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Disclaimer

This document has been produced in the context of the EV4EU¹ project. Views and opinions expressed in this document are however those of the authors only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

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¹ <https://ev4eu.eu/>

Executive Summary

The Innovation strategy (D10.3) provides an overview of the innovation management and project consortium innovation strategy within the project EV4EU. This deliverable has been prepared by the leader of Innovation management activity – GEN-I.

The objective of T10.2 Innovation Strategy, within WP10, is to deal with the overall innovation management of the EV4EU project. As part of this task, the consortium also makes sure that the project work plan is adjusted so that the results of EV4EU are implemented in such a way that they meet the needs of the market with the best technologies and methods available at the time.

Therefore, this deliverable describes the plan and guidelines for innovation management in the project, including managing the intellectual property rights. The document is structured as follows:

- Section 1 introduces scope, objectives, structure and relationship with other deliverables.
- Section 2 introduces innovation, innovation management and innovation strategy.
- Section 3 describes the EV4EU Innovation strategy approach and the project's innovation potential.
- Section 4 summarises the conclusions of the document.

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Acronym

CA	Consortium Agreement
CC BY	Creative Commons license (credit must be given to the creator)
CC0	Creative Commons Public Domain Dedication
CC-BY-NC/ND	Creative Commons license (credit must be given to the creator, only non-commercial uses of the work are permitted, no derivatives or adaptations of the work are permitted)
CPO	Charge Point Operator
EC	European Commission
eMSP	eMobility Managed Service Provider
FAIR principles	Findable, Accessible, Interoperable and Reusable principles
IM	Innovation Metrics
IP	Intellectual property
IPR	Intellectual property rights
IRL	Innovation Readiness Levels
KPI	Key Performance Indicator
TRL	Technology Readiness Level
V2G	Vehicle-to-Grid
VC	Venture Capital
WP	Work Package

1 Introduction

1.1 Scope and Objectives

EV4EU will develop several tools, methodologies, services, technologies, and solutions that will consider the impact on the vehicle (batteries), the user needs, the environment, the power systems, stakeholder's business models and the cities' transformation. To achieve the intended results, this deliverable defines the innovation management process to ensure the proper interrelation and coherence between the research challenges, the exploitations of the results, and the validation by the potential users.

The purpose of this document is to describe the innovation management approach and the tools to be adopted during the EV4EU project development. This innovation management plan is a set of activities aiming to:

- Identify the relevant players (in collaboration with Task 10.1), both inside and outside the consortium.
- Observe constantly the market evolution.
- Define strategies for the project adaptation if necessary.
- Identify concrete Innovation Key Performance Indicators (KPIs) for the project.
- Assess the innovation reports;
- Set up, collect and monitor the Intellectual Property Rights (IPR) of the projects results, to ensure sustainable and realistic exploitation of the produced assets.

1.2 Structure of the document

The current document is divided into four sections. Section 1 introduces and describes the D10.3. Section 2 introduces and describes the concepts of innovation. Section 3 introduces and describes EV4EU innovation strategy and IPR. Finally, Section 4 presents overall conclusions and considerations about this deliverable.

1.3 Relationship with other tasks and deliverables

The Deliverable D10.3 describes the innovation strategy within the EV4EU. This deliverable is part of Task 10.2 and is directly connected with the following tasks:

- T10.1 - Dissemination, Communication & Exploitation of Project Results and
- T10.3 - Business Development Activities.

The deliverables of Task 10.2 – Innovation management will be directly connected with the following deliverables:

- D10.1 – Plan for the dissemination and exploitation of results including communication activities [1].
- D10.5 – Exploitation Plan [2].

2 Innovation management

2.1 Innovation

The word “innovation” comes from the Latin word “*innovare*” and stands for renewal. There are many different definitions for innovation; it can be a new method, idea, product, services, processes, etc. In some contexts, innovation can also mean new ideas and developing them, but in other contexts, it may mean bringing new products or services to the market. From an economic point of view, innovation is something new that benefits an organization or/and the society. In the standard ISO 56000:2020, ISO TC 279 defined innovation as “a new or changed entity realizing or redistributing value” [3]. Innovation often takes place through the development of more-effective products, processes, services, technologies, etc., that innovators make available to the market, government, and society. Whatever the definition chosen, innovation always benefits the involving partners, and there is a common element in the different definitions, namely the focus on newness, the improvement, and the spread of the ideas or technology.

Innovations do not have to be commercial. They can be based on new products, services, organizational or business methods, improved network or collaborations, advisory reports, collaborations, legislation changes, etc. The impact of the innovation can be societal, research, environmental, technical, commercial, educational, or anything that delivers a benefit to someone or addresses a specific need. The benefit does not have to be financial.

The word Innovation is related to, but not the same as, invention. Innovation is more apt to involve the practical implementation of an invention (i.e., new/improved ability) and to make a meaningful impact in a market or a society. Not all innovations require an invention!

2.2 Innovation management process

Innovation management is the process of taking innovative ideas from their inception to their implementation. This process is the systematic promotion of innovations in organization, and includes tasks of planning, organization, management, and control. As defined in ISO 56000:2020, innovation management can include establishing an innovation vision, a strategy, a policy, an objective, an organizational structure, and a process. These objectives can be achieved through planning, support, operations, performance evolution, and improvement [3].

Innovation management deals with all the measures needed to promote innovation in organizations or consortiums and thus generating benefits, namely:

- New products and services to conquer new markets.
- Improved products and services to stand out from the competition.
- Improve internal processes to strengthen the company from the inside or to save costs.
- Development of new business models to achieve new sources of income.

Innovation management is important because it allows companies and other entities to develop new ideas and procedures more quickly and effectively. This helps companies remaining sustainable and competitive by increasing their productivity, profitability, and flexibility. It is important that companies define the roles of the innovation manager, who should be responsible for managing all innovation related activities including:

- Rights to use background during and after the project;
- Capture the results;

- Assess, protect, and manage the IP;
- Dissemination (informing about results);
- Exploitation (use) of results;
- Market deployment.

Innovation management starts at the point of capturing the creative works and finishes when a model, product or service is deployed.

2.3 Innovation strategy

An innovation strategy guide defines on how resources are to be used to meet a business's objectives for innovation, deliver value, and build competitive advantage. At its core, a strategy refers to a project's concrete choices. Three important steps that must be considered before creating an innovation strategy:

1. Starting with a real problem to solve.
2. Being specific about possibilities.
3. Identifying resources, capabilities, and supporting infrastructures.

A strategy is a commitment to a set of coherent, mutually reinforcing policies or behaviours aimed at achieving a specific competitive goal. Strategies should include an analysis of a business's competitive and technological environment, its external challenges and opportunities, and its distinctive advantages [4]. Good strategies promote alignment among diverse groups within an organization or consortium; clarify objectives and priorities, and help focus efforts on them. An effective innovation strategy can:

- **Clarify priorities and goals:** An innovation strategy outlines the goals of the organizations or consortium's innovation activities and helps focusing the efforts on reaching these goals.
- **Foster alignment:** With a plan in place, diverse groups, within an organization, will be working toward common goals rather than pursuing their own individual priorities.
- **Help achieve long-term success:** Without ongoing innovation, a company or a partnership is unlikely to gain (or maintain) a competitive advantage or keep customers engaged over the long term.

2.3.1 The innovation funnel management process

The innovation funnel, represented in Figure 1, is a mechanism that means a continuous stream of innovative ideas and prototypes that can be screened for viability [5]. The concept is simple and effective and allows sorting the great ideas from other ones. At each stage in the ideation process, ideas either pass through the filters and gates or fail to meet the criteria to advance. The key objective is to generate many ideas relevant to the current business situation to enable net growth. The innovation funnel management process represents innovation as a phased process: idea generation, idea development, diffusion, and spreading of developed concepts.

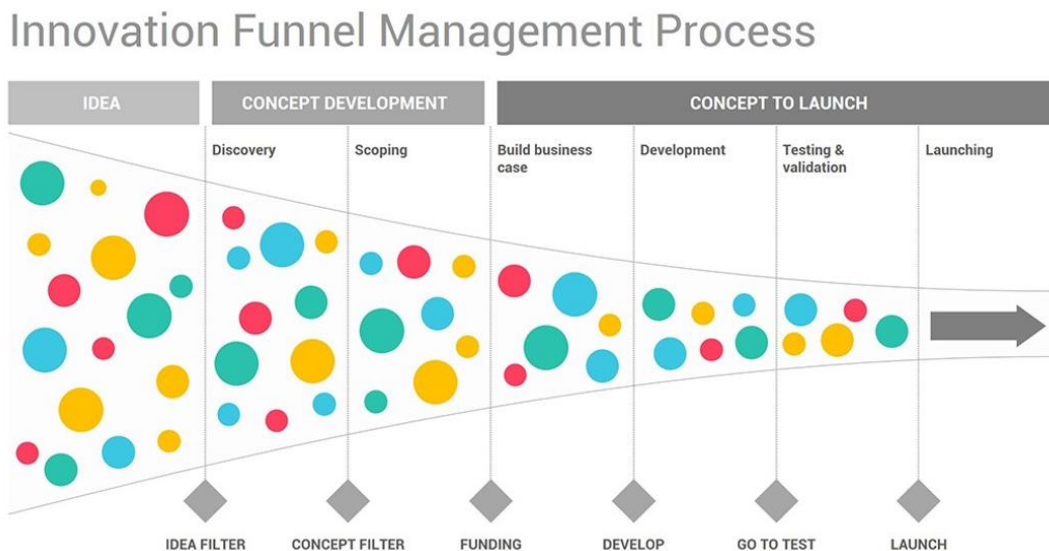


Figure 1: Innovation Funnel Management [6].

2.3.2 Types of innovation

Based on how well the problem is defined and on the necessary knowledge domain or field of experience required to find a solution, there are different types of innovation [7]. There could be four types of innovations, as showed on Figure 2.

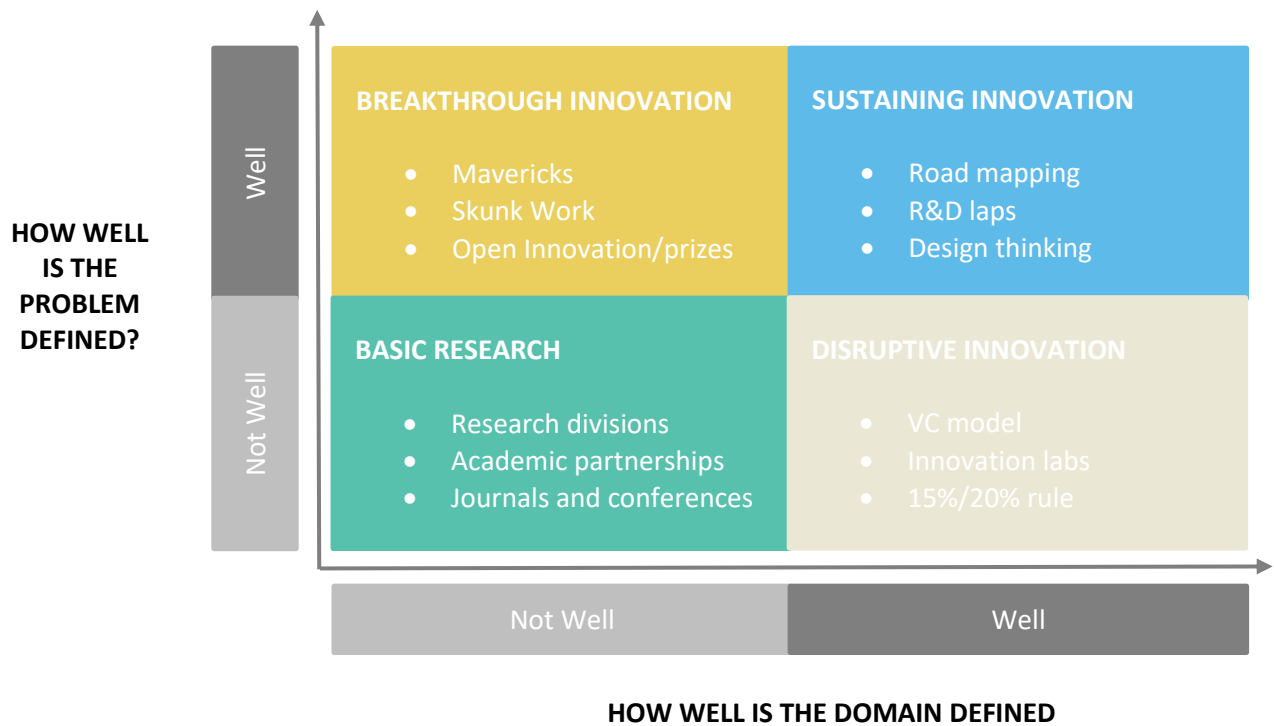


Figure 2: Types of innovations.

2.3.2.1 Sustaining innovation

Sustaining innovation occurs when a company creates better-performing products to sell for higher profits to its best customers. It is a type of innovation used to solve a well-defined problem that requires a specific skill domain to be solved. Sustaining innovation means to create, amend, and experiment continuously. Not just to address a particular problem but also to keep improving operations, products, and market position. Sustaining innovation can be managed through R&D, design thinking processes, brainstorming, road mapping, and acquisitions [7].

2.3.2.2 Breakthrough innovation

Despite the importance of sustaining innovation, it might not be enough to create a significant change that gives an advantage over competitors. Alternatively, breakthrough innovation uses new technology and sometimes a new business model to change a product or a process. Breakthrough innovation is typically related to core offerings. Breakthrough innovation usually needs some time to be understood and adopted by the market. However, when it does, it starts a series of changes to the market that reshapes the consumer's behaviour. Open innovation is a perfect tool for creating breakthrough innovation, as it allows for a wide range of expertise and skill domains to work together on the problem [7].

2.3.2.3 Disruptive innovation

The problem in disruptive innovation is not well-defined, though the solution lies within the company expertise or skill domain. In contrast to breakthrough innovation, disruptive innovation disrupts the existing market, significantly changing it by introducing new technology. An innovation creates a new value network either by creating a new market or entering an existing market and changing it by

eliminating existing players. Some tools used for disruptive innovation are innovation labs, Venture Capital (VC) models, lean launch pads, 15 % / 20 % rule, etc [7].

2.3.2.4 Basic innovation

Basic innovation is the continuous research effort done when you are not solving a defined problem, and the skill domain of the potential solution is not specified. This innovation is as vital as other innovation types since continuous research protects your organizations or collaboration’s ability to innovate. It could also be the starting point of many significant innovations [7].

2.3.3 Open innovation process

Open innovation is based on the belief that knowledgeable and creative individuals outside the company can contribute to achieve strategic goals [8]. That sharing intellectual property both ways is useful for different parties in different approaches. Open innovation processes can support companies and partners to reach large and relevant audiences, increasing the chance to develop new lucrative partnerships and involve the customers in the process. This innovation can be considered intracompany or intercompany, for a targeted audience of experts or even open for the public. Internal initiatives, also called “open inside”, can be implemented as internal challenges or intrapreneurial programs to promote internal ideation or involve the employees.

With open innovation, the audience size potential is vastly larger than in closed innovation. If it is preferably that the input to be as large as possible, namely for gaining insight on consumer habits, it is possible to expand the audience. In closed innovation “audience relevance” is limited by the expertise of the employees within the company, thus affecting what kind of topics can be focused on. The overall costs in open innovation are likely to be smaller in relation to the number of ideas and input, which is especially profitable for companies in the downturn. Open innovation challenges are scalable, surgical, and fast, making them a useful tool for companies working within a timeframe or in very specific fields [7]. Five stages of the open innovation process are presented in Figure 3.

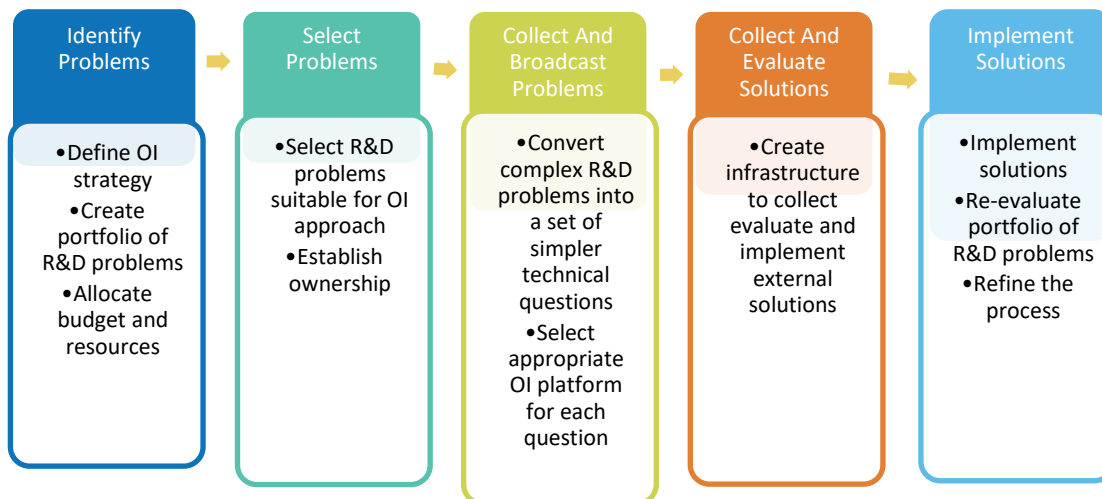


Figure 3: Five stages of open innovation process.

2.3.4 Innovation strategy in a partnership

Innovation strategy within European projects requires an understanding of the market, legal, social, and technical issues, with the goal of successfully implementing appropriate creative ideas. For a partnership to work, an underlying strategy built on three essential parts is needed. They refer to capturing and sharing the partnership value, defining all the roles in the partnership, and establishing terms and conditions on which the partnership can grow.

1. Value Exchange

Facilitating access to knowledge by sharing research results and improving knowledge transfer between research institutions and industry is key for the creation of innovation ecosystems. Partners need to understand how the collaboration will affect their business model and how it will generate value for their organization. It is equally important for each partner to be transparent about its understanding and expectations of how their organization will generate value with the partnership. Partners need also to know how they will work together to achieve the partnership's goals and thereby contribute to the greater good.

2. Defining Roles

Partnership roles are the specific duties, responsibilities and expectations assigned to each partner. Assigning partnership roles ensures that each partner knows their expected contributions. It also helps partners focus on specific aspects of the project. Assigning partnership roles can provide a system of accountability, where each partner is responsible for optimizing a core component of the project.

3. Terms and Conditions

Clearly defined terms and conditions further define the functioning of the partnership. Basic terms and conditions should be clearly defined in the initial project application. It is important to agree on what each partner will contribute to and gain from the partnership. For smaller objectives, partners will make joint decisions and agreements on an ongoing basis.

3 EV4EU Innovation strategy

The EV4EU partnership is made up of several parts. Strategic project management is the main driver for this project. Innovation management navigates the almost entirety of the project. Work packages and task management are the engine room of the whole project. All the parts together form a whole that will lead to the successful achievement of the set objectives within the EV4EU project (Figure 4).

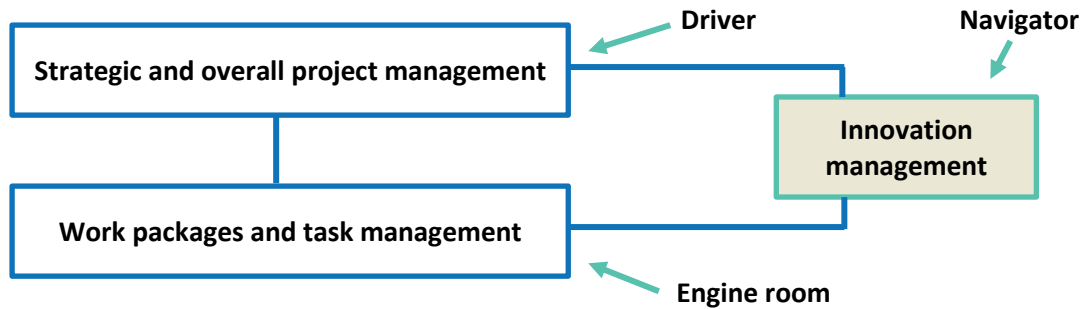


Figure 4: EV4EU Innovation management.

Different EV4EU project partners are involved in each of these parts of the partnership. Collaboration is critical to scale innovation as no partner can solve challenges alone. The benefits of collaborating are:

- Joint Innovation;
- Cost efficiencies;
- Sharing learnings;
- Different previous experiences;
- Different views;
- Different use cases.

3.1 Defining EV4EU innovation process

Innovation management within a European project is a process that requires an understanding of the market, legal, social, and technical issues, aiming to implementing successfully appropriate creative ideas. Within the partnership, it is important to be clear about terminology, roles, agreements, and objectives. Without clearly defined concepts and work processes, complications can quickly arise. That is why EV4EU have set out as a first step the definition of the partnership, terminologies, and the process. This basis will setup all further activities.

The defined innovation management process within EV4EU will ensure proper interrelation and coherence between the research challenges, the exploitation of results, and validation by potential users.

The innovation process within the project EV4EU will be performed by the innovation manager – Andreja Smole from GEN-I. Working in close cooperation with the Scientific Committee, the innovation manager will define the innovation management process. Potential users should follow this process in the project in order to ensure proper interrelation and coherence between the research challenges, the exploitation of results, and validation. The innovation process (presented in Figure 5) will identify the relevant players (in collaboration with Task 10.1), both inside and outside the consortium, and continuously observe the market evolution, defining strategies for the project to adapt if necessary. The task will also identify concrete Innovation KPIs for the project. The assessment of the innovation

and the update of the KPIs, if needed, will be reported in the project management reports. This task will set up, collect, and monitor the IPR of the project results to ensure sustainable and realistic exploitation of produced assets.

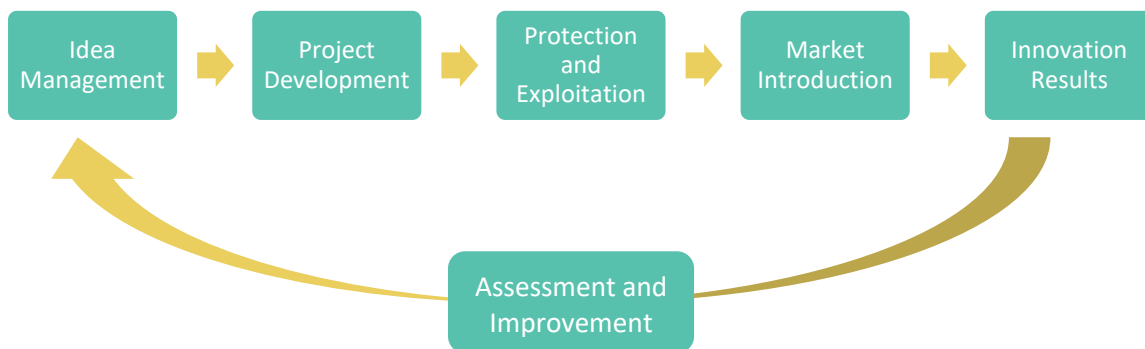


Figure 5: Innovation management EV4EU.

3.1.1 Diverse partnership and key objectives

EV4EU joins together different profiles, from both academic and industrial partners, with distinct expertise and competences. The partnership has different resources in terms of experiences, skills, technology, infrastructure, etc. These experts complement each other perfectly, leading to the generation of ideas from different perspectives. This allows the consortium to gain a deeper understanding of the needs of the current and future market. EV4EU has also identified the expectations and priorities for both individual partners and the partnership as a whole.

This step of the innovation strategy was already taken care of in the formation of the partnership itself. The main key objectives have been defined from the very beginning of the EV4EU partnership within the definitions of ambitious deliverables in each WP. The main objectives are presented in Table 1. Smaller targets and intermediate steps will be developed on an ongoing basis.

Table 1: Diverse partnership and key objectives

Objective (Scope of the activity)	Diverse consortium and defined key objectives		
Inputs (Inputs to the activity, and the persons/boards who provide them)	<ul style="list-style-type: none"> • Shared expectations and priorities of individual partners; • Creating consortium with different resources; • Defined key objectives. 		
Actors (Responsible: Main executor of the process; Consulted: Partners who provide information for the process; Informed: Partners kept informed of progress of the process)	Responsible	Consulted	Informed
	<ul style="list-style-type: none"> • Coordinator (INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa) 	<ul style="list-style-type: none"> • All partners 	<ul style="list-style-type: none"> • Občina Krško • Območna Obrtno-podjetniška zbornica Krško • Regionalna razvojna agencija Posavje • Nissan Motor Manufacturing • Vestas Wind Systems A/S • Associação Nacional de Transportadores Públicos Rodoviários Mercadorias
Actions (List of the activities)	<ul style="list-style-type: none"> • Meetings; • Identification of EV4EU key objectives; • Creating different documents, agreements, contracts; • Defined WPs. 		
Outputs (Description of outputs of this activity)	Grant Agreement		
Status	Completed ✓		

3.1.2 Defining terminology, roles, innovation process and objectives

Diverse partnership requires a shared definition of the innovation concept and roles. Innovation management and strategy were presented within the partnership. Workshops were held to standardize terminology, identify common objectives, and assign responsibilities of the objectives. A joint review and partnership strategy has been developed and presented under the leadership of innovation manager Andreja Smole (GEN-I). Within the partnership, the innovation process has been defined and the techniques and methods to be used have been identified. All partners were involved with the presentation, have been informed about the process, and have agreed with it.

Clear definition of the responsibilities for each member of the partnership is essential for effective work and achieving milestones and targets (See Table 2). Within the individual work packages, which are the engine room of the project, it is essential that leaders take responsibility for the proper functioning of their own processes and thus achieving the smaller objectives of each work package, with the help of the innovation management, which is the navigator of the project. It is important to clearly define the added value of the partnership and innovation for each individual partner, the partnership as a whole and beyond.

A clearly defined process helps to manage the overall project operation, and different methods and techniques help to achieve the objectives faster. One of the key mechanisms we will use within the

partnership is the innovation funnel management process, which covers all key steps from idea generation until launching it.

Table 2: Defining terminology, roles, innovation process, and objectives

Objective (Scope of the activity)	Defined terminology, roles, innovation process and objectives		
Inputs (Inputs to the activity, and the persons/boards who provide them)	<ul style="list-style-type: none"> • Definition of the innovation concept and roles • Innovation strategy and management ideas 		
Actors (Responsible: Main executor of the process; Consulted: Partners who provide information for the process; Informed: Partners kept informed of progress of the process)	Responsible	Consulted	Informed
	<ul style="list-style-type: none"> • Innovation manager (GENI, trgovanje in prodaja električne energije, d.o.o.) • Project Coordinator (INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa) 	<ul style="list-style-type: none"> • All partners 	<ul style="list-style-type: none"> • Not applicable
Actions (List of the activities)	<ul style="list-style-type: none"> • Meetings; • Workshop; • Creating documents. 		
Outputs (Description of outputs of this activity)	<ul style="list-style-type: none"> • All partners have the same understanding of terminology, roles, innovation process and objectives • List of identified EV4EU deliverables with innovation potential 		
Status	Completed ✓		

3.1.3 General plan and tool descriptions

The general innovation plan presented below describes the actions and/or steps to undertake within the EV4EU consortium to realize the innovation strategy. This innovation management plan (Figure 6) tends to explore and scout new potential opportunities and internally validate them through market research and industrial/institutional stakeholder feedback. After their positive validation, these opportunities will be integrated into both Business and Communication plans.



Figure 6: Schema of EV4EU Innovation Management framework

3.1.3.1 Idea generation

With the consortium's operation, working process, individual roles, and objectives clearly defined, the next step is the ideas generation process (Table 3). The goal of the first step in the innovation funnel management process is to gather as many ideas as possible. In doing so, the partnership expands its knowledge and availability of the information. The more ideas the partners can come up with, the larger the number of solutions and the better the quality of these solutions. Gathering information is

vital and relatively easy. The market research also yields valuable information. Due to the constant stream of ideas, these must be carefully studied, and connections must be made between the ideas and the objectives.

Table 3: Idea generation

Objective (Scope of the activity)	Generating ideas		
Inputs (Inputs to the activity, and the persons/boards who provide them)	<ul style="list-style-type: none"> • EV4EU Work plan and resources review • EV4EU Objectives overview • EV4EU Deliverables overview 		
Actors (Responsible: Main executor of the process; Consulted: Partners who provide information for the process; Informed: Partners kept informed of progress of the process)	Responsible	Consulted	Informed
	<ul style="list-style-type: none"> • Innovation manager (GENI, trgovanje in prodaja električne energije, d.o.o.) • Project Coordinator (INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa) 	<ul style="list-style-type: none"> • All partners 	<ul style="list-style-type: none"> • Not applicable
Actions (List of the activities)	<ul style="list-style-type: none"> • Meetings; • Workshops; • Brainstorming; • Discussing; • Other agile methods. 		
Outputs (Description of outputs of this activity)	<ul style="list-style-type: none"> • List of ideas 		
Status	In progress		

3.1.3.2 Analysis of ideas

In this phase of the Innovation Funnel, the ideas the partners have developed in the first phase are screened (Table 4). This screening process encompasses matching the ideas with the goals of the consortium to check whether they have added value for the involved organizations. Subsequently, an evaluation is made of the yields (cost-benefit analysis), the risks, and then deciding which ideas must be selected. Testing the products or services with real customers also begins in this phase.

After establishing and selecting the best ideas, resources must be allocated to the most promising and viable plans and opportunities. These resources are scarce, so careful identification of the yields is an absolute necessity. It is also important that the ideas position the partnership positively to enable future projects.

Some of the key things we will analyse and define for each idea:

- Name of the innovative idea.
- Description of the innovative idea.
- What value does the innovation bring?
- To whom does the innovation bring value?
- Who is responsible for the innovation?

- Who is developing the innovation?
- Where will it be described or explained?
- Current status of the innovation?
- Innovation Readiness Levels (IRL) indicator.
- Involved partners in the innovative idea development.
- Who will exploit the innovation within the project consortium?

Table 4: Analysis of ideas

Objective (Scope of the activity)	Analysis of ideas		
Inputs (Inputs to the activity, and the persons/boards who provide them)	<ul style="list-style-type: none"> • List of ideas from the previous step • EV4EU Work plan and resources review • EV4EU Objectives overview • EV4EU Deliverables overview 		
Actors (Responsible: Main executor of the process; Consulted: Partners who provide information for the process; Informed: Partners kept informed of progress of the process)	Responsible	Consulted	Informed
	<ul style="list-style-type: none"> • Innovation manager (GENI, trgovanje in prodaja električne energije, d.o.o.) • Project Coordinator (INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa) 	<ul style="list-style-type: none"> • All partners 	<ul style="list-style-type: none"> • Not applicable
Actions (List of the activities)	<ul style="list-style-type: none"> • Meetings; • Workshops; • Brainstorming; • Discussing; • Using different indicators (e.g., IRL: Innovation Readiness Indicator); • Other agile methods. 		
Outputs (Description of outputs of this activity)	<ul style="list-style-type: none"> • Table with identified and analysed best ideas 		
Status	In progress		

3.1.3.3 Development

Ideas that have the merit to move through the funnel into development are namely the feasible, viable, and desirable. In this phase, the best ideas become prototypes to be tested (Table 5). During the development, groups of partners will work on executing the plan within each specific WP and demo, as designed. The WP leader reviews the deliverables and helps to maintain the quality control of the process. Although problem complexity and development times may vary, the process remains mostly the same.

The goal is not just to apply limited resources to selected projects with the highest expected payoff but also to create a portfolio of projects that will meet the consortium objectives while enhancing the partnership's strategic ability to carry out future projects.

The responsibility of each partner during the implementation of the EV4EU project is the identification, monitoring, and development of innovations that are the result of their work or cooperation with the other partners. Each of them is responsible for identifying, determining, developing, and long-term management of innovations in cooperation with the innovation manager and/or project coordinator.

Table 5: Developing ideas

Objective (Scope of the activity)	Developing ideas		
Inputs (Inputs to the activity, and the persons/boards who provide them)	<ul style="list-style-type: none"> Identified innovations; Market analyses; Project specification; Project objectives. 		
Actors (Responsible: Main executor of the process; Consulted: Partners who provide information for the process; Informed: Partners kept informed of progress of the process)	Responsible	Consulted	Actively involved
	<ul style="list-style-type: none"> WP leaders 	<ul style="list-style-type: none"> Innovation manager (GENI, trgovanje in prodaja električne energije, d.o.o.) Project Coordinator (INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa) 	<ul style="list-style-type: none"> All partners
Actions (List of the activities)	<ul style="list-style-type: none"> Development within the WP; Additional activities to optimize the business opportunity of developed results: <ul style="list-style-type: none"> Meetings; Workshops; Brainstorming; Discussing; Using different indicators (e.g., IRL: Innovation Readiness Indicator); Other agile methods. 		
Outputs (Description of outputs of this activity)	<ul style="list-style-type: none"> Developed identified innovations and prepared business plans 		
Status	Not started yet		

3.1.3.4 Tuning selected ideas to the consortium's objectives

In this phase, the consortium ensures that the selected ideas are tuned to the partnership's objectives that were drawn up when the consortium was created. The first evaluations and reviews of the test phase are also expected in this phase. If everything goes as planned, the new product, idea, or the new service can be launched.

The responsibility of each of the partners is the long-term concern for the innovations resulting from the EV4EU project. For this purpose, each partner must prepare a long-term innovation management strategy and determine a responsible team that will also take care of the innovation that comes as a result of the EV4EU project, even after the end of it (Table 6).

Table 6: EV4EU results and exploitation plan

Objective (Scope of the activity)	EV4EU results and exploitation plan		
Inputs (Inputs to the activity, and the persons/boards who provide them)	<ul style="list-style-type: none"> • WP results • Business plans • Developers identified innovations 		
Actors (Responsible: Main executor of the process; Consulted: Partners who provide information for the process; Informed: Partners kept informed of progress of the process)	Responsible	Consulted	Informed
	<ul style="list-style-type: none"> • Innovation manager (GENI, trgovanje in prodaja električne energije, d.o.o.) • Project Coordinator (INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa) 	<ul style="list-style-type: none"> • All partners 	<ul style="list-style-type: none"> • Not applicable
Actions (List of the activities)	<ul style="list-style-type: none"> • Meetings; • Workshops; • Brainstorming; • Discussing; • Using different indicators (e.g., IRL: Innovation Readiness Indicator); • Other agile methods. 		
Outputs (Description of outputs of this activity)	<ul style="list-style-type: none"> • EV4EU objectives • Exploitation plan of EV4EU results 		
Status	Not started yet		

3.2 Deliverables with high innovation potential

The EV4EU project deliverables that have a high innovation potential are listed on the Table 7. The innovation manager, to ensure that the innovation is maintained at a high level, will monitor these deliverables with particular attention at all stages of their development.

Table 7: List of deliverables, with high innovation potential

Del. no.	Deliverable title	Del. date
D1.1	Electric Road Mobility Evolution Scenarios	M4
D1.4	Business models centred in the V2X value chain	M10
D1.6	Real-scale prototype of V2X management station	M18
D1.7	Patent of V2X management station	M21
D2.1	Control strategies for V2X integration in houses	M13
D2.2	Control strategies for V2X integration in buildings	M14
D2.3	Optimal management of V2X in parking lots	M21
D2.4	Optimal management of EV fleets in companies	M22
D2.5	Optimal management of V2X in energy communities	M27
D2.6	Control strategies for the optimal operation of electrified road freight and public transport	M28
D3.4	V2X management Co-simulation platform	M27
D3.5	V2X management at city level: Simulation results	M34
D3.6	Decision support tool for high-level coordination of V2X management strategies	M39
D4.1	Distribution network planning strategies considering V2X flexibilities	M10
D4.2	Scheduling and real-time operation strategies to control V2X flexibilities	M13
D4.3	Optimal management of V2X flexibilities integrated into a VPP portfolio	M19
D4.4	Impact of mass deployment of V2X in energy markets and services	M20
D4.5	DR programs creating incentives for V2X	M24
D5.3	High-Level Design of O-V2X-PM	M10
D5.5	Open V2X Management Platform	M21
D6.1	Implementation plan for the Azores demo	M18
D6.3	Implementation, operation and monitoring of the Azores demo	M27
D6.4	Evaluation and lessons learn of the Azores demo	M39
D7.1	Detailed definition and implementation plan of Slovenian Demonstrator	M18
D7.3	Slovenian use cases demonstration, monitoring and evaluation report	M36
D7.4	Lessons learned in Slovenian Demonstrator and Services Marketability report	M39
D8.1	UC specifications and demonstrator deployment plan	M18
D8.2	Greek demonstrator start-up report	M24
D8.5	Analysis of demonstration results in Greek demonstration report	M36
D8.6	Lessons learned in Greek Demonstrator and Services/Tools Marketability report	M39
D9.1	Use case specification, development, installation, commissioning, demonstration, and evaluation planning for the Danish demo	M18
D9.4	Demonstration results report for the Danish demo	M36
D9.5	Lessons learned, impact and replicability potential assessment for the Danish demo	M39

3.3 Innovation metrics

A list of innovation performance indicators, herein named Innovation Metrics (IM), has been defined and will be used during the EV4EU project. The innovation metrics are presented in Table 8.

Table 8: Innovation metrics

IM ID	Innovation Metrics description	IM target value
IM1	Number of scientific publications and conference/congress presentations on advanced methods and tools.	25
IM2	Number of new tools.	5
IM3	Number of liaisons and joint activities with other projects, communities, initiatives	20
IM4	Number of scientific/technical dissemination material	3
IM5	Number of demonstration reports	4
IM6	Number of different locations where the demonstrations will take place	4
IM7	Number of new Business Models and Services	4
IM8	Number of new technologies	3
IM9	Number of demo events	4

3.4 Intellectual Property Rights (IPR)

Any new developments during the project will be analysed to identify which are expected to be commercialized and therefore protected by IPR. At the end of the project, a list of results ownerships will be detailed. To be in line with the Open Science priority of the European Commission (EC), mandatory publication in the Open Access journals will be adopted to increase the access of external researchers and the general public to the project results. These will ensure immediate open access through the EC trusted repository (at the latest at the time of publication), that the publications will be licensed under CC BY (or equivalent) or CC BY-NC/ND (or equivalent), allowing for long-text formats and that the necessary information will be provided about any research output, tool, or instrument needed to validate the conclusions of a publication. Finally, the metadata will be licensed under CC0 (or equivalent), in line with FAIR principles.

EV4EU will involve all relevant knowledge actors, including citizens, civil society, and end-users, through the Stakeholders Board. Before dissemination and communication actions, research results will have an IPR check to determine its possible protection ability, always working according to EC contract rules regarding background and foreground, also considering national regulations and the guidelines of the IPR-Helpdesk (www.ipr-helpdesk.org). If, despite the best effort for exploitation, no uptake happens within a year after the end of the project, then the project will use the Horizon Results Platform to make exploitable results visible.

Starting from the set-up described in the Grant Agreement (GA) each participant, who contributes intellectual property to the project or has developed intellectual property within the project, must make a declaration about its IPR to the coordinator. This declaration shall include any special requirements for the use of this IPR in addition to or in derogation of the standard rules on rights in the Consortium Agreement (CA). Confidentiality and exploitation issues shall be determined at the start of the project and reflected in the Consortium Agreement. In particular, the following commercial issues shall be addressed:

- confidentiality of information disclosed by the parties during the development of the project;
- ownership of the results resulting from the execution of the project;
- legal protection of the results through patent rights;
- commercial use of the results, taking into account also the joint ownership of the results;
- patents, know-how and information concerning the use of knowledge, owned by either party, resulting from work carried out prior to the agreement;
- sub-licensing of commercial offers to third parties within clearly defined limits;
- availability of information, products, results, etc., for other EU-funded projects; and
- liability exclusion rules.

Each partner will be the only owner of any kind of knowledge produced inside the project by him. However, when a group of partners is collaborating to produce knowledge, the IPR of such knowledge will be shared among the partners involved pro-ratio to the effort invested by each partner. Each partner may use the results and material produced within the project for project purposes provided that such use does not come into conflict with the terms of the project Grant Agreement or the European legislation. In order to further the competitiveness of the EU market and to enhance the exploitation of the Consortium Results, each contributing party shall have freedom of action to exploit the joint IP as it wishes and further the goals of the consortium. To promote this effort, the contributing party will have full own consideration regarding their use of such joint Results and will be able to exploit the joint IP.

In case a partner wants to submit a patent application, it shall inform the Project Management Committee. In case a conflict arises around the patent application, all involved partners will notify the project coordinator. Information of patent applications will be made available to the EU through regular management reports. The submitters will cover the costs of the patent applications.

For the success of the project, all project partners must agree on explicit rules concerning IP ownership, access rights to any Background and Results for the execution of the project, and the protection of IPRs and confidential information before the project starts. Such issues are addressed in detail within the CA between all project partners of the project, signed by all project partners. Specific IPR and confidentiality agreements will complement the relevant articles and provisions of the CA on the exchange of knowledge and innovations not foreseen at the beginning of the project. These specific agreements will be reviewed by the Project Management Committee, which will verify if these agreements are not in conflict with the European Commission contract.

The IPR directory presents the IPR rules accepted by all partners at the beginning of the project and that can influence the options for future exploitation and commercialization of the results. In the consortium agreement, IPR issues are handled and therefore related points are clarified. The Innovation Management Team will review related possible patent applications and the rights distribution will be organised in line with the CA.

In order to make sure that these terms are followed, and to avoid disputes and facilitate business planning, an IPR Directory is going to be kept and updated throughout the lifetime of the project. The IPR directory presents the IPR rules accepted by all partners at the beginning of the project and that can influence the options for future exploitation and commercialization of the results. This document must list all items of knowledge relating to the work of the project (results developed in the project), and make explicit for each item:

- the owner(s);
- the nature of the knowledge, and its perceived potential for exploitation;
- the currently agreed status of the item concerning access rights, plans to use the knowledge in exploitation, or plans to disseminate it outside the Consortium; and
- measures required, or in place, to ensure protection of IPR for the item.

4 Conclusions

Innovation Management within European projects is a process that requires an understanding of market, legal, social, and technical issues, to successfully implement appropriate creative ideas. The defined innovation management process within EV4EU will ensure proper interrelation and coherence between the research challenges, the exploitation of results, and validation by potential users.

EV4EU has the ambition to lead a significant impact in innovative projects, that will implement bottom-up and user-centric V2X management strategies creating the conditions for the mass deployment of electric vehicles. To this aim, the innovation strategy has been defined from the early beginning of the projects. The process results represent the baseline for the future EV4EU innovation steps.

This deliverable provides an understanding of the EV4EU innovation strategy. The deliverable will serve as guidance for consortium members and will be updated throughout the development of the project, in order to adjust to the innovation activity requirements. Thus, the Innovation strategy is considered as an adaptive living document and it will be further updated according to different project phases.

5 References

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