OA does not interfere with the decision to exploit research results commercially, e.g., through patenting. Indeed, the decision on whether to publish open access must come after the more general decision on whether to publish directly or to first seek protection[1].

10.3.3 OPENTUNITY Open Access to publications contractual baseline

The Open Access to publications contractual baseline is provisioned under Article 17 of the OPENTUNITY Grant Agreement - i.e., scientific publications in the frame of OPENTUNITY must at least comply with Article 17's provisions:

Open science: open access to scientific publications

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- *at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications.*
- *immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g.CC BY-NC, CC BY-ND) and*
- *information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.*

[1] More information on this issue is available in the European IPR Helpdesk fact sheet "Publishing vs. patenting"

10.3.4 OPENTUNITY Open Access Publication strategy

Partners will provide Open access to all scientific publications (free of charge online access for any user) using **Self-archiving ('green' open access).** This is, using one or more 'green' Open Access repositories.

In any case, the 'green' Open Access repositories used must be at least accessible from **OpenAIRE** [2], the **repositories listing** of the European Commission.

D1.2 will identify the 'green' open access repositories to be used – depending on the availability of already existing **institutional repositories by partners.** As default repository, **European Commission's Zenodo** [3] will be used**:** Zenodo is the "orphan" repository provided by European Commission for this purpose.

In the case that one or more partners publish a scientific publication in 'gold' open access journals, are these journals that offer open access against payment from the authors, such publications shall also be self-archived in one of the above listed 'green' open access repositories.

10.3.5 Procedure to ensure Open Access to peer-reviewed scientific publications

Foreword:

This procedure aims to complement, with practical information for researchers, the requirements of the European Commission on Open Access of scientific publications contained in the official *Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020* [4]

It also acknowledges the instructions added in the Open Access section of the H2020 online manual [5], from which reference to a model amendment to publishing agreement has been introduced to underline the importance of negotiating embargo periods with publishers to meet the expectation of the EC of maximum 6 months of embargo period in Green Open Access model.

Disclaimer:

This procedure does not substitute the above official guidelines, and these must be taken into account during the whole process of publishing (they include details, technical requirements, definitions, further recommendations…, that need to be followed and are not contained in this procedure);

This procedure is based on and derives from interpretation of the above referenced official guidelines as published on 25 August 2016 as version 3.2 and the Open Access section of the H2020 online manual up to 03/11/2017; it may need to be updated in further versions of the guidelines or other guiding documents on open Access are provided by the European in the future.

Scope of the open access obligation:

Peer-reviewed articles are the main focus of the open access obligation. Other formats as monographs, conference proceedings, book chapters, or any other type of outputs are encouraged to be open access, although they are not the main focus of the mandate. [6]

Selecting/negotiating with publishers:

Thus, before submitting a paper to any journal or congress, etc., it is necessary to:

1st: Know if the contract (copyright license agreement) with the publisher permits us to open the publication, immediately or within 6 months; and in case that there is an

embargo period allowing us to open the publication not immediately but in a given time not higher than 6 months, know which is the exact date when the embargo period starts (The OpenAIRE helpdesk team says: "If there is no explicit information from the editor regarding the embargo to the hardcopy, generally and by default the embargo period starts on the 1st online publishing.".

"To provide support concerning compliance with Horizon 2020 embargo periods the Commission offers a **model amendment to publishing agreement** [7], which are often signed between authors and publishers. This model is not mandatory but reflects the obligations for the beneficiary under the H2020 grant agreements. It can be supplemented by further provisions agreed between the parties, provided they are compatible with the Grant Agreement. The Commission/Agency takes no responsibility for the use of this model" [8].

2nd: Know which version of the paper it is allowed to make open:

- "Pre-print" version (it is a draft paper as it is before the peer review). **The European Commission does not accept pre-print versions as open access publications**
- "Accepted" or "post-print" version (final peer-reviewed manuscript accepted for publication). The EC accepts it
- "Published" or "editor's" version (it is the version as published by the editor, i.e., designed with the layout of the journal or book published). The EC accepts it

3rd: Know if there is any fee ("2 processing charges'") ** that the author has to pay to the editor to be able to open the publication. **This cost is eligible in Horizon Europe

4th: Know is there is any other clause in the contract that may affect in any way Open Access publishing.

5th: Keep the agreement and make it available to the co-authors as well as the final peer reviewed version of the publication.

"In all cases, the Commission encourages authors to retain their **copyright** and grant adequate licences to publishers. Creative Commons offers useful licensing solutions. This type of licence is a good legal tool for providing open access in its broadest sense [9].

9.4 OPENTUNITY WEB SITE

10.4.1 Web site public area

It includes a description of the Project according to the public information of the DoA.

The proposed sections are the following ones:

- Project. This section is the home page and contains a general and brief description of the project including three subsections:
  - Project objectives.
  - Consortium.
  - Work plan.
- News. This section will allow the publication of existing news directly related to OPENTUNITY objectives and technologies.

- Events. This section will contain all the events internal and external to the project that will keep a tight relation with OPENTUNITY, including the project workshops. Before a workshop takes place, the section will contain the workshop agenda, the registration form and the logistics information. After the workshop, the agenda will contain links to each one of the presentations made. There will be one section per workshop. This section will be fed with the table in Annex C.
- Downloads. This section will make available all OPENTUNITY public documents. It will present four sections:
    - OPENTUNITY brochure. The electronic version of the brochure will be available in the website in pdf format.
    - OPENTUNITY presentation. A very brief presentation on OPENTUNITY context, objectives, concept and contact details, in pdf format will be available for quick dissemination of the project.
    - Public deliverables. All the project public deliverables will be published in this section duly secured.
    - Technical papers. All the technical papers published by the OPENTUNITY consortium, in the context of the project, will be published in this section.
- Related Links. Links of interest for the project.
- User group. This section will allow the creation of OPENTUNITY User Group. The members of the user group will be invited via e-mail to the project workshops and will also receive the electronic project newsletters. The section will include the electronic form to become a member of the user group.
- Contact OPENTUNITY. Coordinator brief profile and contact details.

10.4.2 Web site public area

The web site counts with a private area accessible to the members of the consortium that enables the publication of events and news, and to upload publications and deliverables. The management of this area is responsibility of the Dissemination Manager.

In addition, as described in section 5.4, each partner may access a project repository where documents, deliverables, templates, etc. are stored and exchanged.

In order to access the project repository, each project participant has a username and a password, providing unrestricted access to all the folders and files.

These usernames and passwords must be securely safeguarded by all the partners, and not provided in any mean to any third party or organization not contractually bound to the project.

In the case, by error, accident or any other situation, the user's name and password are lost or known by any person or entity not related to the project, the partner who knows it must inform immediately the rest of the Consortium, by means of an e-mail to the PC, so the parameters are changed urgently, in order to warranty the confidentiality and any possible IPR from the partners or project itself.

10 AMENDMENT

The consortium requested an amendment of the Grant Agreement for OPENTUNITY. The motivation for the different modifications can be found hereafter:

1. **Disengagement of Energy Web Dev Hub from the OPENTUNITY project. Energy Web Dev Hub to be replaced by QUE Technologies.**

Due to the disengagement from the project of the partner (Energy Web Dev Hub) who should provide a Blockchain-based technology for data sharing and storing, the OPENTUNITY consortium aims to leverage the technologies brought by more recent and specific energy data spaces projects instead of using blockchain. This, in fact, secures the final aim of the project, i.e. to have a distributed, fast and reliable energy dataspace. For that reason, the consortium approached QUE Technologies to provide an alternative digital tool that can satisfy the needs of the OPENTUNITY project as they are laid out in the DoA. The proposal was to replace the blockchain-based solution with one based on dataspace technologies.

Energy Web Foundation is claiming no resources and the budget was transferred to QUE Technologies.

2. **To include Institute for Innovation and Development of University of Ljubljana (IRI UL) as an affiliated entity of the partner University of Ljubljana.**

Institute for Innovation and Development of University of Ljubljana (IRI UL) is a non-profit institute and an associate member of UL. It was established in Ljubljana on 20. 7. 2007 with the objective to carry out interdisciplinary scientific research and innovation projects. The Rector of UL is the president of the management board of IRI with the veto power over any management decisions.

Regarding the involvement of the Institute for Research and Innovation of University of Ljubljana (IRI) as an affiliated entity to UL in the OPENTUNITY project, the inclusion of IRI is in line with the strategic plan of UL to integrate the EU research activities initiated at its various member faculties at IRI. IRI is already active in the European research programs (PIC 997984210, Validated). We are also enclosing the legal documents (in Slovenian), which show that IRI is partly owned by UL, and that the Rector is the head of the Management Board of IRI UL.

IRI UL, as an associated member of UL is uniquely positioned to join the OPENTUNITY project as it employs senior research staff with solid experience in European and international research. Researchers employed at IRI UL will assume research and dissemination activities in various tasks in the OPENTUNITY project complementing those of UL. Due to good cooperation between the teams of UL and IRI UL on institutional as well as personal level, the OPENTUNITY project will reap benefits resulting in increased quality of work and efficiency of its execution.

10.1 IMPACT OF THE AMENDMENT AND NEXT STEPS

The data space implementation that will be reused, extended and adapted for the purposes of OPENTUNITY natively includes Decentralised Identifiers (DIDs) and Verifiable Credentials (VCs) as fundamental building blocks. Self-Sovereign Identities and consequently Decentralised Identities are core constituents of identity management in GAIA-X X [10] (and IDSA [11] to great extent). Similarly Verifiable Credentials provide a description and claims about the data space participants as well as service and/or data offerings of an entity. In data space terminology, these are called Self-

Descriptions and also constitute core elements that enable data/ service discovery by third-parties via the data space Catalogue.. The data space implementation that is currently developed in the Data Cellar project [12] (OPENTUNITY's one will be based on this project) is fully compliant with IDSA and GAIA- principles and natively includes all these technologies.

Beyond the control plane of data sharing, data space technologies offer additional advantages compared to the currently prescribed blockchain-based implementation. Namely they also support and enable the data plane of data exchange. **Data spaces facilitate the necessary functionalities to ensure syntactic interoperability between sovereign data providers and consumers and establish the communication links between the various technologies**. In the OPENTUINTY context, the envisaged data space implementation will sit between the local IT ecosystems of the demonstration sites and will enable data exchange, especially for use cases that necessitate data from various types of actors (e.g. aggregators, market operators, building managers).

The "migration" from a Blockchain-based ecosystem to a Data Space-based ecosystem has implied that WP3 and WP4 delays their end from M30 to M34, in order to be able to deliver the outputs in good quality. According to the preliminary conversations within the consortium, **the Data Space will be focused on providing services to the Use Cases linked to WP4 technologies** (WP5 will, in principle, not be linked with the Data Space) **and the first next steps will be to decide how to establish this new approach without affecting so much the current architecture of the project.** After this crucial point is clear, the actual development of WP3 technologies will start and WP4 technical leaders will adapt their technologies to take advantage of the added value of the Data Space.

11 References and acronyms

11.1 References

[1] Available: https://www.alfresco.com.

[2] Available: http://www.openaire.eu.

[3] Available: http://zenodo.org/.

[4] Available: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf.

[5] Available: http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/open-access_en.htm.

[6] Available: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf .

[7] Available: http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/oa-pilot/h2020-oa-guide-model-for-publishing-a_en.pdf.

[8] [En línea]. Available: http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-data-management/open-access_en.htm .

[9] Available: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf.

[10] [En línea]. Available: https://gaia-x.eu/.

[11] [En línea]. Available: https://internationaldataspaces.org/.

[12] [En línea]. Available: https://datacellarproject.eu/.

11.2 Acronyms

Table 15. Acronym

Acronym List	
APC	Author Processing Charges
CFP	Call for Papers
CP	Consortium Plenary
DCOM	Dissemination and Communication Manager
DMP	Data Management Plan
DoA	Description of Action
FAIR	Findable, Accessible, Interoperable and re-usable
HLU	High Level Use case
OA	Open Access
PC	Project Coordinator
PPR	Project Periodic Report
PSC	Project Steering Committee
TM	Technical Manager
WP	Work Package