



## **D10.1: Report setting out the finalised SELINA co-creation mechanism to be utilised for guidance**

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# 1 List of abbreviations

ENoLL	European Network of Living Labs
EU	European Union
SISCODE	Society in Innovation and Science through CODEsign
SWAFS	Science with and for Society
WS	Workshop

## 2 Summary

This report sets out the proposed approach for operationalising co-creation in the SELINA project for the purpose of developing the Compendium of Guidance (D10.4). The report begins with a review of the literature on co-creation, to explore what co-creation is and how it can be applied as a user-centred approach to achieve innovation. To demonstrate why a co-creation approach is useful to the specific aims of the SELINA project, the literature review also explores the range of innovation challenges to which co-creation approaches have been applied, the emergence of co-creation as a cornerstone for responsible research and innovation under the European Union’s research programmes, and guiding principles and important elements to support and enable co-creation. Part 2 of the report details the means by which co-creation will be applied in the context of SELINA. It does this by firstly outlining the innovation challenge that the SELINA project is trying to address and secondly by defining which stakeholders will participate in the co-creation journey. Then, drawing on the methods and principles for co-creation presented in the literature, the report sets out the envisaged journey of co-creation that will be operationalised in the SELINA project and the mechanisms that will be utilised to structure and guide the co-creation process.

## 3 Introduction

*“Co-creation changes the game of innovation from designing for people to designing with people” (Correia et al., 2016)*

### 3.1. What is co-creation?

Whilst definitions for “co-creation” in the literature are varied (Brandsen & Honingh, 2018), in the simplest terms, co-creation can be described as a collaborative process in which multiple stakeholders work together to create something new. Co-creation is a methodological approach for facilitating collaboration between various actors, who bring their own expertise, skills, knowledge and experience to jointly create new products, services, or solutions. The goal of co-creation is to create products, services, and solutions that are more relevant, suitable, useful, legitimate and valuable to stakeholders as a result of stakeholders’ integral involvement in the process. A core principle of co-creation that



distinguishes it from other participatory processes is the active involvement of stakeholders throughout all stages of the production process from problem definition right through to implementation of the solution (Prahalad and Ramaswamy 2000; Vargo and Lusch 2004). Co-creation goes further than other participatory approaches that are more akin to consulting or involving stakeholders at specific moments on issues that are pre-defined by the initiator, and instead empowers stakeholders to have agency and power in shaping the process and outcomes of the co-creation journey (Williams et al., 2020).

Co-creation has been described by some as a prerequisite for 'social innovation' (Broekema et al., 2021). According to Robinson et al. (2020), co-creation provides the necessary conditions for developing novel solutions and outcomes that would not be possible without the broad multi-stakeholder input that co-creation entails. Other notable benefits of co-creation that have been described in the literature include the ability to develop a more robust and systemic understanding of the issue in question, improved capacity to develop long-term solutions that have a high degree of user value, greater sense of ownership and buy-in to the end-product among intended users, and efficiency in terms of having a constant feedback loop with stakeholders to improve the design (Matti et al., 2022).

Co-creation approaches can be initiated by a range of stakeholders (e.g. public bodies, private companies, research institutes, citizens) and have been applied in a range of public and private contexts. For example, co-creation first emerged in the business and marketing sector as a method for achieving product innovation by placing "users" at the centre of the design process (Prahalad and Ramaswamy, 2000). In this context, consumer citizens are more than passive actors who shape the market and drive demand for products, they are an active voice in prescribing value and defining expectations. In the public sector, co-creation approaches have been increasingly adopted as a constructive method for shaping and improving public services. Co-creation has also proven to be useful for the purpose of knowledge co-production. For example, researchers who applied co-creation methods to develop new "knowledge products" felt that the co-creation approach resulted in the development of more practical and useful products that were more likely to be used by end-users and lead to successful changes in practice (Grindell et al., 2022)

### 3.2. The emergence of co-creation for social innovation in the EU

In the context of European Union (EU) decision-making, the growing complexity of EU policy-making and the mounting urgency to deal with complex social and environmental issues has highlighted the need for innovation in the way that decisions are made at multiple levels. Moreover, the multilevel governance system of the EU can present challenges for practitioners who must navigate multiple levels of policy and decision-making. At the same time, the spatial and temporal manner in which decision are made in the EU can make it difficult for EU citizens to understand how best to engage and participate in decision-making processes that could impact them (Matti. et al, 2022). This complexity risks creating alienation and dissatisfaction among EU citizens regarding the perceived transparency and effectiveness of decision-making within the EU. Acknowledging these challenges, the European Commission stated that "Citizens interests and values need to be better integrated into science, technology, research and innovation issues, policies and activities. This integration will increase the quality, relevance, social acceptability, and sustainability of research and innovation outcomes in various fields of activity from social innovation to nanotechnology" (European Commission, 2013).

Against this backdrop, there has been a paradigmatic shift in the perceived role that citizens can play in science, research, innovation and policy making within the EU (Deserti et al., 2022). At the core of this shift, is the realisation that perceiving EU citizens as concerned citizens rather than passive consumers can help to reimagine research processes in a way that mobilises collective knowledge for



achieving much needed advancements in science, technology and society to address complex societal challenges. In the past decades, the EU has been at the forefront of experimenting with co-creation approaches to achieve social innovation (Macq et al., 2020; Broekema et al., 2021) and there are growing examples of co-creation being put into practice to tackle a range of public sector challenges.

The adoption of co-creation approaches in the EU has in large part been catalysed by the European Commission's research agendas. For example, Robinson et al. (2020) describe the emergence of co-creation as a relatively new concept and a stand-alone element under the "Science with and for Society" (SWAFS) Horizon 2020 programme. Horizon Europe considers the SWAFS Programme to be an important catalyst for building a more open, inclusive, and responsible research system. SWAFS set out to achieve this by integrating the concept or "Responsible Research and Innovation" across the work programme (European Commission, 2013). Responsible Research and Innovation refers to the engagement of society in processes of innovation delivered through co-creative research. Under this programme of funding, flagship projects like SISCODE ([Society in Innovation and Science through CODEsign](#)) explored the potential of co-creation approaches for achieving responsible research and innovation, as well as examining the necessary conditions for co-creation, its scalability and replicability. A key output of the project was a handbook outlining a range of co-creation methodologies and associated best practices that could be applied to improve the design, implementation, and sustainability of research and innovation practices (see Deserti et al., 2022).

The SWAFS programme continues to be an integral part of the EU research programme, but notably, the uptake of co-creation has now been implemented across the Horizon Europe programmes of work as per the European Commission's policy on Research and Innovation (European Union, n.d.). Robinson et al. (2020) observe that, far from featuring as a stand-alone research programme (SWAFS) under Horizon 2020, co-creation approaches have been embedded and institutionalised across the current Horizon Europe research agenda as an over-arching principle.

### 3.3. Co-creation in practice

The SISCODE project (SISCODE project, 2019) determined four phases to any co-creation journey, which are best undertaken in an iterative manner. The first phase is to analyse the context around the intended product or solution. In practice, this involves working together to understand the context surrounding the problem e.g. what the problem is, why the problem exists and reasons for why the problem has not already been addressed. The second phase involves "reframing the problem", during which stakeholders come together to reflect on the characteristics of the problem from their multiple perspectives. During the third phase, "envisaging solutions to address the problem", stakeholders work together to deliberate ideas and co-imagine products or solutions that could help to address the problem. The fourth phase involves "prototyping and experimenting" with the products or solutions identified at the previous stage, by testing them in real-world contexts and using the feedback and lessons generated in this piloting phase to further refine the product.

A common way in which co-creation has been operationalised in different EU-funded projects is through the "living labs" concept, which has been embodied by projects like SISCODE, the Living Labs Lille Project and the European Network of Living Labs (ENoLL), amongst others. ENoLL describes living labs as "an open innovation ecosystems in real-life environments using iterative feedback processes throughout a lifecycle approach of an innovation to create sustainable impact. Living labs focus on co-creation, rapid prototyping and testing and scaling up [to provide] joint value to the involved stakeholders" (ENoLL, 2023). The living lab concept draws on the fourth phase of the co-creation journey by testing the co-created solution in real life scenarios. Prototyping the solution in this manner



can help to catalyse uptake and implementation of the outcomes by the stakeholders involved (Deserti et al., 2022).

### 3.4. Guiding principles for co-creation

Co-creation has been used for a wide range of purposes including product innovation, citizen science, policy development, and public health planning and a wide range of tools exist for facilitating co-creation processes, see for example (ENOLL, n.d.). In practice, the tools and approaches that are applied to facilitate co-creation largely depend on the purpose, objectives and context of the innovation goal. However, despite the variety of ways in which co-creation has been operationalised, the steady increase in the uptake of co-creation approaches in the Horizon 2020 and Horizon Europe work programmes has led to a recent but growing body of literature around co-creation. The growing body of literature explores applications of co-creation in a range of Responsible Research and Innovation projects, analysis of the suitability of co-creation for achieving different research and innovation goals, tools and modalities for operationalising co-creation, and lesson learned and best practices for successfully achieving social innovation through co-creation (see for example, SISCODE 2018; Itten et al., 2021; Mahmoud et al., 2021; Deserti et al., 2022; Matti et al., 2022)

From this literature, it is possible to deduce a number of lessons and best practices for conceptualising and operationalising co-creation. Firstly, there is consensus in the literature that co-creation cannot be characterised by a defined set of tools or methods. As noted in a paper by Voorberg (2015), attempts to constrain co-creation to specific tools or methods would be counter-intuitive to the innovation and flexibility that is implicit in co-created research, solutions and products for end-users. Indeed, research undertaken by the SISCODE Project (2018) deduced that there is no “one size fits all” approach when it comes to implementing co-creation approaches. Rather, in order for co-creation to deliver valuable and meaningful outcomes, it is important to develop the tools, methods and timelines of the co-creation approach in accordance with the context and unique requirements of the project (Matti et al., 2022).

Whilst approaches for implementing co-creation activities are not restricted to specific methods or tools, the literature does suggest that there are a number of key principles and best practices that are important for ensuring that co-creation processes are undertaken meaningfully and effectively. In this way, co-creation can be understood as a principles-driven process. These principles can be summarised as follows:

- **Be clear about the goals of the co-creation process.** Set clear goals on what the co-creation process aims to achieve and communicate this clearly to the stakeholders involved.
- **Identify the stakeholders who should be involved.** Stakeholders should include those actors who have a stake in the project and/or could contribute to its success.
- **Choose the right co-creation mechanisms.** There are many options co-creation mechanism options available, so choosing the appropriate mechanism(s) should be based on the goals of the project and the needs of the stakeholders.
- **Ensure the co-creation process is inclusive and participatory.** Proactive measures are needed to ensure that all stakeholders are able to effectively participate in the co-creation process.
- **Be transparent and communicate with stakeholders.** Keep stakeholders informed about the progress of the project and stay up-to-date with stakeholders needs and perspectives.
- **Ensure the co-creation mechanism is flexible and adaptive to change or shifting priorities.** Uncertainty is often an inevitable element of any innovation journey. The innovation process should be flexible and adaptable to enable innovation to take place spontaneously and without restriction.



## 4 Co-creating the SELINA Compendium of Guidance

This section describes the social, political, and technological context in which the need for innovation and co-creation through SELINA arises. We present the envisaged co-creation journey that will unfold during and beyond the project to support the innovation process, the partners and stakeholders who will play a central role in the co-creation journey, and the envisaged mechanisms that will be utilised to facilitate the co-creation journey. The approach described below draws upon the SISCODE Toolkit for Co-creation Journeys (SISCODE Project, 2019), as well as the guiding principles and best practices detailed in the literature.

### 4.1. The innovation challenge that SELINA aims to address

The EU Biodiversity Strategy 2030 and the EU Green Deal set out ambitious plans to protect nature and reverse the degradation of Europe's ecosystems. Against this backdrop, biodiversity is in decline and decision-makers and citizens at all scales lack clear, comprehensive, and integrated information to be able to adequately protect, restore and sustainably use ecosystems and their services. Whilst steady advancements in the development and refinement of ecosystem service approaches, following the landmark Millennium Ecosystem Assessment (MA, 2005), have made it increasingly possible to assess and quantify nature's value for different decision-making purposes, there remains a lack of comprehensive approaches for integrating ecosystem service, ecosystem condition and ecosystem accounting information into one coherent evidence base to support decision-making. At the same time, across the EU, structural barriers (such as disconnect between science and policy, complex procedures for decision-making, and time and budget constraints) prevent the uptake of biodiversity-related evidence in a range of public and private sector decision-making spaces. Hence, in order for the EU to realise its ambitions to restore biodiversity and ecosystem services on an EU-wide scale, innovation in the current methodological approaches for conceptualising and quantifying nature's value is required, as well as innovation in the decision-making processes that affect how such evidence is mobilised in policy and practice. Herein lies the innovation challenge. The expectation is that by harnessing the collective knowledge, needs and perspectives of multidisciplinary experts, citizens and public and private sector practitioners from across the EU to embark on a journey of knowledge co-creation, the SELINA project will uncover new innovative tools, methods, knowledge and recommendations that can be scaled-up for diverse public and private decision-making purposes to respond to societal needs.

In order to support the applicability and scalability of the knowledge and innovation achieved through the SELINA project, it is important that this knowledge is clear, accessible and can be readily applied for a range of decision-making purposes across sectors and at a range of decision-making scales in the EU. For this to be possible, the SELINA project will develop a Compendium of Guidance consisting of tailor-made guidance, tools, and materials that translate the technical advancements of the project into user-friendly products that support decision-making. To ensure this knowledge is fit-for-purpose and meets those needs, it will be critical to harness the collective knowledge, needs, and perspective of the diverse stakeholders involved in the SELINA project (who collectively represent science, policy, and society) and to channel this co-created knowledge into the development of the Compendium of Guidance.





## 4.2. The stakeholders involved in the SELINA co-creation journey

Applying the broadest most inclusive definition of a “stakeholder” (Durham et al. 2014), SELINA’s stakeholders include a) any person or group who may be directly or indirectly affected by the project b) anyone who has an interest in the project, and c) anyone who has the ability to positively or negatively influence the outcomes of the project. Given that the SELINA project is operating at multiple scales (local, national, regional and EU-wide) and engages with actors from multiple research disciplines, public and private sectors and EU citizens, SELINA’s stakeholder network is large, complex and covers a broad range of interest groups. The challenge for the SELINA project is to facilitate the engagement and participation of the project’s broad-ranging stakeholders to ensure the project’s outcomes and outputs are suitably aligned to the needs and interests of its stakeholders from science, policy and society, whilst at the same time developing a constructive and tangible process for co-creating knowledge for the subsequent Compendium of Guidance. To achieve this, it is necessary to establish some clear boundaries to define which actors will be involved in co-creating the Compendium of Guidance. The following groups of actors have been identified predominantly because collectively they represent the knowledge, needs and interests of science, policy, and society: the SELINA consortium partners, the Demonstration Projects and test sites, the Communities of Practice and the Private Sector Task Force. The assumption is that by working with these stakeholder groups to co-create the Compendium of Guidance, the products in the Compendium of Guidance will be relevant and transferrable to broader audiences who have similar public and private decision-making needs. Secondly, these actors have been identified because they are (to varying extents) involved in the SELINA project and have the necessary interest and investment to participate in the co-creation of the Compendium of Guidance. Here we provide an overview of which stakeholders will be involved in the co-creation of the Compendium of Guidance. The stakeholder groups are categorised according to their characteristics and role in the SELINA project.

### 4.2.a. The SELINA Consortium Partners

The SELINA project is comprised of 50 consortium partners whose knowledge and expertise spans a diversity of disciplines (natural and social science, economics, politics, law) and whose interests and expertise encompass decision-making in the private-sector, public sector respectively. A number of these partners are implementing the 15 Demonstration Projects and therefore play a dual role of being project partners and actors involved in the Demonstration Projects. The technical knowledge and expertise of the project partners, and in particular the Work Packages leads who form the project’s Executive Board, will be instrumental for co-creating the Compendium of Guidance.

### 4.2.b. Actors involved in the Demonstration Projects and test sites

There are 15 Demonstration Projects taking place in the SELINA project in 15 European countries, as well as a number of local “test sites”. The Demonstration Projects have been purposely selected to reflect a range of public, private and hybrid decision-making scenarios e.g., urban planning and design, planning for nature-based solutions in urban environments, development of nature-based tourism, renewable energy infrastructure development, and more. The methodological advancements and indicators developed by Work Packages 3 – 6 will be piloted in these Demonstration Projects and test sites.

Given the critical role that the actors from the Demonstration Projects will play in terms of piloting the technical advancements developed by Work Packages 3 – 6 in real-world public and private sector decision-making scenarios, these actors will develop valuable first-hand knowledge and experience



that will be critical for identifying products and tools that could best support application and replication of the project’s technical advancements in other public and private decision-making settings, to be developed as part of the Compendium of Guidance. On this basis, the actors involved in the Demonstration Projects will play the most active role in co-creating the Compendium of Guidance. The project workshops that occur twice (and sometimes more) per year are key moments in which knowledge and innovation is co-created as a result of the lessons and experiences emerging from the technical innovations in Work Packages 3 – 6 and their application in the Demonstration Projects. It is therefore important that, as far as possible, there is good participation from the actors involved in the Demonstration Projects at each of the project workshops, so that fruitful knowledge co-creation can occur amongst the project partners and the members of the Demonstration Projects as this will fertilise ideas for the Compendium of Guidance.

#### **4.2.c. Communities of Practice<sup>1</sup>**

A key activity of Work Package 2 is to establish Communities of Practice in each EU Member State and where appropriate associated countries, consisting of actors from science, policy, and society who are united by a common interest to strengthen the use of biodiversity and ecosystem service information in decision-making. The Communities of Practice will “act as a microcosm wherein people step back from everyday pressures into a peer supported environment to co-develop a new understanding of their decision-making challenges”. Working closely with the Communities of Practice, Work Package 2 will use a “systems-thinking” approach to identify “seeds of change” or in other words key ingredients, to spark transformative changes in decision-making processes to improve the integration of biodiversity, ecosystem condition, ecosystem service and ecosystem accounting information in a range of public and private sector decision-making contexts.

The Communities of Practice are a valuable and important network of actors who possess highly relevant knowledge and expertise (e.g., an awareness of public and private sector decision-making needs) and whose inputs will be critical for ensuring the Compendium of Guidance is aligned and applicable to their public and private sector decision-making needs. It is anticipated that these Communities of Practice will have a high level of interest in the technical advancements achieved in the SELINA project as well as a high level of influence regarding the upscaling of the project results. For this reason it will be critical to engage the Communities of Practice at key moments in the SELINA co-creation process to gain their input towards the development of the Compendium of Guidance. Work Package 2 will identify “representatives” from the Communities of Practice in each member state, who will participate and input to the development of the Compendium of Guidance.

#### **4.2.d. Private Sector Task Force**

Work Package 9 has established a Private Sector Task force consisting of individuals from the private Demonstration Projects and other interested private sector stakeholders. As intended end-users of the Compendium of Guidance, the representatives in the private-sector task force have a vested interest in the technical advancements and tools that SELINA will develop and will play an important role in scaling up its use in a range of private sector decision-making scenarios. Given their position to represent the interests and needs of the private sector, the Private Sector Task Force will be a key

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<sup>1</sup> In the context of SELINA, Communities of Practice are a community in a state with different public and private stakeholders working on enhancing uptake of biodiversity and ecosystem service indicators in decision making.



### 4.3. The envisaged SELINA co-creation journey

The design of the SELINA project and its associated activities correspond well to the four-phase co-creation journey described in the literature: 1) analysis of the context, 2) re-framing of the problem, 3) envisioning of alternatives, and 4) prototyping the solution. For the purpose of the SELINA project, we have added an additional phase “implementation”, which refers to the period after the project’s completion when the technical advancements of the project and the resulting Compendium of Guidance will be scaled up and applied by public and private sector decision makers across the EU. By applying a streamlined lens to the SELINA project to highlight the process of co-creation at its core, this section describes how the SELINA work packages combine to form the SELINA co-creation journey.



- 1) Analysis of the context:** The SELINA project builds on a number of previous EU initiatives, each of which made significant progress in developing the knowledge base for mapping and assessing ecosystems and their services and ecosystem accounting e.g. [MAES](#), [ESMERALDA](#), [MAIA](#) to support implementation of the EU Biodiversity Strategies 2020 and 2030 and the Green Deal. During the EU-wide ecosystem assessment (MAES), a number of gaps were identified in the existing methods database for comprehensively mapping and assessing biodiversity, ecosystem services, ecosystem condition and combining this with ecosystem accounting. This was the context in which the need for the SELINA project was identified. SELINA and its 11 Work Packages are carefully designed to support a systematic research process to identify innovative solutions to advance existing methods for mapping and assessing ecosystem services to support public and private decision-making.
- 2) Reframing the problem:** In the science-focussed Work Packages 3 – 6, the project’s technical partners will assess the existing knowledge base that was developed under previous EU initiatives to diagnose, develop and test the suitability of the existing ecosystem condition and service assessment and accounting approaches, models and indicators to support policy design and decision-making.
- 3) Envisioning alternatives:** Once the current methods, data and indicators have been assessed by Work Packages 3 – 6, these work packages will develop and propose new innovative indicators and methods to support the uptake of biodiversity, ecosystem condition and ecosystem accounting information in a range of public and private decision-making contexts.
- 4) Prototyping the solution:** Within Work Packages 8 and 9, the methodologies and indicators (solutions) identified, developed and tested by Work Packages 3 – 6 will be piloted in real-world public, private and hybrid decision-making scenarios as part of the Demonstration Projects and the additional SELINA test sites. The Demonstration Projects and test sites are an application of the “living labs” concept in the SELINA project. During the course of the Demonstration Projects and test sites, the collective learning and knowledge that is co-created between the stakeholders who are applying these innovative tools will be harnessed to further improve and refine the indicators and methods developed by Work Packages 3 – 6.
- 5) Implementation:** The lessons and innovations achieved in Work Packages 3 – 6 and in the Demonstration Projects (Work Packages 8 – 9) and test sites will be subsequently channelled into the development of the Compendium of Guidance: a suite of tools and knowledge products including their integration that reflect and translate the technical innovations and co-created knowledge developed during the project into a fit-



for-purpose Compendium of Guidance that is relevant and applicable to a broad range of public and private sector actors at multiple scales of decision-making across the EU. The Compendium of Guidance facilitates the implementation and upscaling of SELINA's co-created solutions (methodologies, indicators, tools, recommendations) by science, policy and society practitioners beyond the lifetime of the project.

#### 4.4. Mechanisms for co-creating the Compendium of Guidance

The previous section (4.3) describes the iterative stages of knowledge co-creation and innovation that are embedded in the framework of the SELINA project. In this section we outline some of the mechanisms that will be utilised for the co-creation of the Compendium of Guidance.

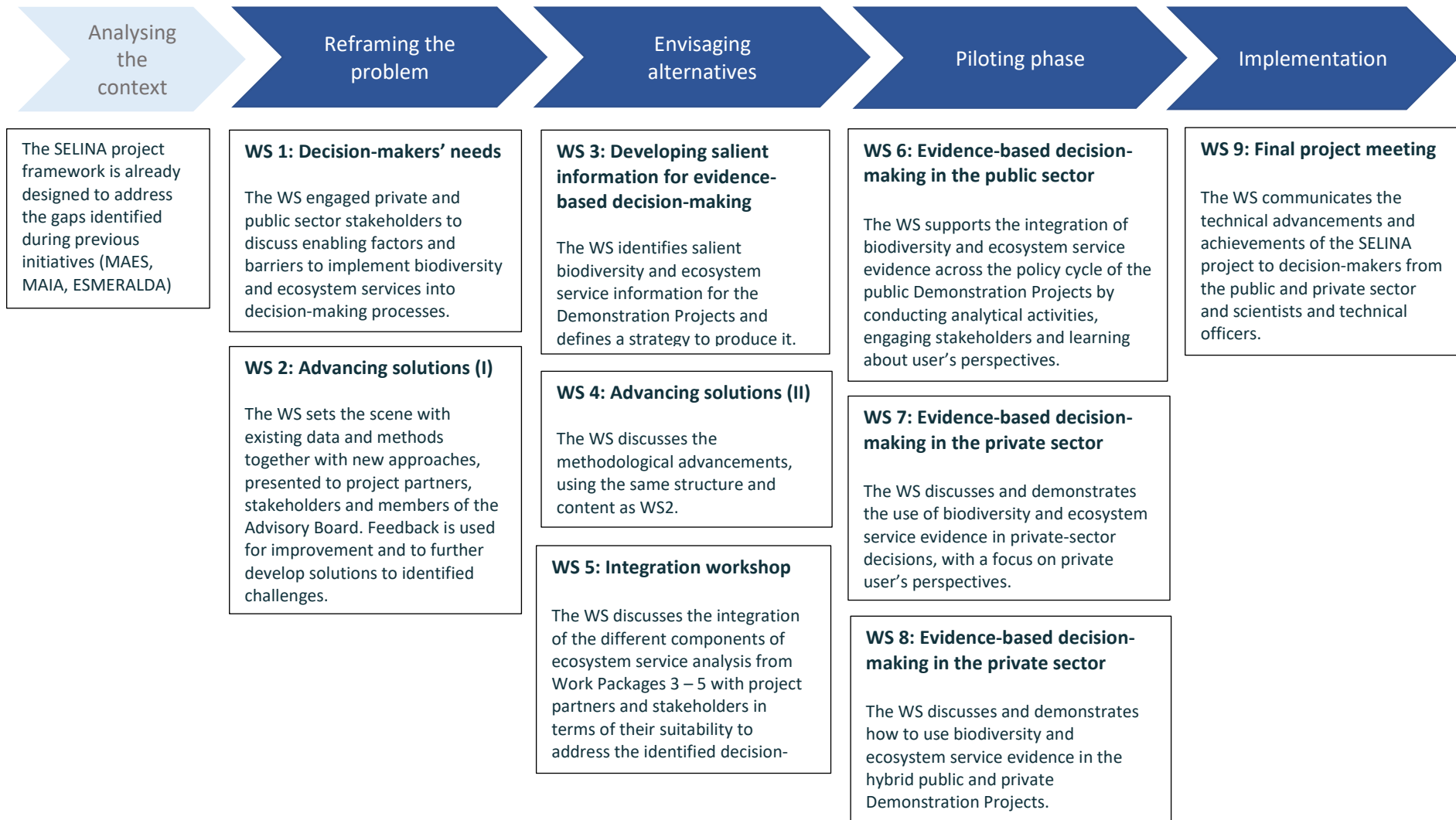
Throughout the SELINA co-creation journey, Work Package 10 will focus on extracting the lessons and experiences that occur in each phase of the project to inform the development of the Compendium of Guidance (task 10.4). Whilst guidance-related needs for applying the technical advancements developed in Work Packages 3 – 6 are likely to emerge organically during the project (in particular during the piloting phase), task 10.4 will employ co-creation mechanisms at key moments in the project (see below), which focus solely on channelling these ideas into the development of the Compendium of Guidance. These co-creation mechanisms will act as focussed spaces, in which the stakeholder groups listed in section 4.2 harness their ideas, needs and experiences to define information products that will meet their decision-making needs.

##### **Project workshops**

The SELINA project includes a series of 9 workshops that involve the project partners and additional actors from the Demonstration Projects and test sites (acknowledging that some consortium partners are both partners and implementors of the Demonstration Projects and test sites). These workshops occur twice (or more) in each year of the project and each workshop has a clearly identified theme that corresponds to the different phases (reframing the problem, envisaging alternative solutions, piloting phase) of the project. Figure 1 on the next page illustrates how each of the workshops corresponds to the phases of the co-creation journey.



**Figure 1:** An illustrative figure to demonstrate how the thematic focus and contents of each project workshop (WS) aligns to the four phases of the co-creation journey describe by the SISCODE project (2019), as well as the additional “implementation” phase we envisage for the SELINA project.



In alignment with the phases of co-creation reflected in the series of project workshops, and in accordance with the thematic focus identified for each workshop, Work Package 10 will identify a number of specific user-centred research questions (to be defined at each phase) that will form the focus of each project workshop. Like the workshops, the thematic focus of these questions will also broadly align with the phases of the co-creation journey outlined in Figure 1. In order to gather answers to these user-centred research questions, Work Package 10 will have a dedicated time segment in each workshop to undertake user-research activities with the project partners and the actors involved in the Demonstration Projects and test sites (the end-users involved in the development of the Compendium of Guidance). Given that organic knowledge co-creation is inherent in the activities of each workshop, the workshop co-creation sessions organised by Work Package 10 do not seek to duplicate this process, but rather to provide a time and a space to channel the co-created knowledge that emerges during the workshop into the development of coherent ideas for the Compendium of Guidance.

The user-research tools that will be applied in these sessions will be carefully selected on account of their suitability for enabling thoughtful deliberation around these user-research questions. In order for these co-creation sessions to be as fruitful as possible, it would be timely to hold them towards the end of each workshop, after the exchange of ideas, lessons and experiences has taken place during the previous days of the workshop (of course this will largely depend on the workshop arrangements and agenda of each workshop agenda). Another consideration to emphasise here is the importance of ensuring that a sufficient number of representatives from each Demonstration Project and test site are present at each workshop (2 – 3 from each Demonstration Project). In the event that for budget-related or practical reasons a significant number of representatives from the Demonstration Projects and test sites are unable a workshop(s), Work Package 10 will arrange online one-to-one co-creation sessions with these individuals around the time of the workshops instead.

#### **Online co-creation sessions with the Communities of Practice and Private Sector Task Force**

Given the more peripheral role of the Communities of Practice and the Private Sector Task Force in the SELINA project, it is not feasible to expect them to contribute the same level of input to the co-creation of the Compendium of Guidance compared to the project partners and Demonstration Projects. At the same time, for all the reasons outlined in section 4.2, their participation in the development of the Compendium of Guidance is critical for ensuring that the guidance is relevant and applicable to a broad range of public and private sector decision-making needs.

With this in mind, WP 10 will aim to host one one-to-one session with the Communities of Practice and Private Sector Task Force per year respectively (scheduled mainly in alignment with the phases of the SELINA co-creation journey), to gather information on their user-needs that further compliment the inputs provided by the project partners and Demonstration Projects. These sessions will also be guided by the user-research questions covered in the SELINA workshops. In the interest of remaining flexible and adaptive (see section 4.5), we remain open to the idea of more frequent engagement with the Communities of Practice and Private Sector Task Force should they be interested. In the later phases of the project, the online sessions with the Communities of Practice and Private Sector Task Force will provide an opportunity to sense-check the information products being developed for the Compendium of Guidance.

#### **Virtual science-policy-society dialogues**

The objective of the virtual science-policy-society dialogues is to communicate the technical advancements of the SELINA project to broad stakeholders across the EU and to demonstrate how these advancements can be used to overcome existing decision-making challenges. These dialogues

that will take place in a webinar format will be open to public audiences including scientists, policy-makers, practitioners and citizens who are interested to learn more about the available methodologies for mapping and assessing ecosystem services, ecosystem condition and ecosystem accounting and their potential applications in a range public and private decision-making scenarios. The dialogues support the “implementation phase” of the co-creation journey, by socialising the outcomes and advancements of the SELINA project and encouraging their uptake amongst public and private decision-makers across the EU. The first dialogue is envisaged to take place in 2024 once the activities of Work Packages 3 – 6 have produced tangible outcomes and the initial methodological advancements are ready to be shared with wider audiences. Since these science-policy-society dialogues will be open to large public audiences, it is neither logical nor feasible to use these webinars as platforms for co-creating the Compendium of Guidance. However, since the target audience for these events will include scientists, decision-makers and practitioners who are concerned with environmental research, planning, and decision-making, they may possess knowledge and perspectives that are relevant and useful to the development of the Compendium of Guidance. Hence, at each virtual science-policy-dialogue we propose to invite all interested participants to complete online user-research questions, the results of which will be taken into consideration for the development of the Compendium of Guidance.

#### 4.5. Principles for co-creation in the SELINA co-creation journey

Finally, in line with the guiding principles for co-creation outlined in the literature, the SELINA co-creation approach will adhere to the following principles:

- **Iterative:** the process of knowledge co-creation will occur iteratively throughout the project, creating an ongoing feedback loop for identifying, developing and refining the technical advancements in the project. This process of knowledge co-creation will be harnessed to develop and refine the information products developed under the Compendium of Guidance.
- **Designed around the needs of the user groups involved:** the timing and spaces for hosting the co-creation activities will take into account the time and resource capacities of each user group (project partners and members of the Demonstration Projects and test sites, representatives from the Communities of Practice, the Private-sector Task Force). As far as possible, WP 10 will take advantage of existing scheduled events to engage in co-creation activities with these audiences (e.g. workshops, Private Sector Task Force Meetings etc) to reduce time burdens on these user groups.
- **Flexible and adaptable to change:** whilst we have outlined a number of critical elements that determine our approach for co-creating the Compendium of Guidance (e.g. the timeframe for co-creating the guidance and the timing of specific co-creation activities, the user groups involved, our general methodological approach), it is important we remain flexible and responsive to any spontaneous developments that occur during the innovation process that may require us to adapt our approaches. Given the nature of uncertainty that comes with innovation, flexibility and adaptability in WP 10’s approaches are important to prevent the risk of stifling innovation.
- **Purpose-driven:** user-centred research questions will be identified for at each phase of the SELINA co-creation journey to support the development of the Compendium of Guidance. The objective of each co-creation session will be to gather sufficient input to be able to answer these user-centred research questions, for feed into the development of the Compendium of Guidance.



## 5 Conclusions

Drawing on the available literature, this report provides a brief synthesis on the state-of-the-art of co-creation as a participatory methodology that places “end-users” at the centre of the innovation challenge to co-develop solutions that have great relevance and value to those involved. In practice, co-creation typically happens in four iterative phases: analysis of the context, reframing of the problem, envisaging alternatives, and prototyping solutions, leading to an implementation phase. In Europe, spearheaded by the need for more inclusive and transparent decision-making processes, co-creation has emerged as an important tool for bringing together science, policy, and society to collectively address complex social and environmental challenges. Co-creation is now institutionalised across the EU’s research programme as a key principle and mechanism for Responsible Research and Innovation. On account of the recent but growing body of co-creation literature, it is possible to deduce a number of lessons, guiding principles, and considerations for putting co-creation into practice. Firstly, whilst co-creation offers a versatile approach that can be applied to a broad range of innovation challenges, it does not follow a one-size-fits-all methodology. Instead, successful co-creation relies on a number of guiding principles such as defining a clear objective that the co-creation process can address, identifying the relevant stakeholders to be involved, selecting appropriate mechanisms based on the context and requirements of the innovation challenge, designing a process that allows for iterative learning and refinement of the solution, and building flexibility into the innovation process to embrace uncertainty and change along the way.

Building on the principles for co-creation outlined in the literature, this report presents the co-creation approach that will be operationalised in the SELINA project to respond to the innovation challenge: a need for clear, comprehensive, and integrated information to be able to adequately protect, restore and sustainably use ecosystems and their services across the EU. Critical to the co-creation journey are the stakeholder groups who collectively represent the knowledge, needs, and interests of science, policy, and society. The SELINA co-creation journey will take place across the four key phases of co-creation outlined in the literature: analysis of the context, reframing of the problem, envisaging alternatives, prototyping the solution, and will include a final implementation phase (where the innovations are scaled up across Europe). Suitable mechanisms and user-focussed research questions will be used to mobilise the knowledge that is co-created throughout the project into the development of a Compendium of Guidance. The Compendium of Guidance will be a key exploitable output of the SELINA project that translates the technical advancements of the project into fit-for-purpose knowledge products that can readily be applied in public and private sector decision-making scenarios across Europe.

## 6 References

Brandsen, T. and Honingh, M. (2018) ‘Definitions of co-production and co-creation’ Brandsen, T., Steen, T. and Verschuere, B. (editors) *Co-production and co-creation: engaging citizens in public services*. New York, Routledge, pp 9-18.

Broekema, P., Horlings, L.G. and Bulder, E.A.M. (2021) *Understanding the value of co-creation for social innovation interpretations of social innovation and co-creation in European policy-related documents between 1995 and 2018*. [Online] Available from: <http://dx.doi.org/10.1080/13511610.2021.1909464>





- Correia, C., Quina, A., Tuffs, R., and Zib, J. (2016) Market Place of the European Innovation Partnership on Smart Cities and Communities. [Online] Available from: <https://doi.org/10.1080/07352166.2018.1499416>
- Deserti, A., Real, M. and Schmittinger, F (editors). (2022) *Co-creation for Responsible Research and Innovation*. Springer Series in Design and Innovation [Online]. Available from: <http://dx.doi.org/10.1007/978-3-030-78733-2>
- Durham, E., Baker, H., Smith, M., Moore, E. and Morgan, V. (2014) *The BiodivERsA Stakeholder Engagement Handbook*. BiodivERsA, Paris.
- European Commission. (2013) Horizon 2020 Work Programme 2014-2015, Science with and for Society. Brussels: European Commission. [Online]. Available from: [https://ec.europa.eu/research/participants/portal4/doc/call/h2020/common/1587807-16\\_swafs\\_wp2014-2015\\_en.pdf](https://ec.europa.eu/research/participants/portal4/doc/call/h2020/common/1587807-16_swafs_wp2014-2015_en.pdf)
- European Network of Living Labs (ENoLL). (2023) *About us*. [Web page]. Available at <https://enoll.org/about-us/> [Accessed on 18<sup>th</sup> July 2023]
- European Network of Living Labs (ENoLL). (n.d.) *UNaLab*. [Web page]. Available at: <https://unalab.enoll.org/> [Accessed on 18<sup>th</sup> July 2023]
- European Union (n.d.) *Research and Innovation*. [Web page] Available at: [https://eur-lex.europa.eu/summary/chapter/research\\_innovation.html?root\\_default=SUM\\_1\\_CODED=27](https://eur-lex.europa.eu/summary/chapter/research_innovation.html?root_default=SUM_1_CODED=27) [Accessed on 22<sup>nd</sup> July 2023]
- Grindell, C., Coates, E., Croot, L. and O’Cathain, A. (2022) *The Use of Co-production, Co-design, and Co-creation to Mobilise Knowledge in the Management of Health Conditions: A Systematic Review*. Available from: <http://dx.doi.org/10.21203/rs.3.rs-1257056/v1>
- Itten, A., Sherry-Brennan, F., Hoppe, T., Sundaram, A. and Devine-Wright, P. (2021) *Co-creation as a social process for unlocking sustainable heating transitions in Europe*. [Online] Available from: <http://dx.doi.org/10.1016/j.erss.2021.101956>
- Macq, H., Tangoigne, É., Stresser, B.J. (2020) *From Deliberation to Production: Public Participation in Science and Technology Policies of the European Commission (1998 – 2019)*. [Online] Available from: <http://dx.doi.org/10.1007/s11024-020-09405-6>
- Mahmoud, I.H., Morello, E., Ludlow, D. and Salvia, G. 2021. *Co-creation Pathways to Inform Shared Governance of Urban Living Labs in Practice: Lessons from Three European Projects*. [Online] Available from: <http://dx.doi.org/10.3389/frsc.2021.690458>
- Matti C., Rissola G., Martinez P., Bontoux L., Joval J., Spalazzi, A. and Fernandez, D. (2022) *Co-creation for policy: Participatory methodologies to structure multi-stakeholder policymaking processes*, Matti, C. and Rissola, G. (editors). [Online] Available from: doi:10.2760/211431, JRC 128771
- Millennium Ecosystem Assessment. (2005) *Ecosystems and human well-being: Synthesis*. Island Press, Washington DC.



Prahalad, C.K. and Ramaswamy, V. (2000) *Co-opting Customer Competence*. Harvard Business Review, 78: p 79-90.

Robinson, K. R. D., Simone, A. and Mazzone, M. (2021) *RRI legacies: co-creation for responsible, equitable and fair innovation in Horizon Europe*, Journal of Responsible Innovation, 8:2, 209-216. Available from DOI: [10.1080/23299460.2020.1842633](https://doi.org/10.1080/23299460.2020.1842633)

SISCODE Project. (2018) *Co-design for Society in Innovation and Science*. [Online] Available from: [https://www.siscodeproject.eu/wp-content/uploads/2018/11/RRI-Research-Landscape\\_D1.1.pdf](https://www.siscodeproject.eu/wp-content/uploads/2018/11/RRI-Research-Landscape_D1.1.pdf)

SISCODE Project. (2019) *Toolkit for Co-creation Journeys*. [Online] Available from: <https://siscodeproject.eu/wp-content/uploads/2019/09/toolkit-27092019-1.pdf>

Vargo, L. and Lusch, R.F. (2004) *Evolving to a New Dominant Logic for Marketing*. [Online] Available from: <https://doi.org/10.1509/jmkg.68.1.1.24036>

Voorberg, W.H., Bekkers, V.J.J.M. and Tummers, L.G., (2014) *A systematic Review of Co-creation and Co-production: Embarking on the social innovation journey*. [Online] Available from: <https://www.tandfonline.com/doi/abs/10.1080/14719037.2014.930505>

Williams, O., Sarre, S., Papoulias, S.C., Knowles, S., Robert, G., Beresford, P. et al. (2020) *Lost in the shadows: reflections on the dark side of co-production*. [Online] Available from: <http://dx.doi.org/10.1186/s12961-020-00558-0>





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