



Orchestrating an interoperable sovereign federated Multi-vector Energy data space built on open standards and ready for GAia-X

D7.2 Communication, exploitation, standards and engagement activities

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List of Acronyms

Abbreviation /acronym	Description
AI	Artificial Intelligence
BDVA	Big Data Value Association
BFMULO	Matrix to record requests and expectations of exploitation containing IPR's Background/Foreground/Manufacturing/Using/Licensing/Other information
BM	Business Models
CA	Consortium Agreement
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CG-SG	Coordination Group on Smart Grids
CG-SM	Coordination Group on Smart Meters
COO	Chief Operating Officer
DAIRO	Data, AI and Robotics
DIGIT	Directorate-General for Informatics
DoA	Description of the Action
DSBA	Data Spaces Business Alliance
DSSC	Data Spaces Support Centre
EBDVF	European Big Data Value Forum
ECMA	European Computer Manufacturers Association
EN	European Standards
ESO	European Standards Organization
ETSI	European Telecommunications Standards Institute
EU	European Union
GXDCH	Gaia-X Digital Clearing House
IDSA	International Data Spaces Association
IEC	International Electrotechnical Commission

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Abbreviation /acronym	Description
IEEE	Institute of Electrical and Electronics Engineers
IEEE-SA	Institute of Electrical and Electronics Engineers Standards Association
InGDS	International Green Data Spaces
IoT	Internet of Things
IP	Internet Protocol
IPC	International Patent Classification
IPR	Intellectual Property Rights
ITU	International Telecommunication Union
IWA	International workshop agreement
KER	Key Exploitable Result
KPI	Key Performance Indicator
OASC	Open & Agile Smart Cities
POS	Point of Sales
R&D	Research & Development
SCEWC	Smart City Expo World Congress
SDO	Standards Developing Organization
US	United States
W3C	World Wide Web Consortium
WCAG	Web Content Accessibility Guidelines
WG	Working Group
WP	Work Package

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Executive Summary

D7.2 "Communication, exploitation, standards and engagement activities" is reporting on the activities devoted to maximising the impact of OMEGA-X in first year of the project: the overall dissemination achievements and on the status of the business related tasks that have started already.

Regarding the Communication and dissemination part this deliverable is based on D7.1 which was made in M6 of the project. In Year 1 of the project, OMEGA-X's marketing and communication plan was established and the strategy focused on connecting with the stakeholders, building awareness and a community, and providing the tools and channels to effectively disseminate project progress such as:

- The project website;
- Events Participation and Organisation;
- Marketing Materials;
- Social Media and Newsletters.

During these first 12 months the established channels have been used to create awareness of the project and its goals and ambitions, as a preparation basis of realisations and results within the project such as the architecture, upcoming first release of the Data Space federated implementation and marketplace and use case implementation.

2 business related tasks that will reinforce the project's impact have been kicked-off this first year:

- Task T7.4, "IPR, Exploitation, business plans" defined the activities to perform, to facilitate the identification of Key Exploitable Results and to characterize them. Several calls and two workshops will be organized to facilitate the identification process.
- Task T7.5, "Contribution to standards and data space initiatives", presents the standardisation activities of the project, providing a list of relevant standards that have been identified by the consortium. In the coming months, OMEGA-X will assess the potential impact of these standards and provide recommendations to major standardisation bodies based on its research.

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1 Introduction

1.1 Purpose of the document

This deliverable serves as a continuation to D7.1 “Communication and Dissemination plan” which provided a framework for maximising the impact of the work and results of OMEGA-X as described in the project Description of the Action (DoA) [1]. D7.2 is providing the evolution and results of the communication plan and dissemination methods that took place in the first year of the project. It includes the work as well initiated in T7.4 and T7.5

1.2 Relation to another project work

The outputs, results and deliverables of the different work packages/tasks, for example the OMEGA-X collaboration with BRIDGE (T2.2), use cases (T3.1), the service and data marketplace (T5.3), the architecture (T3.4), data governance models (T4.5) and interoperability of the data and solutions (T4.3), are important inputs for a successful dissemination and communication of the project. Dissemination will increase in intensity as the project develops.

1.3 Structure of the document

This document is structured in 5 major chapters:

Chapter 2 outlines the communication and dissemination methodology, gives an overview of the communication tools, materials, the used communication channels and provides an overview of the conferences and events with OMEGA-X involvement.

Chapter 3 shows the preparatory works within T7.4 IPR, exploitation and business plans

Chapter 4 provides the overview of the status within T7.5 contribution to standards and data space initiatives

Chapter 5 provides the overall conclusions of the deliverable.

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2 Communication and Dissemination

2.1 Dissemination methodology

2.1.1 Internal working methodology

In the first year of the project the communication channels matching best the defined stakeholder groups were defined and activated. They serve as main dissemination points for the project, reaching out to project stakeholders and the wider public. Two main communication channels were used for the OMEGA-X project:

1. online channels, such as the website, social media channels and the upcoming newsletter
2. events (physical/remote/hybrid) such as workshops, conferences and meetings where printable materials could be used (in the case it was organised in physical form).

The materials, tools and channels that were used to explain and promote the project are explained from paragraph 2.2 onwards.

2.1.2 Impact indicators

In Table 1, impact indicators comparing the progress in Year 1 with the initially pinpointed in D7.1 of the project, are presented.

Table 1: Quantitative KPIs Y1 real vs. target.

Communication & Dissemination Support and Channels		KPI target	
		Target M12	Real
Project documentation	Leaflets	1	1
	Posters	1	1
	Reference project presentations	1	1
Publications	Newsletter	4	launch April 2023
	Scientific articles and conference proceedings	2	1
	Videos	1	3
	OMEGA-X Academy	Setup	To be started
Web and social media	Project website (visitors/month)	300	328 visitors (02/23) total 1.014 (till 20/3/23)
	LinkedIn (monthly interactions)	1.000	437 unique visitors & 208 followers (till 20/3/23), 385 impressions/month (20/3/23)
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Communication & Dissemination Support and Channels		KPI target	
		Target M12	Real
	Twitter prints (monthly interactions)	5.000	4.874 (02/23) 204 followers (20/03/23)
Events	Fairs (booth), workshops and/or conferences attended	5/year	13
	Organized workshops	3 (during project duration)	0

OMEGA-X dissemination grows together with the advancement of the project. The infographic below shows the numbers reached for different dissemination activities.



Figure 1: Infographic impact indicators Year 1 of the project

2.2 Communication tools and materials

2.2.1 OMEGA-X flyer

In the first year of the project, in October, the flyer as illustrated in Figure 2 has been produced and made available to all project partners via the shared repository. The purpose of this flyer

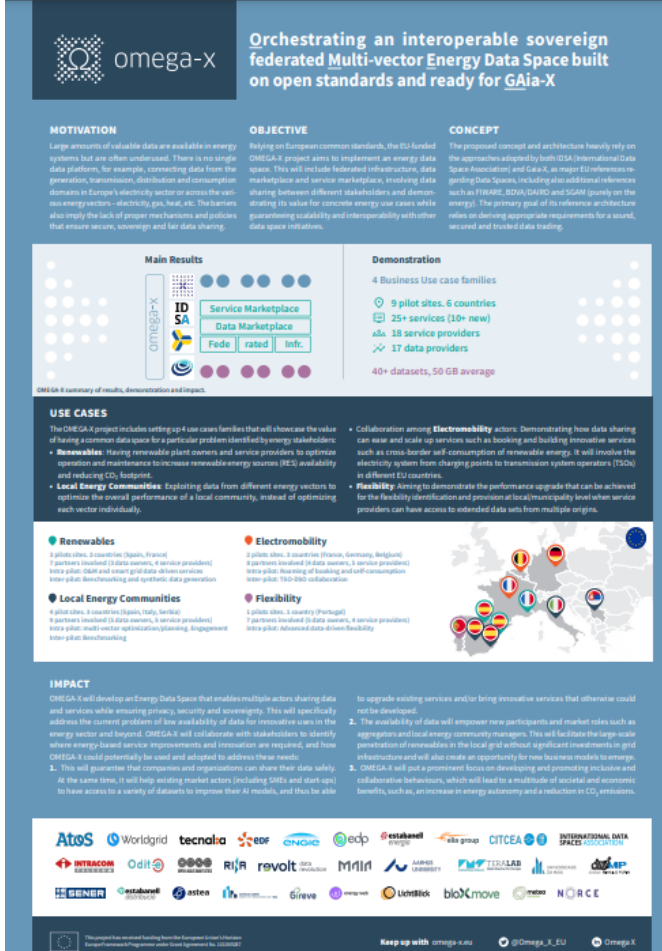
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was to provide general information and generate a first interest regarding the project, its objectives, impact and a first overview of the foreseen use cases.

This A4 flyer is available in 3 formats: in low resolution (for digital exchange for example in emails), in high resolution (for professional off-set printing) and in a low resolution version without the blue background (for office printing purposes).

Partners can use and print the leaflet to create awareness and interest in OMEGA-X on fairs, conferences and other physical or online events.

The leaflet has been used during the Connected Smart & Sustainable Cities and Communities Conference in Brussels on January 18 and the IoT Solutions World Congress on February 9th and 10th in Barcelona.



Orchestrating an interoperable sovereign federated Multi-vector Energy Data Space built on open standards and ready for GAIA-X

MOTIVATION
Large amounts of valuable data are available in energy systems, but are often unutilized. There is no single data platform, for example, connecting data from the generation, transmission, distribution and consumption domains in Europe's electricity sector or across the various energy vectors – electricity, gas, heat, etc. The barriers also imply the lack of proper mechanisms and policies that ensure secure, sovereign and fair data sharing.

OBJECTIVE
Relying on European common standards, the EU-funded OMEGA-X project aims to implement an energy data space. This will include federated infrastructure, data marketplace and service marketplace, involving data sharing between different stakeholders and demonstrating its value for concrete energy use cases while guaranteeing scalability and interoperability with other data space initiatives.

CONCEPT
The proposed concept and architecture heavily rely on the approaches adopted by both IIDA (International Data Space Association) and Gaia-X, as major EU reference regarding Data Spaces, including also additional references such as FIWARE, EDNA, DAVID and SGAM (purely on the energy). The primary goal of its reference architecture relies on deriving appropriate requirements for a sound, secured and trusted data trading.

Main Results
OMEGA-X
ID SA
Service Marketplace
Data Marketplace
Fede | rated | Inf.

Demonstration
4 Business Use case families
9 pilot sites, 6 countries
25+ services (10+ new)
18 service providers
17 data providers
40+ datasets, 50 GB average

USE CASES
The OMEGA-X project includes setting up 4 use cases families that will showcase the value of having a common data space for a particular problem identified by energy stakeholders:

- Renewables:** Having renewable plant owners and service providers to optimize operation and maintenance to increase renewable energy sources (RES) availability and reduce CO₂ footprint.
- Local Energy Communities:** Exploiting data from different energy vectors to optimize the overall performance of a local community, instead of optimizing each vector individually.
- Electromobility:** Collaboration among **Electromobility** actors: Demonstrating how data sharing can ease and scale up services such as booking and building innovative services such as cross-border self-consumption of renewable energy. It will involve the electricity system from charging points to transmission system operators (TSO) in different EU countries.
- Flexibility:** Aiming to demonstrate the performance upgrade that can be achieved for the flexibility identification and provision at local/municipality level when service providers can have access to extended data sets from multiple origins.

Renewables
3 pilot sites, 3 countries (Spain, France)
7 partners involved (3 data owners, 4 service providers)
Intro pilot: Data-led and energy-grid data-driven services
Intro pilot: Benchmarking and synthetic data generation

Local Energy Communities
4 pilot sites, 3 countries (Spain, Italy, Serbia)
8 partners involved (3 data owners, 5 service providers)
Intro pilot: multi-vector optimization/planning, engagement
Intro pilot: Benchmarking

Electromobility
3 pilot sites, 3 countries (France, Germany, Belgium)
8 partners involved (6 data owners, 2 service providers)
Intro pilot: Booking of booking and self-consumption
Intro pilot: TSO-DSO collaboration

Flexibility
4 pilot sites, 3 country (Portugal)
4 partners involved (3 data owners, 1 service provider)
Intro pilot: Advanced stop-driven flexibility

IMPACT
OMEGA-X will develop an Energy Data Space that enables multiple actors sharing data and services while ensuring privacy, security and sovereignty. This will specifically address the current problem of low availability of data for innovative uses in the energy sector and beyond. OMEGA-X will collaborate with stakeholders to identify where energy-based service improvements and innovation are required, and how OMEGA-X could potentially be used and adopted to address these needs.

- This will guarantee that companies and organizations can share their data safely. At the same time, it will help existing market actors (including SMEs and start-ups) to have access to a variety of datasets to improve their AI models, and thus be able to upgrade existing services and/or bring innovative services that otherwise could not be developed.
- The availability of data will empower new participants and market roles such as aggregation and local energy community managers. This will facilitate the large-scale penetration of renewables in the local grid without significant investments in grid infrastructure and will also create an opportunity for new business models to emerge.
- OMEGA-X will act as a government focus on developing and promoting inclusive and collaborative behaviours, which will lead to a multitude of societal and economic benefits, such as, an increase in energy autonomy and a reduction in CO₂ emissions.

Partners: AtoS, Worldgrid, tecnalia, eef, ONDRI, edp, estabene, alio group, CITCEA, INTERNATIONAL DATA SPACE, INTRACOM, Odit, Rijn, revolt, Myri, LARIB LABOURIT, TUDILAB, daf, GENER, estabene, astea, Gireve, LICHTBlick, bioXmove, NORCE

Keep up with [omega-x.eu](#) @Omega_X_EU Omega X

Figure 2: OMEGA-X leaflet

2.2.2 OMEGA-X poster

Also in October a poster was made for the dissemination at events or at the offices of partners. Partners can print the poster in A3 format. The file was made available via the shared repository.

The poster has been used during the SINERGY event in November 2022 in Belgrade (in size A0).

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Figure 3: OMEGA-X poster

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2.2.3 OMEGA-X rollup

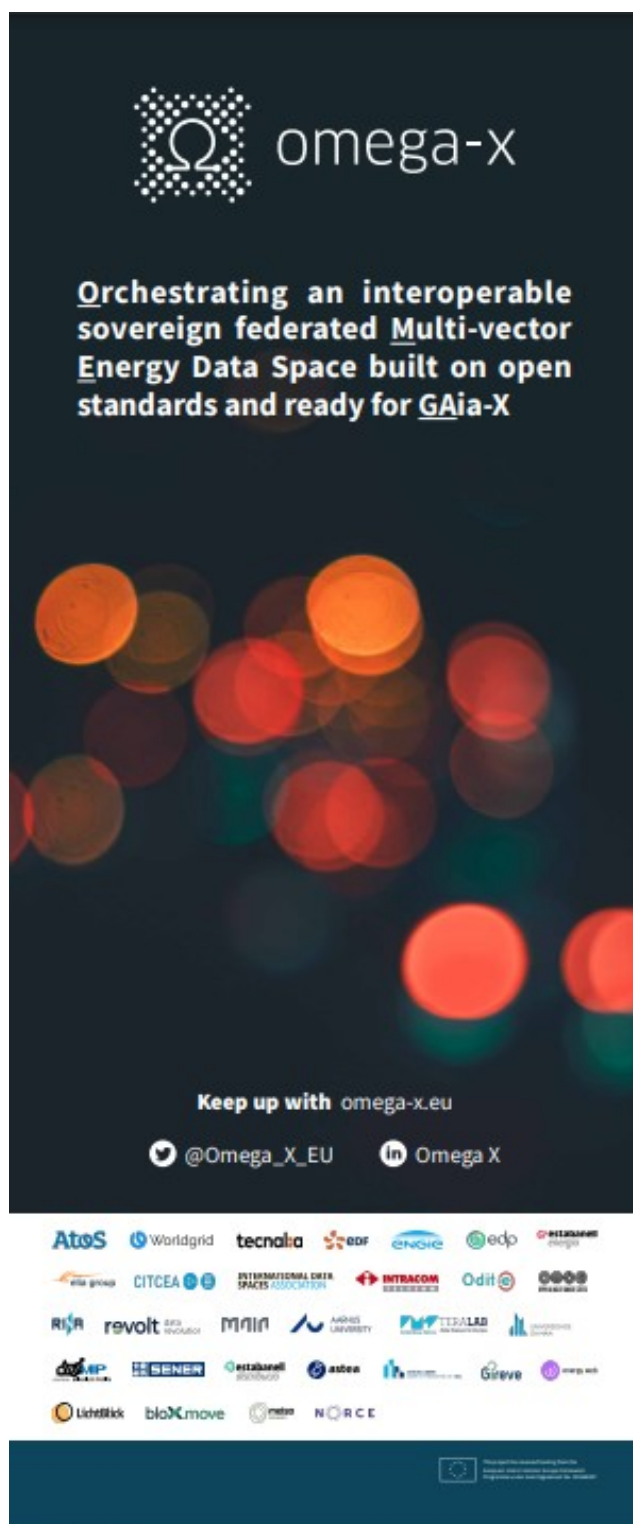


Figure 4: OMEGA-X roll-up

In October a roll-up has been designed to be used for the promotion of the project. The file was made available via the shared repository and to be printed in size 85cm x 200cm.

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This roll-up has been used during Connected Smart & Sustainable Cities and Communities Conference in Brussels on January 18.

It was also used during the second plenary meeting of the project in Paris-Saclay on January 24-25 to produce a group image for dissemination purposes.

2.2.4 OMEGA-X presentation templates

Together with the other communication materials, in November an updated version of the presentation template was made available through the project repository.

During the kick-off meeting of the project a first presentation template was created for partners to use in internal and external presentations.

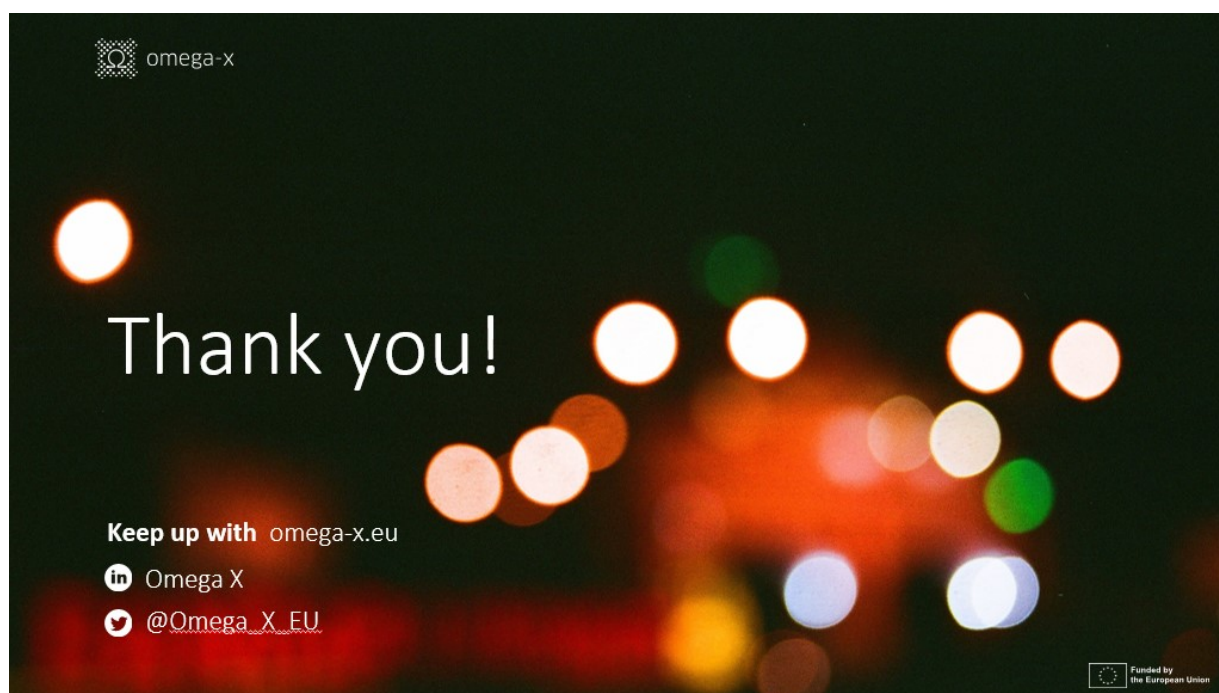


Figure 5: OMEGA-X presentation template

Also an introductory presentation has been made available for the partners to use when talking about the project and its aims.

2.2.5 OMEGA-X social media banners

OMEGA-X Social media banners for partners to use on Twitter and LinkedIn are available.

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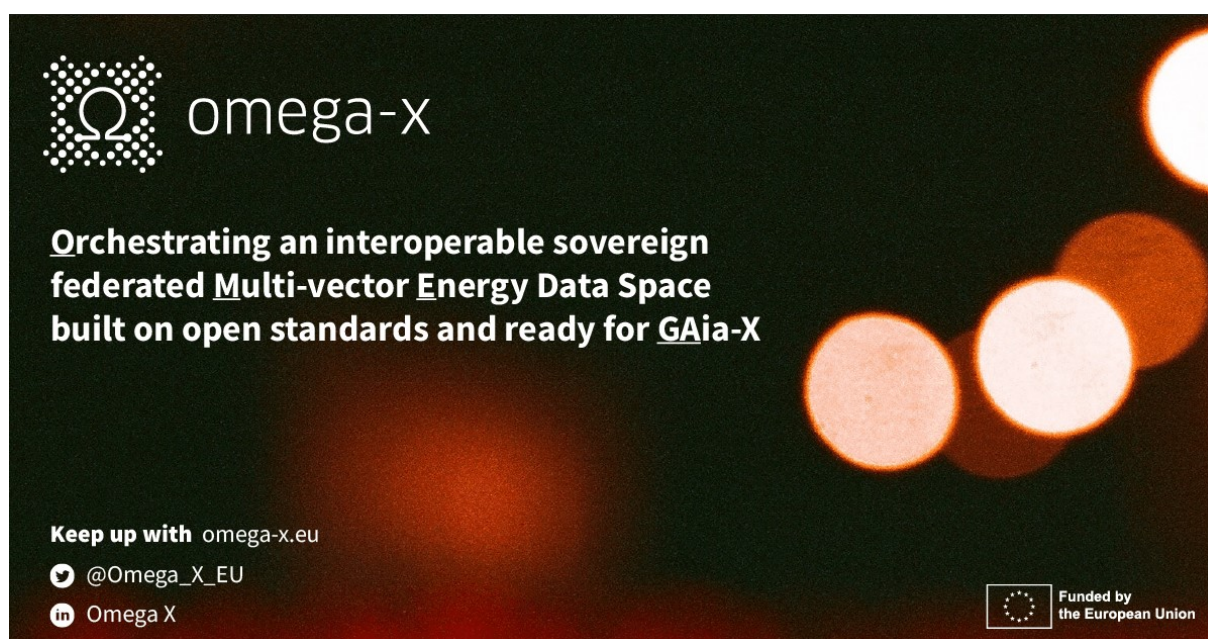


Figure 6 OMEGA-X social media banner

For the ENLIT event in the end of 2022 also event dedicated banners were made available to the project partners.



Figure 7: Social media banner co-branded

2.2.6 OMEGA-X Communication kit

The communication Kit for Partners provides, in one folder, access to all mentioned material (logos, press releases, presentation templates, flyers, graphics, etc.) that partners can use to scale awareness of OMEGA-X. This kit ensures consistent messages and branding and facilitates the communication regarding the project-by-project partners. The first version of the kit was made available in October 2022 and will evolve during the project duration, taking into

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account the progress of the project, learnings and needs of the project partners. The kit is available on the project's repository [2].

2.3 Communication channels

Communication channels were established in this first year of the project which serve as main dissemination points for the project, reaching out to project stakeholders and the wider public.

2.3.1 OMEGA-X website

The website was launched in November, to serve as the main platform for dissemination. The content will evaluate and become richer as the project evolves.

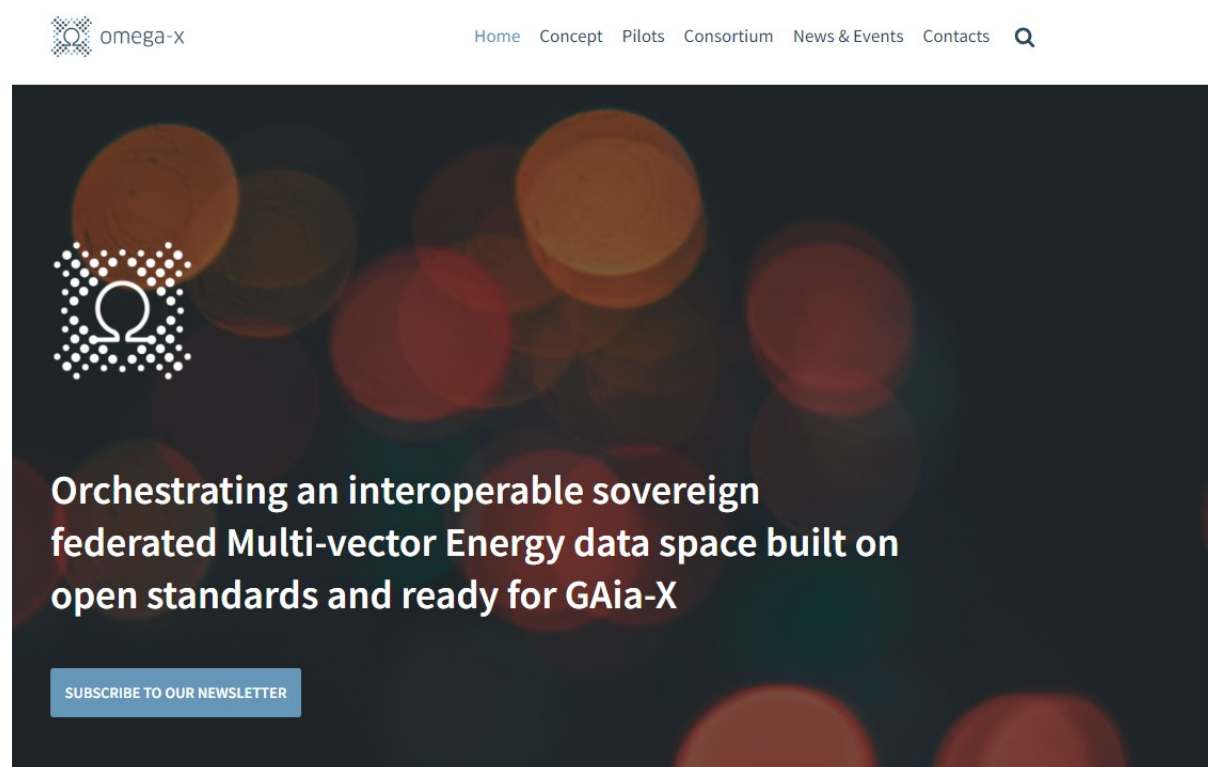
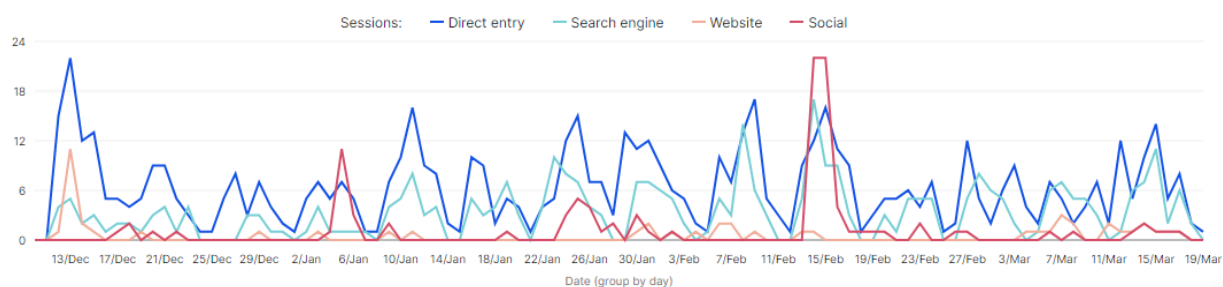


Figure 8: Print shot OMEGA-X website

The analytics tool PIWIK is being used to follow the performance of the website in a GDPR compliant manner, instead of Google Analytics due to privacy and legal issues.

The analytics tool was installed on December 10 and from that date till March 20, 2023, the website counted over 1.000 visitors. Previous month, February 2023, the website had 328 visitors.



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Figure 9: OMEGA-X website visitors and channel origin.

58% of the visitors arrives via the direct way to the website, 29% via organic search (e.g. Google, Bing), 8% via Twitter and 2% via LinkedIn.

The website is accessible through the following link: <https://omega-x.eu/>

2.3.2 OMEGA-X newsletter

The website was launched in November 2022 and was used to host the subscription form for the newsletter. Mid-March the number of subscriptions was 38 and the preparations for sending out the first newsletter in spring have been taken.

The newsletter will contain information regarding learnings and status of the project and use cases, technology bricks, standards, events and workshop and other information linked to data spaces that might be of interest for the stakeholders. The aim is to have 4 newsletters a year.

The tentative and evolving content for the first newsletter will contain an overview of the first year of the project, the selection of OMEGA-X as first GAIA-X Lighthouse project in the energy domain, output of the assessment of Data Space initiatives with Gaia-X as first example, the “Handbook for User Engagement in OMEGA-X Use Case Families”, insights on the technical architecture and upcoming events such as the FIWARE Summit.

2.3.3 OMEGA-X social media communication

Social media communication is a part of the external communication of project results with the public and relevant stakeholders. The communication was led by OASC, however all project partners contributed and frequently posted on social media channels, including from their associated professional social media accounts or from their own social media accounts. The main social media platforms that were used are Twitter and LinkedIn.

The full list of online dissemination activities can be found in the Annex 1 and Annex 2 (the full Events and dissemination file is accessible on the project’s repository [3]).

Since OMEGA-X will deal with several interoperability issues (related with data, data space architecture and data models, among other) and open-source/non-proprietary tools (such as open APIs and open data models), OMEGA-X is investigating the possibility to add alternative platforms to Twitter and YouTube such as Mastodon and ActiviPub. A final decision will be made before the next plenary session (June/July 2023).

2.3.3.1 Twitter

Twitter was used as the main social media platform of OMEGA-X during the first year of the project. The account was created end of April 2022. The page is accessible through the following link: [https://twitter.com/Omega X EU](https://twitter.com/Omega_X_EU) .

The project partners are also using their own accounts to communicate about the project and its activities by tagging @Omega_X_EU. This reinforces the outreach of the project.

Towards the end of its first year, the OMEGA-X Twitter account generated more than 4.874 impressions a month (02/2023) and has 202 followers (till 20/03/2023). Figure 10 illustrates the analytics of the last 28 days.

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28 day summary with change over previous period



Mar 2023 • 19 days so far...

TWEET HIGHLIGHTS

Top Tweet earned 190 impressions

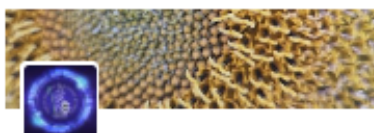
We are proud that our #dataspace project has been announced during #MarketX as #Lighthouse project by @gaiax_aisbl .. the first in the #energy domain!
[twitter.com/gaiax_aisbl/st...](https://twitter.com/gaiax_aisbl/status/1634567890)

👤 2 ❤️ 7

[View Tweet activity](#)

[View all Tweet activity](#)

Top Follower followed by 3,077 people



Lord Quantonian Cheqtoria Longhold
 @bigbagz30k [FOLLOWS YOU](#)

Top mention earned 13 engagements

TeraLab
 @TeraLab_DIH • Mar 14

New lighthouse projects at @gaiax_aisbl ! And one of the 2 is @Omega_X_EU !! We are proudly part of it !!! #marketx #gaiax #energydataspace
pic.twitter.com/STVaO4Uo4D



👤 1 ❤️ 5

[View Tweet](#)

ADVERTISE ON TWITTER

Get your Tweets in front of more people

Promoted Tweets and content open up your reach on Twitter to more people.

[Get started](#)

MAR 2023 SUMMARY

Tweets	4	Tweet impressions	980
Profile visits	350	Mentions	4
New followers	0		

Figure 10: analytics OMEGA-X Twitter account last 28 days

2.3.3.2 Linked-in

End of April 2022, the OMEGA-X LinkedIn account was created as a supplementary tool that supports the outreach of the project and its results.

The group has generated 208 followers in the first year (till 20/03/23, see Figure 11).

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Visitor highlights ?

891
Page views

437
Unique visitors

112
Custom button clicks

Visitor metrics ?

Page views ▾ All pages ▾ All filters

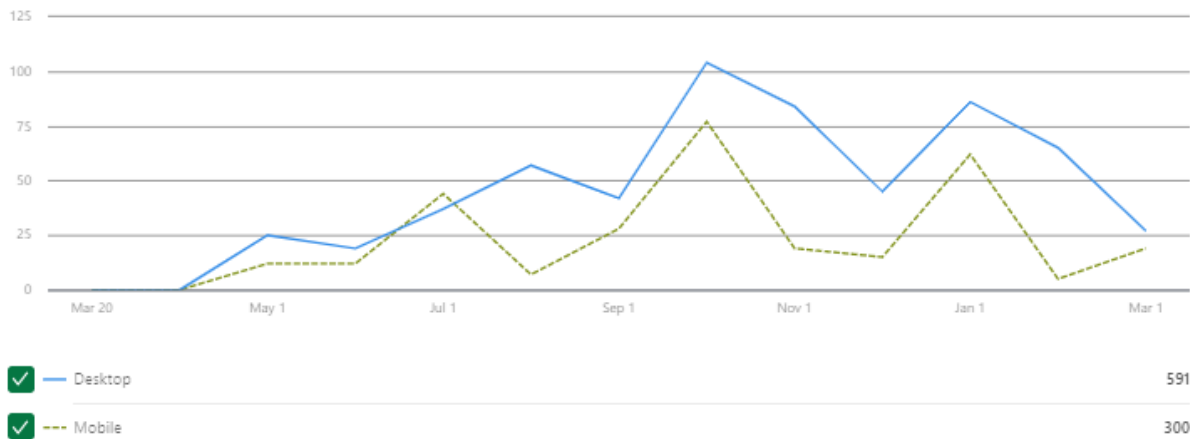


Figure 11: OMEGA-X LinkedIn analytics (May 2022- March 2023)

Most followers of the OMEGA-X LinkedIn page are based in regions where partners are based. The domains of the followers are diverse: tech oriented, energy sector, education, and governments.

The page can be accessed via the following link: <https://www.linkedin.com/company/omegax/>

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Follower demographics ?

Location ▾

Greater Paris Metropolitan Region, France - 22 (10.6%)



Greater Barcelona Metropolitan Area, Spain - 18 (8.7%)



Brussels Metropolitan Area, Belgium - 8 (3.8%)



Athens Metropolitan Area, Greece - 7 (3.4%)



Porto Metropolitan Area, Portugal - 6 (2.9%)



Lisbon Metropolitan Area, Portugal - 6 (2.9%)



Frankfurt Rhine-Main Metropolitan Area, Germany - 5 (2.4%)



Greater Munich Metropolitan Area, Germany - 5 (2.4%)



Greater Santander Metropolitan Area, Spain - 4 (1.9%)



Greater Grenoble Metropolitan Area, France - 4 (1.9%)



Figure 12: Demographics OMEGA-X LinkedIn account (May 2022 - March 2023)

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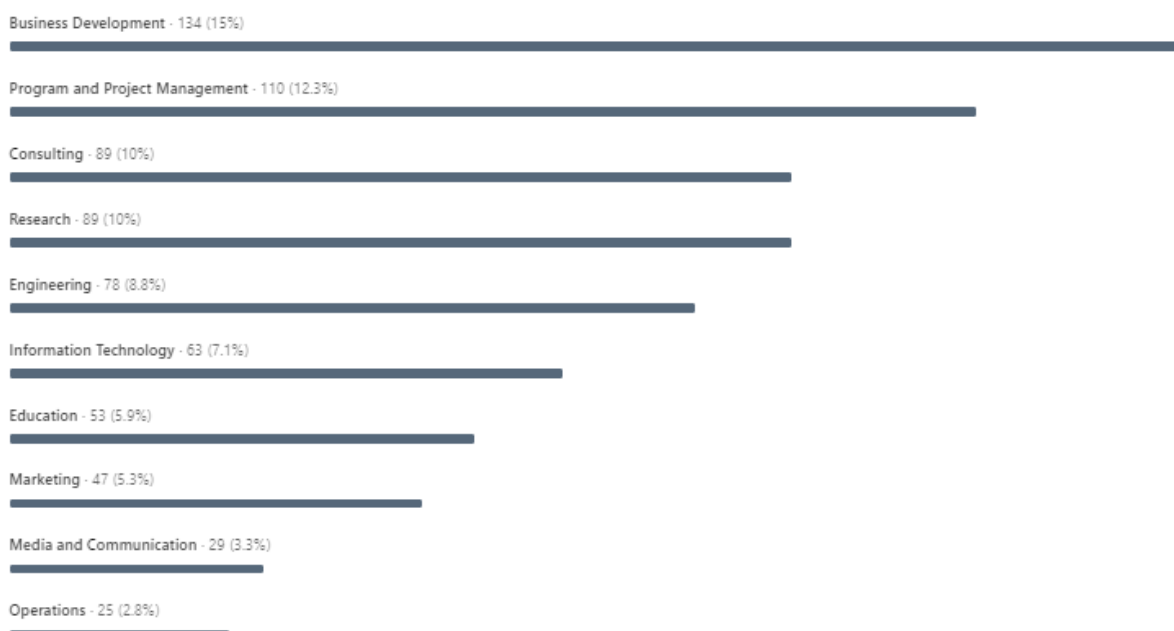


Figure 13: Follower profile OMEGA-X LinkedIn account (May 2022 - March 2023)

2.3.3.3 YouTube

The OMEGA-X YouTube channel was created in November and the first content was published in March: the videos of three of the four Data Space Initiatives that OMEGA-X assessed have been uploaded and will be used in future communications.

Videos ▶ Play all



Figure 14: OMEGA-X YouTube videos

The page can be accessed via the following link: <https://www.youtube.com/@OMEGA-X9006>. More content will follow including webinars on different topics (standards, tools, ...).

2.4 OMEGA-X at conferences and events

A main dissemination activity is presenting the OMEGA-X project at conferences, summits and other events. Various project partners attended events to disseminate the information about OMEGA-X, present the project and its progress and initiatives or use the event as a networking opportunity. A list of tentative events was made in the beginning of the project and has been included in D7.1 and is constantly updated during the course of the project. The events and

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OMEGA-X's involvement are stated in the sub-paragraphs below and are listed in Annex 1. Over the first year of the project, 12 dissemination events were attended/organized, spreading the view of EU program as market creation tool and ecosystem element.

2.4.1 FIWARE Global Summit 2022

The yearly FIWARE Global Summit took in 2022 place on Gran Canaria (Spain). The theme of this edition was “Leading the digital transformation”.

The first day, September 14, the Summit presented the Business Conference on Smart Cities, Territories and Communities, with special focus on the topics of Smart Tourism and Destinations and the support to Sustainable Development Goals. On September 15, the second day, participants got insights in domains such as Industry, Energy, Water, Agriculture and Ports and a specific programme around Data Spaces was organised.

In addition, a technology track on both days focused on innovations in blockchain, artificial intelligence (AI), digital twins, robotics and technologies linked to the development of the data economy. The conference paid special attention to one of the currently most discussed topics: Data Spaces forming a single European data space and a genuine single market for data. Apart from dedicated sessions, a Data Spaces World Café, supported by the Data Spaces Business Alliance, took place for networking and exchanging purposes.

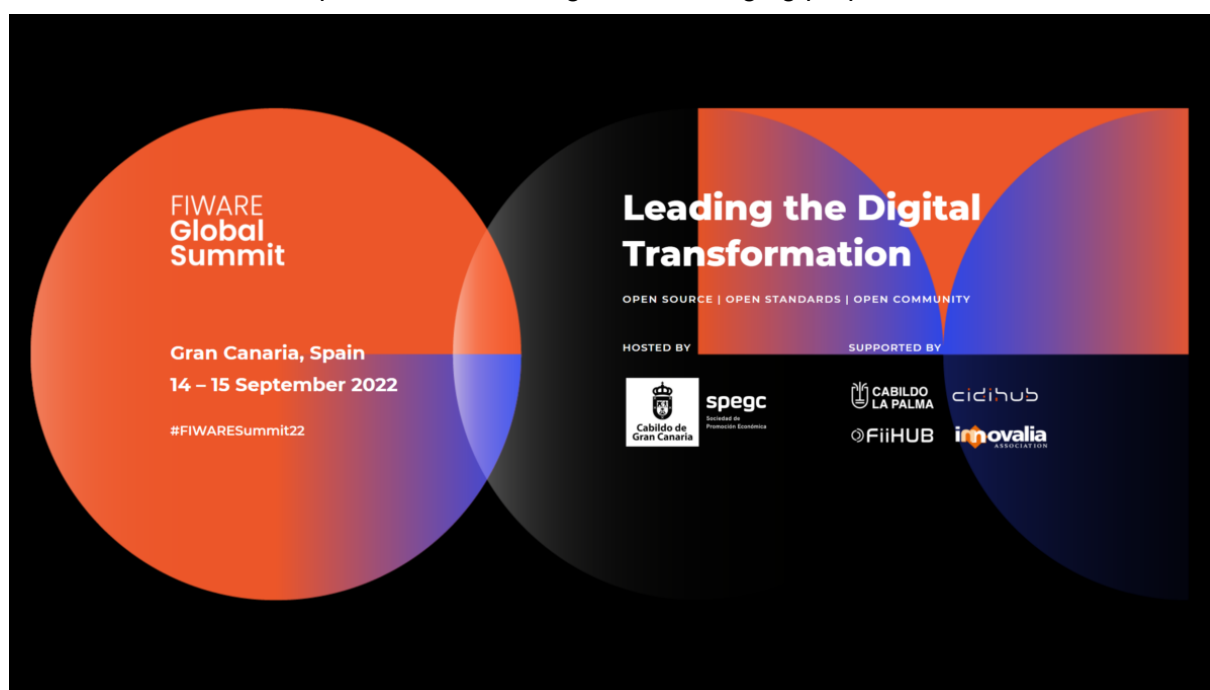


Figure 15: FIWARE Summit 2022

For OMEGA-X partner OASC (Michael Mulquin) took place in the data space panel session in the morning on the second day of the summit.

The event welcomed over 500 visitors.

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Omega-X @Omega_X_EU · Sep 15, 2022

...

Panel session at the #FIWAREsummit22 this morning on the importance of #dataspaces and the opportunities that they bring with The Data Space Business Alliance and @michaelmulquin of @oascities

@Omega_X_EU

#ds4sscc

@BDVA_eu @FIWARE #gaiax



Figure 16: Participation OMEGA-X in panel session - FIWARE Summit 2022

2.4.2 SINERGY 2022

The Telecommunications Forum TELFOR is an international annual meeting of professionals working in the broad fields of Telecommunications and Information Technologies. Its 30th jubilee was organized on November 15 and 16 2022, in Belgrade, Serbia. During this event, the SINERGY project organised for the third time a half day open hybrid event “Smart and Innovative eENERGY management”. The mission of SINERGY is to strengthen the existing research capacity and further unlock the innovation potential of the Institute “Mihajlo Pupin” – IMP (Serbia) in Smart Energy Management.

During the networking session OMEGA-X was presented by Marko Batić of OMEGA-X partner Institute Mihajlo Pupin.

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Session 1: Smart and Innovative eENERGY management

09.00	Getting together	
09.15	Capacity building in Smart and Innovative eENERGY management (Opening)	Nikola Tomašević, IMP
09.30	Smart Grid Technologies	Johannes Stöckl, AIT
10.00	Energy Efficient Building Operations	Marcus Martin Keane, NUIG
10.30	Demand side management aspects in Smart Grids (Invited Talk)	Aleksandra Krkoleva Mateska

Session 2: EU Project Networking Session

11.15	DE-RISK the adoption of Local Flexibility Markets to unlock the safe and reliable mass deployment of Renewable Energy Systems	DE-RISK
11.30	Next-Generation Integrated Energy Services for Citizen Energy Communities	NEON
11.45	GENERating energy secure COMMunities	GENCOMM
12.00	Holistic Demand response Services for European residential communities	HESTIA
12.15	Digital Platform and analytical Tools for eEnergy	PLATOON
12.30	Orchestrating an interoperable sovereign federated Multi-vector Energy Data Space built on open standards and ready for GAIA-X	OMEGA-X
12.45	Closing	

Besides SINERGY, the event has been supported by other currently running EU projects.

Figure 17: Agenda SINERGY 2022



Figure 18: Picture OMEGA-X presentation by Marko Batic of Mihajlo Pupin

Around 20 persons attended the session. Additionally, a short report about the 3 days event was described here: [Promoting the Institute Mihajlo Pupin as a regional Centre of Excellence in Smart Energy Management – Institute Mihajlo Pupin](#).

2.4.3 ENLIT Europe 2022

ENLIT Europe took place on November 29 till December 1, 2022, in Frankfurt (Germany) and is a yearly event that aims to help Europe evolve into one decarbonised and digitalised energy system for the energy transition connect industries and inspire action.

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OMEGA-X participated with a pod station (booth) on the EU projects zone, the one-stop hub for projects accelerating the energy transition, during this event.



Figure 19: ENLIT 2022 banner - co-branded

On the EU projects zone various booth sessions were organised: OMEGA-X was represented by Javier Valino (Atos) in the Bridge panel session and in the dedicated OMEGA-X session.



Figure 20: OMEGA-X presentation by Javier Valino during ENLIT 2022

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Figure 21: OMEGA-X participation of Javier Valino in panel session during ENLIT 2022

The booth was hosted by Javier Valino (Atos) and backed by Lluís Canaves Navarro (EyPESA)- Claudia Antunes (UCP). OMEGA-X listed as well in the online directory [4] of projects accelerating the energy transition on the ENLIT website.

As part of the booth package a podcast has been recorded on OMEGA-X. This podcast has been published (<https://www.enlit.world/digitalisation/data-analytics/the-eu-projects-zone-podcast-omega-x-with-javier-valino/>) on March 30 on the ENLIT EU Projects Zone website and will be part of the ENLIT newsletter the day after and promoted on ENLIT social media channels. Possibly it will be part of the EU Projects Zone Newsletter on LinkedIn - this is still to be confirmed.

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Figure 22: OMEGA-X booth during ENLIT 2022

58 projects were represented on the EU projects zone which provided good networking opportunities between the projects. The EU projects zone was visited by over 400 international students, academics and researchers. ENLIT Europe received in total around 11.000 visitors.

2.4.4 Gaia-X Summit 2022

Gaia-X organised their annual summit on November 17 and 18 2022, in Paris. The theme of this edition was “We are up and running – The Future is Gaia-X” and primarily focused on the Gaia-X delivery, technical and business value/implementation, including all the latest developments, releases, and collective deliverables of the Gaia-X Framework. The event was organised in a hybrid form.

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Figure 23: Gaia-x Summit 2022 banner

The CEO of Atos Worldgrid, Emmanuel Besse, presented OMEGA-X in a track on the next generation of the data sharing economy. This panel session “Gaia-X Digital Economy on Energy/Sustainability” was moderated by Martine Gouriet, part of the GAIA-X Board of Directors, and Emmanuel Besse emphasized the role of technology and regularisation in the transformation of the energy market. The full recording, including the role of OMEGA-X, is available via the following link: <https://lnkd.in/ekVy3Ecw>.



Figure 24: Emmanuel Besse (ATOS) for OMEGA-X in panel session GAIA-X Summit 2022

400 physical attendees were foreseen and around 4,500 online spots.

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2.4.5 SEMIC 2022

SEMIC, the annual semantic interoperability conference, took place on 6 December 2022 in a physical setting, although the key notes were streamed, at the Square Meeting Center in Brussels. The topic of this edition was “SEMIC: Data Spaces in an Interoperable Europe” and was organised by the Interoperability Unit of DIGIT of the European Commission, in collaboration with the Czech Presidency of the Council of the EU.

The central focus of SEMIC 2022 revolves around the implementation of data spaces, bringing together concrete use cases from both the public and the private sector.



Figure 25: SEMIC 2022 banner

Parallel session 2 from 15h30 - 16h45 gave projects the opportunity to pitch their project, use cases and obstacles they are overcoming in implementing data spaces. 12 projects were presented, among which the OMEGA-X project that was presented by Thimo Thoeye of OASC.

More than 40 persons attended parallel session 2.

Parallel track II: Project pitches	
Room: Studio 201 A/B	
<ul style="list-style-type: none"> • Budapest Tree Cadastre "FATAR" - Peter Gabor • Value of eDelivery to the dataspace - Bogdan Dumitriu • The Once-Only Technical System (OOTS): The French implementation plan - Jonathan J. Attia • Omega-X (energy dataspace) - Thimo Thoeye • DS4SSCC (Dataspace for smart and sustainable cities and communities) - Thimo Thoeye • LEOS - Cristina Stanculescu • IrRADIARE - H2020-AURORAL project - Joana Good da Silva • Linked data approaches in the data space for cultural heritage - Vassilis Tzouvaras • IUCLID a Tool & Format for Chemical data – Blanca Martinez de Aragon, European Chemical Agency • Institute for Data, Process and Knowledge Management Vienna University of Economics and Business - Daniil Dobriy • Reusable semantic component prototype for interoperable e-Government: A case from Digital Europe for All (DE4A) - Karmen Kern Pipan, Head of Data Management Department, Ministry of Public Administration, Slovenia • Semantic Interoperability for Data Spaces - Vladimir Alexiev, Chief Data Architect, Ontotext 	

Figure 26: AGENDA SEMIC 2022 parallel track II

2.4.6 Connected Smart & Sustainable Smart Cities and Communities Conference

The yearly Connected Smart & Sustainable Smart Cities and Communities Conference, organized by OASC (formerly CxC Festival), took place on January 17 and 18 2023 in Brussels. The main theme of this edition was “Collective action in a fragmenting world”.

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Figure 27: Banner CSSCC Conference 2023

The first day was a community day and the second a conference day that consisted of roundtables, workshops and sessions on the hottest topics of the moment for cities, communities and other stakeholders in digital transformation, like data spaces, local digital twins, sustainability, security, trust, funding opportunities, standards and MIMs – Minimal Interoperability Mechanisms.

OMEGA-X was represented by the University of Maia (Pedro Pimenta) in the panel session on January 18, from 10h00-11h00, on Data Spaces. The value of data spaces and the work within OMEGA-X was illustrated by the use cases in the city of Maia. The OMEGA-X leaflets and rollup were present as a small booth for during the breaks, hosted by OASC.

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Agenda: CSSCC23 Conference Day January 18, 2023 @ EGG, Brussels

08:30-09:00	Registration			
09:00 – 09:15	Welcome Karl-Filip Coenegrachts, Chair (OASC)			
09:15 - 10:00	Keynote Panel			
10:00 – 11:00	Parallel sessions			
	Panel: Data Spaces(TECH)	Workshop: Living-in,EU – Involving 300 million citizens(Governance)	Workshop: Dynamic Mobility Nudge - Insights into digital, data-based nudging for sustainable urban mobility from a transdisciplinary project(Impact)	Panel: How not to reinvent the wheel - Linking data spaces initiatives(Decision Making)
	Room: Aquarium	Room: Auditorium	Room: Riverside	Room: Cinema Room
11:15-11:30	Coffee break			
11:30 – 12:30	Parallel sessions			
	Workshop: Implementing MIMs (TECH)	Panel: G20 Alliance(Governance)	Panel: New European Bauhaus – Building a European Digital Ecosystem(Impact)	Panel: Data-driven decision-making(Decision Making)
	Room: Aquarium	Room: Auditorium	Room: Riverside	Room: Cinema Room
12:30 - 13:30	Lunch			
13:30 – 14:30	Parallel sessions			
	Panel: Interoperable Europe(TECH)	Panel: Voices of cities and communities from around the World: opportunities and challenges for collaboration(Governance)	Panel: Measuring the digital transformation in Cities & Communities(Impact)	Panel: Local Digital Twins - making use of available data(Decision Making)
	Room: Aquarium	Room: Auditorium	Room: Riverside	Room: Cinema Room
14:30-15:00	Coffee break			
15:00 – 16:00	Parallel sessions			
	Workshop: 5G Connectivity: European Calls(Governance)	MIMs enabling a citizen-centric and open metaverse(TECH)	Panel: Empowering citizens – taking control of your own data(Impact)	Standards-based decision-making(Decision Making)
	Room: Aquarium	Room: Auditorium	Room: Riverside	Room: Cinema Room
16:00 – 16:30	Results parallel sessions & Final key-notes			
16:30 – 17:00	Closing Session			



Figure 28: CSSCC Conference 2022 Agenda

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Figure 29: Pedro Pimento (UMAIA) for OMEGA-X - CSSCC Conference 2023

The event received during the conference day on November 18 over 150 visitors.

2.4.7 IoT Solutions World Congress

The annual IoT Solutions World Congress in Barcelona (Spain) is a global event on disruptive technologies and digital transformation. This 3-days event took place from January 31 till February 2, 2023.



Figure 30: IoT Solutions World Congress 2023 banner

OMEGA-X partners IDSA and Tecnalia were jointly present with a booth covering different projects, among which OMEGA-X, around energy data spaces.

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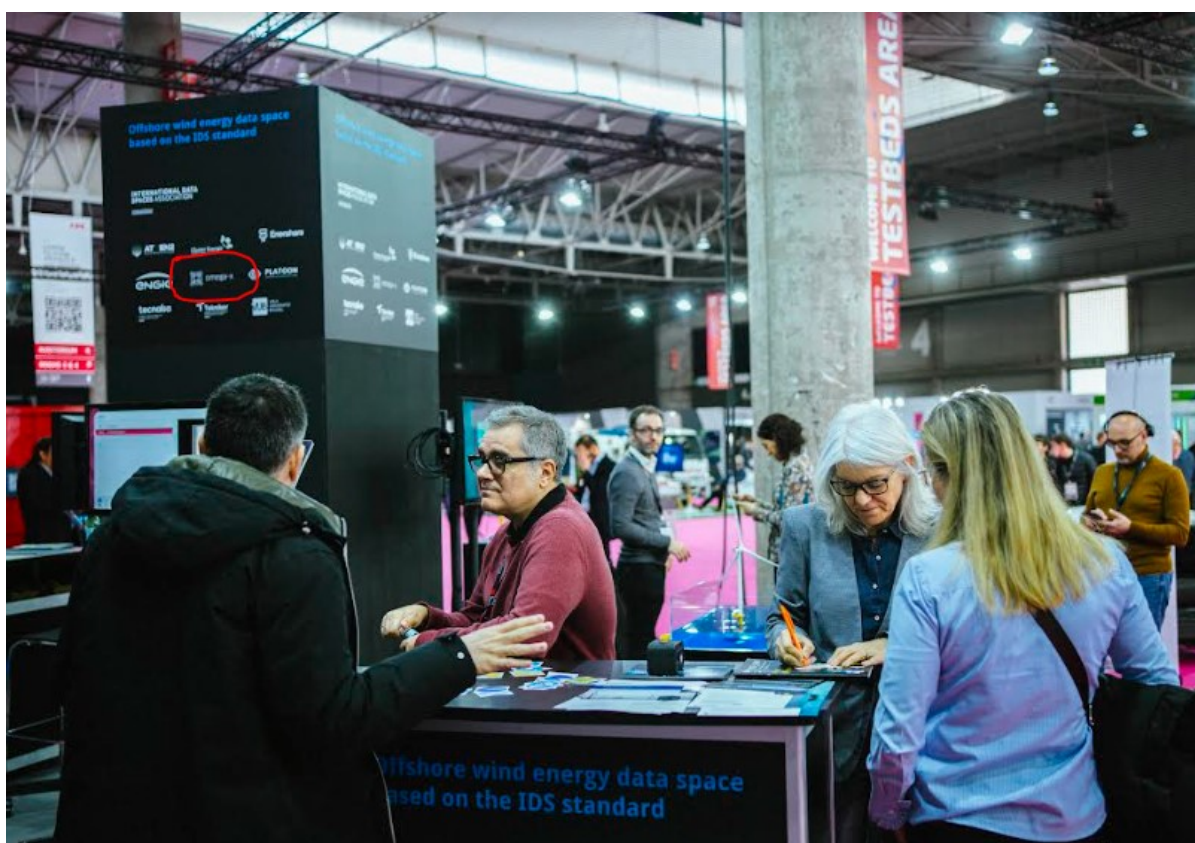


Figure 31: IDSA /Tecnia booth including OMEGA-X on IoT Solutions World Congress 2023

A video on the role of data spaces in the energy market made during the event and including OMEGA-X, presented by Erik Maqueda of Tecnia, is available here: <https://youtu.be/erFwW29bi8U>

The event attracted over 15,500 visitors.

2.4.8 DSBA hubs community meeting

The Data Spaces Business Alliance (DSBA) kicked off February 14, 2023, a first meeting for the hubs of the connected initiatives FIWARE, GAIA-X, BDVA and IDSA. IMT Tera (Luis Pineda) presented in the section “Best Practices from hubs” included OMEGA-X as part of their strategy to foster data spaces and implement interoperability.

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Figure 32: BDVA hubs kick-off meeting with IMT TERA on OMEGA-X

Over 45 attendees participated in this meeting.

2.4.9 Workshop Conference European Data Spaces for Sustainability

The Green Data Hub Workshop Conference, which took place on February 16th, 2023, focused on developing solutions to facilitate collaboration between European markets and domains in European Data Spaces for Sustainability. The primary objective of this collaboration is to use data to combat climate change effectively. The conference brought together high-profile experts from various fields, including business, public administration, research, climate protection, and international data ecosystem initiatives. The experts discussed the importance of data in achieving climate goals and how collaboration in a data service ecosystem can contribute to environmental protection. The key issues that need to be addressed urgently were also discussed.

The conference included three interactive breakout sessions, where technical, legal, and business experts discussed the current challenges they face when collaborating internationally. The Data Spaces implementers shared their experiences, and solution approaches were developed on a technical, legal, and economic level in the form of implementation-focused building blocks. These solution approaches will benefit the entire European data community and will be a part of the Green Data Hub project "International Green Data Spaces (InGDS)."

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Among the list of sessions detailed in the agenda shown, OMEGA-X participated in the panel discussion: “What do we need to cooperate on an international level?”. The panellists included high-profile experts from relevant European Data Space initiatives, such as Roland Fadrany, COO of Gaia-X Association, Javier Valiño, Head of Energy, Climate & Decarbonization unit of Atos and Coordinator of OMEGA-X, Ana García Robles, Secretary General of BDVA, and Nevena Raczko, Senior Consultant of IDC4EU European Consulting Unit. The experts shared their insights on various topics, such as what "Data for Sustainability" means to them, how their initiatives enable sovereign, collaborative Data Spaces, and how they envision European Data Spaces for Sustainability. They also discussed the areas where collaboration would be particularly useful, and the differences between Data Spaces for Sustainability and other types of Data Spaces.

The panellists emphasized the importance of a community approach and the need for all initiatives working with Data Spaces to join forces to drive changes forward in the same direction. They also shared their visions of establishing a Data Space that supports the Green Deal and aligns all Data Space initiatives on this matter at an EU level, synergistically with the efforts of the Green Data Hub. The importance of aligning goals through collaboration to tackle paralysation was also discussed.

The conference concluded with a thank you note to the participants for their contribution and commitment to using data to change the world into a better place and to counteract climate catastrophe efficiently. The entire panel discussion is available for viewing online at the following link: <https://youtu.be/O7nBb17-sGQ>



Figure 33: Workshop Conference European Data Spaces for Sustainability banner

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3:40-4:40 **Which solutions do YOU need in practice to collaborate internationally?** Interactive discussion with domain-specific guests

Data Space Energy Transition:

Omega-X: Javier Valiño, Head of Energy, Climate & Decarbonization Unit, Atos (*tbc*)

Data Space Mobility Transition:

Mobility Data Space: Michael Schäfer, Managing Director, Mobility Data Space Germany (*tbc*)

Data Space Circular Economy:

Smart Connected Supplier Network: Peter Van Harten, VP Partner, Isah International (*tbc*)

Data Space Digital Climate Twin:

Spatial Services: Thomas Blaschke, Professor and Head of the Department of Geoinformatics, Paris Lodron University Salzburg (*tbc*)

Shareback/Resume of the domain-specific results

- **Data Space Energy Transition**
- **Data Space Mobility Transition**
- **Data Space Circular Economy**
- **Data Space Digital Climate Twin**

Figure 34: Workshop Conference European Data Spaces for Sustainability agenda

2.4.10 Market-X

The Market-X Conference & Expo, organised by Gaia-X in partnership with Gaia-X Hub Austria, was held in the city of Vienna on 14 and 15 March 2023. The event was an unbeatable networking opportunity that allowed attendees to discover and comprehend the Gaia-X Standards, generate enthralling Gaia-X communities, and join X-industry projects. The event was highly valuable as participants gained a deep understanding of the Gaia-X projects, Hubs, verticals, and Lighthouses.

The Gaia-X Project offered attendees an opportunity to collaborate with partners, get assistance on building products, or connect with technology companies to begin utilising their Gaia-X Product. Start-ups leveraged the Gaia-X platform to interact with professionals and supporters and understood the motivations of Gaia-X members who are dedicated to developing the Gaia-X Framework. The inspiring environment allowed for expanding networks and forging connections with the Gaia-X community.

Market-X was an opportunity to discover new ways to collaborate with partners across industries, launch projects that will shape the future of AI and data, and join a vibrant community of innovators. The event allowed attendees to start building cross-industry collaborations that transformed how they thought about innovation. They connected with experts from all industries and explored possibilities for collaboration. Networking was made

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easier, and attendees met other participants in person or virtually, built meaningful relationships, exchanged ideas, and found new business opportunities.

Market-X was part of the Gaia-X movement, and attendees joined in creating an open ecosystem for data sharing and collaboration that will shape their lives in the years to come. The event featured a large exhibition area where attendees could network, connect with the community, and showcase their Gaia-X project and contribution. The Market-X exhibition was a great opportunity to gain visibility, connect, network, and grow. Whether participants wanted to advertise their project or business, introduce it to a wider audience or present the X-industry approach of their project, the Market-X exhibition was the ideal option.

Exhibiting at the Vienna event was a great option for any business, as the booth setup was taken care of. All participants had to do was bring their POS material and connect to the Gaia-X network. Booking an Exhibition stand for their business was ideal if they wanted to advertise their project, Gaia-X Hub, or vertical, find partners for their project or connect with technology providers or consulting companies to get Gaia-X into use. Start-ups and members also had the opportunity to present their business to a professional audience and use the inspiring atmosphere to network with the big community of Gaia-X supporters.

OMEGA-X participated in this event with a booth, showcasing the project for the two days, attracting numerous visitors willing to understand a bit more what can be done in terms of Data Spaces in the Energy vertical, using the principles of Gaia-X.

Additionally, Javier Valiño, OMEGA-X coordinator, participated in a panel session for the newly released Gaia-X Digital Clearing House (GXDCH), which is the way Gaia-X aims at easing the enrolment of users into Gaia-X compliant ecosystems. The principle for this GXDCH is to set up a network of federated and independent nodes able to notarize, register and assure compliance of any request, self-description and message using the Gaia-X specifications.

The panel was moderated by Roland Fadrany, COO Gaia-X, and, apart from Javier Valiño representing OMEGA-X, the following participants also provided their view on the GXDCH: Annette Trawnicek, Managing Director Hewlett Packard Enterprise Austria, Management Board Gaia X Hub Austria; Christian Tauber, Head of Product Management K-Businesscom, Management Board Gaia-X Hub Austria; Enrico La Vela, Cloud Product Manager, Aruba; Sven Löffler, Tribe & Chapter Lead Data Intelligence Hub and Frank Köster, Founding Director, AI Institute of the German Aerospace Center.

Last but not least, during this event OMEGA-X was announced as the first Gaia-X lighthouse project in the energy data space domain [5]. This way, OMEGA-X joins the current network of other 10 lighthouse projects in different verticals that are collaborating together in spreading the values of trust, sovereignty and privacy promoted by the association.

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Figure 35: Announcement Gaia-X during Market-X of OMEGA-X selection as lighthouse project

The event gathered over 450 industry leaders, policymakers, and experts from Europe and beyond.

2.4.11 Data Spaces Support Centre Annual Conference

The Data Spaces Symposium & following Deep-Dive Day organised by the Data Spaces Support Centre (DSSC) on 21 till 23 March in The Hague, The Netherlands, claims to be the fast stop for all relevant data sharing initiatives and efforts in one place.

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Figure 36: Data Spaces Support Centre Annual Conference

The first day, the data spaces vision days on March 22, Michael Mulquin of OASC, referred to OMEGA-X in a session discussing the role of personal data intermediaries in data spaces, addressing their governance, business models, and technical perspectives, and exploring how to categorize and interact with them to create synergies.



Figure 37: Panel Session Data Spaces Support Centre Annual Conference with Michael Mulquin on OMEGA-X

The Annual Conference of the Data Spaces Support Centre took place the second day, March 22, with keynotes, tracks dedicated to success stories and impact as well the different perspectives on data spaces.

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Manuel Pio Silva of EDP presented OMEGA-X and its Local Energies Communities and Flexibility use cases, during the “Manufacturing and energy domain lounge session”.



Figure 38: Manuel Pio Silva (EDP) presenting OMEGA-X and its Local Energies Communities and Flexibility use cases during the Data Space Symposium

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Figure 39: Omega-X leaflets during the Data Space Symposium

The OMEGA-X leaflet was made available to draw extra attention to the project. Over 700 visitors were present during this three-days event.

2.4.12 BRIDGE General Assembly

The Bridge Symposium took place from March 28-30 in hybrid form. Javier Valino from Atos and Claudia Antunes from UCP represented OMEGA-X in person in Brussels, as leaders of subtask 2.5 in the Data Management Working Group (Data Exchange Reference Architecture version 3) and the value of data chains for business models in energy task in the Business Modelling Working Group, respectively.

A number of other partners joined remotely, representing the various other contributions of OMEGA-X to BRIDGE, such as Eric Lambert (action 4 leader in the Data Management Working Group), Regine Belhomme from EDF (contact from OMEGA-X for Regulation) or Isidoros Kokos from ICOM.

2.4.13 Conference on New Techniques and Technologies for Statistics 2023

On March 9, 2023, a Panel Session on Energy Data Spaces & Statistics was organized at the Conference on New Techniques and Technologies for Statistics 2023 (NTTS 2023). Three EU projects were presented and possibilities for adoption of results for future energy data spaces, such as OMEGA-X were discussed. Valentina Janev from Institute Mihajlo Pupin presented the recently finished projects PLATOON ([Digital PLATform and analytical TOOlS for eNergy](#)),

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Elissaios Sarmas from NTUA, DSS Lab presented the BD4NGR ([Big Data for Next Generation Energy](#)) and Jordi Jene Jaume from Aneli, Spain presented BD4OPEM ([Big Data for Open innovation Energy Marketplace](#)).

OMEGA-X, via EDF -taskleader of task 2.2, will organize a meeting to discuss how the semantic models developed in PLATOON could be followed and adapted by OMEGA-X.

The video recording is available at <https://webcast.ec.europa.eu/ntts2023-day-3-mans-20230309> (from time stamp 11.30am to 1pm).



Figure 40: Tweet panel session on Energy Data Spaces & Statistics by Valentina Janev

2.5 Scientific publications

Researchers from the Alexandra Institute in Denmark (a research and technology organisation connected to the Aarhus University) have written a Danish report [6] with to English translated

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title “Data spaces: Mapping of actors and initiatives”. Atos (Javier Valino), Aarhus University (Adrienne Heijnen) and Norce (Søren Djørup), have contributed to this report and OMEGA-X is referenced as a European Project on data spaces in the Energy domain. Based on the report, Aarhus University plans to organize a webinar on data spaces for Danish companies and other stakeholders who are part of the Danish Innovation networks “WeBuild Denmark” and “Digital Lead”.

2.6 Other dissemination activities

2.6.1 IDSA’s Tech Talks series

IDSA is organising several Tech Talk webinars with visibility for OMEGA-X: The sessions are “Powered by OMEGA-X”.

The Tech Talks Series kicked off on February 23 with a hands-on session on the IDSA rulebook and how to implement it, with around 80 participants (see screenshot from the talk below).

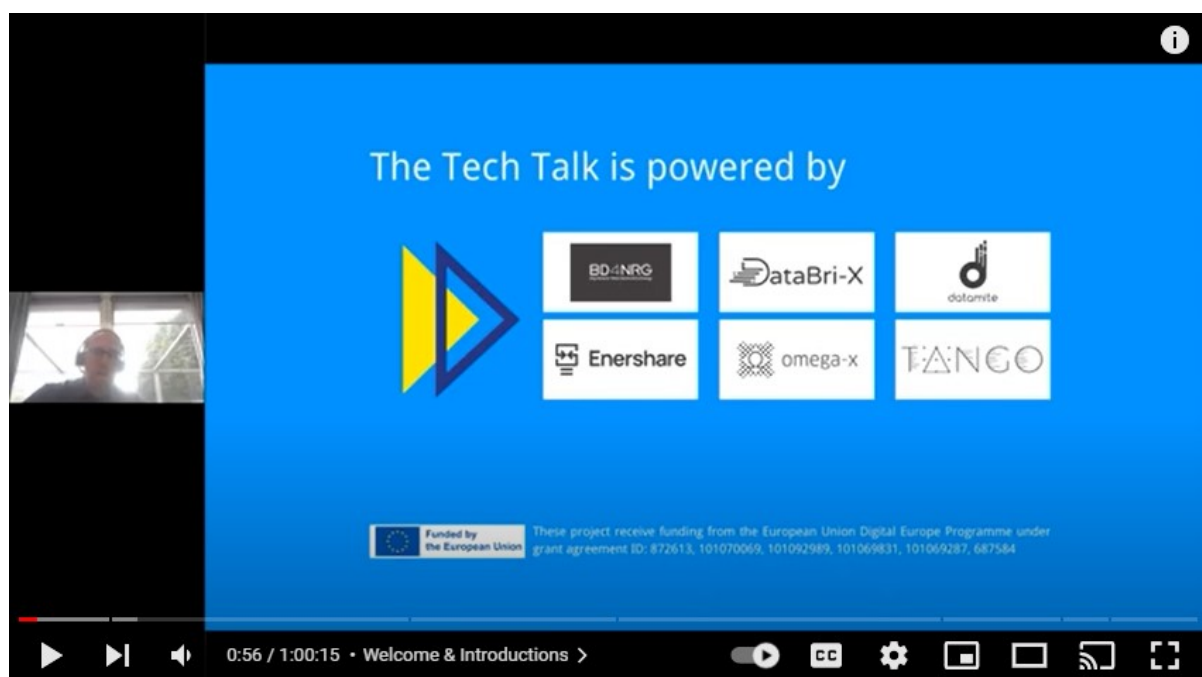


Figure 41: Printscreen IDSA’s Tech Talks series - powered by OMEGA-X

This session can also be watched back on : <https://www.youtube.com/watch?v=ktVyFdguvfs&authuser=1>

The Tech Talk on March 9 “Dataspace Protocol Preview” had 219 participants and included a general information session in the morning and a joint coding session in the afternoon.

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Figure 42: Dataspace Protocol Preview banner

The following (tentative) Tech Talks are listed in Table 2:

Table 2: Future Tech Talks agenda - tentative

Name sessions (tentative)	Date (tentative)
TRUE Connector	30.03.2023
Semantic Interoperability - Vocabulary Hub	06.04.2023
RAM	20.04.2023
Legal interoperability - legal aspects in dataspace	04.05.2023
Data Usage Control	01.06.2023

2.6.2 BRIDGE

The BRIDGE initiative helps identify and structure cross-cutting innovation issues that may be an obstacle to innovation in smart grids, energy storage, islands, and digitalization. This is done by sharing knowledge and expertise between projects through the delivery of conclusions and recommendations. For 2022-2023 there are four active BRIDGE working groups: Data Management, Business Models, Regulation, and Citizen and Consumer Engagement.

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Table 3: Action/Tasks within each BRIDGE Working Group for 2022-2023

Working Group / Task Force	Description
WG Data Management	<ul style="list-style-type: none"> Action #1 - BRIDGE use-case repository (continuation). Action #2 - Data Exchange Reference Architecture (continuation) Action #3 - Reference framework (continuation and extension). Action #4 - BRIDGE user group (continuation). Action #5 - Interoperability of home appliances (new).
WG Business Models	<ul style="list-style-type: none"> Topic#2 - Design of tools to evaluate the benefit of the services and solutions (continuation). Topic#3 - Design of BM to better include data value chain observability (continuation).
WG Regulation	<ul style="list-style-type: none"> Action #1 - Improve market access for consumers to value their flexibility (continuation). Action #2 - Service provision by energy communities (continuation). Action #3 - Facilitate flexibility market coordination and integration (continuation). Action #4 - Support the potential synergies coming from increased sector coupling/sector integration/system integration (new).
WG Consumer and Citizen Engagement	<ul style="list-style-type: none"> Topic#1 - Indicators of engagement: To collect qualitative and quantitative indicators to assess consumer engagement over time. Topic#2 - Smart Tools: To collect a list of Smart Tools targeted consumers and the approaches to development and use. It will also identify best practices for replicability and scalability. Topic#3 - Strategies of engagement: To collect strategies and methods and underlying assumptions used by the projects to engage consumers and citizens.

Also, outside the context of the working groups, topics as digitalization and storage are investigated.

Participating in BRIDGE is an opportunity to gain and exchange knowledge. OMEGA-X will learn from BRIDGE results and contribute to its work by sharing the OMEGA-X outputs from implementing a multi-vector energy data space, including a federated infrastructure, data marketplace, and service marketplace.

A specific report about OMEGA-X participation in BRIDGE will be produced at the end of each reporting period, as a BRIDGE initiative requirement. More information on OMEGA-X's participation in BRIDGE will be delivered through D2.2 reports, at M12, M24 and M36, about Design, Implementation and Validation.

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Now, D2.2 Data Space initiatives/projects in EU and BRIDGE alignment (M12) is delivering more information on OMEGA-X's participation in BRIDGE and the related dissemination of work done and learnings.

OMEGA-X also provided information regarding the project and its use cases for the upcoming Bridge brochure.

2.7 Communication and dissemination outlook Year 2

The marketing and dissemination plan will be carried out along three main phases, as described in the OMEGA-X DoA [1], each subsequent phase building on the earlier phases to increase the level of intensity. The first phase, covering the first year of the project, aimed at raising awareness about the project, its partners and its goals, while the focus of the second and third phase lies on engaging and convincing early adopters of OMEGA-X outputs.

The second phase, corresponding with the second year of the project, and will build on and continue the activities of phase I and it will focus on the following activities:

- Informing about the use cases and technical framework.
- Enabling the sharing of best practices between stakeholders in the ecosystem.
- Reinforce networking activities with stakeholders, clusters (e.g. BRIDGE, Living-in.EU), associated projects and data space initiatives (such as Gaia-X, IDSA, BDVA/DAIRO, FIWARE, DSBA...) during local/European/international events such as the FIWARE Summit and the IoT Week in June 2023 or ENLIT in November 2023.
- Create a press release that appeal to European and national news outlets to showcase key results and milestones.
- Create newsletters to share news stories, also through partner networks, to scale reach.
- Offer opportunities to attend workshop/training opportunities.
- Build and manage social media campaigns around key results and milestones and advertise training opportunities.
- Develop videos to showcase the different assets of data spaces and OMEGA-X.
- Expanding the content of the website, taking into account the piloting activities and the technical framework.

The first overview, content planning and requirements for the OMEGA-X academy will be defined in spring 2023.

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3 IPR, exploitation and business plans

In this section of the report, it will be presented the methodology to identify the Key Exploitable Results (KERs) and the strategy and actions for the protection, exploitation and dissemination of the results generated by OMEGA-X project is summarized.

The current release is to be updated during the project life in order to be delivered, in its final official form by the end of the project, when partners are expected to report with enough details on the actual and expected “use” to be made of the foreground, i.e., on their strategy and concrete activities to disseminate and exploit the project results.

The deliverable takes into consideration the guidelines established in the Consortium Agreement (CA) which is a fundamental document when it comes to ownership and sharing of knowledge of project results, as it establishes or further defines how the Consortium agrees on the use and dissemination of project results. The background that is brought into the project will always remain the property of the partner involved. Partners who will provide pre-existing know-how during the project should have specified any conditions for accessing it in the Consortium Agreement. Finally, background to be excluded from access rights where to be specified in another dedicated section and all other background will be considered as unnecessary and excluded from the access rights.

As for the foreground, i.e., the project results and any IPR that may be linked to them, it is owned by the participant that carried out the work.

Partners working in the same WP shall have Access Rights to all foreground and background needed for the execution of the WP. Participants from other WPs will have the same access to foreground and background, if these form part of a deliverable or are necessary for the execution of the sub-project.

A plan for the use and the dissemination of foreground will be refined while activities are still ongoing but initial results are emerging and it will include how to manage the direct or indirect utilisation of foreground in further research activities other than those covered by the project, or for development and provision of product, services or processes.

- **Direct use** implies that partners utilise the results for commercial applications and / or for further research (“further” with respect to the scope of the project in which the foreground is generated).
- **Indirect use** implies that partners may allow third parties to exploit the research results through a specific agreement.

3.1 Methodology

An important aspect to take into account is the fact that this version of the deliverable has been produced in the first year from the beginning of the project, when the design of the systems, modules and features is not yet finalized and still open to review or modifications.

A second important point is that, although some of the partners are already involved in the target market, the solution proposed by the OMEGA-X project is very innovative and the 'rules' may differ from their experiences.

Considering these, the initial activities of exploitation will pass through the following steps:

1. Characterization table. The purpose of the characterisation table is to begin to identify and describe the final results and, consequently, to define the roles, actions and time

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frames for the partners who want to exploit them. The table is useful to explore the needs or barriers that the results intend to solve or overcome, define who the customers and relevant segments are, who the competitors are and their competitive solutions.

2. Review of the state-of-the-art solutions. The second step is to identify solutions that are close to OMEGA-X concept. The idea is to identify the interesting features that should be imitated and possibly improved and the business models that are currently mostly adopted. This step is very useful for partners dedicated to the technical development of OMEGA-X KERs and should be considered before finalising the design of solutions.
3. Patent Analysis. This method is used to investigate the scenario around a certain product or technology. The analysis is described in detail in Chapter 3.13 and will provide partners with useful information on who is working in a certain field, what is the level of investment in a certain technology, where are the high potential markets.
4. Exploitation workshops (M16 and M34). Exploitation workshops will be organized by RINA-C, involving all the partners. In the first one that will be held at month 16 the aim would be to define project outcomes exploitation strategy, project beyond strategy for OMEGA-X as well as IPR Management. The second one (M34) will focus on commenting the data collected in the characterization table and the scenario on alternative solutions, this second workshop is aimed to finalize the definition of KERs and the role of involved partners.

In the next release of the exploitation report for each identified KERs, the following information will be presented:

- The level of innovation introduced, compared to the actual market
- The Unique Selling Point (the competitive advantages)
- Any legal or non-technical barrier to exploitation
- The strategy to positioning in the future market
- Preliminary esteem of costs
- Time to market
- An analysis of the international patent scenario (if applicable)
- A collection of the main non-technological risks for an efficient exploitation
- The preliminary indications on the available protection strategies

3.1.1 Glossary

In this Chapter some key concepts related to the exploitation are described:

- **KER – Key Exploitable result.** This is the main interesting result that has been identified in the project: a product, a service, a software, a database, a design etc. Independently from the format, the result comes from the activities of the project and can belong to one or several partners, in general to all those that actively participated to its development.
- **Exploitation.** This is the way how partners get benefits from KERs. Benefits can be of different type: commercial, scientific but also the submission of a paper or of an abstract or the licensing to third parties and so on. Usually depending on the partners there are different objectives of exploitation.

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- **Protection.** Whenever new intellectual property is being developed, it is worth to evaluate the most efficient ways for protecting it. On the basis of the results from the patent analysis, it will be provided suggestions on the possible protection and exploitation strategy.
- **Unique selling point.** This is constituted by one or several features that differentiate the KER from currently available solutions (competitors). In general, when we speak about an innovative solution, the unique selling point is a specific feature that solves a customer's need that currently is not solved by the state of the art or just partially approached.
- **Result ownership.** This represents the share of KER owned by a partner. When a result comes from the activities exclusively carried on by one partner, it owns the 100% of the KER. If more partners cooperated to reach a KER, it will belong to all partners in equal shares.
- **Business model.** The business model represents an extended portion of the value chain around a KER. It includes at least the stakeholder involved in the development, manufacturing, commercialization, delivering of products or services and the target customers. The model also identifies the stream of costs and revenues.
- **BFMULO table.** During project development project, partners work together to develop several results and, accordingly, there will be different interests in their exploitation. A useful tool to recap the interest is the so-called BFMULO table. BFMULO is an acronym that will be explained in detail in a dedicated chapter.

3.1.2 IP protection tools

On the basis of the results from the patent analysis, as a conclusion for each use case the report will provide suggestion on the possible protection and exploitation strategy.

The most used protection tools are:

- **Patents:** is a legal title that gives the inventor an exclusive monopoly of exploitation of his invention limited in time and territory. More specifically, the inventor has the right to prohibit third parties, except with his consent, from producing, using, marketing, selling or importing the patented products, in the case of products; to apply, use, market and sell or import the product obtained by the process, in the case of processes. Software and algorithms generally cannot be patented (at least in the EU).
- **Copyright:** Copyright is the protection of intellectual works of a creative nature relating to science, literature, music, figurative arts, architecture, theatre, cinematography, broadcasting and computer programs (software) and databases, whatever their mode or form of expression, usually for a limited period of time. No registration or other formality relating to the software is required but is granted by the mere fact of the creation of the computer program. Copyright protection does not extend to the underlying ideas, procedures, methods of operation or mathematical concepts as such.
- **Industrial design rights:** It is the instrument used to protect the visual design of objects thus focusing exclusively on the aesthetic or decorative soul of the design object, leaving out the functional one.
- **Trademarks:** A trademark means any sign capable of being represented graphically, in any format such as words (including names of persons), drawings, letters, figures, sounds, the shape of a product or its packaging, colour combinations or shades, with the purpose of distinguishing the goods or services of one company from those of others. A clear example

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is the possibility of protecting the trademark "OMEGA-X", so that all exploitable results of the project can be offered to the market with a single logo that further enhances its positioning.

- **Industrial secrecy:** is an instrument for the protection of intellectual (creative and inventive) activities relating to the development of industrial products, usually consisting of a formula, algorithm, practice, process, design, tool, model or compilation of information that is not generally known, by which a company can obtain an economic advantage over its competitors. There is no formal government protection but instead the maintenance of secrecy is left to the IP owners and their management processes.

3.1.3 Patent analysis

Patent analysis will be conducted through a specific tool for intellectual property searches, PatSnap. It is a patent search and analysis platform that provides access to globally reliable patent and scientific literature. The platform enables to assess IP portfolios, both internally and within the context of the wider global landscape, helping professionals to make the right decisions at every stage of the IP life cycle and finding answers to complex questions.

In the field of research, a company or consortium investing in R&D needs to have a very clear and up-to-date idea of the international scenario, in order to tackle efforts correctly and efficiently and avoid violations.

The analysis is optimized for:

- **Clearance, state-of-the-art, right-to-use and freedom-to-operate research.** This analysis confirms whether you have the freedom to operate in a particular technological area and avoid potential risks of infringement. With this tool, we can examine patents in the native language of many countries and continuously perform update analyses to avoid the risk of infringement. This can be achieved by examining published patents, applications, non-patent literature and technology trends.
- **Competitive and technical intelligence searching.** Strategic, technical and competitive intelligence activities can also be carried out with the support of artificial intelligence.

Once the search fields for patent analysis have been identified and finalised, the database provides a number of results which - at this stage of exploitation - can be very high. For this reason, rather than a one-to-one analysis of results, the report will provide charts and figures about the scenario, which will be useful to address the exploitation challenges of the project.

In particular, the patenting trend is the first data that is shown for each analysis, providing the number of patents filed each year, usually in the last 5-10 years. Several important pieces of information on the technology/industry we are analysing are provided in this first step. First, the number of patents is related to the overall interest and industrial engagement in the development of new IP in a given field.

The second very important information is related to the status (growth, maturity, obsolescence) of a technology given the shape of its trend since each version of of a technology is related to the revenues and products derived from it.

Moreover, peaks and drops of the trend will reveal particular situations that positively or negatively affected R&D, such as key enabling patents, new policies, key players entrance, economic crisis, drop of the market etc.

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Another important information of a patent is the IPC (International Patent Classification) code, which reveals the technology cluster the patent belongs to and can be explored digit by digit until the necessary level of information is reached. By analysing IPCs, it is possible to understand at a global level which subdomains are the most active.

A parallel analysis can be performed by looking at recurring keywords and clustering the patents found according to them. As with the entire dataset, a time trend can be provided for each individual patent cluster to see which are growing, which are being abandoned and which are emerging.

For each use case, a table with the main applicant (assignee, the party that owns the IP generated and described in a patent) will be provided in order to understand who has developed the international know-how and to get an idea of the involvement of large companies, small companies, universities, etc.

Despite the nationality or geographical location of the assignee, a patent may be filed in one or more countries (national patent), on a continent (as in the case of EU patents) or worldwide. This reveals the geographical coverage of patents, i.e. the countries where the protected IP can be marketed, licensed or sold. The charts to be prepared will show the top 10 countries/geographical areas of coverage.

This analysis on geographic coverage of a patent over time will help to understand which are actually the key markets of the protected IP and its evolution over time and to direct future choices on the coverage of new ones.. For example, a new technology may be protected in Europe, the US and China; after a few years of commercialisation, the economic results are only good in the European and American markets: as a result, the assignee may decide to keep the patents alive in the US and the EU, leaving the rights (and the associated maintenance costs) in China and India.

3.2 KER identification

RINA-C, as responsible of T7.4 “IPR, Exploitation, business plans”, will perform several activities involving partners to facilitate the identification of Key Exploitable Results (KERs).

As Exploitation Manager, RINA-C will organize several calls and two workshops (M16 and M34) to facilitate the identification process.

The first step is to identify KERs and involved parties, then the second step is to characterize KERs, which means a deep analysis on the content and characteristics of the KERs, also considering market opportunities and exploitable roadmaps.

It is important to highlight, that KERs identification is an ongoing activity, and during the project’s lifecycle and in a more mature stage of the project, may occur that new KERs can be identified.

3.2.1 Exploitation workshops

Two workshops totally dedicated to the exploitation of the results have been planned to be held respectively at the M16 and at the M34 of the project. As for the first Workshop, this will be divided into two phases: a first phase in which, RINA-C will explain the templates developed to collect the key information for the characterization of results and for building the main steps towards the future commercialization. Then a second phase, where a practical example will be given selecting one of the partners involved in the KERs and start a common session for filling the table.

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The second workshop will be held when the project will reach a more mature stage and all the KERs have been fully identified. The aim is to define a final exploitation strategy by providing a comprehensive and practical path for trading and operational success beyond the end of the project.

3.2.2 Characterization table

As mentioned above, after identifying the OMEGA-X KERs, it is fundamental to conduct a deep analysis and characterise each KER.

More into details, in order to identify the main limitation and barriers of the different solutions already present in the market and characterize the OMEGA-X KERs and exploitation plan from all the partners, a characterization template (see Annex C) has been created by RINA-C, in order to collect comments and feedback, valuable to characterize the results.

Once all answers will be collected, they will be analysed and shared during the first exploitation workshop, and finally included in the characterization tables reported in the future versions of this deliverable.

The characterization template created by RINA-C is formulated as a questionnaire and will be shared among the partners. It is divided in several different sections, and to facilitate the comprehension and the compilation, each section presents a description, and all answers can be provided via checkbox and open answer (with some text available).

3.3 Partners engagement activities

All partners will be actively involved in identifying OMEGA-X's KERs and then, in a second phase, KERs participants will particularly be engaged in the characterization of each KER.

3.3.1 BFMULO matrix

The BFMULO matrix is used as a tool to record partners' requests and expectations of exploitation. The letters refer to particular exploitation intentions and must be entered in the BFMULO matrix.

In the RINA-C methodology, the BFMULO table is prepared following the KER table, where all the key exploitable results of the project have been identified together with the KER leader and the partners involved. And following the Characterisation Checklist, where each individual KER has been fully explored and described, especially the non-technical aspects.

At this point, each individual KER is fully explored, and all partners (not only the KER leader) can express their rights and/or interests in future exploitation.

BFMULO is an acronym that stands for:

- **B – Background** = IPR's on background information which means information brought to the project from existing knowledge owned or controlled by project partners in the same or related fields of the work carried out in the research project.
- **F – Foreground** = IPR's on foreground information including all kind of results developed within the project by partners or 3rd parties working for them in the implementation of the research project. In this case, it is necessary that a partner has a task(s) in the project related to that result.
- **M – Manufacturing** = Product realisation and sale or direct realisation through own facilities and competences. Depending on its role within the project, the competences and the role in

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the value chain a partner may be interested in realising an outcome. This is not strictly related to IP ownership; in fact, it is possible that an IP owner does not have the skills or assets to produce an outcome. In this case, another partner's interest in producing it would lead to a bilateral commercial agreement with the IP owner.

- **U – Using** = Use of the result implemented with own knowledge to develop new products or new processes. This also includes direct or indirect use of the gained knowledge in other research activities outside those covered by the project, or to develop, create and market a product or process. Demo partners are generally not interested in commercialising the results or producing them, they participate in the project to benefit from the use of the developed solutions. Being an active part of the project, they are expected to have access to the results as users, under fair conditions.
- **L – Licensing** = Licensing of the result, when a partner does not have all the skills and assets to fully exploit a result or wants to explore new areas that it cannot cover commercially, one option is to license the secured IP. This means that someone else (outside the consortium) can sign an agreement with the owner and exploit the IP.
- **O – Other** = Other: any other exploitation means (e.g.: consultancy, provide special services, build academic courses etc.).

The file is structured in two tables.

In Table 4 (one per identified KER), the partner is asked to select the relevant “actions” (B, F, M, U, L, O) and explain with a few words the choice. A checklist would guide the partner in filling it.

Table 4: BFMULO Table

Name of the partner
Title and number of the KER	KER n° – Title:
B – Background	Do you have background for this KER? <input type="checkbox"/> YES <input type="checkbox"/> NO In case you checked “YES”, your background is: <input type="checkbox"/> A patent (please specify the title and publication number) <input type="checkbox"/> Other types of IP (e.g. copyright, design etc..) <input type="checkbox"/> Industrial secret <input type="checkbox"/> A product/service <input type="checkbox"/> A scientific publication (or similar) <input type="checkbox"/> Other (please specify)

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Name of the partner
F – Foreground	Do you have foreground for this KER? <input type="checkbox"/> YES <input type="checkbox"/> NO In case you checked “YES”, your proposed foreground is: <input type="checkbox"/> A patent (please specify the title and publication number) <input type="checkbox"/> Other types of IP (e.g. copyright, design etc..) <input type="checkbox"/> Industrial secret <input type="checkbox"/> A new or improved product/service <input type="checkbox"/> A scientific publication (or similar) <input type="checkbox"/> Other (please specify)
M – Manufacturing	Are you going to: <input type="checkbox"/> Manufacture (and sell) the full KER (which is a product) <input type="checkbox"/> Manufacture (and sell) part of the KER (e.g. one component) <input type="checkbox"/> Write the software/firmware (or similar) <input type="checkbox"/> Create the tools, software tools to propose the KER (which is a service) <input type="checkbox"/> Sell, adjust, evolve the KER (which is a service) <input type="checkbox"/> Other (please specify)
U – Using	Are you going to: <input type="checkbox"/> Buy / adopt the full KER (which is a product) <input type="checkbox"/> Integrate part of the KER (e.g. one component) in one of your products <input type="checkbox"/> Buy / use the service <input type="checkbox"/> Other (please specify)

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Name of the partner
L – Licensing	<p>Are you going to licence to third parties (out of the initial consortium) the KER?</p> <p><input type="checkbox"/> YES</p> <p><input type="checkbox"/> NO</p> <p>In case you answered “YES”, have you identified the entity for licensing:</p> <p><input type="checkbox"/> Yes, there is already a name for licensing and initial commercial agreements have started;</p> <p><input type="checkbox"/> Yes, there is already a name for licensing;</p> <p><input type="checkbox"/> Yes, there is a clear profile of the entity for licensing;</p> <p><input type="checkbox"/> No, but it is necessary to find an entity for licensing;</p> <p>What will be the main role of the entity and the scope of licensing (please select all relevant answers):</p> <p><input type="checkbox"/> Manufacturing (also considering software and tools)</p> <p><input type="checkbox"/> Selling the product or providing the same service;;</p> <p><input type="checkbox"/> Distributing the product;</p> <p><input type="checkbox"/> Service, after sales;</p> <p><input type="checkbox"/> Maintenance and repair;</p> <p><input type="checkbox"/> Other (please specify).</p>
O - Other	<p>There are several other options to exploit a KER. Please select one or more that can be relevant for your organization and add anything else that is not included in the list:</p> <p><input type="checkbox"/> Build academic courses;</p> <p><input type="checkbox"/> Provide consultancy;</p> <p><input type="checkbox"/> Create a Spin-Off Company;</p> <p><input type="checkbox"/> Support further R&D studies;</p> <p><input type="checkbox"/> Other (please specify).</p>

The second table (Table 5) is just a final summary BFMULO matrix, containing all partners’ (one per line) intentions in the future exploitation of results.

Table 5: BFMULO matrix of the identified KERs

Partner	KER 1	KER 2	KER 3	...
Partner 1				
Partner 2				
Partner 3				
...				

4 Contribution to standards and data space initiatives

The energy sector is rapidly evolving, and with the growth of the data market, standardisation efforts are needed more than ever before. Currently, a lack of interoperability and high integration costs are preventing the data economy from thriving. This is where standardisation can play a key role, by providing a common language and framework for data exchange and ensuring that open-source technologies are readily accessible to all players in the market.

To address these issues, OMEGA-X is committed to contributing to the development of energy standardisation. This chapter presents the first report on the standardisation activities of the project, providing a list of relevant standards that have been identified by the consortium. In the coming months, OMEGA-X will assess the potential impact of these standards and provide recommendations to major standardisation bodies based on its research. These recommendations will be shared, presented, and discussed with standardisation bodies' representatives.

4.1 Current landscape of standards

This section explores the importance of standardisation within the context of OMEGA-X, identifies the key standardisation bodies that are relevant to the project, and outlines how OMEGA-X can contribute to the different standardisation committees.

4.1.1 Benefit of standardization

Standardization is the process of developing and implementing technical standards that ensure consistency, safety, interoperability, and quality in a particular field or industry. Standardization has numerous benefits, including [7]:

- **Preview of what is happening on the market:** Standards can help companies to stay up-to-date with market trends and best practices by providing guidance on emerging technologies, processes, and requirements. By adhering to industry standards, companies can stay ahead of the curve and anticipate changes in the market.
- **Lower R&D risks and costs:** standards can help to reduce the risks and costs associated with research and development by providing a common framework for innovation. Standards can provide guidance on technical requirements, testing, and certification, which can help companies to develop new products and services more efficiently and effectively.
- **Environmental protection:** Standards can help to promote environmental protection by providing guidance on sustainable practices and reducing the environmental impact of products and services. For example, standards may require companies to use environmentally friendly materials, reduce energy consumption, or limit waste production.
- **Improved product quality:** Standardization helps to ensure that products and services are of a consistent quality, which can increase customer satisfaction and reduce the risk of product recalls or defects.
- **Increased efficiency:** Standardization can streamline processes and reduce the time and resources required to develop, produce, and distribute products and services.

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- **Lower costs:** Standardization can help to reduce costs associated with developing and producing products and services, as well as costs associated with training and support.
- **Improved safety:** Standardization can help to ensure that products and services meet safety requirements and reduce the risk of accidents or injuries.
- **Facilitated trade:** Standardization can facilitate trade by reducing technical barriers and ensuring that products and services can be used and sold in different markets, across industries or geographies.
- **Improved interoperability:** Standardization can help to ensure that different products and services can work together, which can increase efficiency and reduce costs.
- **Enhanced innovation:** Standardization can provide a common foundation for innovation by defining technical requirements and ensuring interoperability, which can promote competition and drive innovation.

4.1.2 Standardization Bodies

Companies are interested to engage in standardisation to prevent formal standards from conflicting with their interests, solve industry-specific technical problems, and acquire competitive advantages through advantage in knowledge. These are the motivations for companies and also for research projects to engage with standardisation bodies to set common guidelines, standardised methodologies and specifications.

Key standardisation bodies interesting for the OMEGA-X project are detailed below. For example, ISO and IEC offer the international workshop agreement (IWA) at an international level, CEN and CENELEC offer the CEN workshop agreement at European level, and DIN offers the DIN SPEC at national level. Many of the pre-standards or standards elaborated in consortia are taken over by the international standardisation system, in essence, ISO or IEC standards.

- **International SDOs:**

- **International Organization for Standardization (ISO):** ISO is an independent, non-governmental international organization with a membership of 167 national standards bodies. Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market-relevant international standards that support innovation and provide solutions to global challenges.

Website: <https://www.iso.org/>

- **International Electrotechnical Commission (IEC):** IEC is a global organization that develops and publishes international standards for electrical and electronic technologies. IEC standards cover topics such as power generation, transmission and distribution, telecommunications, and information technology. The IEC cooperates closely with the International Organization for Standardisation (ISO) and the International Telecommunication Union (ITU).

Website: <https://iec.ch/>

- **International Telecommunication Union (ITU):** The International Telecommunication Union is a specialized agency of the United Nations responsible for many matters related to information and communication technologies. The ITU promotes the shared global use of the radio spectrum, facilitates international cooperation in assigning satellite orbits,

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assists in developing and coordinating worldwide technical standards, and works to improve telecommunication infrastructure in the developing world.

Website: <https://www.itu.int/>

- **European and regional SDOs:** CEN, CENELEC and ETSI are the three European Standards Organization (ESO). Only standards developed by these three are recognised as European Standards (ENs).

- **CEN/CENELEC:** CEN (European Committee for Standardization) and CENELEC (European Committee for Electrotechnical Standardization) are two European standardization organizations that work together to develop technical standards across a wide range of industries and sectors. The members of CEN and CENELEC are the National SDOs (also called National Standards Bodies in the EU) and National Electrotechnical Committees of all EU member states, plus associated nations (such as Iceland, Norway, Switzerland, and Turkey). European standards approved by CEN and CENELEC are accepted and recognized in all members and associated countries. CEN/CENELEC aim to produce high-quality standards for products and services that incorporate quality, safety, environmental, interoperability and accessibility requirements.

Website: <https://www.cencenelec.eu/>

- **European Telecommunications Standards Institute (ETSI):** ETSI is a European Standards Organization (ESO). We are the recognised regional standards body dealing with telecommunications, broadcasting and other electronic communications networks and services. ETSI has a significant role in Europe. This includes supporting European regulations and legislation by creating harmonised European standards related to areas such as 5G, Internet of Things (IoT), cybersecurity, and smart cities.

Website: <https://www.etsi.org/>

- **Standard Initiatives & Professional organisations:**

- **Institute of Electrical and Electronics Engineers Standards Association (IEEE-SA):** IEEE is a primary SDO with a large number of active technical standards related to electrical and electronic engineering, ranging from wireless communications and digital health to cloud computing, power and energy, 3D videos, electrical vehicle standards, and the Internet of Things. It was created by the Institute of Electrical and Electronics Engineers (IEEE), the American Association of Electrical and Electronics Engineers. It brings together and organises members from all over the world.

Website: <https://standards.ieee.org/>

- **World Wide Web Consortium (W3C):** The World Wide Web Consortium (W3C) is an international community where Member organisations, full-time staff, and the public work together to develop standards related to the World Wide Web and web technologies. Founded in 1994, W3C is responsible for developing and maintaining many of the key standards used on the web, including HTML, CSS, and the Web Content Accessibility Guidelines (WCAG). W3C's mission is to lead the web to its full potential by developing open standards that promote innovation, interoperability, and accessibility.

Website: <https://www.w3.org/>

- **European Computer Manufacturers Association (ECMA International):** ECMA is an international standards organization that is focused on developing standards related to information and communication technologies (ICT). ECMA was founded in 1961 by major

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multinational computer hardware manufacturers present in Europe. Whilst the brand name has been kept, nowadays ECMA's membership has grown; it includes companies and academics from around the world. ECMA develops standards related to areas such as programming languages, data interchange, and communication protocols. ECMA works closely with other international standards organizations, such as ISO and IEC, to ensure the interoperability and compatibility of their standards with other systems and technologies.

Website: <https://www.ecma-international.org/>

- **Specific Energy Domain Standardization initiatives:**

- **THE CG-SG (Coordination Group on Smart Grids):** A CEN, CENELEC and ETSI joint coordination group on the subject of Smart Grids. The group has been established in January 2021 as a merge of previous CEN/CLC/ETSI CG-SM (Coordination group on Smart Meters) and CG-SEG (Coordination Group on Smart Energy Grid). The CG-SG advises on European standardization requirements relating to smart electrical grid and multicommodity smart metering standardization, including interactions between commodity systems (e.g. electricity, gas, heat, water), and assesses ways to address them. This includes interactions with end-users, including consumers/prosumers.

Website: <https://www.cencenelec.eu/areas-of-work/cen-cenelec-topics/smart-grids-and-meters/cen-cenelec-etsi-coordination-group-on-smart-grids-cg-sg/>

- **OpenADR:** An open, highly secure, and two-way information exchange model and global Smart Grid standard. The OpenADR Alliance was formed 2010 by industry stakeholders to build on the foundation of technical activities to support the development, testing, and deployment of commercial OpenADR and facilitates its acceleration and widespread adoption.

Website: <https://www.openadr.org/overview>

4.1.3 How to impact standards

To influence standards in the energy domain, we will conduct the following steps:

1. **Current Standardization Status:** The first step is to map out the current standardization landscape and identify relevant standards applicable to OMEGA-X at national, European, and international levels. This will help the project avoid duplicating existing efforts, be aware of the standardization context, and ensure interoperability. An initial mapping has already been conducted and will be presented in this document. Subsequent iterations of the deliverable will involve updating and expanding the list as needed.
2. **Prioritization:** Based on the mapping, the project will conduct an analysis to identify gaps in the current standards that need to be addressed or where new standards need to be developed. This will help prioritize OMEGA-X's efforts and determine which areas of standardization require the most attention.
3. **Contribution to standards:** The final stage involves leveraging the consortium's existing connections and maintaining continuous discourse with standardization bodies and organizations. As will be detailed in the next chapter, OMEGA-X is already involved in several standardization activities and efforts.
4. OMEGA-X will leverage these connections and cultivate new ones to liaise with relevant stakeholders and decision-makers and advocate for the development or

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modification of standards in the identified priority areas. This may involve conducting meetings, joint workshops, submitting comments and feedback on draft standards, and collaborating with other stakeholders to build support for the proposed changes.

Overall, by following this strategy, OMEGA-X can actively contribute to the development of energy standardization, ensuring that standards are developed in a way that aligns with the project's objectives and goals.

4.2 Standardization activities and documents review

The standards mapping and classification presented in the following chapter are the result of Omega-X's extensive efforts to identify relevant standardization development organizations (SDOs) and standards, as well as its involvement in ongoing standardization activities. These efforts were complemented by a comprehensive review of existing literature and previous initiatives in the field.

OMEGA-X consortium has been involved in the following standardization activities:

- **The Interoperability Task Force:** OMEGA-X is taking part in a joint task force for the interoperability and standardization of Data Spaces in the energy domain, with contributors from five Energy projects and the Energy CSA (int:net).
- **BRIDGE:** The BRIDGE initiative helps identify and structure cross-cutting innovation issues that may be an obstacle to innovation in smart grids, energy storage, islands, and digitalization. OMEGA-X is participating in the BRIDGE initiative by engaging in its working groups with contributions, as is described in detail in Deliverable 2.2

OMEGA-X's standardization activities will be in alignment to the BRIDGE Working Group on Data Management, which focuses on the following matters:

- Communication Infrastructure, embracing the technical and non-technical aspects of the communication infrastructure needed to exchange data and the related requirements, including issues faced by TSO and DSO.
- Cybersecurity and Data Privacy, entailing data integrity, customer privacy and protection.
- Data Handling, including the framework for data exchange and related roles and responsibilities, together with the technical issues supporting the exchange of data in a secure and interoperable manner, and the data analytics techniques for data processing.
- **Engagement via IDSA in standardization bodies' activities for the representation of data space standards:** Participation in SDOs activities allows to facilitate mutual feedback between standardization bodies and the energy domain, and to provide support for the implementation of standards at the project level. Current participation includes:
 - ISO SC38 Information technology — Cloud computing and distributed platforms — Dataspaces: Parliamentary working group to review existing projects that relate to Data Space and identify needs for Data Space standardization.
 - IEEE P3800 Data trading systems: Workshop for the creation of standards in the subject of data trading systems;
 - CEN/CENELEC: Participation in workshop on Trusted data transactions

During 2021-2022 different position papers have been published that will support the contribution to standardisation. Notable sources include the following:

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- **Contribution from BRIDGE projects to Standardisation [8]:** A paper published by BRIDGE’s Data Management Working Group, analysing Standard Development Organisations and standardisation topics, and proposing a list of topics, findings and recommendations associated to the potential creation of a BRIDGE Standardisation User Group. Eric Lambert (EDF), who is a member of the consortium, is one of the co-authors of the paper. This document will be taken into consideration by OMEGA-X’s standardisation activities.
- **Reference Architectures and Interoperability in Digital Platforms [9]:** This document represents the result of a task force on reference architectures, interoperability frameworks and standardisation in DEI Digital Platforms. The position paper provides an analysis on how digital platforms can be aligned to enable cross platforms and cross-domain data exchange: Section 5 of the paper elaborate on how reference architectures and interoperability frameworks are addressed in the energy domain.
- **Data sharing spaces and interoperability position paper [10]:** A presentation made by Antonio Kung of Trialog as part of a workshop “Towards Data Spaces Interoperability Workshop on standardisation co-organised by BD4NRG, TRUSTS and IDSA” in Prague on 23rd November 2022 during the European Big Data Value Forum (EBDVF), an annual event organised by Big Data Value Association.
- **Guidance for integrating IoT and Edge Computing in Data Spaces [11]:** This paper provides recommendations for data space standards, based on an architecture analysis of data spaces and of existing solutions.

4.3 Relevant standards for OMEGA-X

The following chapter includes a mapping of standards that may be relevant to OMEGA-X’s efforts, classified into three main categories:

- Interoperability: data markets and schemata
- Privacy-preserving technologies
- Standards relevant to the use cases (industry)

This is the first iteration of the identification of relevant standards and could be expanded in future deliverables.

4.3.1 Data standards in the topic: “Interoperability: data markets and schemata”

The following standards have been identified by OMEGA-X in the subject of interoperability:

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Table 6: Identified interoperability standards

Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Data Management	DIN	DIN SPEC 27070	Requirements and reference architecture of a security gateway for the exchange of industry data and services.	Germany	https://www.din.de/de/forschung-und-innovation/din-spec/alle-geschaeftsplaene/wdc-beuth:din21:271182058
Metadata	W3C	DCAT	Data Catalogue Vocabulary (DCAT) - Version 2.	Worldwide	https://www.w3.org/TR/vocab-dcat-2/
Data platforms	W3C	HTTP	Hypertext Transfer Protocol -- HTTP/1.1. HTTP is an application layer protocol in the Internet protocol suite model for distributed, collaborative, hypermedia information systems.	Worldwide	https://www.w3.org/Protocols/
Data platforms	W3C	TLS	Transport Layer Security -- TLS1.2/1.3. TLS is a cryptographic protocol designed to provide communications security over a computer network.	Worldwide	https://www.w3.org/2005/Incubator/webid/spec/tls/
Data platforms	W3C	X.509	An X.509 certificate is a digital certificate that uses the widely accepted international X.509 public key infrastructure (PKI) standard to verify that a public key belongs to the user, computer or service identity contained within the certificate.	Worldwide	https://www.w3.org/PICS/DSig/X509_1_0.html
Metadata	W3C	RDF	Resource Description Framework -- The basic standard for describing resources using explicit, machine-readable semantics.	Worldwide	https://www.w3.org/TR/2014/REC-rdf11-concepts-20140225/

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Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Metadata	W3C	OWL	Ontology Web Language -- Specifies how ontologies are described in a machine and human-readable way, forming the basis of Knowledge Graphs	Worldwide	https://www.w3.org/TR/owl2-overview/
Metadata	W3C	ODRL	Policy description language -- Allows for specifying collections of permissions and prohibitions	Worldwide	https://www.w3.org/TR/odrl-model/
Metadata	W3C	SKOS	Simple Knowledge Organization System -- An ontology for describing concepts and their relations, allowing for the creation of hierarchically organised controlled vocabularies	Worldwide	https://www.w3.org/TR/2014/REC-rdf11-concepts-20140225/
Data architecture	W3C (draft standard)	REST	Representational state transfer (REST) is a software architectural style that was created to guide the design and development of the architecture for the World Wide Web. The REST architectural style emphasises the scalability of interactions between components, uniform interfaces, and the independent deployment of components.	Worldwide	https://www.w3.org/2001/sw/wiki/REST
Data interoperability	ECMA	JSON	JSON (JavaScript Object Notation) is a lightweight data interchange format. It is easy for humans to read and write. It is easy for machines to parse and generate. It is based on a subset of the JavaScript Programming Language Standard ECMA-262 3rd Edition - December 1999.	Worldwide	https://www.json.org/json-en.html

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Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Data interoperability	ISO	ISO/TR 23455:2019	Provides an overview of smart contracts in BC/DLT systems, describing what smart contracts are and how they work. It also discusses methods of interaction between multiple smart contracts. Focuses on technical aspects of smart contracts. Smart contracts for legally binding use and applications will only be briefly mentioned.	Worldwide	https://www.iso.org/standard/75624.html?browse=tc
Data interoperability	ISO/IEC	ISO/IEC 21823	Provides an overview of interoperability as it applies to IoT systems and a framework for interoperability for IoT systems and enables the entities of the IoT system to exchange information and mutually use the information in an efficient way.	Worldwide	https://www.iso.org/standard/71885.html

4.3.2 Standards in the topic: “Privacy-preserving technologies”

Table 7: Identified privacy preserving standards

Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Data Management	DIN	DIN SPEC 27070	Requirements and reference architecture of a security gateway for the exchange of industry data and services	Germany	https://www.din.de/de/forschung-und-innovation/din-spec/alle-geschaeftsplaene/wdc-beuth:din21:271182058

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Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Data platforms	W3C	TLS	Transport Layer Security -- TLS1.2/1.3. TLS is a cryptographic protocol designed to provide communications security over a computer network.	Worldwide	https://www.w3.org/2005/Incubator/webid/spec/tls/
Privacy and anonymisation	ISO	ISO/TR 23244:2020	Provides an overview of privacy and personally identifiable information (PII) protection as applied to blockchain and distributed ledger technologies (DLT) systems.	Worldwide	https://www.iso.org/standard/75061.html?browse=tc
Information Security	ISO	ISO/TR 23576:2020	<p>Discusses the threats, risks, and controls related to 1) systems that provide digital asset custodian services and/or exchange services to their customers (consumers and businesses) and management of security when an incident occurs; 2) asset information (including the signature key of the digital asset) that a custodian of digital assets manages.</p> <p>This document is addressed to digital asset custodians that manage signature keys associated with digital asset accounts. In such a case, certain specific recommendations apply.</p>	Worldwide	https://www.iso.org/standard/76072.html?browse=tc

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Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Data interoperability	ISO	ISO/TR 23455:2019	Provides an overview of smart contracts in BC/DLT systems; describing what smart contracts are and how they work. It also discusses methods of interaction between multiple smart contracts. Focuses on technical aspects of smart contracts. Smart contracts for legally binding use and applications will only be briefly mentioned.	Worldwide	https://www.iso.org/standard/75624.html?browse=tc
Metadata	ISO	ISO 22739:2020	Provides fundamental terminology for blockchain and distributed ledger technologies.	Worldwide	https://www.iso.org/standard/73771.html?browse=tc

4.3.3 Standards relevant to the use cases

Table 8: Identified use case relevant standards

Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Communication and interoperability	IEC	IEC 60870	Defines systems used for telecontrol (supervisory control and data acquisition). Such systems are used for controlling electric power transmission grids and other geographically widespread control systems. IEC standard 60870 has six parts, defining general information related to the standard, operating conditions, electrical interfaces, performance requirements, and data transmission protocols.	Worldwide	https://webstore.iec.ch/searchform&ComNumber=57

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Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Communication and interoperability	IEC	IEC 61850	Communication networks and systems in substations. The IEC 61850 series paves the way for the use of a variety of digital technologies relating to smart energy. They are widely considered to be among the core international standards for the smart grid. They deal with key topics such as the integration of renewable energies and distributed energy resources (DERs) within the existing electrical network.	Worldwide	https://webstore.iec.ch/publication/6028
Communication and interoperability	IEC	IEC 61968	A series of standards that defines interfaces for the major elements of an interface architecture for power system management and associated information exchange. IEC 61968 defines interfaces for all the major elements of an interface architecture for Distribution Management Systems (DMS) and is intended to be implemented with middleware services that broker messages among applications.	Worldwide	https://webstore.iec.ch/publication/32542
Communication and interoperability	IEC	IEC 61970	Addresses energy management systems' (EMS) application program interfaces. These guidelines and standards facilitate several objectives, including the integration of applications from various suppliers in the control center environment, exchanging information to external systems such as transmission, distribution, and generation systems, and providing compatible interfaces for data exchange across both old and new systems.	Worldwide	https://webstore.iec.ch/publication/61167

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Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Metering and Data Exchange	IEC	IEC 62056	These standards are the international versions of the DLMS/COSEM specification, which is a suite of protocols for meter data exchange.	Worldwide	https://www.iec.ch/dyn/www/f?p=103:22:0:::FSP_ORG_ID,FSP_LANG_ID:1273,25
Metering and Data Exchange	IEC	IEC 62325	IEC 62325 is a set of standards related to deregulated energy market communications, based on the Common Information Model (CIM)	Worldwide	https://webstore.iec.ch/searchform&ComNumber=57
Use Cases	IEC	IEC 62559-2	IEC 62559-2:2015 defines the structure of a use case template, template lists for actors and requirements, as well as their relation to each other. The energy system/smart grid is used as example in this document as it was one of the first usage areas for this use case template, b	Worldwide	https://webstore.iec.ch/publication/22349
Electric Vehicles	IEC	IEC 63110-1	Protocol for management of electric vehicles charging and discharging infrastructures - Part 1: Basic definitions, use cases and architectures	Worldwide	https://webstore.iec.ch/publication/27785
Smart Grids	IEC	IEC 63200	A Systems Reference Deliverable, defines the framework elements, associated ontology, and modelling methodology for designing the Smart energy Grid Reference Architecture using the Smart Grid Architecture Model (SGAM),	Worldwide	https://webstore.iec.ch/publication/62757
Smart Grids	IEC	IEC 63268	Energy and data interfaces of users connected to the smart grid with other smart grid stakeholders - Standardization landscape	Worldwide	https://webstore.iec.ch/publication/65148

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Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Smart Grids	IEC	IEC 62357-1 TR	A clear and comprehensive map of all standards which are contributing to support interactions, in an open and interoperable way, between actors, components and systems in the field of electricity grids from generation to consumers, including transmission and distribution.	Worldwide	https://webstore.iec.ch/publication/26251
Smart Grids	IEC	IEC 63097 TR	Smart grid standardization roadmap, aiming at creating a common set of guiding principles that can be referenced by end-users and integrators who are responsible for the specification, design, and implementation of Smart Energy Systems. As a living document, this roadmap will be subject to future changes, modifications and additions, and will be incorporated into future editions.	Worldwide	https://webstore.iec.ch/publication/27785
Systems Reference	IEC	IEC 63199 SRD	Presents the current status of the IEC systems committee Smart Energy (SyC SE) development plan for readers (not limited to IEC smart energy related members). This document is not a standard, but identifies items that require standardization, their current status and work required, possibly by multiple technical committees or working groups, to address any issues.	Worldwide	https://webstore.iec.ch/publication/62688
Smart Grids	IEEE	IEEE 1547	The IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces.	Worldwide	https://standards.ieee.org/ieee/1547/5915/

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Area	SDOs Body	Standard	Description	Geographical scope	Link to the standard
Smart Grids	IEEE	IEEE 2030.5	The application layer with TCP/IP providing functions in the transport and Internet layers to enable utility management of the end user energy environment, including demand response, load control, time of day pricing, management of distributed generation, electric vehicles, etc. is defined in this standard.	Worldwide	https://standards.ieee.org/ieee/2030.5/5897/
Energy Management System	ISO	ISO 50001	Requirements for establishing, implementing, maintaining, and improving an energy management system (EnMS). The intended outcome is to enable an organization to follow a systematic approach in achieving continual improvement of energy performance and the EnMS.	Worldwide	https://www.iso.org/standard/69426.html

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5 Conclusions

Deliverable 7.2 provides an overview of the dissemination activities made by OMEGA-X in Year 1 of the project.

OMEGA-X's dissemination activities will continue as planned in the second year of the project with a focus that shifts from awareness to engagement. The early stage awareness building with key stakeholders has been done not only through online channels but also with personal connections that were established at the multiple number of events that the partners attended (see chapter 2.4). Interest around the project was raised at events through participation in panel sessions and the usage of promotional materials.

Over the course of the first year OMEGA-X has:

- Opened three different social network accounts (Twitter, LinkedIn, YouTube) and continuously promoted the project through these accounts;
- Designed communication materials: poster, flyer, roll-up, banners;
- Sent out a press release;
- Released its website and subscription for its newsletter (using MailChimp);
- Participated in 1 scientific report;
- Promoted OMEGA-X and networked at 13 events;
- Contributed to the BRIDGE initiative.

In terms of social media communication channels, there is a positive tendency enhancing the outreach of the project both in scale and scope. This is demonstrated by the project Twitter account expanding to 204 followers with 4.874 impressions by the end of Year 1. Similarly, the LinkedIn account reached 208 subscribers (May 2022- March 2023).

The OMEGA-X's YouTube channel has been created and is going to be used more frequently in Year 2 of the project to engage and inform stakeholders and other interested parties.

Chapter 3 of this deliverable deals with IPR and exploitation of project results. The activities to perform, to facilitate the identification of Key Exploitable Results and to characterize them, have been defined. All partners involved in this activity will go on monitoring the advancements in technical development, with the aim of keeping track of the exploitation routes each KER will take.

Specific exploitation activities will be planned with the partners involved to identify the KERs, adopting a methodology similar to the one presented in Chapter 3. In the coming months, the following actions will be developed within the roadmap of partners' exploitation intentions, i.e. the list of all KERs identified in the project, together with the role and contributions of the partners involved and patent analysis will be conducted for each of the identified KERs. The results of the mentioned activities will be presented in D7.3 in month M24 (April 2024) and finalized in D7.4 in month 36 (April 2025) at the end of the project.

In terms of contribution to standards and data space initiatives, OMEGA-X has defined a general strategy, identified relevant standardization bodies, and compiled a comprehensive list of 31 potentially related standards to guide future activities. This groundwork will pave the way for the next stages, which involve prioritizing these standards and developing a specific

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engagement plan with standardization development organizations (SDOs) to ensure effective collaboration.

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Annex A: OMEGA-X event overview

The OMEGA-X event & dissemination overview is integrally available to all partners on the projects repository [1].

Year	Type	Event Name	Description	Target Audience	Date	City/country	Omega-X partners attending	What activity at the event? (booth-workshop-session-other relevant info)	Reach / Outcome (N° of participants per target group)	Links to supporting docs (text, images, attendees, ...)
2022	Conference	Sinergy	The Telecommunications Forum TELFOR is an international annual meeting of professionals working in the broad fields of Telecommunications and Information Technologies. During this event, the SINERGY project organised for the third time a half day open hybrid event "Smart and Innovative eENERGY management".	Academia Policymakers	15-16/11/22	Belgrade (Serbia)	Institute Mihajlo Pupin	During the networking session OMEGA-X was presented by Marko Batić (Institute Mihajlo Pupin). An OMEGA-X Poster was used at the booth during the event.	20 attendees	https://www.pupin.rs/en/2022/12/promoting-the-institute-mihajlo-pupin-as-a-regional-centre-of-excellence-in-smart-energy-management/
2022	Conference	Enlit Europe	One of the biggest events in Europe for Energy Transition with a clear focus on digitalisation on energy data sharing, management and role in Europe's climate neutrality. It hosts the environment for all key players in the smart energy ecosystem to come together.	Corporations, investors, consumers, activists, entrepreneurs, Grid operators and related stakeholders, policymakers	29/11/22- 1/12/22	Frankfurt (Germany)	Omega-X booth	OMEGA-X participated with a pod station (booth, incl desk and screen) on the EU projects zone, the one-stop hub for projects accelerating the energy transition, during this event. A podcast recording was made and published on March 30 2023 to promote the project on ENLIT social media channels. 2 boothsessions: 1 BRIDGE panel session and 1 dedicated Omega-X session by Javier Valino (Atos)	15000 attendees	https://www.enlit.world/digitalisation/data-analytics/the-ai-projects-zone-podcast-omega-x-with-javier-valino/ https://www.enlit.world/projects/OMEGA-X/
2022	Conference	Gaia-X summit	Organized by Gaia-X, aims to promote European sovereignty in cloud allocated data by showing data and services shared in Gaia-X ecosystem that lead to business value in the digital sector.	Industry experts, Academia, Policymakers	17-18/11/22	Paris (France) -hybrid	Atos	The theme of this edition was "We are up and running – The Future is Gaia-X" and primarily focused on the Gaia-X delivery, technical and business value/implementation, including all the latest developments, releases, and collective deliverables of the Gaia-X Framework. The CEO of Atos Worldgrid, Emmanuel Besse, presented	400 physical attendees, 4.500 online	https://lnkd.in/gVY3Ecw
2022	Conference	FIWARE Global Summit	This is one of the leading open source conferences that will equally gather a professional community and technological market leaders to discuss challenges and create opportunities for businesses and open innovation around the digital transformation of public administration processes, economic development, business operations and society.	for public administrations, academia, developers, technologists, thought leaders, entrepreneurs, SMEs, large enterprises and investors,	14-15/09/2022	Gran Canaria (Spain)	OASC	Session Dataspaces: panel participation of Michael Mulquin (OASC)	500 attendees	https://twitter.com/Omega_X_EU/status/1570353443428077568?s=20
2022	Conference	SEMIC	The Interoperability Unit of DIGIT in the European Commission, in collaboration with the Czech Presidency of the Council of the EU, proudly presents the 2022 edition of SEMIC: Data Spaces in an Interoperable Europe .	Policy makers, IT practitioners and researchers	6/12/2022	Brussels (Belgium)	OASC	OASC (Thimo Thoeys) pitched the OMEGA-X project. Parallel session 2 from 15h30 - 16h45 gave projects the opportunity to pitch their project, use cases and obstacles they are overcoming in implementing data spaces. 12 projects were presented, among which the OMEGA-X project.	40 attendees (parallel session 2)	

Figure 43: OMEGA-X Events overview: 2022

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Year	Type	Event Name	Description	Target Audience	Date	City/country	Omega-X partners attending	What activity of the event? (booth-workshop-session-offer relevant info)	Reach / Outcome (N° of participants per target group)	Links to supporting docs (text, images, attendees, ...)
2023	Conference	Connected Sustainable and Smart Cities and Communities conference	Annual European-based global event on local data ecosystems and interoperability, organised by OASC with cities, communities, businesses, researchers and policymakers to exchange best practices and the latest developments in the green-digital transformation.	Cities & Communities Policymakers Businesses Academia	17-18/01/2023	Brussels (Belgium)	OASC, UMAIA	Organizer event= OASC Pedro Pimenta of UMAIA presented OMEGA-X in the data space session. An OMEGA-X stand (table, rollup, leaflets) was installed for during the breaks.	160 attendees - 40 to the session	https://twitter.com/Omega_X_EU/status/1615650205286311938?z=20
2023	Conference	IoT Solution World Congress			31/01-2/2/23	Barcelona (Spain)	IDSA, Tecnalia	OMEGA-X partners IDSA and Tecnalia were jointly present with a booth covering different projects, among which OMEGA-X, around energy data spaces. A video was made for dissemination after the event.	15500 attendees to the event	https://youtu.be/erFwW28b8U
2023	Workshop	1st DSBA Hub Communities Meeting	A first meeting for the hubs of the connected initiatives FIWARE, GAIA-X, BDVA and IDSA.	academia, technologists, entrepreneurs, SMEs, large enterprises	14/02/2023	Remotely	IMT TeraLab	IMT Teralab (Luis Pineda) presented in the section "Best Practices from hubs" included OMEGA-X as part of their strategy to foster data spaces and implement interoperability.	45 attendees	https://twitter.com/Omega_X_EU/status/162548961566922598?z=20
2023	Conference	Green data hub: European Data Spaces for sustainability	The establishment of a secure, trustworthy, and sovereign data use in European Data Spaces to combat the climate crisis, support the energy and mobility transition, and the development of circular economy.	Cities & Communities Policymakers Businesses Academia	16/02/23	Remotely	Atos	OMEGA-X participated in the panel discussion: "What do we need to cooperate on an international level?". (Javier Valiño, Atos). The experts shared their insights on various topics, such as what "Data for Sustainability" means to them, how their initiatives enable sovereign, collaborative Data Spaces, and how they envision European Data Spaces for Sustainability. They also discussed the areas where collaboration would be particularly useful, and the differences between Data Spaces for Sustainability and other types of Data Spaces. The recording of the session is available.		https://youtu.be/O7nBb17-sGQ
2023	Workshop	IDSA's Tech Talks series: IDSA rulebook		developers, technologists,	23/02/23	Remotely	IDSA	These series are Powered by Omega-X - inclusion of slide within the presentation	80 attendees	recording (powered by in min1): https://www.youtube.com/watch?v=ktVVF-dquv8 presentations available on https://internationaldataspaces.org/archive/
2023	Workshop	IDSA's Tech Talks series: Data Space protocol preview		developers, technologists,	9/3/2023	Remotely	IDSA	These series are Powered by Omega-X - inclusion of slide within the presentation	219 attendees	
2023	Conference	Market-X Conference & Expo (Gaia-X)	Market-X is the networking event of Gaia-X Project Verticals, Gaia-X Hubs and Gaia-X Lighthouse Projects.	Businesses, Academia, developers, technologists,	14-15/03/2023	Vienna (Austria)	Atos	Booth, participation Javier Valino (Atos) in the panel session for the newly released Gaia-X Digital Clearing House (GXDCH) and referred to OMEGA-X. During this event OMEGA-X was announced as the first Gaia-X lighthouse project in the energy data space domain.	450 attendees	https://twitter.com/Omega_X_EU/status/163561976430212710?z=20
2023	Conference	Data Spaces Support Centre Annual Conference	First edition of this symposium, organised by the Data Spaces Support Centre (DSSC)	Businesses, Academia, developers, technologists, policy makers	21-23/03/2023	The Hague (The Netherlands)	IDSA, EDP, OASC	-IDSA, partner of DSSC and OMEGA-X co-organized this event. 1st day, the data spaces vision days, Michael Mulquin (OASC), referred to OMEGA-X in a session discussing the role of personal data intermediaries in data spaces. -2nd day: Manuel Pio Silva of EDP presented OMEGA-X and its Local Energies Communities and Flexibility use cases, during the "Manufacturing and energy domain lounge session". -Table with OMEGA-X leaflets.	700 attendees	https://twitter.com/Omega_X_EU/status/163925165463207321?z=20
2023	Meeting	BRIDGE General Assembly		Businesses, Academia, developers, technologists, policy makers	28-30/03/2023	Brussels (Belgium) - hybrid	Atos, UCP, EDF, ICOM	Javier Valino (Atos) and Claudia Antunes(UCP) represented OMEGA-X in person in Brussels, as leaders of subtask 2.5 in the Data Management Working Group (Data Exchange Reference Architecture version 3) and the value of data chains for business models in energy task in the Business Modelling Working Group, respectively. A number of other partners joined remotely, representing the various other contributions of OMEGA-X to BRIDGE, such as Eric Lambert (action 4 leader in the Data Management Working Group), Regine Belhomme from EDF (contact from OMEGA-X for Regulation) or Isidoros Kokos from ICOM.		

Figure 44: OMEGA-X Events overview: 2023

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Annex B: OMEGA-X dissemination overview

The OMEGA-X event & dissemination overview is integrally available to all partners on the projects repository [1].

Table 9: Event and dissemination overview

Date	Organization	Type (eg. newsletter, company, homepage, print, article)	Short description	Where (e.g. Twitter, LinkedIn, magazine, name, website...)	Links/uploads/screenshots
12/05/2022	OASC	Social Media	Kick-off project	Twitter	https://twitter.com/oascities/status/1524686882138992643?s=20&t=3X8BONQtmlk5NbbuakEeEQ
13/05/2022	IMT TERA	Social Media	Project KoM	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:6930824353529909248
30/06/2022	IMT TERA	Social Media	Press release	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:6948241865540296704
26/07/2022	IDSA	Social Media	Launch project	Twitter	https://twitter.com/ids_association/status/1551842796151226368?s=20
06/09/2022	OASC	Press Release	Kick-off project	OASC Website	https://oascities.org/omega-x-press-release-an-energy-data-space-to-boost-the-european-data-economy/
13/10/2022	Maia	Website	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Website (SPARCS project)	https://sparcs.info/what-is-new/news/sparcs-fellow-city-maia-organises-joint-meeting-h2020-projects

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Date	Organization	Type (eg. newsletter, company, homepage, print, article)	Short description	Where (e.g. Twitter, LinkedIn, magazine, name, website...)	Links/uploads/screenshots
14/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Facebook (Câmara Municipal da Maia)	https://www.facebook.com/photo?fbid=479428464210582&set=pcb.479428550877240
14/10/2022	Maia	News	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Website (Maia ON)	https://maia.pt/2022/10/14/municipio-da-maia-reune-parceiros-de-projetos-europeus-horizonte/
14/10/2022	Maia	Website	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Website (SPARCS project)	https://sparcs.info/what-is-new/news/fellow-city-maia-has-taken-lead-energy-transition
14/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Facebook (SPARCS project)	https://www.facebook.com/SPARCSeu/photos/a.103576211059447/816149029802158/
14/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Facebook (SPARCS project)	https://www.facebook.com/SPARCSeu/photos/pcb.816310313119363/816309809786080/
14/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	LinkedIn (SPARCS project)	https://www.linkedin.com/posts/sparcseu_yesterday-our-fellow-city-maia-organised-activity-6986598215928184832-ne5
14/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	LinkedIn (SPARCS project)	https://www.linkedin.com/posts/sparcseu_maia-h2020-activity-6986670006570737664-MtsA
14/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Twitter (SPARCS project)	https://twitter.com/SPARCSeu/status/1580832308432896000

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Date	Organization	Type (eg. newsletter, company, homepage, print, article)	Short description	Where (e.g. Twitter, LinkedIn, magazine, name, website...)	Links/uploads/screenshots
14/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Twitter (SPARCS project)	https://twitter.com/SPARCSeu/status/1580904087071383552
15/10/2022	Maia	News	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Website (Notícias Maia)	https://www.noticiasmaia.com/municipio-da-maia-reuniu-se-com-parceiros-dos-projetos-europeus-horizonte/
15/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Facebook (Notícias Maia)	https://www.facebook.com/NoticiasMaia/posts/pfbid0H2JZDGazq9w4iytRRZNRuJk3hq5LcXjRymCnsEJKwmKLAvpLHRateCFGTjMGV7Mtl
16/10/2022	OASC	Website	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Website (OMEGA-X project)	https://omega-x.eu/2022/10/16/post-2/
17/10/2022	Maia	News	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Website (Notícias Primeira Mão)	https://noticiasprimeiramao.pt/maia-reuniu-parceiros-dos-projetos-europeus-horizonte/
17/10/2022	Maia	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Facebook (Notícias Primeira Mão)	https://www.facebook.com/noticiasprimeiramao/posts/pfbid028LQgf7YD6orDstzmYnmq4cX781S2F8D9gg1rEw4w1LFUMfRLnQRC1rswgzeygAkPI
17/10/2022	OASC	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	LinkedIn (OMEGA-X project)	https://www.linkedin.com/feed/update/urn:li:activity:6987718257080205312

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Date	Organization	Type (eg. newsletter, company, homepage, print, article)	Short description	Where (e.g. Twitter, LinkedIn, magazine, name, website...)	Links/uploads/screenshots
17/10/2022	OASC	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Twitter (OMEGA-X project)	https://twitter.com/Omega_X_EU/status/1581939590847336449
17/10/2022	OASC	Social Media	Flexibility Use Case partners visit to the city of Maia on 13-14/10/2022	Twitter (OMEGA-X project)	https://twitter.com/Omega_X_EU/status/1581943345269858304
02/11/2022	IMT TERA	Social Media	Project leaflet	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:6993579882135875584
06/12/2022	ATOS	Social Media	Enlit	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:7005832047680249856
13/01/2023	ATOS	Social Media	Data spaces	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:7019604061872119808
23/01/2023	ATOS	Social Media	Data sharing	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:7023334931795755009
25/01/2023	ATOS	Social Media	Project Meeting Paris	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:7023941966383992832
27/01/2023	ATOS	Social Media	Project Meeting Paris	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:7024717870542540801

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Date	Organization	Type (eg. newsletter, company, homepage, print, article)	Short description	Where (e.g. Twitter, LinkedIn, magazine, name, website...)	Links/uploads/screenshots
16/03/2023	ATOS	Social Media	Market-X lighthouse	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:7041374643621879808?updateEntityUrn=urn%3Ali%3Afs_feedUpdate%3A%28V2%2Cur%3Ali%3Aactivity%3A7041374643621879808%29
16/03/2023	ATOS	Social Media	Market-X	LinkedIn	https://www.linkedin.com/feed/update/urn:li:activity:7041735581424312320?updateEntityUrn=urn%3Ali%3Afs_feedUpdate%3A%28V2%2Cur%3Ali%3Aactivity%3A7041735581424312320%29
16/03/2023	IMT TERA	Social Media	Market-X lighthouse	LinkedIn	https://www.linkedin.com/posts/teralabdata_market-gaia-gxfsfr-activity-7041724594025586688-EX0?utm_source=share&utm_medium=member_desktop
30/03/2023	IDSA	Social Media	Energy Data spaces	Twitter	https://twitter.com/idsa_association/status/1641450039200595972?s=20
30/03/2023	IDSA	Social Media	Energy Data spaces	LinkedIn	https://www.linkedin.com/posts/international-data-spaces-association_offshore-wind-energy-data-space-basd-on-the-activity-7047209463161724928-pUQ2?utm_source=share&utm_medium=member_desktop

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Date	Organization	Type (eg. newsletter, company, homepage, print, article)	Short description	Where (e.g. Twitter, LinkedIn, magazine, name, website...)	Links/uploads/screenshots
03/04/2023	ATOS	Social Media	ENLIT	LinkedIn	https://www.linkedin.com/posts/jvalino-the-eu-projects-zone-podcast-omega-x-with-activity-7048927190268190721-RKbv?utm_source=share&utm_medium=member_desktop
03/04/2023	ATOS	Social Media	Market-X	LinkedIn	https://www.linkedin.com/posts/jvalino_market-interview-lighthouse-activity-7047462549792989185-8V1j?utm_source=share&utm_medium=member_desktop
07/04/2023	Pupin	Social Media	Energy Data spaces	Twitter	https://twitter.com/ValentinaJanev/status/1644265805671006215?s=20

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Annex C: Characterization template

Table 10: Characterization template

Name of the KER:							
KER Owners: KER Leader: Other owners (if any):							
Problem /need	<p>Is this:</p> <p><input type="checkbox"/> A technical need. Please detail (e.g. higher performance, longer duration, different features, different standards....)</p> <p><input type="checkbox"/> A financial/cost need. Please detail (e.g. lower CAPEX or OPEX, lower price, faster return on investment....)</p> <p><input type="checkbox"/> A sustainability need. Please detail (e.g. lower consumption, lower level of pollutants, different social impact....).....</p> <p><input type="checkbox"/> All of them</p> <p>Geographical level:</p> <p><input type="checkbox"/> Local /national (please specify)</p> <p><input type="checkbox"/> Local, linked e.g. to climate zones or other specific local contexts (please specify)</p> <p><input type="checkbox"/> European</p> <p><input type="checkbox"/> Global</p> <p>Does the need come from:</p> <p><input type="checkbox"/> Private customers</p> <p><input type="checkbox"/> Business/industrial customers</p> <p><input type="checkbox"/> Public entities</p> <p><input type="checkbox"/> Other (please specify)</p>						
Description	<p>What is the nature of the KER?</p> <p><input type="checkbox"/> Significantly improved product</p> <p><input type="checkbox"/> Significantly improved service (except consulting services)</p> <p><input type="checkbox"/> Significantly improved process</p> <p><input type="checkbox"/> Significantly improved marketing method</p> <p><input type="checkbox"/> Significantly improved organisational method</p> <p><input type="checkbox"/> Consulting services</p> <p><input type="checkbox"/> New product</p> <p><input type="checkbox"/> New service (except consulting services)</p> <p><input type="checkbox"/> New process</p> <p><input type="checkbox"/> New marketing method</p> <p><input type="checkbox"/> New organisational method</p>						
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	<p><input type="checkbox"/> Other (please specify)</p> <p>Please provide a brief description of the KER.</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Alternative solution</p>	<p>Probably, there's already one (or several) solution to the problem available in the market, but:</p> <p><input type="checkbox"/> It doesn't solve the full problem</p> <p><input type="checkbox"/> It is difficult to implement</p> <p><input type="checkbox"/> It is not commercially mature</p> <p><input type="checkbox"/> It is mature but not robust enough</p> <p><input type="checkbox"/> It is expensive</p> <p><input type="checkbox"/> Other (please specify)</p> <p>Can you make a list of 3/4 products (or services) already available in the market that are trying to solve the same need as this KER? If possible, please provide a link to a reference website for further information.</p> <p>A.-Link:</p> <p>B.-Link:</p> <p>C.-Link:</p> <p>D.-Link:</p> <p>Can you find a main drawback or a limitation for each of the alternative solutions you provided?</p> <p>A.</p> <p>B.</p> <p>C.</p> <p>D.</p> <p>Has your company (or someone in the consortium) already developed a solution for the identified need before this project started?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>Can we say that this solution is the starting point of the current project development activities?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>If "Yes" then please specify the product or service already developed ("the starting point").</p> <p>.....</p> <p>.....</p>

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Let's compare the KER with what we already had in the consortium. What are the main advancements respect to the "starting point" (the initial solution available in the consortium)? If possible, please give numerical figures that can quantify advancements

- Decreased production (manufacturing) time
- Decreased production (manufacturing) costs
- Increased lifetime and or robustness
- Improved flexibility for diverse applications
- Improved technical performances (please specify).....
- Improved design, size, weight, efficiency, materials
- New features
- Improved customizability
- Improved user friendliness
- Improved connectivity
- Remote operability
- Improved interoperability
- Improved safety
- Improved logistics, distribution
- Improved construction/installing phase
- Improved maintenance plan
- Improved environmental impact
- New business model (e.g. for self-payback)
- Other – please specify

Let's make some comparison with the benchmark. What are the main advancements respect to the alternative solutions (A, B, C, D) you have previously identified? If possible, please give numerical figures that can quantify advancements

Alternative solution A

- Decreased production (manufacturing) time
- Decreased production (manufacturing) costs
- Increased lifetime and or robustness
- Improved flexibility for diverse applications
- Improved technical performances (please specify)
- Improved design, size, weight, efficiency, materials
- New features
- Improved customizability
- Improved user friendliness
- Improved connectivity
- Remote operability
- Improved interoperability
- Improved safety
- Improved logistics, distribution

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- Improved construction/installing phase
- Improved maintenance plan
- Improved environmental impact
- New business model (e.g. for self-payback)
- Other – please specify

Alternative solution B

- Decreased production (manufacturing) time
- Decreased production (manufacturing) costs
- Increased lifetime and or robustness
- Improved flexibility for diverse applications
- Improved technical performances (please specify)
- Improved design, size, weight, efficiency, materials
- New features
- Improved customizability
- Improved user friendliness
- Improved connectivity
- Remote operability
- Improved interoperability
- Improved safety
- Improved logistics, distribution
- Improved construction/installing phase
- Improved maintenance plan
- Improved environmental impact
- New business model (e.g. for self-payback)
- Other – please specify

Alternative solution C

- Decreased production (manufacturing) time
- Decreased production (manufacturing) costs
- Increased lifetime and or robustness
- Improved flexibility for diverse applications
- Improved technical performances (please specify)
- Improved design, size, weight, efficiency, materials
- New features
- Improved customizability
- Improved user friendliness
- Improved connectivity
- Remote operability
- Improved interoperability
- Improved safety
- Improved logistics, distribution
- Improved construction/installing phase

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	<input type="checkbox"/> Improved maintenance plan <input type="checkbox"/> Improved environmental impact <input type="checkbox"/> New business model (e.g. for self-payback) <input type="checkbox"/> Other – please specify
"Market" – Early Adopters	<p>Who are the potential early customers for this KER? Please make sure they reflect your choices in the Need/Problem section (e.g. type of customer, geography)</p> <p> <input type="checkbox"/> Individuals <input type="checkbox"/> Associations of individuals <input type="checkbox"/> Private Small or medium enterprises <input type="checkbox"/> Private Large enterprises <input type="checkbox"/> Non-profit organizations <input type="checkbox"/> Public bodies / authorities <input type="checkbox"/> Research and academic bodies <input type="checkbox"/> Other, please specify </p> <p>Please name a few potential customers:</p> <p>1. 2. 3.</p> <p>Who are the potential final users?</p> <p> <input type="checkbox"/> Individuals <input type="checkbox"/> Industry: <ul style="list-style-type: none"> <input type="checkbox"/> One or several managers <input type="checkbox"/> One specific technical profile <input type="checkbox"/> One specific department/team <input type="checkbox"/> Individuals <input type="checkbox"/> Other </p> <p> <input type="checkbox"/> Non-profit organizations: <ul style="list-style-type: none"> <input type="checkbox"/> One or several managers <input type="checkbox"/> One specific technical profile <input type="checkbox"/> One specific department/team <input type="checkbox"/> Individuals <input type="checkbox"/> Other </p> <p> <input type="checkbox"/> Public bodies / authorities: <ul style="list-style-type: none"> <input type="checkbox"/> One or several managers <input type="checkbox"/> One specific technical profile <input type="checkbox"/> One specific department/team <input type="checkbox"/> Individuals <input type="checkbox"/> Other </p>

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Customer profile	<p><input type="checkbox"/> Research and academic bodies:</p> <ul style="list-style-type: none"> <input type="checkbox"/> One or several managers <input type="checkbox"/> One specific technical profile <input type="checkbox"/> One specific department/team <input type="checkbox"/> Students <input type="checkbox"/> Other <p><input type="checkbox"/> Other, please specify</p>
Customer profile	<p>What are the activities (Customer jobs) the customer usually performs, where our KER would be needed?</p> <ol style="list-style-type: none"> 1. Example: the customer check regularly the energy consumption 2. Example: the customer has to make seasonal adjustments of settings in energy management 3. Example: the customer needs pre-heating for some processes 4. 5. 6. 7. 8. <p>What are the pains the customer encounters while doing the previous activities?</p> <ol style="list-style-type: none"> 1. Example: the customer does not have a tool for monitoring energy consumption 2. Example: the customer only has rough, aggregated data 3. Example: the customer has no direct access to the control dashboard and should ask a third party for adjustments 4. 5. 6. 7. 8. 9. <p>What are the gains the customer aims at, while doing the previous activities?</p> <ol style="list-style-type: none"> 1. Example: the customer wants to reduce the energy bill 2. Example: the customer wants to keep comfort parameters under control, according to outside conditions 3. Example: the customer has environmental targets to achieve 4. 5. 6. 7. 8. 9.

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Value proposition	<p>CUSTOMER JOBS:</p> <p>Please confirm in which customer activity/process the KER can be integrated and how much it is relevant:</p> <p><u>Activity 1:</u> <input type="checkbox"/> The KER can be integrated <input type="checkbox"/> The KER cannot be integrated</p> <p>How much is the KER crucial to perform the activity?</p> <p><input type="checkbox"/> Indispensable <input type="checkbox"/> Core, but needs to work in synergy with other components/ processes <input type="checkbox"/> Complementary to a core solution <input type="checkbox"/> Nice to have</p> <p><u>Activity 2:</u> <input type="checkbox"/> The KER can be integrated <input type="checkbox"/> The KER cannot be integrated</p> <p>How much is the KER crucial to perform the activity?</p> <p><input type="checkbox"/> Indispensable <input type="checkbox"/> Core, but needs to work in synergy with other components/processes <input type="checkbox"/> Complementary to a core solution <input type="checkbox"/> Nice to have</p> <p><u>Activity 3:</u> <input type="checkbox"/> The KER can be integrated <input type="checkbox"/> The KER cannot be integrated</p> <p>How much is the KER crucial to perform the activity?</p> <p><input type="checkbox"/> Indispensable <input type="checkbox"/> Core, but needs to work in synergy with other components/ processes <input type="checkbox"/> Complementary to a core solution <input type="checkbox"/> Nice to have</p> <p>CUSTOMER PAINS:</p> <p>What are the pains – among those previously listed – the KER can help reducing or avoiding?</p> <p>1. How? 2. How? 3.How?</p> <p>CUSTOMER GAINS:</p> <p>What are the gains – among those previously listed – the KER can help achieving?</p> <p>1. How? 2.How? 3.How?</p>
"Market" – Target market	<p>What is the primary target market?</p> <p><input type="checkbox"/> Energy production/distribution/consumption</p>

	<input type="checkbox"/> Heavy process Industry (energy intensive) <input type="checkbox"/> Manufacturing Industry <input type="checkbox"/> Information Technology and telecommunication <input type="checkbox"/> Construction <input type="checkbox"/> Real estate management <input type="checkbox"/> Other (please specify) Please specify the most relevant sub-sector(s) of the KER, within the selected market: 																																			
"Market" - Competitors	Please make a list of the competitors working in the same field (e.g. the manufacturers / providers of the alternative solutions previously mentioned + others) <ul style="list-style-type: none"> • SMEs: <ol style="list-style-type: none"> 1. 2. 3. • Large enterprises: <ol style="list-style-type: none"> 1. 2. 3. • Research bodies /academic bodies: <ol style="list-style-type: none"> 1. 2. 3. • Others: <ol style="list-style-type: none"> 1. 2. 3. 																																			
Go to Market – Business model	What are the relevant Business models and how much are they applicable. For definition and examples of business models, please refer to the next chapters of this document. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="background-color: #1a3d4d; color: white;">Business Model</th> <th style="background-color: #1a3d4d; color: white;">Not applicable</th> <th style="background-color: #1a3d4d; color: white;">Scarcely applicable</th> <th style="background-color: #1a3d4d; color: white;">Applicable</th> <th style="background-color: #1a3d4d; color: white;">Very well applicable</th> </tr> </thead> <tbody> <tr> <td>Subscription model</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bundling model</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Freemium model</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Razor blades model</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Product to service model</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Leasing model</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Business Model	Not applicable	Scarcely applicable	Applicable	Very well applicable	Subscription model					Bundling model					Freemium model					Razor blades model					Product to service model					Leasing model				
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Go to Market - Timing	ESCO - energy performance contract					
	ESCO - energy supply contract					
	ESCO - build-own-operate-transfer					
	Franchise model					
	Distribution model					
	Manufacturer model					
	Retailer model					
	Peer-to-peer model					
	Hidden revenue model					
	Direct sales model					
	Affiliate marketing model					
	Consulting model					
	Data licensing model					
	Pay as go model					
	Software as a service					
	Product as a service					
	Other					
<p>Please make an initial high-level of the actions to be performed after the end of the project, to make the solution ready to market - TRL9 (ATTENTION! The detailed list of actions will be managed in the Exploitation Questionnaire):</p> <ul style="list-style-type: none"> • During the first month after the project: <ol style="list-style-type: none"> 1. 2. 3. • Within 6 months after the project: <ol style="list-style-type: none"> 1. 2. 3. • Within 12 months after the project: <ol style="list-style-type: none"> 1. 2. 						

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	<ol style="list-style-type: none"> 3. • Within 24 months after the project: <ol style="list-style-type: none"> 1. 2. 3. 															
Go to Market – IPR Background	<p>Please check if there is any type of Intellectual property already secured (before the project started) and that helped the development of the solution. For definition and examples of IP instruments, please refer to the next chapters of this document.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #1A3D4D; color: white;"> <th style="width: 33%;">Type</th> <th style="width: 44%;">Owner</th> <th style="width: 23%;">Chk</th> </tr> </thead> <tbody> <tr> <td>Patent</td> <td></td> <td></td> </tr> <tr> <td>Trade secret</td> <td></td> <td></td> </tr> <tr> <td>Copyright</td> <td></td> <td></td> </tr> <tr> <td>Trademark</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Owner	Chk	Patent			Trade secret			Copyright			Trademark		
Type	Owner	Chk														
Patent																
Trade secret																
Copyright																
Trademark																
Go to Market – IPR Foreground	<p>Please check if the developed solution (within the end of the project) could be protected with one (or more) type of Intellectual property:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #1A3D4D; color: white;"> <th style="width: 33%;">Type</th> <th style="width: 44%;">Owners</th> <th style="width: 23%;">Chk</th> </tr> </thead> <tbody> <tr> <td>Patent</td> <td></td> <td></td> </tr> <tr> <td>Trade secret</td> <td></td> <td></td> </tr> <tr> <td>Copyright</td> <td></td> <td></td> </tr> <tr> <td>Trademark</td> <td></td> <td></td> </tr> </tbody> </table>	Type	Owners	Chk	Patent			Trade secret			Copyright			Trademark		
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