Enershare

The Energy Data Space for Europe

European Common Energy Data Space Framework Enabling Data Sharing - Driven Across – and Beyond – Energy Services

enershare.eu

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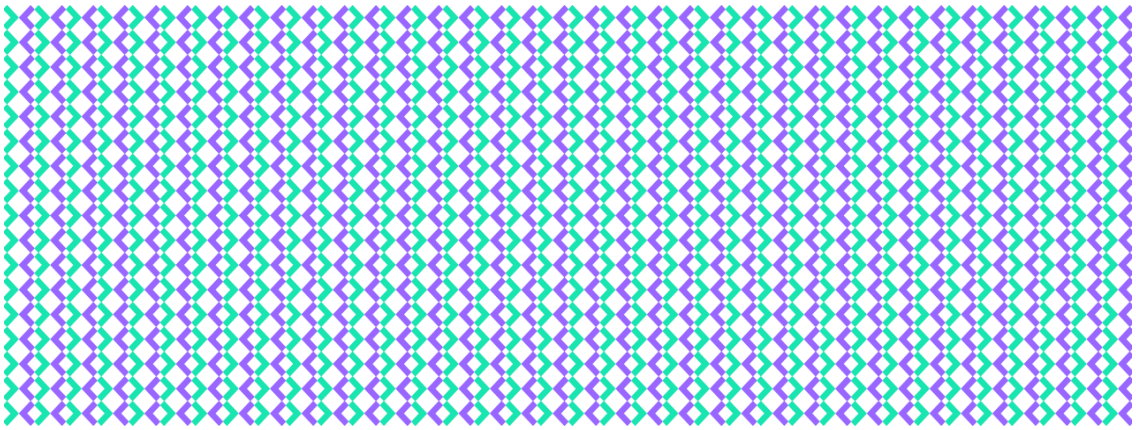
D11.3: ENERSHARE Engagement, consultation and open source plan



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List of Acronyms

AI	Artificial Intelligence
API	Application Programming Interface
BSD	Berkeley Software Distribution
DLT	Distributed Ledger Technology
EPL	ECLIPSE Public License
EUPL	European Union Public License
GPL	General Public License
LGPL	Lesser General Public License
KER	Key Exploitable Result
IDSA	International Data Spaces Association
IEC	International Electrotechnical Commission
IP	Intellectual Property
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
MPL	Mozilla Public License
OSD	Open Source Development
OSS	Open Source Software
P2P	Peer-to-Peer
RI	Reference Implementation
SSH	Social Sciences and Humanities
TRL	Technology Readiness Levels

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Executive summary

The ENERSHARE Engagement, consultation and open source plan has been developed to ensure that the open source development process is understood and agreed by all partners and followed all along the course of the project. The present document also defines an open source plan to organize the development of the Key Exploitable Results (KERs) defined in the Grant Agreement.

This document is divided into 3 chapters:

- Chapter 1 is an introduction,
- Chapter 2 provides an overview of the concept of open source and is divided into several subsections:
    - Added-values of open source
    - Open source development process
    - Governance
    - Platforms
    - Licenses
    - Standardization of open source practice
    - Open source events
    - Stakeholders engagement and consultation
- Chapter 3 presents the ENERSHARE open source project plan.

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1 Introduction

1.1 About the project

The ENERSHARE project is aiming at developing, deploying and validating the first-of-its-kind Reference Implementation of the European Common Energy Data Space along a variety of different cross-domain pilots to facilitate, speed up and enable the transition towards the smarter, sectors-integrated, decarbonized and participatory energy system of the future.

The main goal of the project is to develop and demonstrate a European Common Energy Data Space which will deploy an 'intra-energy' and 'cross-sector' interoperable trusted Energy Data Ecosystem.

The major outcomes that are expecting to be achieved:

1. **ENERSHARE Technological, social,** and **business/governance framework** which consists of:

- **A technological Reference Implementation (RI)** for **a Common European Data Space** adapted to the energy sector, which:
    - leverages on, adapts, evolves, and specifically validates leading-edge Data Space architectures (including IDSA, GAIA-X, FIWARE);
    - enables trusted, secure and sovereign data sharing and exchange among energy and non-energy stakeholders;
    - while spanning over Intra-Energy Data Space for 'intra-electricity'/'across energy sector' and Cross-Sector Data Space for beyond energy, cross-sector data sharing.

2. **A SSH-driven ensemble of tools and techniques** combining **sharing economy, co-creation and Design Thinking** to bring energy consumers centre stage, engage and motivate them to share their energy data, through:
    - Consumer-centric value-added data-driven service and multi-dimensional data sharing financial and **non-financial incentive design;**
    - **P2P coordination blockchain-enabled marketplace models** for heterogeneous tokenized data and services versus energy and non-energy assets/services reciprocal exchange and compensation;
    - Design of decentralized data governance stakeholders market roles at the interplay among data and energy value chains (i.e. Energy Data Cooperatives) to overcome the reluctance of consumers to share data.
3. **A Business layer** focusing on designing and validating:

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- Innovative **participatory business models**, which will allow **financial and non-financial data value spreading** and sharing along the Data Value Chain stakeholders;
- **New data-driven value proposition creating additional revenues** from energy and non-energy services
- A variety of **Data Space governance models**, which establish the relationships, the responsible stakeholders and the trust among Data Space owners and operators, ranging from **centralized**, to **decentralized** and **hybrid semi-decentralized** models.

1.2 About this document

This deliverable presents the preparation plan for the open source engagement approach. The objective of this document is to ensure that the open source development process is understood and agreed by all partners and followed all along the course of the project.

In the Grant Agreement of the project (1), the pricing strategy of most of the Key Exploitable Results (KERs) has indeed been set to “open source”, as described in Tableau 1 below.

Tableau 1: Preliminary Key Exploitable Results (KERs)

	Key Exploitable Result	Owner	Pricing strategy
01	Reference Architecture for a Common European Energy Data Space	All partners	Open source
02	Extended intra-energy and cross-sector Data Space interoperability building blocks	TECNALIA, AEC, HINE, ENGIE, TNO, IDSA, ENG, EDF	Open source
03	Open APIs for cross-stakeholder interoperability	TECNALIA, AEC, HINE, ENGIE, TNO, IDSA, EDF	Open source
04	Trust and sovereignty enabling framework and building blocks	TNO, FhG, ENG, IDSA, EDF	Open source
05	Data and Services marketplaces	TNO, ED, INESC TEC, EDF	Open source / fee / licensing
06	DLT/Blockchain P2P Marketplace for data/services versus energy/service compensation	ENG, INESC TEC, EDF	Open source / licensing

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07	Cross-value chain AI-based data-driven services	INESC TEC, ENGIE, ED, NTUA, NESTER, SEL, LEIF, EDF	Open source / fee / licensing
08	Digital Twins for system-level flexibility planning, wind farm supply chain and green hydrogen planning for Power2Gas	RWTH, NTUA, HINE, TECNALIA, EDF	Open source
09	SSH-based methodology and framework for multi-dimensional incentive design, business models and governances models for energy data sharing	TNO, SIN, NESTER, EKL, INESC TEC, EDF	Open source
10	Technological Reference Implementation for European Energy Data Space	All partners	Open source / fee

The present document defines an open-source plan to organize the development of those KERs.

1.3 Intended audience

The intended audience for this deliverable is all partners of the consortium. As the second chapter of this document is quite generic, it might be of interest for any stakeholders that are interested in launching an open source project but don't know where to start.

1.4 Reading recommendations

This document is divided into 3 chapters. Chapter 1 is this introduction. Chapter 2 provides an overview of the concept of open source and is divided into several subsections addressing topics such as the open source development process, platforms, licenses and governance schemes that could be used in ENERSHARE. Chapter 3 presents the ENERSHARE open source project plan.

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2 Open source

"Open source" is a way of working on a project that relies on collaboration, decentralization, and access. Open source software makes source code available to users and invites a community of technical and non-technical contributors to build on and improve it. The software development is thus the result of shared effort, but according to clear rules of governance. Open source software are thus often considered as of high quality and secure thanks to validated processes of security and highest industrial standards. The next sections will provide an overview of the open source concept and presents, among other things:

- Its added values,
- Its development process,
- The notion of governance for open source projects,
- Some platforms and licenses,
- The standardization landscape of open source.

2.1 Added-values of open source

Open source software is now part of the landscape in tech companies and non-tech companies alike. The reasons why open source software achieve this high degree of market penetration amongst leading companies are intrinsically linked to the added-values of open source:

2.1.1 Quality, stability and suitability

Proprietary software is often based around the vision and ideas of a particular company. Open source software, fed and driven by community requirements is often closer to the needs of the individuals and entities using it.

2.1.1.1 Bug-fixing

When bugs are identified in commercial proprietary software, there's nothing to do but wait for the original developers to fix them. Open source software is different. Once a bug is identified, anyone with the expertise and resources can provide a fix.

2.1.1.2 Reliability and elegance

Open source software is peer reviewed by merit-based open source communities, leading to greater reliability. Peer review also often leads to reduction in the complexity of code, making it easier to maintain.

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2.1.1.3 Stability

The history of the software industry shows a tendency to develop near-monopolies which then act to force upgrades onto users – producing high profits but less user satisfaction. Open source communities take a different approach, often offering support for two or more recent versions of software. Such communities proceed at their own pace in a more collaborative manner.

2.1.2 Security, auditability and privacy

2.1.2.1 Security

Anyone can view the source code of open source software. In addition to the early identification of general defects, this enables the identification and remediation of defects specifically impacting security.

2.1.2.2 Auditability and privacy

Open source code allows for external audit of software – ensuring compliance with software standards and legal requirements.

2.1.3 Support and Accountability

2.1.3.1 User and technical support

Open source software is supported by global communities of adopters and developers, working through mailing lists, blog posts, wikis, videos and other forms of documentation.

2.1.3.2 Avoiding lock-in

Proprietary software vendors can reduce compatibility with potential rivals, which acts to “lock in” an adopter. With open source, organizations do not depend on the status of the subcontractor, who originally built the software.

2.1.3.3 Mitigation of vendor collapse or product discontinuation

Proprietary software vendors can go out of business. In that case, adopters are often left with limited support options, or an urgent need to switch to another product, which may be time consuming and expensive. With open source, if a contributor ceases working on a project, the source code stays accessible and someone else can take over the work.

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2.1.4 Cost of acquisition

Open source software is free from licensing costs. This doesn't mean that it is free from deployment, training, or maintenance costs, of course, but it does mean that in most markets costs can be significantly lower.

2.1.5 Being part of a community

Adopters of open source software become part of a community of us, with a collective interest in working together to support each other and improve the software they use. Partnerships created around open source software typically introduce new capabilities and improve existing solutions more rapidly than the internal teams supporting proprietary software.

2.2 Open source development process

This section provides an overview of an open-source development process that can used as a reference by ENERSHARE. The current version in this document is based on the process proposed by the ECLIPSE foundation. Similar approaches are available in other communities (e.g., the Linux Foundation). They will be included if needed in the progress of the work in the project.

The process includes three phases as showed in the Figure 1 below:

- **Phase 1**, in which partners have developed code identified to be open-source. In this phase, each partner works independently and there is no notion of community.
- **Phase 2**, in which the community comes together to collaborate in open source and in which governance, resources, Intellectual Property Rights (IPR), licensing, business models and any other important topics are sorted out. To do so, the ECLIPSE foundation has set up the Eclipse research lab, further described in this section.
- Once agreements have been found, the project enters **phase 3**, in which the open source is made available to the community with a clear development process / project lifecycle.

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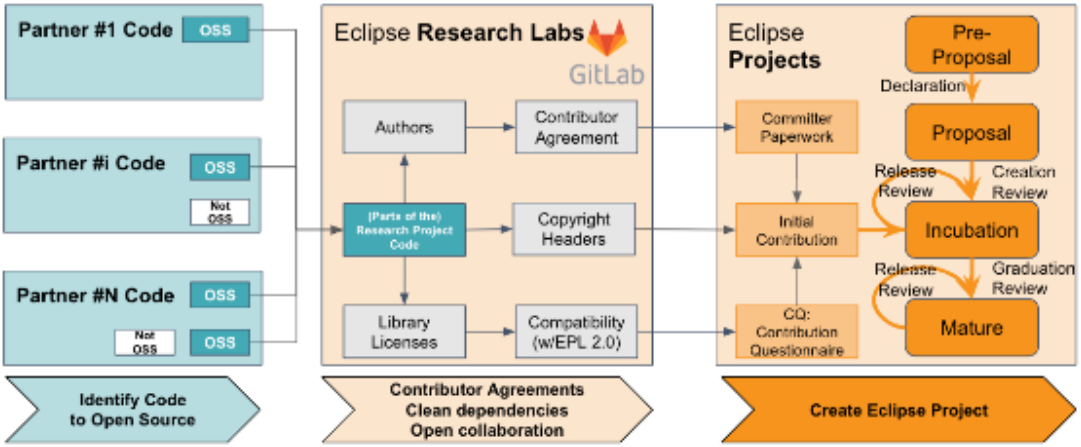

Figure 1: Open source development process (as defined by the ECLIPSE foundation)

Eclipse Research Labs is a GitLab (formerly GitHub) infrastructure located in Europe and hosted by Eclipse, where one can host, develop, maintain and manage the open source parts of a research project (e.g. Horizon Europe).

It is not expected that research projects start directly as an Eclipse project as this requires many IP and code quality reviews and therefore slow down development.

Members of an Eclipse Research Labs projects can push code with any license and third-party dependencies. During development, Eclipse staff will assist in reviewing code and report (bug reports) and identify IP issues such as missing copyright headers, incompatible open source license issues, etc.

In this phase, external stakeholders are able to clone the code, submit bug reports, and provide contributions.

Once an agreement is reached that the code has reached a stable state of quality, and when conditions such as IPR, cybersecurity, business models are cleared, it is expected that one or more Eclipse project proposals are submitted. In this case the process is straightforward and swift. Repositories of codes and other assets (e.g., bug reports, wiki, …) are then moved into the Eclipse projects portfolio.

2.3 Governance

This section presents the concept of governance to be decided during the phase 2 of the development process. Clearly defining roles and responsibilities is essential to effective open source community management. Governance is the rules or customs by which projects decide who gets to do what or is supposed to do what, how they're supposed to do it, and when.

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When defining governance for a project, it is important to identify the following:

1) What roles can contributors play in the project? The defined roles may be quite general, such as user, contributor, committer or project management committee member, or they may be very specific, such as release manager, bug manager, community manager, product manager, and so on. Generally, the more detail provided, the more likely it is that people will be able to identify things they can do to contribute.
2) What qualifications, duties, privileges, and authority are associated with each role?
3) How do people get assigned to (and removed from) roles?
4) How can role definitions be changed?
5) What are the project's collected policies and procedures?

The setting of policies and processes, even if it seems tedious, is of primary importance for open source projects. It indeed lays out the requirements and rules for working with open source across the consortium, as well as documented and executable processes which will ensure the rules are followed on a day-to-day basis.

When drafting open source policies, among the many topics that need to be discussed are:

- How the consortium accepts external contributions to the open source projects?
- How to prepare for open source releases? And who makes decisions for it?
- How approvals are received?
- If the project raises funds, who owns it? Who decides how the money is spent?
- Who owns the copyright on contributed code?
- Who owns the domain(s) for the project?
- Who owns the trademark for the project, is it neutrally owned and governed? Are there open trademark guidelines?
- Who decides the project roadmap?
- Who can participate in security disclosure issues?
- How transparent are the decision-marking processes?
- Who enforces the code of conduct?

Usually, five different types of policies are considered for open source projects:

2.3.1 Policies for releasing code

Guidelines and checklists ensure that developers have everything they need to release their code as open source without running into licensing or confidentiality issues. Especially for new contributors, it can also help to have an internal review process available as a safe place to get feedback before making a contribution.

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2.3.2 Policies for accepting contributions

As we want to have people outside the consortium to contribute to our open source projects, it is important to set up procedures to receive contributions from external developers.

2.3.3 Policies to promote adoption

As we want to encourage others to use our code in their own products and services, it is key to build an ecosystem that in turn help grow and sustain our open source projects.

2.3.4 Policies for internal consumption

Other needed policies include rules about how and where our team finds trusted sources for open source software use and creation – the purpose of this deliverable, policies about establishing code management and maintenance procedures, and formalizing community interaction for our projects.

2.3.5 Policies for compliance

Also needed are policies to formalize and establish legal compliance procedures and to assure executive oversight for the program.

Some examples and templates of open source policy can be found here: https://github.com/todogroup/policies (2).

2.4 Platforms

This section provides a literature review of most relevant platforms for ENERSHARE. A platform or forge is a web-based collaborative software platform for both developing and sharing computer applications. It is often used by open source software projects and other multi-developers projects to maintain revision and version history, or version control. Many platforms also provide a bug tracking system and offer release management and wiki-based project documentation.

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Most known platforms are GitHub (3), GitLab (4), ECLIPSE (5) and the Linux Foundation (6). For ENERSHARE, we might also consider the Europe's AI-on-Demand Platform (7), further described below.

2.4.1 GitHub

GitHub is an Internet hosting service for software development and version control using Git. It provides the distributed version control of Git, plus access control, bug tracking, software feature requests, task management, continuous integrations, and wikis for every project. Headquartered in California, it has been a subsidiary of Microsoft since 2018.

It is commonly used to host open source software development projects. As of June 2022, GitHub (3) reported having over 83 million developers and more than 200 million repositories, including at least 28 million public repositories. It is thus the largest source code host as of November 2021.

2.4.2 GitLab

GitLab is a web-based Git repository that provides free open and private repositories, issue-following capabilities, and wikis. It is a complete DevOps platform that enables professionals to perform all the tasks in a project – from project planning and source code management to monitoring and security. It also allows powerful Continuous Integration/Continuous Delivery pipelines, it has an in-built registry that can be deployed instantly without any configurations, it can be perfectly integrated with Kubernetes and it can import enormous projects and also export other codes in the project.

According to their website (4), GitLab has over 30 million registered users, 3300+ contributors and is used by large, well-known organizations such as IBM, Siemens, and NASA.

2.4.3 ECLIPSE

The Eclipse technology is a vendor-neutral, open development platform supplying frameworks and exemplary, extensible tools (the "Eclipse Platform"). The Eclipse Platform defines the set of frameworks and common services that collectively make up infrastructure required to support the use of Eclipse as a component model and as a comprehensive tool integration platform. These services and frameworks include a standard workbench user interface model and portable native widget toolkit, a project model for managing resources, automatic resource

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delta management for incremental compilers and builders, language-independent debug infrastructure and infrastructure for distributed multi-user versioned resource management.

According to their website (5), the Eclipse Platform hosts around 415+ projects and has 1750+ contributors.

2.4.4 Linux Foundation

The Linux Foundation provides a neutral, trusted hub for developers and organizations to code, manage and scale open technology projects and ecosystems. It provides turnkey technology and support programs for developer enablement, business operations, training and certification, marketing and events, and membership development to help projects scale fast.

According to their website (6), the Linux Foundation hosts around 850 open source projects and has around 780000 contributors from 17000 contributing organizations.

2.4.5 Europe's AI-on-Demand Platform

The European AI-on-demand platform (7) seeks to bring together the AI community while promoting European values. The platform is a facilitator of knowledge transfer from research to multiple business domains. It is a one-stop-shop for anyone looking for AI knowledge, technology, tools, services and experts.

The platform serves as a catalyst to aid AI-based innovation, resulting in new products, services, and solutions to benefit European industry, commerce, and society. By bringing people together, the community resource seeks to address the fragmentation of the European AI landscape and facilitate technology transfer from research to business.

The first iteration of the AI-on-Demand platform was developed under the scope of the AI4EU project in 2019. With the support of the European Commission, the platform will continue to develop over the coming years through further investment that will see the platform add additional services and tools.

2.5 Licenses

This section presents the concept of open source software licenses, provides a literature review of main licenses and compare the most relevant ones for ENERSHARE.

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2.5.1 Open source software licenses

An open source license guarantees that others can use, copy, modify, and contribute back to your project without repercussions. It also protects from sticky legal situations. Based on the degree of restrictiveness there are two main types of open source software licenses:

- Permissive license
- Copyleft license

Both copyleft and permissive licenses allow users to copy, modify, and redistribute code freely. However, the main difference between the two lies in the degree of restrictiveness regarding their distribution. When one modifies a copyleft software, one is obligated to keep their new altered code under open source so it can be publicly available. Whereas, when one modifies a permissive software, there is no such restriction except to give credit to the original work.

2.5.1.1 Permissive license

A permissive license is an open source license that guarantees the freedom to use, modify, and redistribute, while also permitting proprietary derivative works. In other words, when a user modifies a software, he or she is not obligated to make their altered software open-source, however, the user usually needs to give credit to the original project.

2.5.1.2 Copyleft license

Based on the viral effect of a copyleft, there are two categories of copyleft licenses:

- Weak copyleft: these are licenses that make it compulsory that source code that descended from software licensed under it, will remain under the same, weak copyleft, license. However, it should be noted that it is possible to still link to weak copyleft code from code under a different license or otherwise incorporate it in a larger software. In simple terms, a weak copyleft license applies only to the original copyleft work.

- Strong copyleft: these licenses go a step further from weak ones and make it mandatory that any software that links or otherwise incorporates its code would be licensed under compatible licensed, which are a subset of the various available open source licenses. In simple terms, a strong copyleft license applies to all its derived works and the software components in the package.

2.5.1.3 Other type of license: dual license

For some businesses, licensing software under a proprietary license creates the right balance of revenue generation, customer satisfaction, and legal protection. In contrast, others may find that licensing software under an open source license strikes the right balance of accessibility,

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adaptability, and ease of implementation. To overpass this dichotomous choice, many licensors have come to adopt a “dual licensing” model.

Dual licensing provides indeed another option for distributing software. Using dual licensing, licensors can distribute software to licensees under a proprietary model as well as an open source model, allowing the licensor to simultaneously leverage the advantages of both types of licenses. That is, some companies use a dual licensing model to distribute the same software under two different license forms: (1) a version subject to a proprietary license (which may come with the right to further develop and commercially distribute that software and with licensor technical support and added features), and (2) a version licensed under, and subject to, the restrictions and obligations of an open source license, such as the GPL (presented below).

To know more about dual licensing, please refer to the case study developed by INESC TEC: Dual licensing in academic open-source software: synergistic effects between open-source licensing and commercial software development & exploitation: the case of INESC TEC and MAMOWORLD (8).

2.5.2 Literature review

MIT, Apache 2.0, and GPLv3 are the most popular open source licenses, but there are other options to choose from:

- The **MIT License** is a short and *simple permissive license* with conditions only requiring preservation of copyright and license notices. Licensed works, modifications and larger works may be distributed under different terms and without source code.
- **Apache 2.0** is a *permissive license* whose main conditions require preservation of copyright and license notices. Contributors provide an express grant of patent rights. Licensed works, modifications and larger works may be distributed under different terms and without source code.
- The **Berkeley Software Distribution (BSD) License 2.0 or New BSD License** is a *permissive free software licenses*, imposing minimal restrictions on the use and distribution of covered software. It prohibits others from using the name of the copyright holder or its contributors to promote derived products without written consent.
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- The **European Union Public License (EUPL)** is the first free/open source software license created on the initiative of the European Commission that is developed in 22 European languages. It has been developed to support the European Commission requirements:
    - The license should have equal legal value in many languages.
    - The terminology regarding intellectual property rights had to be conformant with the European law requirements.
    - To be valid in all Member States, limitations of liability or warranty had to be precise, and not formulated "to the extent allowed by the law" as in most licenses designed with the legal environment of the United States in mind.

  The EUPL is a *copyleft license*: if the original work, even modified or improved, is re-distributed, the same licence must be applied.

More information are available here: https://opensource.org/licenses (9) and https://choosealicense.com/ (10).

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2.5.3 Comparison

Tableau 2: Licenses comparison

License	Permissions	Conditions	Limitations
MIT License	• Commercial use • Distribution • Modification • Private use	• License and copyright notice[1]	• Liability[2] • Warranty[3]
Apache	• Commercial use • Distribution • Modification • Patent use • Private use	• Disclose source[4] • License and copyright notice • Same license[5] • State changes	• Liability • Warranty
BSD 2.0	• Commercial use • Distribution • Modification • Private use	• License and copyright notice	• Liability • Warranty
Mozilla Public License 2.0	• Commercial use • Distribution • Modification • Patent use • Private use	• Disclose source • License and copyright notice • Same license (file)	• Liability • Trademark use[6] • Warranty
GNU GPLv3	• Commercial use • Distribution • Modification • Patent use • Private use	• Disclose source • License and copyright notice • Same license • State changes	• Liability • Warranty
GNU LGPLv3	• Commercial use • Distribution • Modification	• Disclose source • License and copyright notice	• Liability • Warranty

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[2] Liability: this license includes a limitation of liability.
[3] Warranty: the license explicitly states that it does NOT provide any warranty.
[4] Disclose source: source code must be available when the software is distributed.
[5] Same license: modifications must be released under the same license when distributing the software.
[6] Trademark use: this license explicitly states that it does NOT grant trademark rights, even though licenses without such a statement probably do not grant any implicit trademark rights.

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	• Patent use • Private use	• Same license (library) • State changes	
Eclipse Public License 2.0	• Commercial use • Distribution • Modification • Patent use • Private use	• Disclose source • License and copyright notice • Same license	• Liability • Warranty
European Union Public License 1.2	• Commercial use • Distribution • Modification • Private use	• Disclose source • License and copyright notice • Same license	• Liability • Warranty

2.5.4 Compatibility of open source licenses

Figure 2 highlights the compatibility between most widely used licenses. An arrow from box A to box B means that you can combine software with these licenses; the combined result effectively has the license of B, possibly with additions from A.

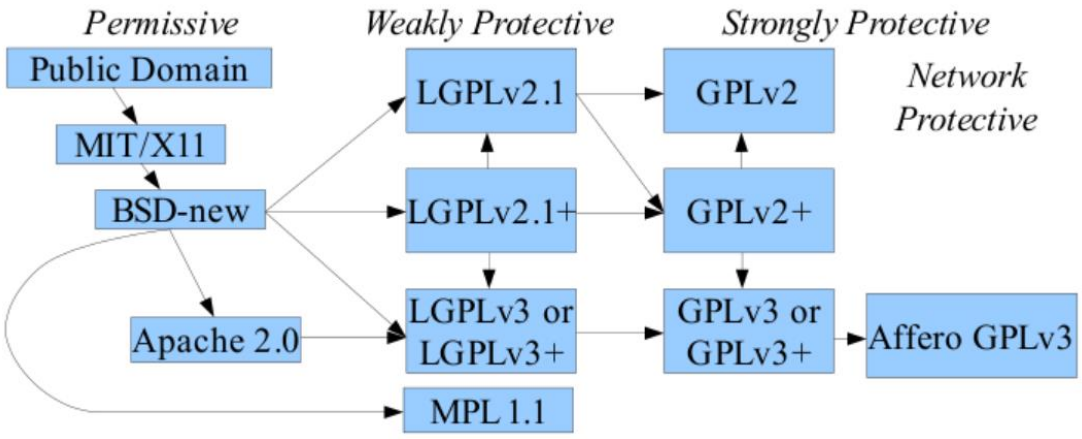

Figure 2: Open source licenses and compatibility (source: (11))

2.6 Standardization of open source practice

Awareness on standardization of open-source practice is growing. The Linux foundation started the OpenChain initiative in 2016 (see https://openchainproject.org/ (12)) with the objective to

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build a supply chain where open source is delivered with trusted and consistent compliance information.

To this end, OpenChain has published ISO/IEC 5230 – OpenChain specification. The standard is freely available, with the following scope:

> *This document specifies the key requirements of a quality open source license compliance program in order to provide a benchmark that builds trust between organizations exchanging software solutions comprised of open source software.*

Recently, the OpenChain initiative has started consultation within ISO/IEC on a document entitled "OpenChain Security Assurance". The scope is as follows:

> *This document specifies the key requirements of a quality Open Source Software Security Assurance Program that establishes trust between organizations exchanging software solutions comprised of Open Source Software.*

In parallel, ISO/IEC JTC1/SC27 is developing ISO/IEC 6114 Cybersecurity – Security considerations throughout the product life cycle. ISO/IEC 6114 covers all types of product lifecycle, including open source. The scope is as follows:

> *This document describes following items for supplier, end users (consumer), intermediaries of the ICT supply chain, service provider, and regulators.*
>
> - *Definition of phases in ICT product life cycle from concept to retirement,*
> - *threat vectors possible in each phase of the life cycle,*
> - *potential controls against those threat vectors.*

The work carried out on an open-source development plan can also lead to a specification that could be adopted as a standard or as a best practice.

2.7 Open source events

This section lists open-source engagement events in which ENERSHARE consortium partners could participate:

- ECLIPSECon (13) is the leading conference for developers, architects and open source business leaders to learn about ECLIPSE technologies and share best practices. ECLIPSECon is ECLIPSE biggest event and is run every year. It connects the Eclipse ecosystem and the industry's leading minds to explore common challenges and innovate together on open source runtimes, tools and frameworks for cloud and edge applications, IoT, artificial intelligence, connected vehicles and transportation and digital ledger technologies.

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- Open Source Summit Europe (14), organized by the Linux Foundation. The premier vendor-neutral conference in Europe for open source developers and technologists to collaborate, share information and learn about the latest technologies and innovations across open source. It will be held September 19th-21st, 2023 in Bilbao, Spain.
- FOSDEM'23 (15): FOSDEM is a two-day event organized by volunteers to promote the widespread use of free and open source software. The 2023 conference will be held February 4th and 5th, 2023 in Brussels, Belgium. The goal is to provide free and open source software developers and communities a place to meet to:
  - get in touch with other developers and projects;
  - be informed about the latest developments in the free software world;
  - be informed about the latest developments in the open source world;
  - attend interesting talks and presentations on various topics by project leaders and committers;
  - promote the development and benefits of free software and open source solutions.

- The FrOSCon (16) (Free and Open Source CONference) is an annual conference organized by the Bonn-Rhein-Sieg University of Applied Sciences and the FrOSCon E.V. It features a variety of lectures and workshops on free and open source software. It will be held August 5th and 6th, 2023 in Sankt Augustin, Germany.
- The CHAOSScon Europe 2023 (17) is an annual conference to learn more about open source project health metrics and tools used by open source projects, communities, and engineering teams to track and analyze their community work. It will be held February 3rd, 2023 in Brussels, Belgium.

2.8 Stakeholders engagement and consultation

Stakeholders engagement and consultation ensures that the goals of an open source initiative are agreed and understood. As a general rule, a stakeholder is considered as any individual or group that is affected by, who can influence or may have an interest in the outcomes of open source project. During the course of the project, partners could thus consult the following stakeholders:

- Other open source communities,
- Platform / data space stakeholders,
- Domain specific stakeholders (consumers, local communities, data energy cooperatives),
- Energy and non-energy business stakeholders (finance, healthcare, water, mobility, etc.),
- Regulated operators,
- Standardization bodies.

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3 ENERSHARE open source project plan

This section details the open source project plan for ENERSHARE.

3.1 Approach

The objectives of an open-source project plan are the following:

- Establish the goals for an open-source project.
- Assess the impact and define strategies.
- Prepare a planning and associated work, resources, and engagement.
- Define a monitoring and evaluation approach.

The project includes three phases:

- The open-source project plan preparation, based on this document. The result is an ENERSHARE open-source project plan.
- The execution of the open-source project plan, within the project.
- The execution of the open-source project plan, beyond the project.

To properly develop the Key Exploitable Results mentioned in the Grant Agreement, it is highly recommended to work on an open-source project plan for each KER.

3.2 Work to be carried out in ENERSHARE to produce an open source project plan

The work to be carried out is detailed in the open-source development plan (template) specified below. It includes:

- Specification of the context of the open-source initiative and a description of the intended building block.
- Specification of the strategy of the open-source initiative, including
    - Dedicated business canvas forms,
    - Open-source licensing and IPR considerations,
    - Community approach,
    - TRL objective,
    - Governance.

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- Specification of the engagement approach and associated inbound and outbound activities.
- Specification of project development aspects:
  - Environment,
  - Development and release approach,
  - Support,
  - Evaluation.
- Evaluation and approval of plans.

3.3 Template of ENERSHARE open source project plan

This template has been developed by Antonio Kung (Trialog) and has been reviewed by the ECLIPSE foundation (Rosaria Rossini and Philippe Krief). It will be disseminated to a number of European projects in the frame of the OpenContinuum support action.

Please note that this template is a proposition and can be used by ENERSHARE partners. If partners already have internal processes and templates, we will use them.

Tableau 3: ENERSHARE open source project plan - open source plan info

1	Open-source plan info	
Authors name and e-mail	*Enershare persons in charge of providing and maintaining the plan. Can involve different partners.*	
History	*The open-source plan can be updated several times, depending on how the status of its execution. Examples are:* *- Change of strategy (e.g., modification of KER objective, merging with another KER)* *- Change in licencing approach* *- Change in community approach* *- Change in infrastructure use (e.g., Gitlab to Github)*	
	Date	
	Version	
	Description of modification	
Confidentiality	*You may wish to have up to three versions of the plan:* *- Confidential at partner level (not provided to consortium) – However experience shows that it does not run* *- Confidential at consortium and EC level (needed for deliverable)* *- Public (needed for engagement)*	

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Tableau 4: ENERSHARE open source project plan - context

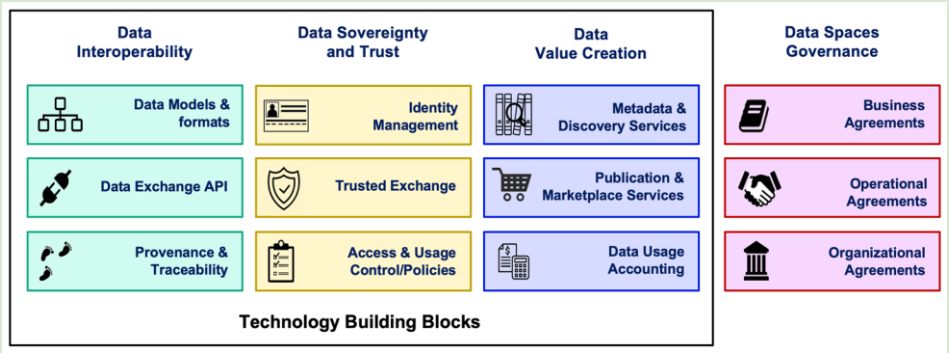
2	Context
Initial Key exploitation result name	*Mention if you have modified your plans with respect to the grant agreement.*
Initial description	*Mention if you have modified your plans with respect to the grant agreement*
Key exploitation result name	
Description	*Provide a rationale for the change if you have modified your plans*
Category of building block	 *How do you position your key exploitation results with respect to the 12 building blocks (OpenDei design principles for data spaces?)*

Tableau 5: ENERSHARE open source project plan - strategy

3	Strategy
3.1	Business
Open source canvas	*Option 1: Major open-source initiative* *Provide a first version of the open-source canvas.* *https://opensource.com/article/16/12/open-source-canvas*

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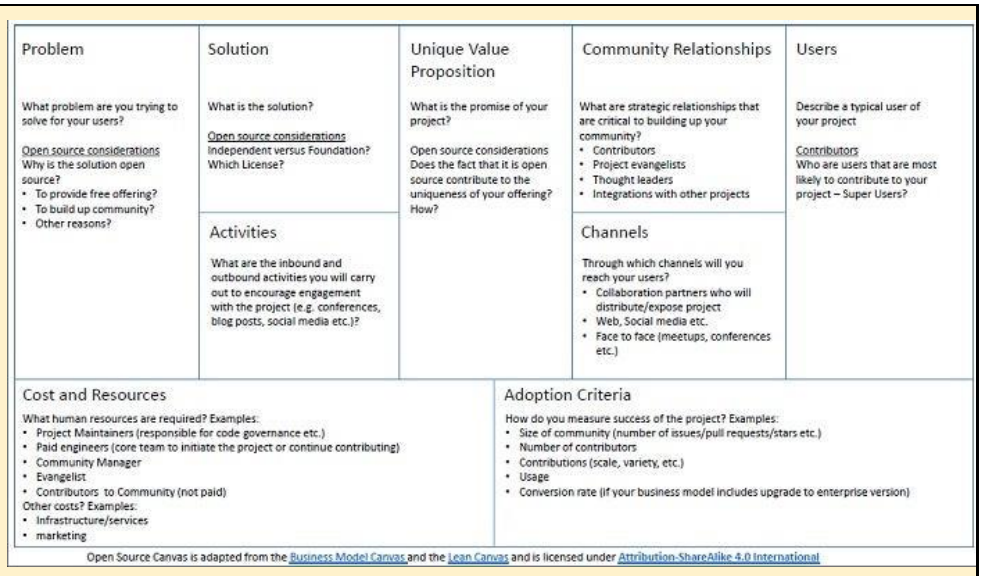
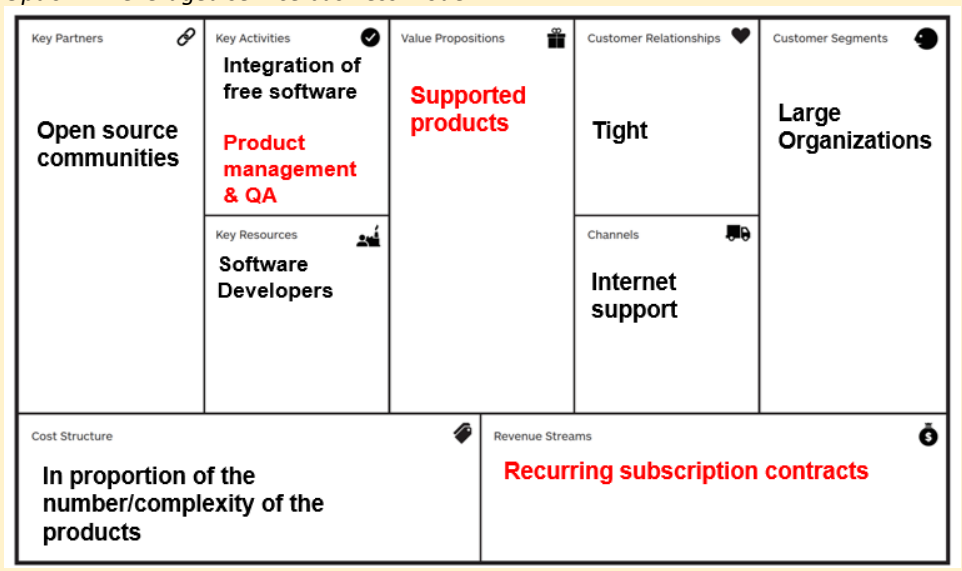


The other options are identified by ECLIPSE

Option 2: Leveraged service business model



Option 3: Technology specialist

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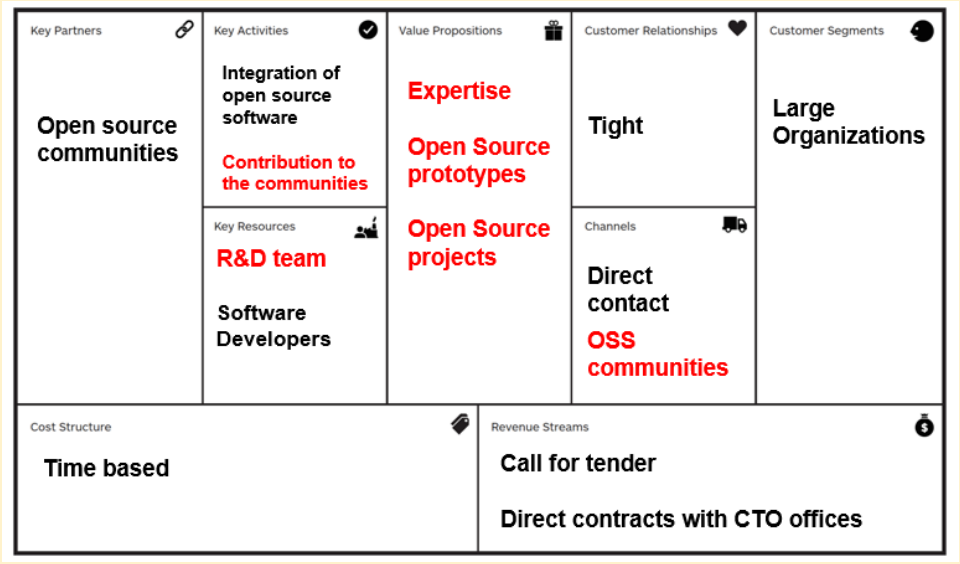
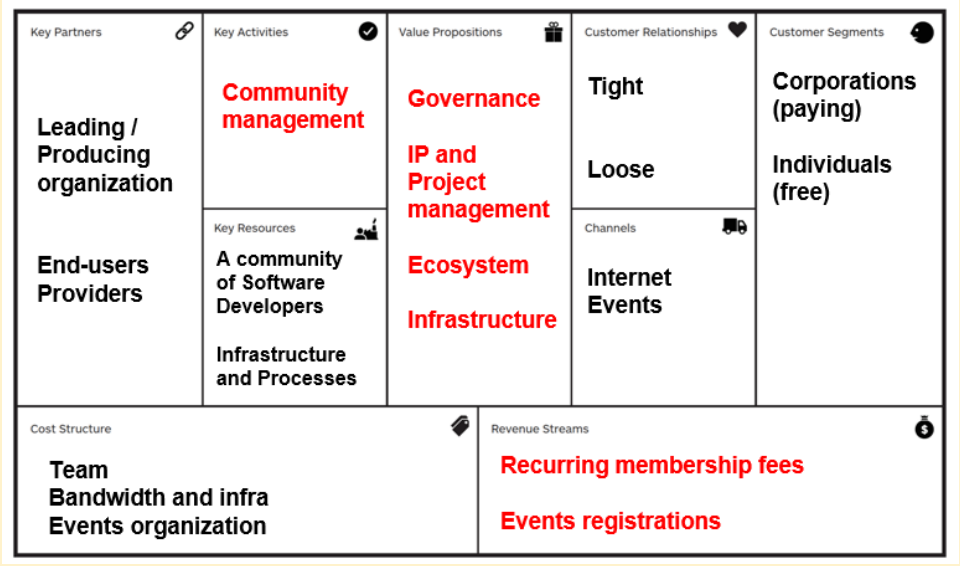


Option 4 Open source foundation



Option 5 Co-creation of open-source extendible platforms

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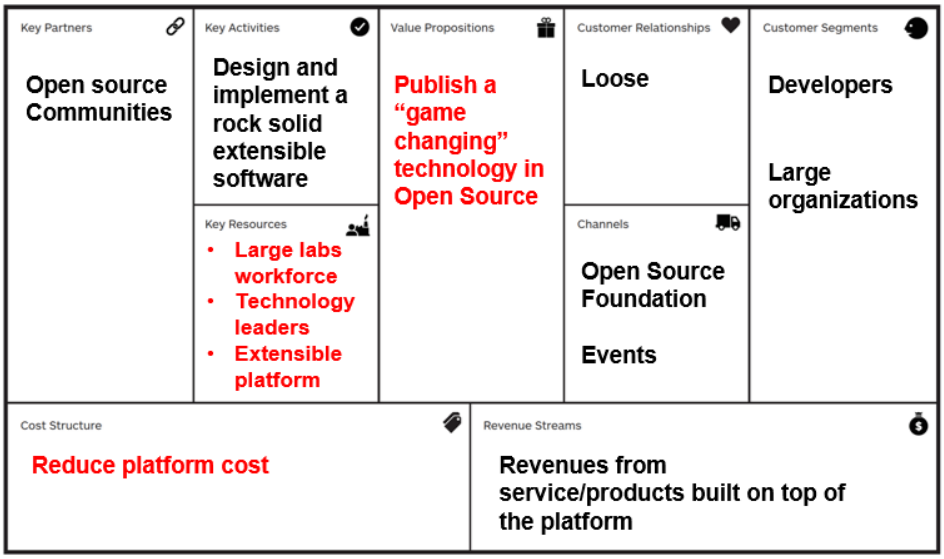

Option 6 e-Pure service business model

Assessment within project	*Describe tasks to be carried out on business within the project*
Assessment beyond project	*Describe tasks that will be carried out on business beyond the project, make recommendations for a roadmap*
3.2	Open-source licensing and IPR
Current licensing and IPR status	*Explain the current status (e.g., the selected licensing plan) and the dependencies. See https://opensource.org/licenses (9)* *Describe decisions to be made on licensing and IPR within the project*

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Analysis	*Provide an analysis of how you plan to enforce business-friendly licenses*		
Decisions within project	*Describe decisions to be made on licensing and IPR within the project, justify when you do not select a well-accepted licensing scheme*		
Decisions beyond project	*Describe decisions to be made on licensing and IPR beyond the project, justify when you do not select a well-accepted licensing scheme*		
3.3	Community approach		
Community	*Assess the intended community approach. Some references (https://opensource.org/community (18), https://en.wikiversity.org/wiki/Open_community_approach (19), https://www.linuxfoundation.org/resources/open-source-guides/participating-in-open-source-communities (20), https://www.eclipse.org/collaborations/ (21))* *Example of community:* *- Governance: single organisation, Development: single organisation* *- Governance: single organisation, Development: community* *- Governance: open-source organisation, Development: community*		
	Current status of KER	TRL	
		Community	
	Intended status at the end of project	TRL	
		Community	
	Intended status beyond project	TRL	
		Community	
Decisions within project	*Describe decisions to be made on community approach within the project*		
Decisions beyond project	*Describe decisions to be made on community approach beyond the project*		
3.4	Governance		
Governance	*Select the agreed open-source governance approach (see https://opensource.com/article/20/5/open-source-governance (22))*		
Decisions within project	*Describe decisions to be made on community approach within the project*		
Decisions beyond project	*Describe decisions to be made on community approach beyond the project*		

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Tableau 6: ENERSHARE open source project plan - engagement

4	Engagement		
4.1	Stakeholders		
Developers		Current team	*List developers and their roles . Is the team involving several partners?*
		Team evolution during project	*Explain if the team will evolve during project*
		Team evolution beyond project	*Explain if the team will expand externally beyond the project, and how engagement will take place*
Users		Intended users	List users (pilots) and their needs
		External users during project	*Explain if there will be external users during project, and how they will be engaged*
Other stakeholders		*List potential stakeholders that can have an interest to the project and need to be engaged* - *Other open-source communities* - *Platform / data space stakeholders* - *Domain specific stakeholders (Consumers, local communities, data energy cooperatives)* - *Energy and non-energy business stakeholders (finance, healthcare, water, mobility, etc.)* - *Regulated operators* - *Standardisation bodies*	
4.2	Activities		
Activities within project		*Inbound activities: liaison with other projects (through Int-Net, DSCC, OpenContinuum, and other Horizon projects), presentation to data space events (IoT, BDVA, BRIDGE, …), conferences, blogs, …* *Outbound activities: if any*	
Activities beyond project		*Inbound activities* *Outbound activities*	

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Tableau 7: ENERSHARE open source project plan - project development

5	Project development
5.1	Environment
Platform	*List platforms and dependencies on other products or components*
Development environment	*Explain development environment used to develop open-source project (e.g. Yocto)*
Decisions during project	*Describe decisions to be made on environment during project*
Decisions beyond project	*Describe decisions to be made on environment beyond project*
5.2	Development and release approach
Development lifecycle	*Explain lifecycle approach (development, verification et validation) and approach (e.g. DevOps) including tools to be used*
Development lifecycle security assurance	*Explain measures for development lifecycle security assurance*
Release building approach	*Explain approach including tools to be used*
Decisions during project	*Describe decisions to be made on development and release during project*
Decisions beyond project	*Describe decisions to be made on development and release beyond project*
5.3	Support
Pilots involved	
Contact points pilot	
Contact points KER	

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Training material	
Training schedule	
5.4	Evaluation
Schedule	*Provide schedule for questionnaire to pilots, questionnaire to developers and evaluation report*

Tableau 8: ENERSHARE open source project plan - evaluation and approval of plan

6	Evaluation and approval of plan
Project manager name	
Approval date	
Exploitation manager name	
Approval date	

3.4 Support provided to ENERSHARE

In addition to developing this template, Trialog can support the ENERSHARE partners in various ways:

- Webinar explaining the questionnaire and the OSD plan template;
- Individual sessions with specific candidate open-source KERs to create an OSD plan;
- Individual sessions with specific candidate open-source KERs on the implementation of the OSD plan.

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4 Conclusions

This deliverable presents the concept of open source and related topics (e.g., development process, governance, platforms, licenses) as well as the open source engagement approach for ENERSHARE. The next steps are now to complete, for each Key Exploitable Result, an open source project plan using the template specified in section 3.3 and to ensure its execution within and beyond the project.

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Reference

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Annex Survey

To ensure the alignment of this deliverable with partners' vision, the following survey has been shared among partners.

Survey

D11.3 - ENERSHARE Engagement, Consultation and Open-source plan

In the scope of Deliverable 11.3 due at M6 (Dec 2022), we propose this survey to collect your contributions to the ENERSHARE engagement, consultation and open source plan.

The purpose of this survey is to ensure that we properly identify the resources available to carry out the task. The next step will be to identify the resources available in the project to carry out the open source development.

This survey should be completed by all partners involved in task 11.3, namely ENG, ED, COMS, ENVIRODUAL, NESTER, ASM, ELES, ENGIE, DEPA, ACE, EMOT, HINE, EDF, KPV, FORTUM, NOKIA, EKC, EKL, LEIF. Ideally, the partners linked to a specific Key Exploitable Result should also complete it, namely: TECNALIA, TNO, IDSA, FhG, INESC TEC, NTUA, SEL, RWTH and SIN.

The answers to those questions can be short.

NAME:
PARTNER ABBREVIATION:
CONTACT DETAILS (e-mail):

As stated in the Grant Agreement, this plan "will ensure that the project work on the reference implementation anticipates an architecture and a release under an open-source scheme. It will define a preparation plan that will include training on open-source engagement, agreeing on the IPR and licensing approaches, on governance and on resources, on the strategy for release (e.g. positioning with other systems), and on a

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roadmap for a minimum viable product; coordinate the project development team from an open source delivery viewpoint; validate the contributions for open source release from the project; participate to open source engagement events (e.g. ECLIPSEcon) to prepare for contributions external to the project."

1.1 Are you familiar with the open-source scheme? Did you already work with open-source technologies?

Experience with open-source

1.2 According to your experience, is there something that should be considered or avoided in the ENERSHARE open-source plan? As a reminder, please find below this box the topics already identified for the ENERSHARE open source plan.

ENERSHARE open-source plan

As a reminder, here are the topics already identified in the ToC of Deliverable 11.3:

- *Objective statements*
- *Business analysis*
- *Platform used and licensing approach*
- *List of pilots using the platform*
- *Governance approach*
- *Engagement needs*
- *Training needs*
- *Development tasks*
- *Resources needed*
- *Specification of what is achieved within the project*
- *Specification of what will be planned beyond the project*
- *Supporting the pilot and monitoring work (Release + training for use)*
- *Evaluation and approval of the plan*

1.3 In the Grant Agreement of the project, ten open source Key Exploitable Results (KERs) have already been identified and linked to specific partners. Do you

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confirm the following? If you are not linked to a specific KER but should be, can you please highlight it in the table below?

	Key Exploitable Results	Owner
01	Reference Architecture for a Common European Energy Data Space	All partners
02	Extended intra-energy and cross-sector Data Space interoperability building blocks	TECNALIA, ACE, HINE, ENGIE, TNO, IDSA, ENG
03	Open APIs for cross-stakeholder interoperability	TECNALIA, ACE, HINE, ENGIE TNO, IDSA
04	Trust and sovereignty enabling framework and building blocks	TNO, FhG, ENG, IDSA
05	Data and Services marketplaces	TNO, ED, INESC TEC
06	DLT/Blockchain P2P Marketplace for data/services versus energy/service compensation	ENG, INESC TEC
07	Cross-value chain AI-based data-driven services	INESC TEC, ENGIE, ED, NTUA, NESTER, SEL, LEIF
08	Digital Twins for system-level flexibility planning, wind farm supply chain and green hydrogen planning for Power2Gas	RWTH, NTUA, HINE, TECNALIA
09	SSH-based methodology and framework for multi-dimensional incentive design, business models and governances models for energy data sharing	TNO, SIN, NESTER, EKL, INESC TEC
10	Technological Reference Implementation for European Energy Data Space	All partners

Confirmation of previous table

1.4 Do you see any other Key Exploitable Results from ENERSHARE that should be developed as open-source?

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ENERSHARE extra KERs to be developed in open source

1.5 Do you have any preferred open-source platforms and /or licenses? If yes, please insert them in the following boxes and explain why.

Preferred platforms
Example: GitLab due to the company guidelines
Licenses
Example: GPLv2 because it is a strongly protective license

1.6 Are you familiar with governance schemes? If yes, what governance scheme do you envision in ENERSHARE?

Governance scheme
Example: ECLIPSE, LFEnergy, Linux Foundation

1.7 Are you aware of open-source engagement events? Do you have in mind to participate in some of them?

Open-source engagement event
Example: ECLIPSEcon, I will participate as attendee

1.8 Do you have access to expertise on open source in your company and on which we can leverage?

Access to expertise on open source

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1.9 For further engagement in the open-source process, could you please indicate a contact person in your organization specifying its role (e.g., developer, project manager, etc.)?

Open-source contact person

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