

Innovation for place-based transformations

**ACTIONbook,
practices and tools**



European Committee
of the Regions



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Abstract: Addressing complex challenges requires different tools, mindsets and approaches from those traditionally used, which contributed to create some of these challenges such as climate change, biodiversity loss, raising inequalities. Focusing on one is not sufficient and understanding their interlinkages and feedback effects is essential. Innovation policy alone cannot help us tackle such problems, nor to achieve the European Green Deal – Europe's own socio-economic transformation strategy. For this, interterritorial collaboration, network governance and coordinated policy-action mixes enable efforts at the local, regional and national level to achieve long-term societal wellbeing and climate resilient development. Building partnerships is therefore not only a desired objective, but a necessary prerequisite to move towards long-term societal wellbeing and secure Europe's open strategic autonomy. *'Innovation for place-based transformations'* includes three operational documents. First, the ACTIONbook provides some activities to build strategic and purpose-driven partnerships within an institution, department, territory, and across boundaries. Then, a collection of practices from territories describes existing approaches to transformative innovation taking place in Europe. Finally, a collection of tools for ACTION is linked to activities described in the ACTIONbook and can be used to put them in practice. This document is published by the Joint Research Centre and the European Committee of the Regions and is the result of a co-creative effort with Partnerships for Regional Innovation (PRI) pilot participants, the PRI Scientific Committee, experts and policymakers.

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Innovation for place-based transformations

ACTIONbook to build partnerships for fair green and digital transitions

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Collection of practices

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Tools for ACTION

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Innovation for place-based transformations

ACTIONbook to build
partnerships for fair green
and digital transitions

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**“Competent people
do not compete,
competent people
cooperate”**

Eudald Carbonell, Anthropologist, quoted by
Teresa Riesgo, Secretary General for Innovation
at the Ministry of Science and Innovation of Spain,
at the PRI High-Level event on 28 March 2023

Foreword



Iliana Ivanova

Commissioner for Innovation,
Research, Culture, Education and Youth



Vasco Alves Cordeiro

President of the European Committee
of the Regions

In today's rapidly evolving world, societies contend with interconnected challenges that impact our stability and prosperity. These include the effects of the climate crisis and of the digital transition, which influence jobs and key aspects of our daily lives. In this context, innovation emerges as a critical tool for ensuring Europe's successful navigation through these choppy waters, for maintaining its leading role in these changes while safeguarding that these transitions are just and fair for all. Recognising this, the European Commission has introduced the New European Innovation Agenda.

This Agenda is designed to invigorate innovation across all EU territories, including Member States, regions and cities. Since 17 May 2022, 4 Member States, 63 regions, 7 cities and 6 networks of regions and cities in the EU have already adhered to the Partnerships for Regional Innovation and are proving on the ground how to foster the development of innovative solutions and technologies that promote competitive sustainability without leaving any place and anyone behind. The Agenda acknowledges the central role of Europe's territorial and cultural diversity as a springboard for innovation. It also emphasises the need to create adaptive solutions that are tailored to regional and local needs and are more inclusive.

In addition, the Agenda proposes the establishment of territorial missions and transformation agendas, along with strategies for better aligning EU funding with the systemic changes necessary for the EU to tackle its most pressing societal challenges. We expect innovative solutions to improve our industries, our energy supply, our social and economic fabric and all our systems, and we need this change to happen as fast as possible.

Such an ambition obviously requires more than just money. New ways of governance, delivery and working together are at the centre of an innovative Europe. This ACTIONbook on place-based transformative innovation, developed with support from partners across Europe and coordinated by the Joint Research Centre and the European Committee of the Regions, details the dynamics of how these new regional innovation partnerships will function in practice. This book invites all stakeholders to become innovators and to elevate European innovation to new heights.

The time to act is now. We must begin co-creating the EU of tomorrow today, embracing innovative approaches and collaborative efforts to shape a prosperous, sustainable and fair future for our continent.

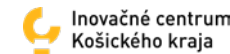
Declaration

by Partnerships for Regional Innovation Territories

Concerned by the challenges our territories face and aware of the need to explore new systemic and transformative approaches to tackle the complexity of the crises affecting our times, 74 territories committed in May 2022 to join the Partnership for Regional Innovation (PRI) pilot project.

The PRI pilot project has been an intense journey, and has introduced territories to new place-based transformative policymaking. We, the territories, realised the immense value of sharing experiences, peer learning and interregional collaboration. We initiated this pathway fuelled by the PRI Playbook (Pontikakis et al., 2022a), which gathered insightful concepts and tools to 'walk the talk'. The insights of The Square (Schwaag Serger, Soete & Stierna, Eds.) have inspired our way ahead.

Now, we are the ones leaving our footprint in this new ACTIONbook, which takes stock of the PRI Playbook, together with the Joint Research Centre and the European Committee of the Regions. We welcome this joint effort and state our will to keep on collaborating in deploying the actions that our territories need for the well-being of our people and the generations ahead.



Preface

by **Sylvia Schwaag Serger** and **Luc Soete**

Co-chairs of the Partnerships for Regional Innovation
Scientific Committee

Four years ago, as announced in the inaugural speech of President Von der Leyen before the European Parliament on 27 November 2019, the European Commission positioned sustainable development together with the digital agenda as the twin core elements of Europe's overall strategy for the present decade. From an external perspective, the European Green Deal (EGD) could be seen as representing Europe's own 'moonshot mission' of the 21st century: its contribution to the United Nations' Sustainable Development Goals. From an internal perspective, the EGD represented Europe's own 'smart specialisation strategy': an internal attempt to take on a leading position in sustainable development and contributing to a new process of what is currently described as competitive sustainability. Viewing the EGD as a combination between an external European 21st century moonshot mission and an internal smart specialisation strategy raises though many territorial challenges as to the respective governance responsibilities of the different actors within the EU, particularly given the space-blind nature of most of the proposed and implemented new sustainable rules and regulations. There were indeed no serious reflections on the territorial, place-based implications of such transformation processes. Some financial support was foreseen to act as a cushion for possible very disruptive features of structural transformations, but little was known about the sort, nature and volume of such transformation processes.

The report on *Place-based innovation for sustainability* (McCann & Soete, 2020), which had been prepared just before the COVID-19 outbreak provided a framing and starting point for some initial science for policy reflections of the Partnerships for Regional Innovation (PRI) Scientific Committee members. It revolved around three basic components: strategies, implementation, and monitoring/evaluation. If a bottom-up strategy would now target competitive sustainability, what changes would this imply in terms of strategies, implementation and policy learning? The various

papers of experts brought together in the book *The Square: Putting place-based innovation policy for sustainability at the centre of policy making* (Schwaag Serger, Soete & Stierna, 2023, Eds.) provide a comprehensive overview of some of the challenges involved and the policy lessons to be learned. They were instrumental in the development of both the joint initiative of the PRI Pilot launched by the European Commission and the European Committee of the Regions, and the JRC *Partnerships for Regional Innovation Playbook* (Pontikakis et al., 2022a). The Playbook was developed as a support document with practical policy tools for the PRI Pilot which engaged a large number of regions (63), four Member States, and seven cities which volunteered to co-develop and test the approach, centred on a selection of practical policy tools.

The initial issues raised by the PRI Scientific Committee continued to flow as a red line through many of the practical implementation discussions: how to combine directionality at regional level with bottom-up energy? Through niches in possible new value chains in green energy, clean tech, the circular economy focusing on connecting innovation of local firms and ecosystems with supply and value chains? As the PRI concept emphasized in its title, regions could and should better capitalize on alliances, partnerships and networks.

The Joint Research Centre (JRC) is now entering into a new implementation stage with this new ACTIONbook, which this time focuses fully on implementation, on turning the new concepts that allows one to make sense of the increasing complexity and variety of the territorial problems policymakers face into policies on the ground. We were the co-chairs of the PRI Scientific Committee in a particularly privileged position to contribute with the JRC and the many JRC researchers to these conceptual science for policy reflections. We now look with great trepidation to the implementation of such policies. Indeed, today is the priority time for action!

Introducing the ACTIONbook

Acting now

Addressing complex challenges requires different tools, mind-sets and approaches to the ones traditionally used. Climate change, biodiversity loss and rising inequalities are some of the complex and systemic problems we face. Focusing on one – as daunting as it can seem – is not sufficient. Analytical thinking, pursuit of personal achievement and working in silos are manageable and probably preferred, as they are easier to control. Yet, they are not enough to pave the way for the systemic sociotechnical transformations needed to address such problems. Understanding these problems' interlinkages and feedback effects is essential. Innovation alone cannot help us tackle such problems or achieve the transformations needed as set out in the European Green Deal, the EU's own 'socio-economic transformation strategy'. New innovation policies must satisfy two important prerequisites:

1. local and regional stakeholders, including individuals, businesses, knowledge institutions and local authorities, must be meaningfully involved;
2. policy must strive for transformative and system-level innovation to enable and accelerate the required transformations.

Interterritorial collaboration, network governance and coordinated policy and action mixes enable efforts at local, regional and national levels that achieve long-term societal well-being and climate-resilient development (IPCC, 2023). **Building partnerships** is therefore not only a desired objective, but also a prerequisite to move towards societal well-being and secure Europe's open strategic autonomy. Sharing activities, practices and tools for action can help us do just that. This ACTIONbook sets out different activities to build strategic and purpose-driven partnerships in an institution, department, or territory and across boundaries.

Socio-technical system

Socio-technical systems are complex and combine social and technical systems. Interactions between social systems (such as social structures, norms, roles) complement and shape technical systems (such as technology, infrastructures) and vice versa.

Socio-technical system transformations

Socio-technical systems transformations (or here, transformations) imply the co-creation of changes in cultural, social and environmental processes beyond technological ones. Therefore, they are complex and long-term processes, where dominant practices become replaced.

Place-based transformation

Transformations are place-based as local stakeholders and citizens, with their knowledge and skillsets, navigate place specificities to shape socio-technical systems through transformative activities.

Citizen

In this ACTIONbook, we use the word citizen as a synonym for 'the public', 'individuals' or 'people' who are part of society and live in territories.

Territory

Territory refers to cities, regions and Member States. Interterritorial collaboration is used instead of interregional collaboration to reflect these different configurations.

Ecosystem

Ecosystem is used as a short version of innovation ecosystem and as a metaphor. It consists of organisations such as businesses, universities, government agencies, intermediaries, solution providers and many others that, depending on their capacities, activities and interactions, collectively determine a territory's ability to innovate.

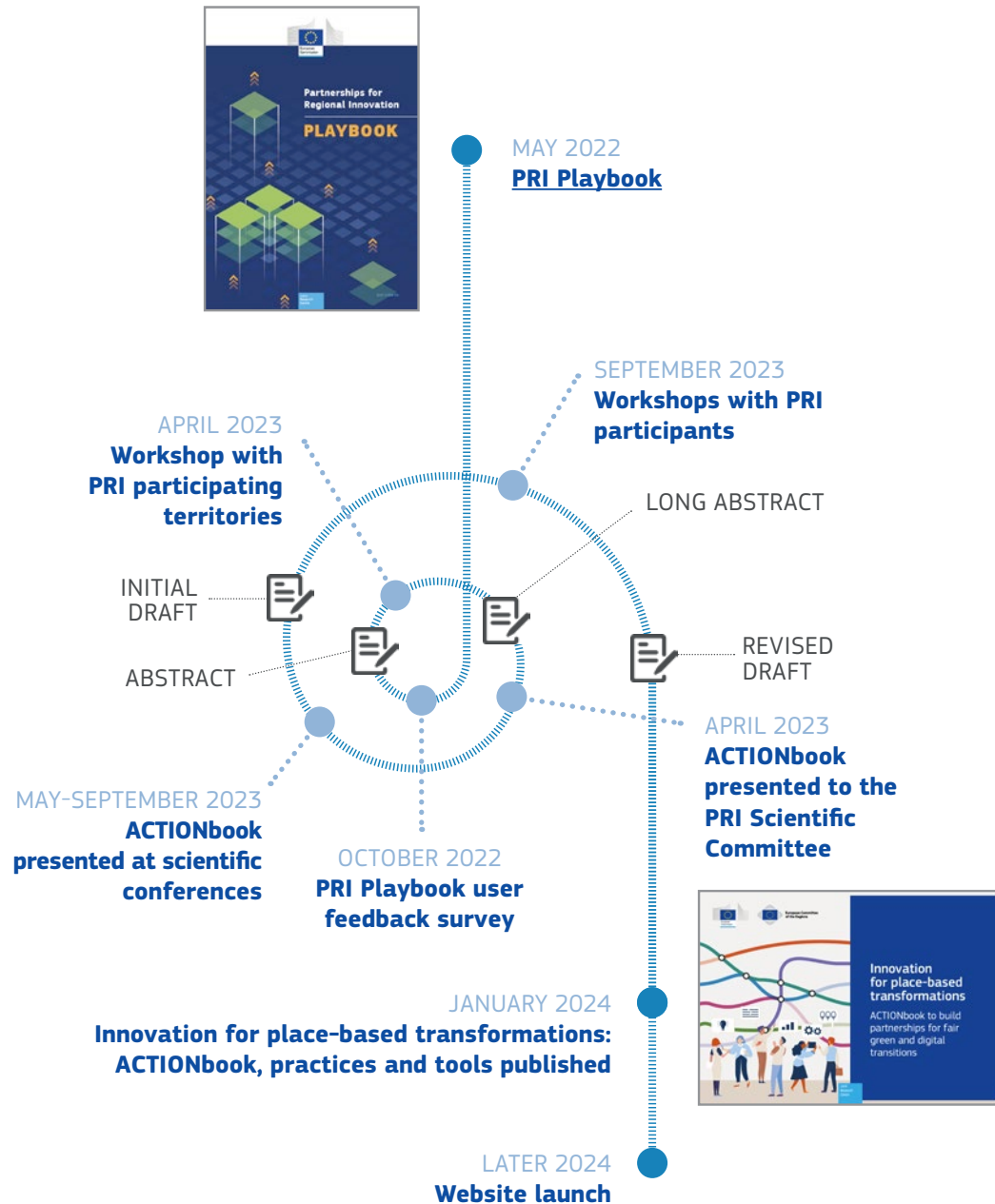
Co-creating for action

This ACTIONbook is a result of a co-creative effort with Partnerships for Regional Innovation (PRI) stakeholders – from PRI pilot participants to the PRI Scientific Committee and from academics and experts to our partners at the European Committee of the Regions. It aims to identify activities to help us reflect on **how we can do things differently** and make innovation policies be part of the **collective purpose-driven change** necessary to achieve place-based transformations. It takes a **user-oriented and operational approach** and focuses on how to make policy activities more transformative. It asks questions and hints at answers. However, it is up to the reader to decide what and how to answer, taking into account the challenge at hand and the specific characteristics of the place they are in.

The ACTIONbook is published with two companion documents:

- a collection of practices from Territories who are already experimenting with transformative innovation activities;
- a collection of tools (concepts, methodologies, EU policy initiatives, examples) that the user can decide to experiment with.

If you would like to explore the theory behind this ACTIONbook, please refer to the PRI Playbook (Pontikakis et al., 2022a) and/or the Concepts and Rationales for the PRI Playbook (Pontikakis et al., 2022b), which were published on 17 May 2022.



Design requirements



Simplicity

Concise text with links to more information on topics of interest

One page for each activity



Co-created

During the PRI Pilot (May 2022-2023), the JRC worked with territories, academics and practitioners, critical friends and other stakeholders to co-create this ACTIONbook, together with its collection of practices and tools



User-centred

Addressing policymakers when they ask themselves: How we can do things to achieve place-based transformations?



Place-based action

Collecting practices from territories on their transformative approach to innovation



Operational

Focus on activities with questions to trigger reflection and discussions

Additional resources from two accompanying documents and website links

Answers not always provided, but questions asked for you to answer in partnerships



Living documents

Interrelated documents that are updated as necessary and available online

How to use the ACTIONbook

While we may not give you all the answers, we will enable you to find them together, in partnerships.

The ACTIONbook has **six chapters**. Each chapter is divided into **activities** on a thematic basis. These chapters and activities are modular. Depending on your **goal**, some activities can be initiated, continued, or (temporarily) left aside. This ACTIONbook aims to provide you with an overview of activities for transformative innovation. With the task at hand, you can then **filter** what is needed most.

chapter:
Engaging



activities:
Identifying stakeholders for given societal goals
Continuously engaging with stakeholders
Setting up a network governance
Building legitimacy

chapter:
Designing



activities:
Developing a strategy
Developing the policy and action mix
Mobilising resources
Designing ecosystem support
Designing local missions

chapter:
Envisioning



activities:
Diagnosing and developing a vision
Conducting participatory foresight
Developing transition pathways and roadmaps
Setting milestones and targets

chapter:
Implementing



activities:
Deploying a strategy
Coordinating the policy and action mix
Prioritising funds
Experimenting and demonstrating
Scaling and mainstreaming

chapter:
Orchestrating



activities:
Agenda setting and sharing
Enabling multilevel cooperation
Collaborating across departments
Collaborating across territories

chapter:
Learning



activities:
Managing and transforming knowledge
Continuous monitoring
Evaluating impact
Learning from experimentation
Mobilising competences

About the activities

Activities are **ongoing** and take place **in parallel**. This is necessary for transformative innovation as engaging with stakeholders at different levels, while learning in real-time, is fundamental.

Therefore, the activities are not in any particular order. The pages can be shuffled into a different order. For example, you can punch them along the left margin and bind them in a ring binder, so they can be used when needed or in a different order. They can also be used as slides, thanks to their horizontal layout.

The chapters and activities described here are not meant to be faithfully followed but provide **input for reflection and action**.



What an activity is about

Competences: selected from the [European competences framework](#) from innovative policymaking. Only most relevant competences for each activity are selected. Codes (e.g., **B2, D1**) are taken from the abovementioned framework

chapter: **Envisioning** / activity: **Diagnosing and developing a vision**

WHAT • This activity seeks to answer the question: **'Where are we now and where can we go from here?'**. It does so, initially, independently of where we want to go. A diagnosis can have many aspects. It can look at how the system performs now to gain an understanding of its strengths and weakness. It can also look prospectively at opportunities and threats, which also means looking outside the system and into the future. This is how vision development begins, and it should feed into a broader process of engagement, deliberation, alignment, exploration and a conscious pursuit of positive transition pathways. **System-level innovation**, or territorial transformation, is the far-reaching reconfiguration of a system to serve new or changed societal needs in response to a strong impulse for change. Therefore, to identify promising pathways, it is important to match territorial assets with strong impulses for change. Some of these will be global impulses, typically referred to as megatrends (e.g. sustainability, geopolitical tensions, emerging technologies), whereas others will be local.

WHY • **Diagnostic methods** are necessary to inform policy debates about transformation. Good diagnostics can help you to act as focusing devices, targeting limited policy attention and resources. Diagnostic tools and methods aiming to address transformation require looking in detail at specific needs to create new anticipatory capabilities. This helps balance the traditional strong focus on the supply-side/production sector with a strong focus on the demand side and user needs. In addition, it also reveals more important factors that may shape the global context in the coming years. **Positive collective visions** are in short supply in a world facing many escalating crises. The challenge lies in that these positive visions may not be apparent to any one stakeholder, and accepting them may require an independent mediator. Supporting the creation of positive visions may well be one of the most valuable public goods governments can provide.

HOW • Diagnostic methods combine gathering evidence with stakeholder discussions and collective imagination. Methods for a system-level diagnosis include system mapping (such as network analysis), policy evaluation inspired by system dynamics (such as causal loop diagrams) or policy reviews with a transformative framing (such as the POINT methodology developed by the Joint Research Centre). To choose the right diagnostic method to try and answer our first question (Where are we now and where can we go from here?), you should first answer the following questions:

1. What is the policy objective of the diagnostic? Link the diagnostic to planned or ongoing processes of policy development and/or reform (e.g. a new innovation strategy).
2. What is the diagnostic approach or method to be used, considering the policy objective?
3. How will the findings of the diagnosis link back to policy development and/or executive decisions?
4. How will the findings of the diagnosis feed into developing a vision?

competences

- AI Identifying & framing policy problems
- CA Working with data & models
- CB Scanning for change
- CS Dealing with mis and disinformation

practices

- P18
- P14
- P22
- P20
- P29
- P30

tools

- T05
- T15
- T24
- T29
- T43
- T53
- T60
- T81
- T82
- T83
- T85
- T73

more

- Causal loop diagrams (course)
- Evidence-grounded positive future visions
- Projecting Opportunities for Industrial Transitions (POINT)
- System-based methods for research & innovation policy
- System mapping toolkit (dashboard)

Innovation for place-based transformations / ACTIONbook / A20

Practices: learn from other territories and find other examples

Tools: relevant tools from our toolbox

Why an activity is important for transformative innovation

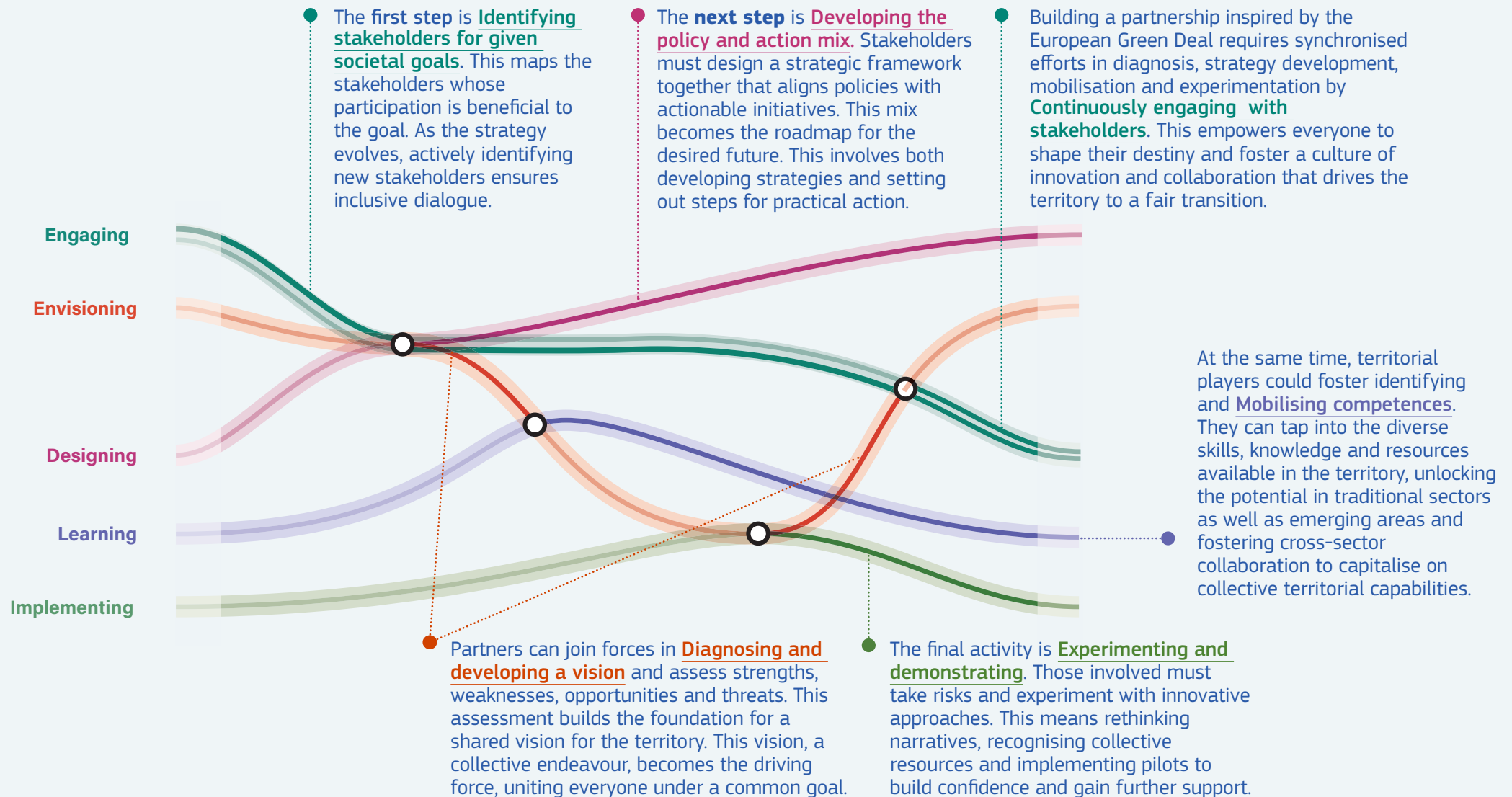
How an activity can be carried out

More: this includes videos and academic and technical resources

USE CASE 1

Building a partnership

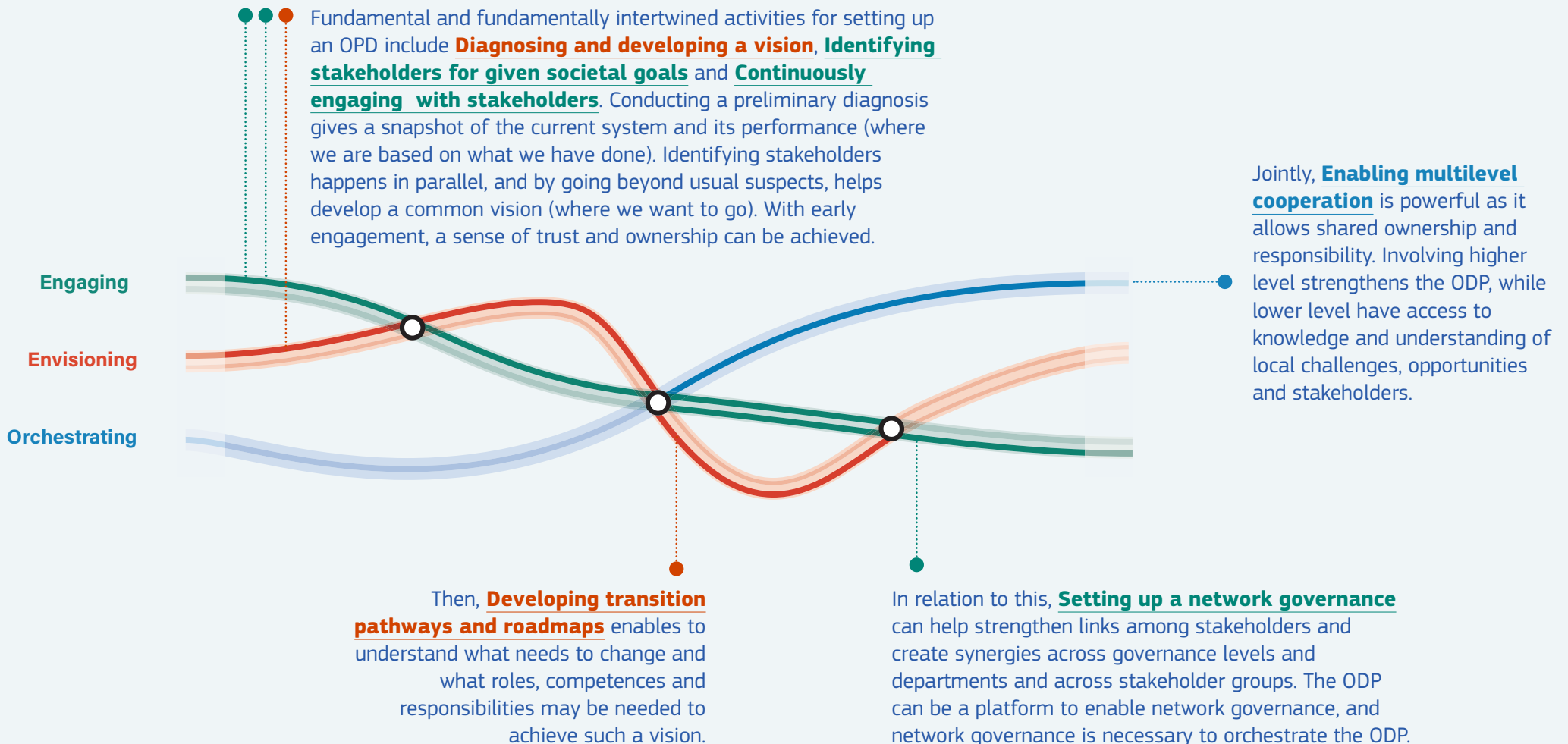
At the heart of a dynamic territory, forging new partnerships to achieve the European Green Deal drives territorial development. Agency is crucial, i.e. the ability of those involved to act purposefully and innovate. Building a partnership involves strategically orchestrating of six interconnected activities, led by territorial players committed to fair green and digital transitions.



USE CASE 2

Setting up an Open Discovery Process

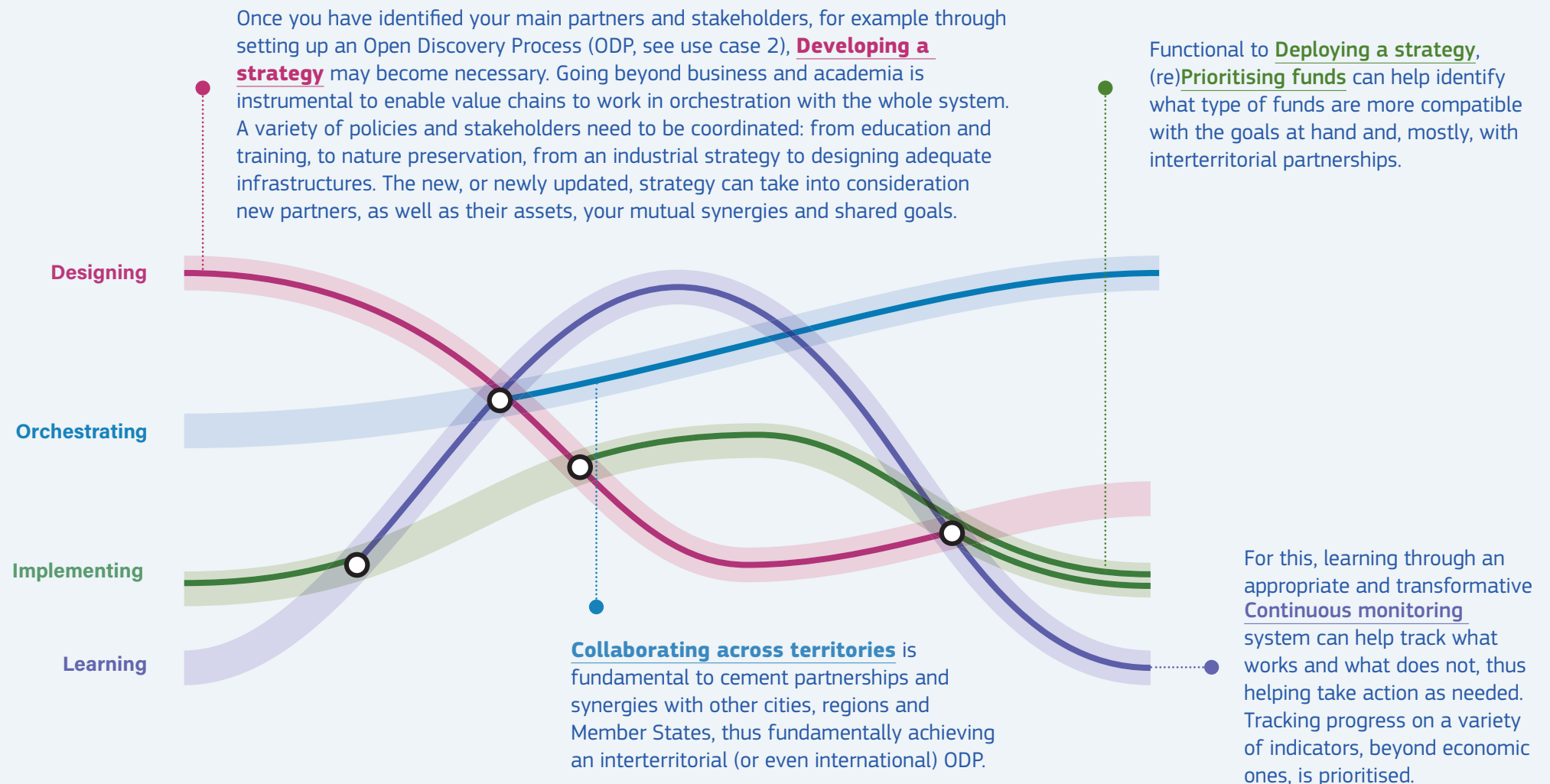
The Open Discovery Process (or ODP) is critical to continuously engage with a broader range of stakeholders and co-create plans, for example, to design a local mission or formulating a policy and action mix. The ODP is based on inclusivity and transparency, and provides directionality by having stakeholders working backwards from societal problems to agree on a shared vision. For this, enabling and setting up a networked governance is key.



USE CASE 3

Boosting European value chains through interterritorial collaboration

Interterritorial collaboration and knowledge exchange is fundamental to foster dynamic and innovative ecosystems where different players benefit from mutual interaction. Collaboration among European territories can help strengthen European leadership, resilience and secure open strategic autonomy, such as is the case of our semiconductor industry.



Engaging

WHAT ▪ The engaging phase focuses on identifying and mobilising the groups concerned who can help develop, implement and evaluate innovation strategy and policy. These groups contribute with their engagement, resources and power to achieve the strategy and make change happen. These stakeholders are change-makers **who work collectively to address societal goals**. The scale and nature of sustainability challenges faced by territories means there is a need to reach out to different groups and **foster challenge-led innovation partnerships** cutting across sectors, disciplines, territories and governance levels. Engaging with a **diverse and broad range of stakeholders** is necessary to envisioning different desired, probable and alternative futures and planning the necessary steps and actions today to achieve a sustainable territory tomorrow.

BENEFITS ▪ The engaging phase is important to identify stakeholders and have them on board to share the effort and resources for the same societal goals. This helps strengthen partnerships, both within a territory and with other territories. By engaging with other stakeholders, including colleagues in other departments, not only are resources optimised in projects that have a common goal, but it also helps prevent duplication and putting efforts into activities that are not meaningful to the community and society. Some benefits of participatory policymaking include taking advantage of **collective intelligence**, including different viewpoints, **more buy-in and a sense of ownership**. These intangible benefits can lead to very tangible outcomes. For example, collective intelligence and expert knowledge can help avoid disjointed solutions to complex problems, which need tailored, place-based and inclusive measures.

- ? Have you systematically applied criteria to identify stakeholders?
- ? Can you broaden the diversity of the stakeholders involved?
- ? Have you created opportunities for a wider range of stakeholders to participate and be represented?

activity:

Identifying stakeholders for given societal goals

- ? Have you mapped specific opportunities to act in synergy with local, national, EU and/or global policymakers?
- ? Have you mapped specific opportunities to act in synergy across policy areas and departments?
- ? Have you mapped specific opportunities to act in synergy across stakeholder groups?

activity:

Setting up a network governance

activity:

Continuously engaging with stakeholders

- ? What activities have you planned to involve stakeholders in your entire initiative?
- ? What spaces have you designed to empower stakeholders?
- ? Do you have a strategy to address opposing views and conflicting interests?

activity:

Building legitimacy

- ? Can you grow support and engagement over time for more ambitious action?
- ? Do you have a strategy to manage resistance to change?
- ? Do you have a strategy to engage the public in your transformative policy initiatives that involves making evidence available?

Identifying stakeholders for given societal goals

WHAT ▪ More complex and difficult to solve (or wicked) problems affect many stakeholders. However, it is important to identify those groups and individuals concerned who can share their knowledge, expertise and ideas in participatory processes and agree on **common goals through a common understanding**. These stakeholders are therefore those who are affected by a common problem and are willing to contribute to achieving common goals. It is important to keep an exploratory mind as some groups who may not be concerned today may become so in the future. Furthermore, as some stakeholders may not be able to directly contribute, it is still essential to give them a voice. This can help (technological) innovation serving as a solution rather than exacerbating problems.

WHY ▪ Innovation has contributed to some of the socio-ecological problems we face, such as the loss of biodiversity, climate change and a rise in inequalities. Yet, it also provides opportunities to address, adapt, and revert complex problems. Technology alone cannot do the job if social systems (behaviours, norms, incentives) do not follow suit. This is why we talk about sociotechnical transitions in innovation policy. To enable a sociotechnical transition, a set of stakeholders for a given societal goal must be included **from the beginning**. This helps ensure that innovation is

inclusive and democratic and solves societal challenges. These stakeholders can contribute with **their diverse knowledge, norms and behaviours and take on new and different roles**, which may be needed in a transition. Identifying stakeholders at an early stage and working with them in as many phases as possible can considerably improve the way they participate and their contribution to achieving the set goals.

HOW ▪ Identifying a broad range of stakeholders can be costly, but the social, environmental and economic cost of not doing it can be higher. Among government, industry and academia, civil society represents many significant voices, which risk being diluted. **Rather than trying to fit players in pre-defined groups, look at your territory and identify potential partners beyond the usual ones**. With a clear understanding of your stakeholders, you can then determine their level of involvement and the engagement necessary to set out your strategic goals together. You can involve them in setting up a **shared space for dialogue**. Identifying stakeholders is a fundamental step in an interterritorial Open Discovery Process ([PRI Playbook](#)). To help with this activity, you can use the **actor tree**. It is a visual tool that helps you identify, list and categorise stakeholders around a challenge.



competences

- B2 Systems thinking
- C2 Identifying evidence needs
- C3 Connecting to experts
- E2 Planning & designing citizen engagement



practices



tools



more

[Actor tree \(webinar\)](#)

[PRI Playbook](#)

[Regional systems and strategies for sustainability transitions](#)

[Typology of intermediaries in sustainability transitions](#)

Continuously engaging with stakeholders

WHAT ▪ Continuous engagement includes dialogue with and among stakeholders, participation and active inclusion in the strategy and partnerships. It is an ongoing activity and a shared space to make engagement instrumental at every stage of the policy process. Stakeholders know they have a space where it is possible to contribute and discuss current and future activities. For this, **building trust** is essential to ensure an open and constructive exchange of ideas. It is also important to create a physical space, online and offline, where everyone can work together. Engaging with the public and local stakeholders is an important part of this activity.

WHY ▪ This activity is key to have everyone make an effort to achieve targets that go **in the same direction**. This ongoing activity enables stakeholders to create **common narratives and mental models**. This is possible through experimenting with the introduction of ideas that are interpreted together through a vocabulary owned by stakeholders. Thanks to this engaging activity, stakeholders can develop a sense of **ownership** over the process and its expected outcomes. In fact, those involved can contribute, from envisioning a direction and agreeing on goals to orchestrating people and resources, and ultimately to implementing a common strategy. Without stakeholders' contributions and endorsement, it would be difficult to transform plans into action..

HOW ▪ A clear identification of stakeholders is the first step to put in place continuous engagement. This activity feeds into all processes and is necessary for some activities, such as agenda-setting and sharing, multilevel and interterritorial collaboration and implementing activities. Three enabling factors are seeds for successfully engaging with stakeholders:

- Intrapersonal disposition: **self-awareness**, the ability to focus on your intentions and actions, and self-regulation, understanding and managing your own behaviour and actions, are cultivated to increase self-insight, and take and give meaningful feedback;
- Interpersonal competences: **empathy, trust, collaboration** are important for effective teamwork;
- Infrastructure:
 - soft infrastructure: **leadership support** is essential to empower individuals;
 - hard infrastructure: **online and offline platforms** where stakeholders can come together.

Stakeholders feel empowered and become owners of the agreed outcomes. They feel more motivated to invest time and resources in something they contributed to deciding on. A possible drawback is that they may be more resistant to change a course of action or blind to outside change.



competences

- E1 Engagement mindset
- E5 Conducting stakeholder consultation
- F4 Empathy & emotion
- F5 Communities of practice & networking



practices



tools



more

[Self-awareness \(video\)](#)

[Impact of digital transformation on public governance](#)

[Multi-level governance and division of labour](#)

[Visual toolbox for system innovation](#)

Setting up a network governance

WHAT ▪ Successful transformations require taking on board all relevant powers to make change happen. Network governance considers **synergies across governance levels, departments and stakeholder groups**. It supports a multipolicy and multilevel stakeholder engagement, fostering the creation of shared knowledge among different government layers, academia, companies and civil society through an Open Discovery Process. In line with developing transformation agendas, network governance can be the result of an **iterative process and the interplay of different groups and institutions**. Setting up a network governance relies on clearly identifying stakeholders for the given societal goals and continuously engaging with them. These stakeholders must have a common understanding and a sense of ownership over selected processes, objectives and strategies. This helps build legitimacy and address the unintended effects of transformation.

WHY ▪ Collaborative transformation agendas are developed through an inclusive process. They aim to tackle a common challenge in a specific territory. A well-developed network governance is key to shaping an initial ambition into a concrete agenda that takes into account many stakeholder views. The agenda can in turn further shape network governance and involve additional groups when deemed to be relevant. Such agendas are **demand-driven and respond to territorial interests, needs and problems. They connect the place-based context with broader strategies and agendas**. A network governance aims to incorporate the different views, create a

common understanding and identify pathways that support many interests and objectives.

HOW ▪ Fostering a network governance that encourages reflective and experimental structures can entail several actions.

- **Engagement** processes involving many stakeholders can foster synergies, balance trade-offs, minimise conflict and keep on board those who may be adversely affected by the transformation.
- The **mobilisation of competences** within the network facilitates the distribution of roles and functions between the different actors, creating the conditions for a collaborative structure that makes decisions, sets goals and manages daily operations of the network.
- **Experimenting** is another form of combining stakeholder interests and identifying joint pathways that combine different views and user needs.
- The **Open Discovery Process** (ODP) can be the platform that enables engagement, deliberation and co-creating paths with different sets of stakeholders. The process can repurpose established participatory governance approaches to sustainability and introduce new ways of working across silos. This can be based on the desired economic, societal and environmental goals. The ODP can also be introduced gradually. This could include introducing a traditional Entrepreneurial Discovery Process (EDP) or combining people from two or more different departments in an ODP. For example, work with stakeholders affected by climate adaptation can be combined with the work involving innovation policy stakeholders.



competences

- E1 Engagement mindset
- F2 Collaborative processes
- F5 Communities of practice & network
- G1 Communication mindset



practices



tools



more

[Capacities for transformative innovation in public administrations and governance system](#)

[Governance networks in the public sector](#)

[Governance and sustainability](#)

[Linking S3 and EIT communities](#)

Building legitimacy

WHAT ▪ Building legitimacy is important to: (i) achieve and maintain agreement on the development of transformation goals and vision; (ii) manage cooperation among many public administrations; and (iii) justify public action and the use of public funds. The role of policy is to provide evidence that informs the public debate on transformation by providing alternative visions of the future that would not exist without government support, despite their high public value. Justifying transformative policy touches many interests and requires **greater public engagement** than typical stakeholder consultations. Impartial evidence is key to fighting misinformation from those seeking to delay change for private gain.

WHY ▪ Public policies need to be legitimate and seen to be legitimate to support specific transition pathways and effectively overcome resistance to change. There is a lack of many positive visions, so negative visions and arguments about redistribution sometimes dominate the public discourse on transitions. Building legitimacy is more than just a one-off task for early on in the envisioning phase: it must be an ongoing concern. It is crucial to act strategically when seeking legitimacy for transformative innovation policy because organised resistance can be tactical and adaptive. There can be very different interpretations of the same evidence or deliberate attempts to mislead public opinion for personal gain. Therefore, **impartial evidence and rigorous analysis, together with spaces for stakeholder consultation that give a voice to the most vulnerable**, can help improve the quality of the public debate on transitions and boost the possibility that widely supported targets will emerge.

HOW ▪ Strategies for building legitimacy for action can be

based on an executive or legislative foundation or logically derived from clear evidence. Technical and scientific work play a crucial role in informing the policy process. To strengthen legitimacy, it is essential to engage with stakeholders and the public in envisioning, policy design and implementation by applying participatory governance methods (as proposed in the Open Discovery Process). Practitioners can do some or all of the following to build legitimacy for transformative policies.

1. **Seek a formal mandate** within your organisation and the public administration to develop transformative policies.
2. **Support scientists** who provide impartial evidence of the costs and benefits of alternative scenarios and, where possible, encourage research into pathways with positive outcomes.
3. **Develop a strategic intelligence system** in the public administration that develops evidence-based rationales for transformative visions and action. Facilitate new rationales for public measures, such as directionality and market failure, both pointing to the need for broader coordination and a broader policy mix.
4. **Encourage and support public meetings, consultations and spaces** for pathway exploration and co-creation, drawing inspiration from the many tools for participatory governance in innovation (policy labs, hackathons, regulatory sandboxes, etc.).
5. **Protect participatory governance processes** from misleading narratives for private gain by linking decisions to impartial evidence and strengthening a culture of monitoring and evaluation for the long-term good of society.



competences

- C1 Scientific & data literacy
- C4 Gathering evidence
- E3 Conducting citizen engagement
- G5 Dealing with mis- and disinformation

+ practices



+ tools



+ more

[International attitudes toward climate policies](#)

[Public trust in government](#)

[Tips: how governments can find their legitimacy](#)

Envisioning

WHAT - Envisioning is a deliberative process of thinking about the future in which **multiple groups** continuously develop and apply actionable knowledge to **anticipate change** as needs and context change over time in complex and uncertain circumstances. It encompasses a set of competences, methods and practices that apply to individuals, organisations, administrations and innovation communities. It is a dynamic process that involves an **interplay between anticipation, evaluation and learning** to generate new collectively generated knowledge at each stage of the policy process through a forward-looking process.

BENEFITS - Envisioning helps understand **where you want to be, where you are now and what steps you need to take to achieve a vision**. It is linked to engaging because envisioning can be a participatory process and stakeholders can include their collective intelligence and perspectives to develop a vision.

? Do all stakeholders recognise the identified challenges?

? Have you conducted a gap analysis to identify your capability, coordination and resource needs?

? What have you learnt from other territories that have experienced similar challenges?

activity:

Diagnosing and developing a vision

? Have you used evidence to identify current activities and practices that should emerge or be phased out in your system?

? Have you used evidence to identify the parts of the current ecosystem that need to be preserved and reshaped to become part of the emerging one?

? Have you developed a roadmap to move the ecosystem from its current state to its future state?

activity:

Developing transition pathways and roadmaps

activity:

Setting milestones and targets

? Have you developed or used a system to select key performance indicators (KPIs) to measure the progress of the ecosystem's transition to its future state?

? Have you set time-bound target values for the KPIs?

? Have you collectively agreed on the lead indicators that can effectively capture the progress to achieving the KPI targets?

activity:

Conducting participatory foresight

? Have you gathered collective intelligence to frame the challenges that need to be tackled?

? Have you applied specific strategies to avoid representation bias or gaps in refining the main challenges and opportunities?

? Have you ensured that the everyone is in favour of the future you are trying to build?

Diagnosing and developing a vision

WHAT ▪ This activity seeks to answer the question: **‘Where are we now and where can we go from here?’**. It does so, initially, independently of where we want to go. A diagnosis can have many aspects. It can look at how the system performs now to gain an understanding of its strengths and weakness. It can also look prospectively at opportunities and threats, which also means looking outside the system and into the future. This is how vision development begins, and it should feed into a broader process of engagement, deliberation, alignment, exploration and a conscious pursuit of positive transition pathways. **System-level innovation**, or territorial transformation, is the far-reaching reconfiguration of a system to serve new or changed societal needs in response to a strong impulse for change. Therefore, to identify promising pathways, it is important to match territorial assets with strong impulses for change. Some of these will be global impulses, typically referred to as megatrends (e.g. sustainability, geopolitical tensions, emerging technologies), whereas others will be local.

WHY ▪ **Diagnostic methods** are necessary to inform policy debates about transformation. Good diagnostics can help you to act as focusing devices, targeting limited policy attention and resources. Diagnostic tools and methods aiming to address transformation require looking in detail at specific needs to create new anticipatory capabilities. This helps balance the traditional strong focus on the supply-side/production sector with a strong focus on the demand side and user needs. In addition, it also reveals more im-

portant factors that may shape the global context in the coming years. **Positive collective visions** are in short supply in a world facing many escalating crises. The challenge lies in that these positive visions may not be apparent to any one stakeholder, and accepting them may require an independent mediator. Supporting the creation of positive visions may well be one of the most valuable public goods governments can provide.

HOW ▪ Diagnostic methods combine gathering evidence with stakeholder discussions and collective imagination. Methods for a system-level diagnosis include system mapping (such as network analysis), policy evaluation inspired by system dynamics (such as causal loop diagrams) or policy reviews with a transformative framing (such as the POINT methodology developed by the Joint Research Centre). To choose the right diagnostic method to try and answer our first question (Where are we now and where can we go from here?), you should first answer the following questions.

1. What is the policy objective of the diagnostic? Link the diagnostic to planned or ongoing processes of policy development and/or reform (e.g. a new innovation strategy).
2. What is the diagnostic approach or method to be used, considering the policy objective?
3. How will the findings of the diagnosis link back to policy development and/or executive decisions?
4. How will the findings of the diagnosis feed into developing a vision?



competences

- A1 Identifying & framing policy problems
- G6 Working with data & models
- D2 Scanning for change
- G5 Dealing with mis and disinformation

+ practices



+ tools



+ more

[Causal loop diagrams \(course\)](#)

[Evidence-grounded positive future visions](#)

[Projecting Opportunities for INdustrial Transitions \(POINT\)](#)

[Systems based methods for research & innovation policy](#)

[System mapping toolkit \(dashboard\)](#)

Conducting participatory foresight

WHAT - Future comes from all of us; **the future is a collective and shared responsibility**. This is not only for current generations but also all future generations (intergenerational fairness). This means that our decisions should be based on comprehensive and long-term perspectives. Participatory foresight is a range of approaches to support decision-making and action on contentious and long-term challenges. It involves stakeholders, including the public, exploring or shaping potential scenarios by harnessing their **collective intelligence and perspectives**. Participatory foresight exercises aim to democratise and encourage long-term thinking to inform collective action in the present. They build collective intelligence about the future by helping people assess change in the long-term, draw out knowledge and ideas about how the future could look and develop shared mental images of the future people want.

WHY - Participatory foresight can be used at any stage. It enables a **more democratic, inclusive and collaborative approach** to envisioning and shaping the future. This leads to better outcomes, greater stakeholder satisfaction and more effective long-term strategies. It enables the public to influence the long-term future. It is a tool to foster innovation and creativity and supports better decision-making through a wide range of information, options and perspectives that inform decisions. This way, it contributes to social acceptance and legitimacy by promoting **transparency, inclusivity and democratic decision-making**. It helps **build the anticipatory capacity** of every individual, community, organisation and government to continuously develop and apply actionable

knowledge to anticipate changing scenarios as needs and context change over time in complex and uncertain circumstances.

HOW - Participatory foresight includes using immersive forms of storytelling, gamification, design, art and deliberation. This enables people to experience unimaginable scenarios and provide an imaginative alternative to traditional analytical tools for thinking about the future. It builds collective intelligence about the future by helping people diagnose long-term change and gather knowledge and ideas about what the future might look like. It develops collective mental images of the future that people want. The three following approaches to participatory foresight are broadly applied.

- **Citizen-visioning** is a method through which people develop a shared vision of their preferred future as a community.
- **Futures dialogue** provides a flexible framework for structuring discussions about the future between stakeholder groups and is often used when issues must be considered at different governance levels.
- **Narrative generation** is a technique for creating qualitative storylines about the future. To be effective (in their ability to shape how people think about the future), these narratives need to be participatory, multidimensional and pragmatic.

Parties involved can be closely related to the future under discussion, like experts, and those who have a general interest, like the public. When developing participatory foresight, there should be a strong emphasis on involving the public.



competences

- D2 Scanning for change
- D3 Understanding change
- D4 Influencing change
- G4 Storytelling & visual literacy



tools



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[Futures 4 Europe](#)

[Participatory foresight and reflexive innovation](#)

[The rise and promise of participatory foresight](#)

Developing transition pathways and roadmaps

WHAT - Transition pathways and roadmaps can be used to explore the processes of change to enable transitions to sustainability. They outline the different steps, actions and **interrelationships between those involved, resources and policies** to achieve a vision. It is about considering what might happen to better understand what drives change and explore areas where decisions need to be taken. Enriched by a participatory process, **transition pathways and roadmaps facilitate stakeholder engagement** in designing and implementing areas for action in a transformation.

WHY - **Navigating the uncertainty** about the future requires mechanisms to explore consistent measures over time and across government levels, sectors and territories. The choice of mechanism depends on the capacity of the agency to influence the outcome of future events and the degree of uncertainty faced by policymakers.

- **Transition pathways** help outline the timing, scope and scale of change required for a territory, sector or economy. They can help identify many alternative routes to a desired vision or aspirational scenario under uncertain conditions by enabling the emergence of innovative ideas in the community.
- **Roadmaps** give a preferred, structured, temporal and often graphical representation of the direction to lead a society or sector to its desired endpoint. They are ideal for exploring the dynamic relationships between resources and organisational goals in an innovation system and programme.

Policy developments can use combinations of transition pathways and roadmaps. This is because roadmaps can

integrate different future-oriented aspects by being aware of diverse visions and include many transition pathways. This interplay helps develop a **collective anticipatory capacity** by looking at the diversity of innovative options and technologies that are being tested and tried out simultaneously in different contexts.

HOW - **Evidence and data** are crucial for design and implementation. **Transition pathways and roadmaps** produce **actionable knowledge** for policymaking.

Transition pathways:

1. require less structured information, which includes future signals, trends, narratives and visions shared by the community;
2. benefit from decision-making and consensus-building;
3. stimulate discussion on how change occurs through a systemic view, looking at projects and programmes simultaneously.

Roadmaps:

1. rely on indicators to measure time, resources and outputs, often using multiple layers to show relationships between policies, markets, products and technologies;
2. emphasise the need for stakeholders alignment;
3. (often in conjunction with action plans) can play a more specific instrumental role in analysing the feasibility and implementation capacity in evaluations or impact assessments, carried out when specific programmes or instruments are being developed.

In practice, **they are both usually combined** with workshops to promote knowledge-generation and exchange.



competences

- B1 Creative thinking
- B5 Managing transformations
- D4 Influencing change
- E5 Conducting stakeholder consultation



practices



tools



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[A framework for mission-oriented innovation policy roadmapping for the SDGs](#)

[Exploring transition pathways to support food system transitions](#)

[Science, technology and innovation policy roadmaps for the SDGs](#)

[Towards a fair and sustainable Europe 2050](#)

[UN technology facilitation mechanisms](#)

Setting milestones and targets

WHAT ▪ As set out in the European Green Deal, the EU aims for a sustainable economy in the long-term by using resources much more efficiently. This will be achieved by moving to a clean circular economy and tackling climate change, reversing biodiversity loss and reducing pollution. Setting milestones and targets supports the policy process by using a broader range of information, options and perspectives to identify patterns of change and draw up a clear set of outcomes

WHY ▪ Milestones and targets can serve as analytical elements for planning and implementation. They can help identify risks, opportunities and trade-offs of different scenarios, transition pathways and roadmaps for innovation ecosystems. This helps make decision-making more informed and effective. Effective and efficient strategies must have targets in place to successfully mitigate the impact of unexpected changes and events. They should take into account various aspects, such as climate change and geopolitical dynamics, and more predictable and embedded innovation processes, such as digital transformation. Milestones and targets for innovation ecosystems are essential as they are easy to understand and help simplify policy and communication strategies. They facilitate exploring patterns of change while building a collective understand-

ing of potential challenges and opportunities in the face of uncertainty. This improves the overall anticipatory capacity of the whole ecosystem to orchestrate implementing transformative strategies.

HOW ▪ An **ecosystem** is **characterised by** three main components: **area, integrity** and **risk of collapse**. Milestones and targets should be chosen carefully to describe the action needed for the goals to be met. **Targets** should address the pathways to the innovation ecosystem's loss and recovery. These can include protecting remnants of threatened ecosystems, restoring their area and integrity to reduce the risk of collapse and preserve their intact parts. **Milestones** are to be used to capture differences in the ecosystem's area, integrity and its risk of collapse. A science-based vision, anchored in well-formulated action targets and fit-for-purpose milestones, is fundamental for helping reverse biodiversity loss and ensuring a long-term sustainable future. Analysing the relationships between goals, milestones and targets facilitates understanding systemic change at both the ecosystem and policy programme levels. This insight shows how policy programmes operationalise goals across various activities, from experimenting to mobilising resources, learning and evaluating.



competences

- B2 Systems thinking
- C2 Identifying evidence needs
- D1 Anticipatory mindset
- D4 Influencing change



practices



tools



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[Lessons from implementing climate goals in the process industry](#)

[Mission-oriented research & innovation](#)

[RRF scoreboard. Milestones and targets](#)

Orchestrating

WHAT ■ Transformation happens in places affected by many (formal and informal) powers and interests. Orchestration considers how we can identify and take on board all relevant powers to make change happen. The main aspects of orchestrating include agreeing on how to increase ownership of the transformation required and setting up tailored governance structures. Investment in effective orchestration makes it possible to increase the power to act, widens the scope of policies beyond innovation policies (including supply- and demand-side policies), diversifies budgets that can be leveraged and accelerates place-based transformation. It involves **vertical and horizontal coordination, interterritorial coordination and setting the agenda** to drive this coordination. Building **ownership** and **trust** is essential if we want others to act on (and spend budget on) our transformation agenda. As trust builds, continued investment in orchestration is critical.

BENEFITS ■ Good orchestration increases the capacity and power to act, in terms of planning and implementation, human and financial resources available, instruments, etc. It can also help remove many bottlenecks to implementing a transformative agenda. After all, systemic change requires systemic collaboration. Prioritising the most relevant powers can help reduce coordination costs.

? Have you provided for a balance between top-down plans with bottom-up initiatives when setting your agenda?

? Do you see agenda setting as an iterative process?

? Are the views of potential winners and losers incorporated into the transformation agenda?

activity:

Agenda setting and sharing

? Do you consider your innovation ecosystem to have been open and internationally connected over the last 5 years?

? Have you facilitated any governance arrangements for interterritorial collaboration?

? Has your territory developed a long-term vision on cooperation or seized any collaboration opportunities?

activity:

Collaborating across territories

activity:

Collaborating across departments

? Have you set out ways to make each department take more ownership so that they can design and implement a shared vision together?

? Have you crafted mechanisms or resources to increase any required capacity to achieve a vision?

? Have you consider the roles required to get different departments to work better together?

activity:

Enabling multilevel cooperation

? Have you set up a system to select which policies are needed to implement your agenda?

? At what governance level(s) are these policies designed and run?

? Have you devised different mechanisms to align and coordinate at different levels?

Agenda setting and sharing

WHAT ▪ Shared agendas for place-based transformative innovation are developed through an inclusive and collaborative process, to address a common challenge in a specific territory. They are built through multipolicy and multilevel collaboration, generating shared knowledge among different government levels, academia, companies, civil society and other parties through an Open Discovery Process. The agendas are designed to drive change and have a long-term social, environmental and economic impact. They are adaptive and can react to the unexpected. They encourage experimenting and rely on collective learning for monitoring and capacity building. Agendas are demand-driven and respond to a territory's specific needs and problems. They connect the place-based context to broader strategies and agendas from local, regional, national, EU and international levels and open avenues for interterritorial cooperation.

WHY ▪ Sustainability transitions require creating coalitions of willing stakeholders in territories to grasp opportunities, overcome barriers, set up new governance structures and foster the emergence of business models aligned with a new paradigm. Initially, these agendas may be proposed by stakeholders who are deeply committed. However, the agendas must also have the capacity to mobilise other groups and individuals and provide the necessary infrastructure to ensure the shared agenda is effectively governed.

HOW ▪ To build a shared innovation agenda for place-based transformation, **it is crucial to engage with stakeholders and strengthen their commitment to the transformation and shared vision.** Widening the engagement and orchestration around an initial agenda may lead to a revised or optimised agenda. Therefore, early engagement can increase ownership among both public and private groups. Those involved need to be aware of the influence of different mindsets, values and beliefs on the process. They must also be willing to embrace uncertainty and complexity and adopt a systems thinking approach. Incorporating the views of potential winners and losers of a transition upfront and anticipating potential unintended effects of the transformation can increase ownership, build trust and lead to a more successful implementation.

Understanding a given challenge and laying the groundwork for collective action is essential. This involves determining the scope of the challenge in the territory and setting out a shared vision of the future.

Co-designing and testing innovative solutions through the shared agenda is a key step. This collaborative approach allows for diverse perspectives and expertise to be integrated, leading to more effective and sustainable outcomes.

Ultimately, the aim is to have a systemic impact and make progress in achieving the shared vision. This requires continuously learning about monitoring and adapting strategies.



competences

- D1 Anticipatory mindset
- E1 Engagement mindset
- F2 Collaborative processes
- G3 Speaking with impact

+ practices



+ tools



+ more

[Shared agendas in transformative innovation policies](#)

[Shared agendas for sustainability and social change](#)

[Limits and benefits of participatory agenda setting for R&I](#)

Enabling multilevel cooperation

WHAT ▪ Multilevel cooperation is critical to address the multiple and simultaneous transformation processes that need to be activated and jointly managed by steering synergies across territorial levels and sectors. Places are affected by actions taken at different governance levels, from the most local level to EU level. Territories implementing transformation agenda usually only have some responsibility over and knowledge of the relevant policies and action that require involving other governance levels. Multilevel cooperation can be about (bidirectional) information and data sharing, awareness raising and increasing ownership, strategy co-design and collaboration on implementation. Territories are also well positioned to bring different EU policies and funding instruments together with national and local ones and implement them. Territorial experimentation can provide lessons learnt that can be shared with higher levels of governance.

WHY ▪ Cooperation can enable the building of a distributed capacity between different European actors, including governments, civil society and businesses at every level, to act in complex and uncertain conditions. Involving higher governance levels makes it possible to increase the power to act with relevant policies and funding across different governance levels. Understanding lower levels is crucial for identifying barriers to implementation and alternative solutions and promoting local needs. It also builds capacity to act on and learn about the relevance or obsolescence of territorial policies as well as trade-offs and contradictions. Multilevel cooperation

also enables mobilising and sharing resources that create synergies in how funds are used.

HOW ▪ Different actions can help multiple actors to go beyond managing different resources, competences and processes and look at the big picture; in particular, how we can build distributed capacities to facilitate decision-making and innovation in policymaking at system level.

- It is essential to know all relevant policies, why they are relevant, and how responsibilities are distributed. Tools like power maps are useful to build a territorial transformation agenda.
- Facilitating co-creation processes to make sense of the overall challenges and place-based context and identify key principles for collaboration in participatory policy design and implementation.
- Negotiations between governance levels can increase collaboration, promote a sharing and learning culture, and involve lower levels in planning and implementation.
- Making coordination more efficient and applying good practices is crucial for limiting coordination costs.
- Implementing foresight processes to explore the emergence and evolution of collaborations at different levels (including governance models) with the aim of developing multi-actor anticipatory capacity to catalyse transformative change for sustainability transitions.



competences

A5 Policy advice

B2 Systems thinking

F1 Collaborative mindset

+ practices



+ tools



+ more

[Multilevel governance tools](#)

[Multilevel governance for smart specialisation](#)

[Systemic and multilevel transformative governance](#)

Collaborating across departments

WHAT ▪ Developing and implementing transformative change across the EU and in its territories requires involving policies beyond innovation. This requires creating a common understanding, nurturing common ownership, and developing a holistic approach to solving problems by aligning different departments, their policies and their budgets. Transformative policies require engaging people with a passion for discovery, co-creation and experimenting and the institutional capacity to deploy them. It is key to connecting teams who can stimulate knowledge sharing, develop system thinking, steer multi-actor processes, foster synergies and trade-offs and minimise conflicts. These people must also have a strong capacity to communicate and collaborate even when there is a lot of uncertainty.

WHY ▪ Transforming systems requires critical mass for action. The more all relevant policies contribute to the transformation agenda, the more effective and faster the systems transform. The traditional siloed department structure in public administrations is at odds with growing calls to urgently deliver seamless answers to the interlinked challenges territories face today. However, cultural factors in public administrations may hinder the sorely needed joint efforts. These factors include the fragmented ownership of processes, the challenges in sharing information, competition for resources, lack of

trust, a perceived loss of power, and little incentive for cooperation.

HOW ▪ Identifying (e.g. through systems mapping or power maps) and prioritising relevant policies and departments can be a good starting point. This allows for increasing the ownership of the territorial transformation required help setting up a customised whole-of-governance approach. Involving different policies and budgets from all relevant departments.. can lead to accelerating implementation of transformative agendas by involving different policies and budgets. Working with supply-side policies (such as innovation vouchers) and demand-side policies (such as fiscal policies and regulations) can change systems faster. Concrete ways for supporting horizontal coordination include supporting strong political leadership, calculating the cost of no action for each ministry, interdepartmental teams with a rotating presidency. Testing collaboration through small wins before scaling up to a more structured collaboration can help to build trust. Finding the right balance between top-down and bottom-up steering of horizontal collaboration is context dependent and can vary across territories. Finally, a thorough assessment of existing obstacles to cooperation and the identification of possible solutions can help understand and solve difficulties in collaboration processes.



competences

- B2 Systems thinking
- C3 Connecting to experts
- F1 Collaborative mindsets



practices



tools



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[A model for inclusion in collaborative governance](#)

[A vital ingredient for partnerships](#)

[Mobility as a service in Finland](#)

Collaborating across territories

WHAT ▪ Interterritorial collaboration can take many forms, including networks and platforms, joint projects, cross-border clusters, twinning, strategic partnerships and alliances. The type of collaboration depends on several factors, such as the specific context, the groups involved (e.g. regional administrations, cities, universities, businesses, civil society organisations), the objectives, and the available resources and constraints in the territories involved.

WHY ▪ The rapid environmental, social, and economic changes that societies face today can be addressed more effectively if territories collaborate and leverage each other's expertise, capabilities and resources. Major challenges have no borders, making such collaboration essential. The EU can accelerate innovation to tackle its biggest challenges and bridge the innovation divide by promoting interterritorial collaboration.

HOW ▪ Starting with networking and exploratory activities, territories can advance by designing and implementing projects together. In later phases, territories could mobilise joint capacity, manage common resources and share investment risks. The EU supports interterritorial collaboration with initiatives targeted at regional administrations (e.g. Interreg), the research and development community (for example, Horizon Europe) and clusters (e.g. Euroclusters) or ecosystems (e.g., European Innovation Ecosystems and Regional Innovation Valleys). Joint initiatives could be based on shared infrastructure, climate adaptation shared risks or skills development (through Erasmus+). However, developing a **forward-looking, comprehensive, and stepwise road-map on interterritorial collaboration** could help

achieve major goals and have a bigger local impact.

Recommendations at local level

- Promote **local ownership** by ensuring commitment from high levels of government and enough resources to support long-term interterritorial collaboration.
- Set a **clear vision** and **promote agreements** involving all stakeholders to discuss your territorial challenges and local missions and identify areas relevant to other territories (from benchmarking to joint initiatives).
- Facilitate **decision-making** by identifying bottlenecks, gaps and enablers for interterritorial collaboration, reviewing governance barriers and spotting internal investment needs for place-based innovation. In addition, encourage learning by regularly monitoring and evaluating the process with your stakeholders.
- Develop and **nurture relationships** by identifying and facilitating exchanges with relevant territories (complementarities, economies of scale, shared value chains, gathering critical mass, etc.) and networks that can give you an external perspective of your territory.

Recommendations at interregional level

- Develop an **interterritorial narrative** based on common challenges and missions; co-create a map of key stakeholders involved in the targeted local missions.
- **Design a toolbox** that enables a step-by-step flow so that the collaboration process can evolve and learn through regular monitoring and evaluation.
- Build a strong **governance model for collaboration** by sharing costs and benefits, reflecting on their distribution and evolution, and building trust to develop strong relations over time.



competences

- B2 Systems thinking
- C3 Connecting to experts
- F2 Collaborative processes

+ practices



+ tools



+ more

[Cross-border government innovation](#)

[Interregional cooperation and Smart Specialisation](#)

[Opportunities for regional collaboration and economic cohesion](#)

Designing

WHAT ▪ Activities that involve the designing of a strategy cover the approaches used in strategy development. These activities involve dealing with choice of policy, allocating resources, providing a purpose and engaging with stakeholders, and focusing on the benefits of engaging with local ownership. Designing is a crucial step for successfully implementing a policy and ultimately for achieving its goals. Choosing the **right policy instruments** and **aiming for additional actions** ensure effective implementation and a positive impact. Resource allocation and scheduling are crucial for the efficient use of resources and timely delivery. Engaging local stakeholders in designing strategy and choosing policy is needed for relevance and effectiveness, resulting in more inclusive and contextually appropriate strategies that are more likely to result in positive outcomes for the community.

BENEFITS ▪ Designing a strategy is important not only to properly assess and plan actions, but also to **build legitimacy and gain support** from different stakeholders. Effective strategy design will most certainly help achieve desired and planned outcomes, and will increase the **efficiency of the policies and actions taken**. Inclusive design will enhance the quality and relevance of the chosen policy to the affected stakeholders. Inclusive design is also needed to increase **public trust** in the strategy as a solution and its implementing actions.

? Have you developed clear criteria for allocating resources and scheduling the delivery of policy instruments?

? Do you have mechanisms to set out governance roles, responsibilities and authorities for decision-making?

? Have you aligned communication plans with your strategy?

activity:

Developing a strategy

? Have you helped design a process for selecting and mobilising resources?

? Have you designed actions to take when facing a lack of resources?

? Do engaged stakeholders contribute to your plans with their resources?

activity:

Mobilising resources

? Have you designed a policy framework as a coordinated set of policy and regulatory measures to address well-defined objectives?

? Have you helped design specific coordination arrangements to support a local mission?

? Have you helped design policies to overcome barriers that prevent the mission from being achieved?

activity:

Designing local missions

activity:

Developing the policy and action mix

? Have you designed mechanisms to ensure policy development is clear, place-specific and action-oriented?

? Have you considered a balanced blend of possible policy instruments?

Do your policy instruments work in synergy with your policy and action mix?

activity:

Designing ecosystem support

? Have you assessed the breadth/size of the relevant place-based ecosystems affected by your strategy?

? Does your policy development support ecosystem-wide transdisciplinary arrangements, joint solution development and adoption?

? Have you designed support for engaged stakeholders in a systemic and synergetic manner?

Developing a strategy

WHAT - A strategy is a vision with a plan to achieve results and provides rules for action. Having a well-developed strategy is critical to achieving successful change. To create a strategy, there are two potential paths: **drafting a new document or building upon an existing strategic framework**. A strong strategy links available tangible and intangible resources with stakeholders within a set timeframe and with measurable goals and impacts. Furthermore, a successful strategy identifies the **actions to be taken and those to be avoided**, to achieve the most leverage possible. A strategy provides a clear understanding of how other processes are governed, such as how actions are taken, how the learning process will be implemented and, if needed, when and how the strategy itself can be modified. Moreover, a good strategy should inspire action and provide a clear purpose, rather than simply listing a series of tasks that need to be accomplished.

WHY - A well-designed strategy is the cornerstone of successful change, and a key reference for **aligning and directing future actions** allowing for **longer planning periods**. Effectively communicating the vision and rules of engagement with stakeholders is a critical component of success. A transformative vision requires an inspiring strategy to provide **legitimacy for its actions**. While the strategy itself is not transformative, the process represents the required transformation. A strategy needs to coordinate changes across many usually uncoordinated actions encoded with transformative ambition. Thus, a strategy should embed the knowledge of what it **directly controls and what it might influence**.

HOW - Effective strategy development is crucial in driving transformative change and can be considered part of a broader transformative effort. The transformative aspect should extend beyond strategy development and focus on how open and dedicated stakeholders are in engaging with it. From the beginning, it is important while developing a strategy to **build the capacity for successfully implementing it**.

1. Recognise a **need** and **space** for developing a strategy and build legitimacy to develop it. Start by agreeing on the vision that can align political priorities with practical realities and translate them into operational tasks.
2. Analyse the current state of play and map expectations for the future. This requires taking **different scenarios** into account, supported by data to provide greater clarity and better decision-making.
3. Engage with all parties, including those who may provide valuable inputs for the implementation or who will be affected by the strategic shifts in policy. By involving all key participants, the process will develop a sense of **collective ownership**, which sets the stage for successful implementation.
4. A sound and well-communicated strategy document is not enough on its own; effective implementation requires mobilisation of resources and engaging with all stakeholders for taking action and for benefiting from **mutual learning**.



competences

- A1 Identifying & framing policy problems
- A2 Designing & evaluating policy
- B5 Managing transformations
- F3 Convening & facilitating

+ practices



+ tools



+ more

[A plan is not a strategy \(video\)](#)

[How to create an 'Innovative' national innovation strategy](#)

[Innovation strategy – What is it and how to develop one?](#)

Developing the policy and action mix

WHAT ▪ A well-designed policy and action mix (sometimes referred to as a policy mix) is needed to **address policy complexity** and push for desirable change. Governments are increasingly reconsidering their policies in response to urgent societal and environmental challenges. They seek to align public measures across different policy areas and take advantage of innovations within systems that could potentially **drive transformative change**. The policy mix involves using a **combination of various policy instruments and linked stakeholder actions** to achieve a set of policy goals. For example, governments may use regulatory policies such as laws, regulations and standards to achieve environmental policy goals. In addition, a policy mix can include financial incentives such as subsidies, tax credits and grants to promote the adoption of environmentally-friendly practices. Moreover, governments can roll out certain initiatives, public awareness campaigns, and education and training programmes, encouraging a change in behaviour **not only at producer level, but also at consumer level**.

WHY ▪ The policy and action mix approach acknowledges that no single policy instrument or action is sufficient to tackle complex and interlinked challenges. Instead, it recognises the importance of combining various instruments and actions tailored to specific contexts and goals. Such an approach ensures that various measures encourage **directionality, synergies** and **complementa-**

rities, promotes **stakeholder ownership** and **change**. Overall, the policy and action mix approach enables policymakers to create comprehensive and effective strategies to achieve policy goals by combining different policy instruments and other actions to create positive change.

HOW ▪ A policy and action mix can potentially include further actions and avail of budgets from other policy areas to tackle common challenges.

1. Identify the problem along with stakeholders. It is important to include stakeholders from start and **share problem ownership**.
2. Set the policy goals, which should be measurable and achievable within a given time frame. Allow for corrections while implementing.
3. Ensure **the existing sets of policies are consistent with each other** and ensure policy mixes for transformation do not emerge in a vacuum.
4. Identify **missing policy instruments** and mechanisms to co-opt actions that are most appropriate to achieve the policy goals.
5. Develop an **implementation plan** by allocating resources, a timeframe, responsibilities and communication activities.
6. **Monitor, discuss, evaluate, refine** and **make corrections** to the implementation plan.



competences

- B2 Identifying & framing policy problems
- B5 Managing transformations
- D4 Influencing change



practices



tools



more

[Aligning smart specialisation with transformative innovation policy](#)

[Policy mixes for addressing environmental challenges](#)

[Policy mixes for digital transformation](#)

Mobilising resources

WHAT ▪ An important task for government is identifying and mobilising the necessary human and financial resources to address societal challenges. Resources can come from different stakeholders through different means. Overall, this process involves a combination of resources, mechanisms and partners. For place-based transformative innovation to remain a goal of the resource mobilisation process, new thinking needs to be developed along with challenging current routines. Both human and financial resources play a major role. On the one hand, to tackle a societal challenge, existing human resources may have to be redeployed, often with investments in training and education and/or attracting new human resources to the territory. On the other hand, mobilising financial resources may be needed to tackle problems that are too costly for individual budgets, where ideally a combination of public and private funding would enable innovation activities and technology investments to be rolled out.

WHY ▪ Diversifying and expanding the resource base is essential, particularly in tackling current challenges, which can have exceptional resource demands. We need to **work backwards** from a challenge; this means **applying a challenge-oriented focus**, rather than a sectoral or departmental focus that most funds have. This acts as an organising principle and leads to the development of a theory of change, that includes multiple funds and various types of human resources that might otherwise not be mobilised. Such a way of thinking and working could mobilise new sources and trigger previously

unexplored synergies between resources. Under the prism of a societal challenge, existing innovation funds may have to rebalance the support offered, for example, in favour of non-R&D innovation activities and help small and medium sized enterprises invest in adapting, adopting and deploying technology. A key part of the effort to mobilise resources to deal with challenges is to ensure different funds are **aligned and consistent**, identifying and addressing possible conflicting objectives.

HOW ▪ Mobilising resources is a balanced exercise that requires several competences and skills, such as negotiating and critical thinking, as well as communication skills. Through collaboration, regional authorities can focus on upscaling and pulling together a sufficient critical mass of resources needed to tackle challenges, such as building a better and competitive inclusive society. This process could help provide a clear direction for change by means of using the complementary assets of two or more regions, which will in turn step up the transformative process of each region and maximise the resources available to each of them. To speed up mobilisation of resources, regions can use existing complementary tools while setting up an interregional governance system for better collaboration. There is also the possibility of using a broad pool of regional and national actors, selected through mutual collaboration. Such a process aims to strengthen the link between knowledge producers and firms and could lead to better use of the different assets available.



competences

- A3 Negotiating
- A5 Policy advice
- B3 Critical thinking



practices



tools



more

[Capacities for transformative innovation in public administrations and governance system](#)

[Innovation portfolios](#)

[Portfolios for the public good](#)

Designing ecosystem support

WHAT ▪ An innovation ecosystem consists of organisations such as *businesses, universities, government agencies, intermediaries, solution providers* and many others that, depending on their capacities, activities and interactions, **collectively determine** a territory's ability to innovate. The characteristics of **highly developed innovation ecosystems** include:

- appropriate and timely funding;
- sufficient human resources with the right competences;
- capable public administrations; and
- social conditions favouring trust and collaboration, such as openness, respect for the law and effective regulation.

Making good use of available resources requires the right balance between collaboration and competition, between stability and adaptability. Some ecosystems tend to be less friendly for innovation. In less innovative territories it is common to have business sectors where:

- most businesses do not feel compelled to innovate;
- universities are disconnected from societal needs;
- there is insufficient capacity to attract and retain talent.

WHY ▪ The ability to innovate depends on each ecosystem. The government can play an important role in bringing stakeholders together and promoting common understanding, direction, knowledge exchange, cooperation, pooling of resources and learning. A key role for public policy is to **steer the purpose** of innovation towards societal well-being and look at the needs of the ecosystem from a broad and long-term perspective. For example, companies in the territory may be part of global value chains (e.g. in fossil fuel industries) that are profitable in the short-term but have a questionable future.

HOW ▪ Thriving ecosystems can take decades to develop, so it is important to allow sufficient time to develop capacity and monitor and evaluate its impact.

1. Designing suitable support policies depends on the presence in the ecosystem of: (i) **a vision for long-term territorial development**, and (ii) an accurate **diagnosis of bottlenecks** that prevent the vision from being implemented. Both need to be accompanied by continuous feedback, as part of an Open Discovery Process.
2. Identify ways to make the different parts of the ecosystem operate in a manner consistent with the territory's societal objectives: this means mechanisms for networking among those involved, support for intermediary organisations that represent large common-interest groups, and solution providers such as competence centres and technology-transfer offices.
3. Mobilise resources from multiple funds to address ecosystem bottlenecks: it is important that there be a balance between support for **global competitiveness and support for capacity building**, including ability to address local challenges. Providing support for ecosystem players that are champions of societal goals should be a priority.
4. Seek to support the local ecosystem by influencing policy processes **in areas other than innovation and at other territorial levels**: particular attention needs to be paid to policies and investments that have an impact on the physical environment of your territory (e.g. large transport infrastructures) as they stand to lock-in unsustainable behaviour while representing major opportunities for developing the capabilities of local production.



competences

- B2 Systems thinking
- B5 Managing transformations
- F2 Collaborative processes

+ practices



+ tools



+ more

- [Building an innovation ecosystem \(video\)](#)
- [Innovation ecosystems review and definition](#)
- [Transformative governance of innovation ecosystems](#)
- [What is an Innovation Ecosystem? \(video\)](#)

Designing local missions

WHAT ▪ Missions are **coordinated packages of policy and regulatory measures**, tailored to roll out action in innovation to address well-defined societal objectives or complex problems within a set timeframe. Missions often require to make difficult decisions without a strong consensus among all participants. Yet the majority should come to an overall agreement on how to reach their goal. Missions provide directionality and common ground for experimentation. They also create space for potential novel solutions. For instance, a mission to provide healthy school meals can lead to innovating food packaging and delivery, besides providing healthier nutritional components. Overall, missions can inspire creativity and collaboration among individuals and organisations working towards a common goal. Local missions, or missions, can be geared towards tackling economic matters or challenges and must avoid promoting ‘more of the same’ solutions. Their objectives should still be attainable, to prevent disappointing results. Mission-oriented innovation policies should allocate extra resources for coordination, bridging instruments, and demand creative measures to achieve desired impacts.

WHY ▪ Local missions tackle issues alongside local stakeholders who may be underrepresented in policy discussions. The local mission approach is to launch a **call to action** rather than a plan for activities. Missions can help develop policies geared towards setting priorities in tackling societal challenges (and funding), which can complement other priority-setting methods. Therefore, they can act as an **organising principle for collaboration** in complex and fragmented decision-making structures. Local missions allow different policy groups to work together, creating a more inclusive and aligned policy framework. To achieve the desired change, it is

important to move beyond R&D efforts and include portfolios of actions in regulation, skills, business investment, consumption subsidies, physical and digital infrastructure, among others. The changes should also include **modifications to production systems and consumption patterns**.

HOW ▪ Missions highlight inclusiveness as a driving force for chosen themes and engaged groups.

1. Set the foundations for collective actions to generate trust, collaboration and networks, and build consensus around a shared vision for the territory after transformation. **Collectively try to answer: how do we see our territory after transformation?**
2. Define the local mission by specifying its goal, duration, geographic boundary, ambition, problem framing and existing partial solutions. Conduct an analysis of possibilities for driving change through planned action and applying a theory of change. Together **with stakeholders, look for opportunities by matching the identified challenge with possible solutions in the territory and beyond**.
3. Identify transformative tasks, such as creating legitimacy and leadership (mandate to represent entire sectors); multilevel, multi-actor and multi-instrumental coordination and alignment (create systemic synergies); reflexivity, learning and experimenting; and resolving conflicts. Remember that **a local mission is not a vehicle for everybody to fit in, or to find silver bullets or win-win situations**.
4. Evaluating outcomes can be challenging. The process is not linear, with many direct and indirect relationships involved. Therefore, **it takes a long time for the results to become clear**.



competences

- A1 Identifying & framing policy problems
- D4 Influencing change
- F2 Collaborative processes



practices



tools



more

[Micro-missions and the role of universities](#)

[Mission Oriented Innovation \(webinar\) - Jeffrey Sachs](#)

[OECD Mission-Oriented Innovation policies online toolkit](#)

Implementing

WHAT ▪ Implementation of a strategy always requires adaptation to changing realities. The actual deployment of a strategy requires translating objectives into an action plan and introducing arrangements for the plan's revision in response to monitoring. The policy mix will have to be tailored to societal goals and be responsive to changing circumstances. Hard decisions must be made about prioritising limited public funds, which have to be well-justified and geared towards tackling challenges. Implementation is not just about putting a plan into action but also about enabling experimentation and learning, which are essential in opening up pathways to the solutions for complex problems. Flexibility and responsiveness in the policy mix is also important for scaling up good solutions once they emerge.

BENEFITS ▪ Implementing is crucially important for transformative innovation policy. It is the stepping-stone between planning and operational impact on public investments, on governance reforms, on new regulations and changes to skills provision. Implementing tests the adequacy of prior planning. Policymakers need to be prepared for the unexpected and be ready to recognise issues, negotiate changes, compromise and adapt. Good implementation translates into impact, which strengthens trust, enables further engagement and supports visions that are more ambitious.



Deploying a strategy

WHAT - This activity aims to translate strategy aspirations into an operational **action plan** with a clear **time-line**, **governance arrangements** and **delivery mechanisms**. Deploying a strategy is not a given but depends on:

- setting up suitable organisational arrangements;
- identifying the appropriate delivery mechanisms;
- seamless coordination between partners within government and with stakeholders; and
- closely monitoring progress in implementation so that any unforeseen bottlenecks are lifted in time.

Organisational arrangements must ensure responsiveness in view of:

- essential interactions and feedback from parallel processes, such as monitoring and evaluating, the Open Discovery Process, and a policy and action mix;
- unforeseen bottlenecks in implementation and other contingencies, such as new priorities emerging;
- new opportunities for synergies or broadening the strategy's potential impact.

WHY - A transformative innovation strategy requires policymakers to act across administrative boundaries. It calls for new ways of working across silos and strengthening the capacities of public administrations to take on new tasks. Unless appropriate organisational arrangements are identified, the transformative ambition behind the strategy for a transition may stumble. Exceptional times require exceptional measures, such as planning for a period of deep transition. In a transition setting, there are two overarching tasks for development policy. First, the need to support emerging niches that can be the basis of future competitiveness and development. Second, the need to support incumbent actors

whose competitive advantages may be challenged so that they transform seamlessly.

HOW -

Goals of a strategy. Start with creating a process for translating aspirations into an action plan. It is key to operationalise policy tasks and map them in the policy system, both within the administration and across government areas and levels. This process requires considerable consultation.

Putting in place governance arrangements. Mapping goals to tasks across departments and levels underlines gaps in responsibility. If policy tasks are difficult to map on existing structures, there may be a need to create new units, mobilise competences or strengthen capacities of existing units. Working on tasks across silos requires accountability and feedback mechanisms.

Delivery mechanisms. A transformative directionality usually requires more than one delivery mechanism. Project-based funding with a transformative ambition can be organised in a project portfolio sharing a common challenge and funded by multiple sources, including non-innovation funding. Funding for intermediation mechanisms such as clusters, competence centres and training institutes is also relevant. A policy lab or regulatory sandbox may be needed to identify the right delivery mechanism.

Reflection and learning. Decision-making involves decisions on how to draft an action plan, with whom, and on how to reach an agreement. Monitoring whether the appropriate capacities are in place feeds into decisions on future activities. Furthermore, checking if the principal delivery mechanism is fit for the task helps pre-empt, or decrease, future problems.



competences

- A3 Negotiating
- B5 Managing transformations
- D4 Influencing change

+ practices



+ tools



+ more

- [Putting a plan into action \(online guide\)](#)
- [The design and implementation of mission-oriented innovation policies](#)
- [Toward sound policy implementation](#)

Coordinating the policy and action mix

WHAT ▪ A policy and action mix can be thought of as a coherent portfolio of actions across areas by various stakeholders for a given challenge. A policy and action mix is at the heart of implementation: it includes concrete policies, programmes and instruments. It also aims to go beyond the actions of government to influence and co-opt actions by other stakeholders. A coherent policy and action mix cannot emerge spontaneously but results from a long process of coordination, deliberation and co-creation of opportunities that did not previously exist. Various agencies and other bodies implement a policy and action mix by means of financial and non-financial measures, together with complementing actions by stakeholders in different configurations. Coordination of different parallel policies and actions ensures that there is coherence and synergy, helps avoid duplications and increases effectiveness. Knowledge about what is happening elsewhere is key and allows changes to be made to previous plans and improves the consistency of actions taken towards tackling a challenge. Involving stakeholders in coordination and learning allows for the co-creation of opportunities and more effective implementation.

WHY ▪ Governments in multiple levels working together with stakeholders can enable greater coherence in design and coordination of policies and actions by following the principles the Open Discovery Process (ODP). The ODP is a process geared towards coordinating responses to challenges that involves collective deliberation to develop a shared understanding of the societal challenges and of ways in which they can be addressed before developing shared agendas. A goal of the ODP is to encourage additional voluntary actions that help achieve the goal beyond the strict conditions attached

to funding. Changes to the policy and action mix depend on monitoring and learning, where including stakeholders is needed to build and maintain trust and shared ownership of the mutual goals and therefore the coherence of policies and actions.

HOW

1. Start by framing actors inside and outside of the system you plan to coordinate. Coordination can evolve over the time to include indirect actors, and the ones you would like to influence.
2. Set up a mechanism for coordination across policy portfolios following the ODP's challenge-led logic. Exchanging information provides opportunities to gradually join up different portfolios.
3. Set up a system for monitoring the implementation of the policy and action mix using quantitative and qualitative approaches. Regular monitoring can help gather signals and data on the development of planned indicators, and the achievement of overall progress and coherence for accountability and communication.
4. While monitoring provides data, learning from monitoring outcomes can provide a deeper understanding how the policy and action mix is working towards achieving initially desired goals. Learning could be carried out with involved stakeholders to understand if the implementation is moving in the right direction and if that direction is still shared and the same.
5. Learning through monitoring can provide space for making changes within the policy, or changes in the policy environment, based on new demands, and evidence of implementation problems



competences

- B2 Systems thinking
- B5 Managing transformations
- D4 Influencing change

+ practices



+ tools



+ more

[Applying policy mix thinking to social innovation](#)

[Instruments for Policy Integration](#)

[Transformative policy mixes in socio-technical scenarios](#)

Prioritising funds

WHAT ▪ Place-based innovation funding and related support to industry is usually allocated according to ‘priorities’, often corresponding to industrial sectors, activities or areas of strategic importance. The assumption is that by focusing funding on some areas, the impact on economic growth and employment is likely to be greater. Transformative innovation policy also considers broader impacts on society and the environment. The correctness of decisions on funding priorities depends on how uncertain the future states of complex systems are. For this reason, these decisions are always difficult to take and are frequently contested. In practice, policymakers follow some loosely defined rule-of-thumb, which follows some tried-and-tested principles. The purpose of a rule-of-thumb for making choices is as much about ensuring a positive impact on social welfare as it is about legitimising the choices made, so openness, stakeholder engagement and deliberation are important too.

WHY ▪ Prioritising is essential, because public resources are scarce and some outcomes require large amounts of funding, which only few, typically governments, can afford. Public funding should be directed to ends that **maximise people’s social welfare** and guided by the principle of **additionality**: public investment should be additional to investments by businesses and people (as opposed to substituting them). Setting funding priorities correctly can help: i) develop knowledge capabilities that are in tune with place-based assets and ambitions; ii) strengthen the competitiveness of domestic firms; iii) help industry develop new production capabilities and enter growing markets; iv) reskill workers and repurpose assets in new areas; and v) address gaps in an innovation ecosystem.

HOW ▪ How can you know which areas to prioritise in order to have the greatest impact? One criterion can be to prioritise areas that draw on a territory’s unique assets and/or are in close proximity to its internationally traded competitive advantage. Such an approach is not sufficient for a sustainability transition, which also involves creating new competitive advantages and ensuring long-term societal well-being. The challenge-oriented approach offers a **new approach for priority setting**, and **can complement** the approach abovementioned. The challenge-oriented approach aims to focus public resources on domains, **close to local societal challenges broadly shared and understood by the public**. This is compatible with public engagement and creating new knowledge and production capabilities. Some questions to consider include:

- How do place-based challenges and long-term societal visions translate into public funding priorities?
- How do you balance generic (or cross-cutting) funding (e.g. for capacity building or ecosystem support) versus field-prioritised funding (e.g. for agro-food, tourism, energy, mobility)?
- How do you balance public support for strong sectors with public support for diversification into new areas?
- How do you engage stakeholders in decisions about priorities?
- How can public funding priorities be used to balance the interests of powerful incumbents in dominant sectors with those of companies in other sectors important for the transition?



competences

- A3 Negotiating
- B3 Critical thinking
- B5 Managing transformations
- D1 Anticipatory mindset

+ practices



+ tools



+ more

- [Industrial diversification talks](#)
- [Public procurement, innovation and industrial policy](#)
- [Priority setting in regional innovation strategies](#)

Experimenting and demonstrating

WHAT ▪ Experimentation in policymaking comprises a wide spectrum of approaches. It can involve providing a set leeway to a policy's design intending to give space and show the impacts of possible future policies or existing policies and their effectiveness, which may need amendments to keep momentum with today's economic and technological advancements.

WHY ▪ Generally experimentation is triggered by a need: i) for a change in policy and practice, ii) to keep momentum with competition or iii) to deal with challenges in more effective ways. Experimentation can also lead to the regulator model being extended to different markets. It can also be a response to create business and employment possibilities in an area or region to boost the confidence of the population, and avoid brain drain and a decline of the regional population. Applying flexibility to help experimentation is key to shaping a long-term sustainable path, which is agile, innovation-friendly, evidence-based and resilient. For example, regulatory experimentation fosters competitiveness, growth and regulatory learning while it also equips the economy to safeguard against systemic shocks and disruption. Over the years, different modes of experimentation have emerged, for example: i) prototyping and testing new programmes, business models or governance configurations; ii) regulatory sandboxes; iii) public-private cooperation; iv) public services; and v) public procurement.

HOW ▪ Experimenting starts by identifying objectives,

needs and limitations. The intention is to develop a vision for the demonstration phase and increase the probability that the testing mix, including policy and people, will have the right tools and capacities leading to successful outcomes. Experimentation can be carried out through demand-driven innovations or instruments for market development, such as innovation offices, innovation hubs and labs and accelerators. These tools apply methodologies including design thinking, idea-management processes, open innovation, crowdsourcing and human-centric types of designs. For example, setting up an **innovation lab** would need to attract interested companies hoping to make a technological leap. However, experienced market players may prefer to set up an accelerator as a fixed-term programme, which aims to accelerate the innovation of start-ups and scale-ups. Another method to use in experimenting, particularly from a regulatory point of view, is a **regulatory sandbox**. This tends to promote innovation, identify regulatory barriers to innovation, and expand knowledge on market developments. Usually it is set up for a limited time and in a limited part of a sector or area under regulatory supervision and enables a real-world environment for testing innovative technologies, products, services or approaches. **Innovation hubs** help companies to carry out innovation. They are set up to foster an open and informal dialogue about a product. For facilitation purposes, one innovative hub is created per jurisdiction. Innovation hubs are seen as very popular, together with regulatory sandboxes.



competences

- B1 Creative thinking
- C2 Identifying evidence needs
- D1 Anticipatory mindset

+ practices



+ tools



+ more

[Experimenting with transformative innovation policies](#)

[Guidance on regulatory sandboxes](#)

[Roles of Experimentation in Transformative Innovation Policy](#)

Scaling and mainstreaming

WHAT ▪ Scaling refers to adjusting policy support for successful innovations to ensure they have a positive impact across society as a whole. Scaling is multidimensional and may be introduced by changes in: (1) budget and the geographical coverage of policies; (2) objectives and targets of policy instruments; (3) types of instruments used to provide direct and indirect support to innovation (e.g. shift from individual programme to instrument portfolio); and (4) the range of supported innovative activities and target groups. Scaling requires a strategic reflection on what can be meaningfully scaled up (or down), how to adapt support to locally tested solutions to ensure they can be applied in different geographical and socio-economic contexts, as well as when to deploy the policy support to achieve a transformative impact. Policy approaches considered applying scaling in a coherent way across the board in the design and implementation of entire programmes or portfolios. Scaling up policy support may require a stronger political and social mandate for increasing investments in fostering specific innovations and transition pathways.

WHY ▪ Supporting successful innovations at the right scale is key for making policies more effective and focusing policy support on innovations accelerating the transition to sustainability.

HOW ▪ Policymakers need to critically reflect upon which innovation areas should be boosted with policy support. How do we delineate innovation areas that hold

a promise of a transformative impact? What is the right scale and timing for the action? What are the impact pathways to achieve transformative change? Scaling up may not necessarily mean higher funding for the successfully demonstrated solutions but rather an investment in developing specific capacities and enabling environments needed to absorb and diffuse existing solutions.

1. Learn from experiments and demonstrations to inform decisions on what and how to scale. Support intermediary organisations and networks to continuously collect and combine lessons from experiments and niche innovations carried out in different contexts and territories.
2. Think of possible transition pathways and take the perspective of the systems to understand how to scale niche innovations to gradually achieve wider impact.
3. Implement various instruments to provide comprehensive support to niche innovations, combining direct financial support with creating demand for innovations and improving enabling conditions for innovations to be scaled.
4. Continue to experiment with innovative approaches that can further accelerate the scaling of successful innovations (e.g. social innovations can be supported to speed up deployment of tested technological solutions).



competences

- B2 System thinking
- B5 Managing transformations
- D4 Influencing change

+ practices



+ tools



+ more

[Lessons for implementing challenge-led missions in smart specialisation](#)

[Scaling impact – four principles and case studies](#)

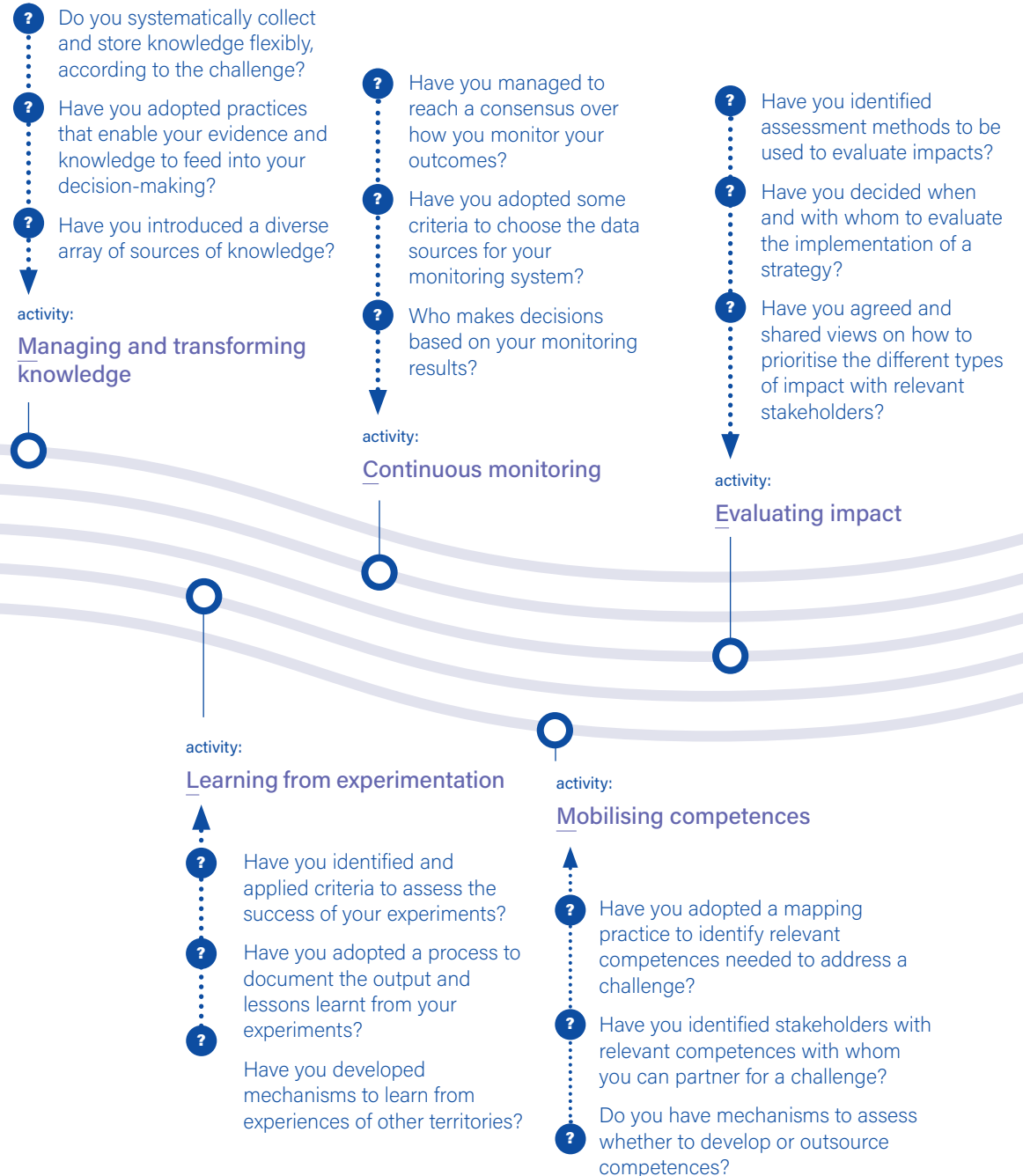
[Scaling impact – four principles and case studies](#)

[The integration of key transformative R&I principles in European policies](#)

Learning

WHAT ▪ Learning improves the knowledge base of research and innovation policies by developing new evidence to better design and implement policy measures. Policy learning is a continuous process involving policymakers and stakeholders who collectively reflect on the objectives, governance and results of policy. It comprises various processes and organisational arrangements, including formal processes for impact assessment, monitoring and evaluation, as well as many formal and informal interactions with knowledge communities and stakeholders from across governance levels. The transformative ambition of innovation policies requires a more robust approach to policy learning. This is not only about purely analytical efforts. There is a need to better understand and measure how policy measures can contribute to system-level change to achieve sustainability goals. New processes and environments can help enable place-based learning and unlearning. The processes need to be closely associated with policy and governance experimentations in which innovations are tested and scaled to achieve a transformative impact.

BENEFITS ▪ Effective governance requires a sustained and iterative commitment to learning and evaluation to reinforce innovation processes. As new evidence and new voices emerge, they can influence new and existing policies. It is critical to think about learning as a continuous journey and to recognise that over time, new insights and different voices can change perspectives and influence the formulation and implementation of policies and actions. In this dynamic interplay of evaluation, learning and innovation, territories can foster resilience, adaptability and effectiveness, creating a governance ecosystem that thrives on progressive development rather than static persistence.



Managing and transforming knowledge

WHAT ▪ Knowledge management accompanies the various activities and is maintained over time as a crucial mechanism for innovation and learning. It enables the exchange, combination and adaptation of broad knowledge between stakeholders, applied in flexible and dynamic environments using team skills, methods and knowledge infrastructures. Harvesting from different sources enables a system perspective. Orchestrating the knowledge flow and effective communication are critical to running operations. Transforming data, insights and lessons learned into actionable knowledge through continuous feedback and learning loops is crucial to enable links and strengthen synergies between different activities.

WHY ▪ Providing actionable knowledge requires a combination of harvesting and documentation, with conceptualisation and analysis to highlight key patterns and insights that can be integrated into other activities. This transformed knowledge enables multiple stakeholders to act by following a challenge-led approach such as the following:

A systemic perspective, through evidence gathering with alternative mechanisms, that recognise the nested nature of systems, addressing the different needs of various indicators to conduct monitoring, evaluation and learning by introducing, future-oriented inputs at each stage.

Outcome-oriented, aiming to integrate data, knowledge and shared meanings into a story that allows to examine impacts by collecting examples of what has changed. This is useful for building trust, supporting two-way communication and activating subsequent decision-making processes.

Policymakers can make knowledge management a com-

mon practice to help identify signals to measure and track changes in the various parts of the system (actions, relationships, policies and practices) and then retrospectively determine whether and how an action contributed to those changes, alongside other activities such as monitoring, evaluation, design, orchestration and implementation.

HOW ▪ Operational knowledge management requires a wide range of formats and resources to meet different needs and audiences. Some practices can ease implementation and enable the application of knowledge developed as part of the policy process.

Scoping and framing through a better understanding of how to monitor system dynamics by introducing different types of indicators, with a particular focus on contextual indicators that capture real-time signals of emerging changes.

Integrating a forward-looking perspective as a common element based on inputs developed through foresight processes such as horizon scanning, megatrend analysis and related sense-making exercises.

Harvesting and documentation. This focuses on managing information and includes two interrelated actions: nurturing the flow of information and reframing ideas as part of the ongoing policy process.

Developing actionable knowledge. This focuses on conceptualising and analysing the combined data, co-created knowledge and insights to highlight the main patterns and achieve some degree of synthesis.

Developing a knowledge infrastructure that includes practices, a dedicated team and facilities to ensure continuous knowledge transfer between those involved in building, operating and using the infrastructure.



competences

- C4 Gathering evidence
- C6 Working with data & models
- G1 Communication mindset
- G4 Storytelling & visual literacy

+ practices



+ tools



+ more

[Diffusion of innovation knowledge and lessons](#)

[Knowledge management as a service \(webinar\)](#)

[Transitions Hub knowledge library](#)

Continuous monitoring

WHAT ▪ Monitoring transformative innovation policies involves the systematic collecting, analysing, and reporting of data and information to assess the progress of these policies in achieving their intended goals and impacts. Under a traditional approach, monitoring refers to a periodic process of analysing the outputs. In the context of transformative innovation policies, it goes further and focuses on examining their outcomes and impacts. In both cases, it should be carried out while the policy measure is being rolled out, to correct any deviation from desired objectives and goals. Monitoring should be closely aligned with the impact evaluation process, which occurs after policies are implemented to assess whether expected goals were achieved (effectiveness), the efficiency of measures, and the sustainability of impacts.

WHY ▪ Monitoring transformative innovation policies is needed to:

- ensuring that the policies are on track to achieve their long-term complex goals of transformative innovation policies;
- identifying and addressing challenges early on, particularly during the experimental phases that are integral to transformative policies, in order to reduce unintended consequences;
- building public trust and support for transformative innovation policies, as monitoring and reporting on the progress can increase public scrutiny and engagement as regards these policies.

The approached used in the monitoring of transformative

policies overcome the limitations of traditional monitoring approaches, which rely predominantly on economic indicators and often focus on providing inputs and outputs to subsidised beneficiaries. They differ in scope, dimension, periodicity and focus of analysis due to their specific characteristics, for example, by moving away from the traditional practice based on using regional data by EU national statistical offices, which often leads to the usual delays between the publication of the data, the observed phenomena and the analysis.

HOW ▪ The monitoring and evaluation of transformative innovations introduce new priorities and practices, such as the following.

- Focusing on **outcomes and net impacts** by assessing the progress of the transition process and the broader impact of the policy on society. This requires a mix of quantitative and qualitative data and a participatory approach involving stakeholders from different sectors.
- Prioritising the **tracking of progress across a broader range of indicators**, including, e.g. environmental, economic equality and governance indicators.
- Improve monitoring by **integrating real-time information** from big data analytics. This can include i) using data from online job postings to track labour market dynamics in specific regions or sectors, ii) leveraging data on the performance of sustainable investment funds in financial markets, or iii) using text mining on social media to analyse public attitudes towards sustainability and environmental issues.



competences

- B2 Systems thinking
- C4 Gathering evidence
- C5 Assessing evidence
- C6 Working with data & models

+ practices



+ tools



+ more

[Monitoring and evaluation of transformative innovation policies](#)

[Practices for monitoring and evaluation](#)

[Territorial economic data viewer](#)

Evaluating impact

WHAT ▪ Evaluating the impact of transformative innovation policies encompasses all the analytical efforts required to assess the achievement of expected policy outcomes. This involves gauging how these policies have successfully met their intended goals while also taking any unintended consequences and impacts into account. Importantly, an impact evaluation should be closely coordinated with other two evaluation processes: (i) the design (or *ex ante*) evaluation, which focuses on assessing the coherence, consistency, feasibility, effectiveness and efficiency of the policy measures and instruments designed to promote the desired transformation, and (ii) the continuous monitoring process, which refers to the ongoing and systematic observation and evaluation of how these policies are implemented.

WHY ▪ Evaluating the impact of transformative innovation policies is key for different reasons:

- it provides **evidence-based information on the effectiveness and efficiency** of these policies, presents the degree to which high-level strategic intentions and visions effectively translate into changes in real-world behaviour;
- it fosters the generation of knowledge and new experiences in transformative. innovation, a critical element in shaping and improving **policy design and implementation**;
- it enables **engagement and increases the legitimacy and acceptance** of the policies, as stakeholders can share their knowledge and experiences;
- it plays a central role in **steering the use of public money** to make it more efficient and effective, allowing for public scrutiny and engagement.

The evaluation of transformative innovation policies aims to take a systems perspective by going beyond the scope addressed by traditional innovation policies, which target specific and limited groups and therefore require the inclusion of additional evaluation criteria, such as equity and acceptability, alongside traditional criteria.

HOW ▪ Evaluating transformative innovation policies is a multidimensional process of several steps, and the collection and analysis of different types of data and evidence.

- Developing a robust monitoring and evaluation system must occur **in parallel with policy design to support the establishment of quantifiable goals** and the corresponding policy measures needed to achieve them. For this, it is crucial to plan the different steps, involve relevant stakeholders, set indicators, identify data sources and specify evaluation methods.
- The next step involves identifying the expected impact and then designing the transformative action and identifying the inputs to achieve them. Inputs include not only funding opportunities but also **multilevel governance, the policy mix and stakeholder engagement**.
- Prioritising broader impacts on the territory by extending the assessment of outcomes **beyond the direct impacts at the beneficiary level** to include spillover effects in the territory and the entire value chain.
- Using a **mix of techniques and methods for evaluation** to address complexity through different perspectives by including and analysing the results from different groups and situations (i.e. counterfactual analysis) with other qualitative and quantitative approaches.



competences

- A2 Designing & evaluating policy
- B3 Critical thinking
- C5 Assessing evidence

+ practices



+ tools



+ more

[A formative approach to the evaluation](#)

[How to evaluate innovation strategies](#)

[Monitoring and evaluation of transformative innovation policies](#)

[Towards Systems that Work for People and the Planet](#)

[Transformative innovation resource labs and tools](#)

Learning from experimentation

WHAT ▪ Given the complexity of sustainability challenges, monitoring and evaluation (M&E) systems need to include a stronger emphasis on reflexivity and critical thinking. Reflexivity is the ability to collectively reflect and continuously learn from evidence collected through monitoring, evaluation and foresight. Policy learning is a long-term process involving iteration, comparison and prioritisation, based on deliberation and evidence. Learning from pilot actions and experiments is a crucial policy task. Experimentation nurtures spaces for learning that demonstrate what ‘works’ not just in terms of technologies, but also in terms of behaviour, organisation and public governance. Learning from failure is key yet difficult, as it clashes with the notions of accountability, reputation and reward in public administration. Effective learning results in changes in the direction of strategic policy and organisational structure, and not only in changes in instrument design.

WHY ▪ Policymaking needs an ongoing reflection to make sense of existing, often incomplete, evidence used to design innovation policies. The key outcomes of reflexive policy learning is the strengthened capacity to change policy course and process, including M&E, with new evidence. Confronting stakeholder perspectives on sustainability challenges helps identify synergies and trade-offs between available policy options and navigate complex transition choices. Experimentation is unlikely to have an impact unless the conditions are in place for learning. An environment conducive to learning and wider roll-out includes governance mechanisms that, for example, link evaluation to policy reforms. Learning is one of the most powerful levers for transformation and

is often the weakest link in policy action to support innovation.

HOW

1. Support experimentation, networking and learning in niches of key importance for the transition
 - R&I projects are clearly important, as it is within these that technologies and use practices interact. However, policy experimentation is arguably of greater importance if enabled and supported.
2. Critically review and redesign policy learning processes
 - Review your M&E system with experts and stakeholders. Identify strengths and weakness in your system taking into account the challenges of transformative innovation policy.
 - Enable critical reflection on policy and collective learning from monitoring, evaluation and experimentation. Engage stakeholders and experts in co-designing governance arrangements and spaces for reflexive learning and unlearning in your territory.
3. Embed reflexivity in the M&E system
 - Support the use of formative evaluation approaches, including analysis of transformative outcomes and distributional impacts. A reflexive M&E system draws on a multi-disciplinary approach to analyse diverse outcomes and capture intended and unintended effects of policies.
 - Support activities and increases capacities for learning within public administration and the broader system. Invest in capacities needed to co-design and nurture learning environments and use formative evaluation approaches.



competences

- B3 Critical thinking
- B4 Learning and unlearning
- C2 Identifying evidence needs
- C4 Gathering evidence



practices



tools



more

[A framework for reflection – sustainability in S3](#)

[Benefits and lessons of experimental innovation policy](#)

[Brief introduction to policy experimentation](#)

[Regulatory learning in experimentation spaces](#)

Mobilising competences

WHAT ▪ Acquiring competences is a lifelong learning activity. This is also true for civil servants, who are tasked with dealing with new opportunities and challenges, or old challenges that require new approaches. Competences are described as a dynamic combination of knowledge (facts, concepts, ideas), skills (abilities based on that knowledge) and attitudes (intentions and dispositions to activate skills and knowledge). To trigger systemic change, civil servants need to develop competences for innovative policymaking, which are grouped into seven clusters:

- Advise the political level;
- Innovate;
- Work with evidence;
- Be futures literate;
- Engage with citizens and stakeholders;
- Collaborate;
- Communicate.

These clusters contain the competences used in this document, which are interlinked and equally important. Such clusters are built on the idea that complex issues like the green and digital transitions require:

- engaging with the public and other stakeholders;
- envisioning different types of future to develop a desirable future-oriented perspective;
- orchestrating resources to go in the same direction, to design and implement plans and actions for place-based transformative innovation;
- learning from action and in collaboration with others.

Change-makers in the public sector need to acquire such competences to foster transformative innovation and to be able to make it place-based and place-relevant.

WHY ▪ Public officials, policymakers and any professionals working on territorial development are increasingly tasked to make plans, actions, strategies and policies – and rethink existing ones – to address complex and interlinked problems. The increasing complexity of their job requires them to become actors of change, or sustainability innovators in the public sector. Their job as sustainability innovators requires expert knowledge and requires transversal competences. It demands the capacity to value, plan, and enact place-based transformative innovation, think systemically and generate solutions that create value, to be futures-oriented, and become change thinkers and makers.

HOW

- **Lifelong learning** is a key concept. Competences need to be constantly updated to keep the pace with global rapid development, environmental and social complex problems (e.g., biodiversity loss and rising inequalities), and changing working conditions.
- Innovation competences can be developed or out-sourced. If human resources are limited, it is in fact possible to form strategic partnerships with agencies and people who have those competences. We can then talk about **networks of competences**.
- This can be done **within and beyond organisational boundaries**, being able to collaborate, ensuring diversity of perspective, critical thinking, (un-)learning, cultivating creativity and trust are key competences to build into **collective intelligence**.
- It is critical to agree on common goals and shared interests to form **strategic partnerships** to form networks of competences.



competences

- B3 Critical thinking
- B4 Learning and unlearning
- C3 Connecting to experts
- D1 Anticipatory mindset

+ practices



+ tools



+ more

[Competences for policymaking and advice \(podcast episode\)](#)

[Competence framework on innovative policymaking](#)

[Smart4Policy. Test yourself! \(self-reflection tool\)](#)

Moving into ACTION

Producing this ACTIONbook was a natural development for us. We seized the opportunity to put territorial players at the forefront of transformative change. The essence of this collection of activities lies in their ability to break down silos and unite regional departments under a common goal. We have used the Partnerships for Regional Innovation (PRI) pilot project as a space to weave a tapestry of collaboration in which those involved are not just participants, but essential architects of change. As we reflected on the collaboration between territorial players, the Joint Research Centre and the European Committee of the Regions, we realised that we have not yet reached our full potential. This new joint step is a call to action. It is about putting ideas and aspirations into practice, leading to tangible outcomes with positive impacts. At the heart of this ACTIONbook is the belief that it should be an empowerment tool that stimulates the formation of user groups comprising a wide range of partners. PRI is not just an initiative, but a catalyst for creativity, an incubator for imaginative solutions and a launch pad for new initiatives. To all city, regional, and national stakeholders: let us catapult our territory into an era where collaboration is not just a buzzword, but the heartbeat of pathways to transformative innovation and resilience that will matter for future generations.

How can we develop a system where we are more focused on collaboration and cooperation between regions in macro-regions? Because we need to find good neighbours.

Vasterbotten

How can we engage multiple government departments and stakeholders with a low annual budget? It is about orchestration among actors and much work.

Navarra

The high-level meeting of the ministers before the first operational meeting was very long. How to move faster into action?

Slovenia

PRI has been seen as an opportunity to work across regional departments and to engage stakeholders to work more closely together, both within and across sectors.

Vukovar–Srijem

We need to create value together through mutual learning and learning by doing. Value is practical experience. Partnership development is value for now and mostly for the future.

Cities 4.0

We have many bottom-up initiatives and the national level was not necessarily aware of. How can we connect them across levels?

Northern Netherlands

We have to acknowledge that our past collaboration had not reached its full potential. We need to concentrate in making things happen, not just exchanging experiences.

Mid Sweden

What will be harder is to engage stakeholders who might not be part of certain projects, like smaller firms or the public. A still largely open question is how to engage end-user stakeholders who might be affected by innovations instead of developing them.

Extremadura

Some transformations are slow. When there is a new government, at the onset, some steps are backwards then onwards. So, it is not always a straight path.

Helsinki region

Managing the budget is a nightmare. R&I instruments/calls that are not rooted in (EU) R&I policy schemes may face a difficult time when trying to comply with e.g. auditing requirements and state-aid regulation.

Slovakia

The region's main objective is to support businesses in turning the climate change challenge in an opportunity for innovative industrial restructuring, especially in the core manufacturing sector for the region – automotive.

Abruzzo

PRI should become a tool to create ad hoc user groups at the initiative of partners to develop innovative solutions and paths to solve complex problems.

Madrid

References

Introduction

IPCC, 2023: Sections. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

Mccann, P. & Soete, L., *Place-based innovation for sustainability*, Publications Office of the European Union, Luxembourg, 2020, doi:10.2760/250023,

Pontikakis, D., Gonzalez Vazquez, I., Bianchi, G., Ranga, L., Marques Santos, A., Reimeris, R., Mifsud, S., Morgan, K., Madrid Gonzalez, C., & Stierna, K. (2022) *Partnerships for Regional Innovation Playbook*, Publications Office of the European Union, doi:10.2760/292307

Pontikakis, D., González Vázquez, I., Bianchi, G., Ranga, M., Marques Santos, A., Reimeris, R., Mifsud, S., Morgan, K., Madrid, C., & Stierna, J. (2022b). *Partnerships for Regional Innovation – Playbook - Concepts and Rationales*, Publications Office of the European Union. doi:10.2760/415348

The Square: Putting place-based innovation policy for sustainability at the centre of policy making. (2023). Schwagg Serger, S., Soete, L. and Stierna, J. (Eds.) Publications Office of the European Union

Identifying stakeholders for given societal goals

Climate-KIC (2016, April 14). Actor tree. <https://vimeo.com/162804976>

Pontikakis, D., Gonzalez Vazquez, I., Bianchi, G., Ranga, L., Marques Santos, A., Reimeris, R., Mifsud, S., Morgan, K., Madrid Gonzalez, C., & Stierna, K. (2022a) *Partnerships for Regional Innovation Playbook*, Publications Office of the European Union, doi:10.2760/292307

Trippl, M. (2023). Challenge-oriented regional innovation

systems and strategies for sustainability transitions. In S. Schwagg Serger, L. Soete, J. Stierna (Eds.) *The Square*. Publications Office of the European Union.

Kivimaa, P., Boon, W., Hyysalo, S., & Klerkx, L. (2019). Towards a typology of intermediaries in sustainability transitions: A systematic review and a research agenda. *Research Policy*, 48(4), 1062-1075.

Continuously engaging with stakeholders

Eurich, T. (2018, January 04). What self-awareness really is (and how to cultivate it). Harvard Business Review. <https://hbr.org/2018/01/what-self-awareness-really-is-and-how-to-cultivate-it>

Errandonea, L. (2023). *Exploring the impact of digital transformation on public governance A community perspective*. Publications Office of the European Union

McCann, M. (2023). Multilevel governance and division of labour: the roles of regions, national governments, the European Commission, industry, academia and civil society, and what each can do concretely. In S. Schwagg Serger, L. Soete, J. Stierna (Eds.) *The Square*. Publications Office of the European Union

De Vicente Lopez, J., & Matti, C. (2016). *Visual toolbox for system innovation. A resource book for practitioners to map, analyse and facilitate sustainability transitions*. Transition Hub Series. EIT Climate KIC, Brussels 2016. ISBN 978-2-9601874-1-0

Setting up a network governance

Janssen, M., Wanzenböck, I., Fünfschilling, L., & Pontikakis, D. (2022). *Capacities for transformative innovation in public administrations and governance systems: Evidence from pioneering policy practice*, Publications Office of the European Union, doi:10.2760/220273

Klijn, E. H., & Koppenjan, J. (2015). *Governance networks in*

the public sector. Routledge.

Radosevic, S., & Soete, L. (2023). Challenges of governance and the integration of the sustainability dimensions in the prioritisation and evaluation of smart specialisation strategies. In S. Schwagg Serger, L. Soete, J. Stierna (Eds.) *The Square*. Publications Office of the European Union

Özbolat, N. K., Haegeman, K. and Sereti, K. (2019). *European Institute of Innovation and Technology (EIT) Knowledge and Innovation Communities (KICs): Collaboration in a RIS3 Context*. Publications Office of the European Union, doi:10.2760/752122,

Building legitimacy

Dechezleprêtre, A., Fabre, A., Kruse, T., Planterose, B., Chico, A. S., & Stantcheva, S. (2022). *Fighting climate change: International attitudes toward climate policies* (No. w30265). National Bureau of Economic Research.

Dann, C. (2022, July 26). Does public trust in government matter for effective policy-making? Economics Observatory. <https://www.economicsobservatory.com/does-public-trust-in-government-matter-for-effective-policy-making>

Smith, N. (2018, April 23). *12 top tips: how governments can find their legitimacy*. Centre for Public Impact. <https://www.centreforpublicimpact.org/insights/12-top-tips-governments-legitimacy>

Diagnosing and developing a vision

The Open University (2021, June 21). *Causal loop diagrams*. <https://www.open.edu/openlearn/science-maths-technology/engineering-technology/causal-loop-diagrams>

Arbib, J., Dorr, A., & Seba, T. (2021). Rethinking Climate Change. How Humanity Can Choose to Reduce Emissions 90% by 2035 through Disruption of Energy, Transportation and Food with Existing Technologies.

Pontikakis, D., Fernández Sirera, T., Janssen, M., Guy, K., Marques Santos, A., Boden, J.M., & Moncada Paternò Castello, P. (2020). *Projecting Opportunities for INDUSTRIAL Transitions (POINT): Concepts, rationales and methodological guidelines for territorial reviews of industrial transition*, Publications Office of the European Union, doi:10.2760/590389

Palmer, E., Cavicchi, B. (2023) *Systems based methods for research & innovation policy – How can they contribute to designing R&I policy for transitions?*, Publications Office of the European Union

System mapping academy. *System mapping toolkit*. <https://www.system-mapping.com/toolkit#toolkit> (toolkit available here: <https://miro.com/app/board/uXj-VPOou690=?fromEmbed=1>)

Conducting participatory foresight

Futures 4 Europe <https://www.futures4europe.eu/#ourfutures>

Rosa, A. B., Kimpeler, S., Schirrmeister, E., & Warnke, P. (2021). Participatory foresight and reflexive innovation: setting policy goals and developing strategies in a bottom-up, mission-oriented, sustainable way. *European Journal of Futures Research*, 9, 1-15.

Nikolova, B. (2014). The rise and promise of participatory foresight. *European Journal of Futures Research*, 2, 1-9.

Developing transition pathways and roadmaps

Miedzinski, M., Mazzucato, M., & Ekins, P. (2019). A framework for mission-oriented innovation policy road-mapping for the SDGs: The case of plastic-free oceans.

Dijkshoorn-Dekker, M. W. C., Termeer, E. E. W., de Haas, W., Bulten, W., Bos, A. P., Elzen, B., ... & Obeng, E. O. (2022). Exploring Transition Pathways to Support Food System Transitions. Wageningen University & Research.

Miedzinski, M., McDowall, W., Fahnestock, J., Muller, G., &

Lopez, F. J. D. (2018). Science, Technology and Innovation – Policy Roadmaps for the SDGs. <https://www.inno4sd.net/uploads/originals/1/inno4sd-pub-mgd-01-2019-fnl-sti-policy-roadmap-sdgs.pdf>

Matti, C., Jensen, K., Bontoux, L., Goran, P., Pistocchi, A., & Salvi, M. (2023). Towards a fair and sustainable Europe 2050: Social and economic choices in sustainability transitions, Publications Office of the European Union, doi:10.2760/561899

UN technology facilitation mechanisms <https://sdgs.un.org/tfm#roadmaps>

Setting milestones and targets

Bergek, A., Hellsmark, H., & Karltorp, K. (2023). Directionality challenges for transformative innovation policy: lessons from implementing climate goals in the process industry. *Industry and Innovation*, 1-30.

Mazzucato, M., Mission-oriented research & innovation in the European Union – A problem-solving approach to fuel innovation-led growth, Publications Office, 2018

European commission (2023). Recovery and Resilience Scoreboard. Milestones and targets https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/milestones_and_targets.html

Agenda setting and sharing

RIS3CAT documents (2023, November). *The logic of RIS3CAT 2030 and its shared agendas in a Transformative Innovation Policy (TIP) framework*. <https://fonseuropeus.gencat.cat/web/.content/ris3cat/documents/angles/logica-agendes-compartides-ris3cat-politica-innovacio-transformativa-en.pdf>

RIS3CAT documents (2020, January). *Articulating shared agendas for sustainability and social change*. <https://fonseuropeus.gencat.cat/web/.content/ris3cat/documents/angles/08-monitoratge-ris3cat-agendes-compartides-en.pdf>

Gudowsky, N. (2021). Limits and benefits of participatory agenda setting for research and innovation. *European Journal of Futures Research*, 9(1), 8.

Enabling multilevel cooperation

OECD (2022), Multi-level governance tools: Enabling sound regional governance, Ch. 5. In *Regional Governance in OECD Countries: Trends, Typology and Tools*, OECD Multi-level Governance Studies, OECD Publishing, Paris, <https://doi.org/10.1787/4d7c6483-en>

Larrea, M., Estensoro, M. and Pertoldi, M., Multilevel governance for smart specialisation: basic pillars for its construction, Publications Office of the European Union, 2019, doi:10.2760/425579

Caro-Gonzalez, A. (2023). Driving Systemic and Multi-level Transformative Governance. In *Transformative Governance for the Future: Navigating Profound Transitions* (pp. 57-89). Cham: Springer Nature Switzerland.

Collaborating across departments

Ansell, C., Doberstein, C., Henderson, H., Siddiki, S., & 't Hart, P. (2020). Understanding inclusion in collaborative governance: a mixed methods approach. *Policy and society*, 39(4), 570-591.

Gray, E., Bloch, C. (2020, August 17). INSIDER: Systems Mapping — A Vital Ingredient for Successful Partnerships. <https://www.wri.org/technical-perspectives/insider-systems-mapping-vital-ingredient-successful-partnerships>

Kivimaa, P., & Rogge, K. S. (2022). Interplay of policy experimentation and institutional change in sustainability transitions: The case of mobility as a service in Finland. *Research Policy*, 51(1), 104412.

Collaborating across territories

OECD-OPSI (2022). Achieving Cross-Border Government Innovation Governing Cross-Border Challenges, OCDE-OPSI <https://cross-border.oecd-opsi.org/wp-content/>

[uploads/2021/10/2021-08-09-OECD-Report1-Print-Final.pdf](#)

Woolford, J., Amanatidou, E., Gerussi, E. and Boden, J.M., *Interregional Cooperation and Smart Specialisation: a Lagging Regions Perspective*, Publications Office of the European Union, 2021

Bertelsmann Stiftung (2023) Technological capabilities and the twin transition in Europe. Opportunities for regional collaboration and economic cohesion. <https://www.bertelsmann-stiftung.de/en/publications/publication/did/technological-capabilities-and-the-twin-transition-in-europe>

Developing a strategy

A plan is not a strategy, Harvard Business Review (2022, June 29) <https://www.youtube.com/watch?v=iuYlGRnC7J8>

Foster, I. (2020, April 14) How to create an 'Innovative' national innovation strategy <https://oecd-opsi.org/blog/how-to-create-an-innovative-national-innovation-strategy/>

Kylliäinen, J. (2018, December 28). Innovation Strategy – What is it and how to develop one? <https://www.viima.com/blog/innovation-strategy>

Developing the policy and action mix strategy

Reid, A., Steward, F., Miedzinski, M., *Aligning smart specialisation with transformative innovation policy – Lessons for implementing challenge-led missions in smart specialisation*, Publications Office of the European Union, 2023

Rogge, K., Song, Q. (2023). Policy mixes for addressing environmental challenges. In Jörgens, H., Knill, C. & Steinebach, Y. (Eds). *Routledge handbook of environmental policy*. Routledge

OECD (2022). Digital innovation: Cross-sectoral dynamics and policy implications, Ch. 4. In *The Digitalisation of Science, Technology and Innovation : Key Developments and Policies*. <https://www.oecd-ilibrary.org/sites/ee-2a2c2f-en/index.html?itemId=/content/component/ee2a2c2f-en>

Transitions NEST (2020, July, 30). NESTwebinar #4 - Policy

Mixes | Karoline Rogge <https://www.youtube.com/watch?v=-v1fj-FUy1Q>

Mobilising resources

Janssen, M., Wanzenböck, I., Fünfschilling, L., & Pontikakis, D. (2022). *Capacities for transformative innovation in public administrations and governance systems: Evidence from pioneering policy practice*, Publications Office of the European Union, doi:10.2760/220273

OECD-OPSI. Innovation portfolios. <https://oecd-opsi.org/work-areas/innovation-portfolios/>

Holden, A., Cassidy, J., Hallberg, K., & Marsh, W. (2018). Developing Innovation Portfolios for the Public Sector, Deloitte. https://www2.deloitte.com/content/dam/insights/us/articles/4727_Innovation-portfolios/DI_Innovation-portfolios.pdf

Designing ecosystem support

Get Smarter (2021, September 09). *Building an Innovation Ecosystem | MIT Sloan on Business Strategy* <https://www.youtube.com/watch?v=yonqYhG4254>

Granstrand, O., & Holgersson, M. (2020). Innovation ecosystems: A conceptual review and a new definition. *Technovation*, 90, 102098.

Könnölä, T., Eloranta, V., Turunen, T., & Salo, A. (2021). Transformative governance of innovation ecosystems. *Technological Forecasting and Social Change*, 173, 121106.

Systems innovation (2023, January 04). *What is an Innovation Ecosystem?* <https://www.youtube.com/watch?v=Dt-IRvDJHQ>

Designing local missions

Henderson, D., Morgan, K., & Delbridge, R. (2023). Putting missions in their place: micro-missions and the role of universities in delivering challenge-led innovation. *Regional Studies*, 1-12.

RSA (2017, February 17). Mission Oriented Innovation | Jeffrey Sachs | RSA Replay <https://www.youtube.com/>

[watch?v=Do-dvqRSbp4](#)

OECD. Mission-Oriented Innovation policies online toolkit. <https://stip.oecd.org/moip/>

Deploying a strategy

Centre for Effective Services (2022). An Introductory Guide to Implementation. <https://implementation.effectiveservices.org/>

Larrue, P. (2021). *The design and implementation of mission-oriented innovation policies: A new systemic policy approach to address societal challenges*. OECD Science, Technology and Industry Policy Papers, No. 100, OECD Publishing, Paris, <https://doi.org/10.1787/3f6c76a4-en>

OECD (2022). Toward sound policy implementation, Ch. 4. In *Policy Framework on Sound Public Governance : Baseline Features of Governments that Work Well*. <https://www.oecd-ilibrary.org/sites/199487f6-en/index.html?itemId=/content/component/199487f6-en>

Coordinating the policy and action mix

Rogge, K. S., & Stadler, M. (2023). Applying policy mix thinking to social innovation: from experimentation to socio-technical change. *Environmental Innovation and Societal Transitions*, 47, 100723.

Cejudo, G. M., & Michel, C. L. (2021). Instruments for policy integration: How policy mixes work together. *SAGE Open*, 11(3), 21582440211032161.

Rogge, K. S., Pfluger, B., & Geels, F. W. (2020). Transformative policy mixes in socio-technical scenarios: The case of the low-carbon transition of the German electricity system (2010–2050). *Technological Forecasting and Social Change*, 151, 119259.

Prioritising funds

Coffee Break with Researchers (2021, January 13). Industrial Diversification and New Path Development. https://www.youtube.com/playlist?list=PL7jgeAVSZZ-qFwYN_EGVdhGF26ZjZqOF7L

Uyarra, E., Zabala-Iturriagagoitia, J. M., Flanagan, K., &

Magro, E. (2020). Public procurement, innovation and industrial policy: Rationales, roles, capabilities and implementation. *Research Policy*, 49(1), 103844.

Clar, G. (2018). *Guiding investments in place-based development. Priority setting in regional innovation strategies*. Publications Office of the European Union

Experimenting and demonstrating

European Commission, Directorate-General for Research and Innovation, *Experimenting with transformative innovation policy – Theoretical and practical perspectives*, Publications Office of the European Union, 2023

European Commission (2023). Commission staff working document. Regulatory learning in the EU Guidance on regulatory sandboxes, testbeds, and living labs in the EU, with a focus section on energy. <https://data.consilium.europa.eu/doc/document/ST-12199-2023-REV-1/en/pdf>

Torrens, J., & Schot, J. (2017). The Roles of Experimentation in *Transformative Innovation Policy*. *Transformative Innovation Policy Consortium, Research Brief*, (2017-02).

Scaling and mainstreaming

Reid, A., Steward, F., & Miedzinski, M. (2023). *Aligning smart specialisation with transformative innovation policy – Lessons for implementing challenge-led missions in smart specialisation*, Publications Office of the European Union

Burkett, I. (2023). Challenge-led innovation. Organising for system innovation at scale. Griffith University. https://www.griffith.edu.au/_data/assets/pdf_file/0033/1881573/GCSI-Challenge-Led-Innovation-Workbook.pdf

McLean, R., & Gargani, J. (2019) Scaling impact: Innovation for the public good. <https://idrc-crdi.ca/sites/default/files/openebooks/scalingimpact/index.html>

Ferrannini et al (2023) The integration of key transformative R&I principles in European policies. <https://op.europa.eu/en/publication-detail/-/publication/8d937cf9-f9e-a-11ed-a05c-01aa75ed71a1/language-en/format-PDF/source-301233346>

Managing and transforming knowledge

OECD-OPSI (2018). Transferring and adapting: diffusion of innovation knowledge and lessons. https://oecd-opsi.org/wp-content/uploads/2019/02/Diffusing_Lessons_Lifecycle-Report6_FINAL.pdf

Climate-KIC (2020, September 16). Knowledge management as a service for science-policy-practice interface. <https://vimeo.com/458548185>

Climate-KIC. Transitions Hub. Knowledge Library. <https://transitionshub.climate-kic.org/knowledge-library/>

Continuous monitoring

Santos, A. M., & Coad, A. (2023). Monitoring and evaluation of transformative innovation policy: Suggestions for Improvement. *Socio-Economic Planning Sciences*, 90, 101714

Rohracher, H., Coenen, L., & Kordas, O. (2023). Mission incomplete: Layered practices of monitoring and evaluation in Swedish transformative innovation policy, *Science and Public Policy*, Volume 50, Issue 2, Pages 336–349, <https://doi.org/10.1093/scipol/scac071>

European Commission. *Territorial economic data viewer*. (TEDv). <https://web.jrc.ec.europa.eu/dashboard/TEDV/index.html>

Evaluating impact

Molas-Gallart, J., Boni, A., Giachi, S., & Schot, J. (2021). A formative approach to the evaluation of Transformative Innovation Policies. *Research Evaluation*, 30(4), 431-442

Kroll, 2019. How to evaluate innovation strategies with a transformative ambition? A proposal for a structured, process-based approach. *Science and Public Policy*, 46(5), 635-647

Santos, A. M., & Coad, A. (2023). Monitoring and evaluation of transformative innovation policy: Suggestions for Improvement. *Socio-Economic Planning Sciences*, 90, 10171

OECD (2022), *Redesigning Ireland's Transport for Net Zero*:

Towards Systems that Work for People and the Planet, OECD Publishing, Paris, <https://doi.org/10.1787/b798a4c1-en>

Anticipatory Governance Community. The transformative innovation policy resource lab and tools <https://www.anticipatorygovernance.community/post/the-transformative-innovation-policy-resource-lab-and-tools>

Learning from experimentation

Miedzinski, M., Coenen, L., Larsen, H., Matusiak, M. & Sarcina, A. (2022). Enhancing sustainability dimension in Smart Specialisation strategies: a framework for reflection, Miedzinski, M. and Matusiak, M. editor(s), Publications Office of the European Union, doi:10.2760/23541

Dutz, M., et al. (2014), “Making innovation policy work: The benefits and lessons of experimental innovation policy”, in Dutz, M., et al. (eds.), *Making Innovation Policy Work: Learning from Experimentation*, The World Bank, Washington, D.C./OECD Publishing. https://www.oecd-ilibrary.org/science-and-technology/making-innovation-policy-work/foreword_9789264185739-1-en

Centre for Public Impact. *A brief introduction to policy experimentation*. <https://www.centreforpublicimpact.org/assets/documents/CPI-A-brief-introduction-to-Policy-experimentation.pdf>

Kert, K., Vebrova, M. & Schade, S. (2022) Regulatory learning in experimentation spaces. European Commission.

Mobilising competences for innovation

Scientific Advice Mechanism (2022, June 20). Lene Topp and Florian Schwendinger on competences for policymaking and advice. <https://www.youtube.com/watch?v=Fgg-gHbVuEDA>

European Commission. Competence framework on innovative policymaking. https://knowledge4policy.ec.europa.eu/visualisation/competence-framework-innovative-policymaking_en

European Commission. Smart4Policy. Reflect about your work on policy. <https://smart-for-policy.ec.europa.eu/>



Innovation for place-based transformations

Collection of practices

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The practices collected here include initiatives taken around Europe with different degrees of transformative innovation.

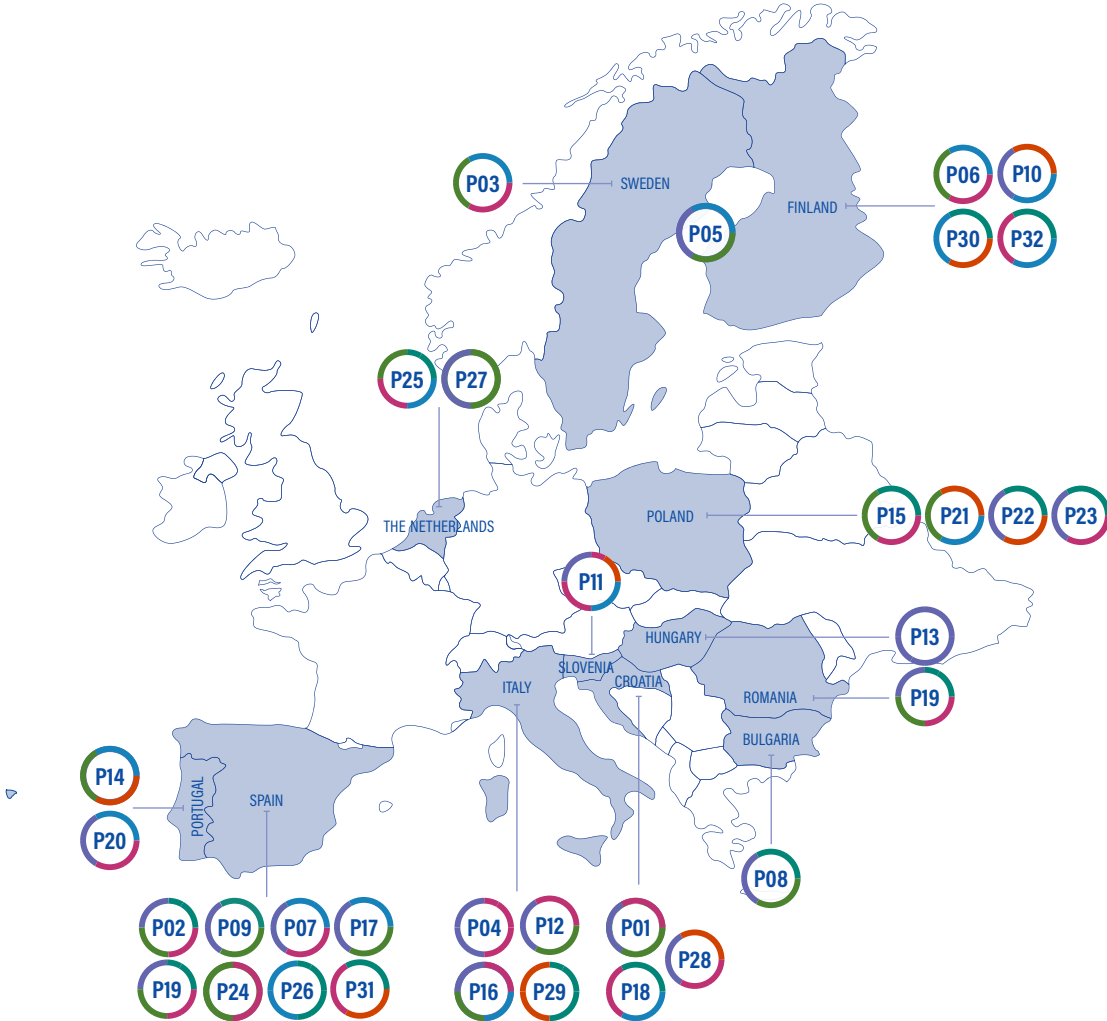
They provide a short summary of what cities, regions and Member States have done to innovate for societal well-being. They can be used to get inspired from examples that illustrate activities and actions described in the ACTIONbook and/or a to contact the

leading person or office to initiate a peer-to-peer exchange. They either involve partnerships across departments or across territories and engage a broad of stakeholders. We trust these practices will inspire users to craft their way into raising ambition, building capacities and taking transformative action. Finally, we are extremely thankful to the territories, the people, who provided their stories.

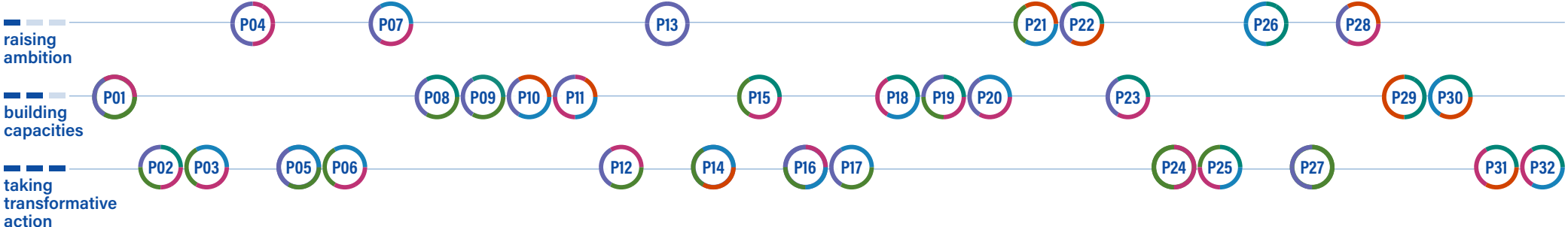
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- P16 [Regional strategy for digital skills and culture 2021-2025](#)

- P17 [RIS3 Extremadura monitoring tool](#)
- P18 [ROSEWOOD4.0 - Network of european regions for sustainable wood mobilisation ready for digitalisation](#)
- P19 [Rural Urban Hub Cluj](#)
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Practices across Europe



Intensity of transformation





Addressing green transition and digitalisation through a gaming industry centre

WHAT ▪ The gaming industry centre is a strategically significant project poised to galvanize economic diversification in Sisak-Moslavina county, pivoting towards the burgeoning ICT industry. Key components of the centre encompass a gaming industry campus in the town of Novska, the faculty for gaming and gamification, a student dorm, a multifunctional business incubator for esports, and the gaming industry accelerator. The centre builds on previous initiatives, like the PIS-MO business incubator, which houses approximately 80 startup companies as of 2023. Together with the newly established European digital innovation hub EDIH JURK, the Gaming Industry Centre will provide a set of services for entrepreneurs such as test before invest; experimentation facilities; knowledge, and training in AI, gaming, blockchain and the Internet of Things.

WHAT FOR ▪ The underlying objective of the centre resides in leveraging the gaming industry as a conduit for high-value employment and economic rejuvenation, especially for young workers and for those most impacted by the green transition. In addition, it will strengthen the innovation ecosystem through net-

working at national and EU level.

WITH WHAT ▪ The bulk of the construction costs of the gaming industry centre were covered by the Just Transition Fund resources of the Integrated Territorial Programme 2021-2027. Services provided by EDIH are financed by the European Commission, through the Digital Europe programme and the Ministry for Economy and Sustainable Development of the Republic of Croatia. The construction and equipping of the first gaming incubator PISMO was financed by the ERDF. For the preparation of technical documents, project description and the feasibility study for the gaming centre, the Regional coordinator of Sisak-Moslavina county used the technical assistance instrument financed through the Operational Programme Competitiveness and Cohesion 2014.-2020.

LESSONS LEARNT ▪ Addressing green transition goals in Sisak-Moslavina county through developing the gaming industry required integrated and long-term efforts of many involved stakeholders. Promotion and outreach campaigns were an important part of the process of communicating transition goals to the wider community.

TERRITORY

Sisak-Moslavina, Croatia

ACTIONBOOK ACTIVITY:

[Designing ecosystem support](#)

[Experimenting and demonstrating](#)

[Learning from experimentation](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ Regional coordinator of [Sisak-Moslavina county](#), Croatia (Director, Andreja Šeperac - aseperac@simora.hr)

with ▪ Sisak-Moslavina County, SI-MO-RA ltd, Regional Development Agency of Sisak-Moslavina County, City of Novska, Sisak-Moslavina County



Basque District for Culture and Creativity

WHAT ▪ The Basque District for Culture and Creativity (BDCC) is a space for our cultural and creative industries. The BDCC was created with the aim of uniting and strengthening the different public and private initiatives aimed at developing the Cultural and Creative Industries (CCIs) in the Basque Country. The BDCC is the space that trains, develops and helps the cultural and creative industries of the Basque Country, promoting the competitiveness and economic strengthening of the sector. The BDCC is an initiative framed within the [Euskadi 2030 Science, Technology and Innovation Plan](#), where the Cultural and Creative Industries sector (Euskadi Creativa) is considered a territory of opportunity in the Basque Smart Specialisation Strategy (RIS3 Euskadi). The Basque Country is one of the 96 European regions that has included CCIs in its smart specialization strategy. The CCIs represents 9.8% of companies in the Basque Country, and 5.31% of total employment. More info in "[CCIs in the Basque Country. A journey through the development of the Basque cultural and creative sector](#)".

WITH WHAT ▪ The BDCC is a country project, jointly coordinated between the Department of Culture and Linguistic Policy and the Department of Economic Development, Sustainability and Environment of the Basque Government (BG). The goal is to establish a European District of Creative Economy to strengthen the Creative and Cultural Industries (CCIs) by enhancing their business and technological skills to support

the European transition towards climate neutrality and digital leadership. A team of three people, one coordinator (20% full-time) and two managers (full-time) runs the BDCC. The initiative also relies on a network of regional collaborators such as regional governments, city councils, Basque Government, CCI collaborating entities and CCI Hubs Facilitators.

LESSONS LEARNT ▪ BDCC is a live project that reinvents services listening to the sector. Due to the digital and green deal shift in the economy, companies and employees working in CCIs need to be more creative, cross-sectoral and with wider digital and green skills. So it works fully in line with the policies of the EU and along the following lines:

- Expanding and clustering a network to ensure resilience across EU industrial ecosystems by developing new value chain interconnections in the CCIs
- Creating initiatives for co-development of products and services, using ICT and for a circular economy
- Upskilling and reskilling the workforce and exchanging best practices while bringing together and promoting clustering of sustainable industries and CCIs
- Going global, to promote cross-country, cross-cultural, cross-discipline comparison and integration to define new products and services.

The BDCC is an active member of:

- [European Creative Business Network](#) – ECBN
- [Districts of Creativity Network](#)
- [EIT Culture & Creativity](#)
- [New European Bauhaus](#).

TERRITORY

Basque Country, Spain

ACTIONBOOK ACTIVITY

[Continuously engaging with stakeholders](#)

[Designing local missions](#)

[Deploying a strategy](#)

[Mobilising competences](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading • [GAIA](#), Association of Applied Knowledge and Technology Industries in the Basque Country (Jokin Garatea - garatea@gaia.es)

with • Basque Government: Departments of Culture and Linguistic Policy and Economic Development, Sustainability and Environment; SPRI (Basque Business Development Agency); Innobasque (Basque Innovation Agency); a network of regional partners.



Boost Dalarna – PRI for Dalarna

WHAT ▪ Boost Dalarna is a 4-year project with a budget of 2.8 MEUR. It aims to radically upgrade the innovation ecosystem and support its actors, including the public sector, in creating demand-driven innovation and systemic change, promoting a green and digital transformation. The project builds upon the learnings from the Partnerships for Regional Innovation (PRI) Pilot and the PRI Playbook. It will include new methods for design thinking, setting up of test-beds, cross-sector collaboration and an increased focus on interregional collaboration with other innovation ecosystems around Europe. The project will also have close links to the recently submitted application for Region Dalarna and North Middle Sweden to become a Regional innovation valley (RIV). They both focus on circular economy and industrial symbiosis and connect SMEs and innovation actors in interregional value chains throughout Europe. Boost Dalarna deals with “collaboration platforms”, consisting of the actors in Dalarna’s innovation support system, to reach an effective implementation of the strategy for smart and sustainable specialization.

WHAT FOR ▪ The project will be crucial for three

regions of North Middle Sweden (Dalarna, Gävleborg, and Värmland) in collaboration with regions of East Middle Sweden for the ongoing implementation of the learnings from the PRI Pilot. It will enhance the recently tested methods for entrepreneurial discovery process (EDP) and take on an open discovery process (ODP) based on the PRI Playbook and its methodological framework. The project will also support the development of a more integrated innovation ecosystem in which the regional actors build a stronger base for joint collaboration in the quadruple helix. Parallel to this development process, which is based on the creation of five collaboration platforms (one for each smart specialisation priority), the project will support new methods to strengthen the region’s capacity to work more interregionally with actors within Sweden and in Europe where needs and conditions as well as S3-priorities are matching.

WITH WHAT ▪ 4 years/2.8 MEUR

EXPECTED OUTCOMES ▪ Enhance demand driven innovation and mission oriented EDP and ODP processes towards green and digital transition.

TERRITORY

Dalarna, Sweden

ACTIONBOOK ACTIVITY

[Collaborating across territories](#)

[Developing a strategy](#)

[Designing ecosystem support](#)

[Experimenting and demonstrating](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ Region Dalarna (eva.lundin@regiondalarna.se, helen.vogelmann@regiondalarna.se)

with ▪ eight innovation ecosystem partners in Dalarna and North Middle Sweden regions. The eight regions are: Region Dalarna, Region Gävleborg, Region Sörmland, Region Uppsala, Region Västmanland, Region Värmland, Region Örebro län and Region Östergötland.



Building social and human capital for the twin transition

WHAT ▪ The case illustrates how a “moderate innovator” region seeks to introduce practices aimed at incentivizing and supporting regional firms to invest in skills, improve their management innovation and transformative capability, especially in response to major green transition in the automotive sector.

WHAT FOR ▪ Abruzzo faces an industrial transformation challenge, especially in its core manufacturing sector – automotive. The sector is dominated by large foreign original equipment manufacturers (OEMs), mainly focused on components and assembly of vehicles, and with limited R&D capacity in the region. Moreover, most of the SMEs in the industrial ecosystem are mainly suppliers and have limited innovation intensity. Therefore, the regional government has focused on an innovation-driven strategy to achieve a balanced social, digital and environment development. The region intends to stimulate investments in human capital, such as innovation management, and in infrastructure essential to retain regional cost competitiveness. After having made substantial efforts to invest in R&D+I activities during the ERDF past programming period, the regional government updated its S3 by reviewing the list of activities and introducing key cross-cutting elements regarding digital growth, envi-

ronment sustainability, cohesion, human capital, and social inclusion. The new S3 strategy was developed through an independent impact assessment of the previous S3 and a participatory process, which has involved various consultative meetings with more than 140 stakeholders from the quadruple helix. A new technical body was introduced to strengthen the governance system and address challenges in the delivery of the strategy. This new body will aim to strength the EDP process and explore possible synergies between the different domains of specialization – for example in the context of the ‘green-digital twin’ – and the research community and SMEs.

LESSONS LEARNT

- How a region with a strong presence of foreign OEMs and sub-contracting manufacturing activities can adapt its productive capacity to sectoral and technological transformations driven by decarbonisation.
- How the introduction of a technical body can help reinforcing the governance system.
- How training and upskilling/reskilling activities are essential in a region with a significant share of manufacturing employment concentrated in a core sector like automotive.

TERRITORY
Abruzzo, Italy

ACTIONBOOK ACTIVITY
[Mobilising resources](#)
[Designing ecosystem support](#)
[Evaluating impact](#)
[Mobilising competences](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ Abruzzo Region, Research and Innovation Office (daniele.antinarella@regione.abruzzo.it)
with ▪ Regional stakeholders: more than 140 stakeholders. Quadruple helix representatives were involved in numerous events. The region has also partnered with other EU regions members of the Automotive Regions Alliance to suggest most appropriate pathways towards decarbonisation of the sector.



Catalysing interregional exchange channels for S3 collaboration in food security system

WHAT ▪ Coordinated effort by the Baltic Sea Region (BSR) S3 Directors' Network (DN), involving 10 regions, to engage with and benefit from Partnerships for Regional Innovation (PRI), focusing on innovation-driven collaboration particularly related to food security systems.

WHAT FOR ▪ To enhance and deepen pre-existing engagement efforts, create more effective exchange channels, facilitate action across regions, and foster a deeper investigation into Smart Specialisation Strategies (S3) collaboration under the food security systems theme.

WITH WHAT ▪ The Directors' Network platform, the learnings from PRI, and the Horizon Europe preparatory action call generated a complementary momentum towards new, concrete, interregional action. In turn, this leveraged the established trust within the network, operational since 2018. With close proximity to director-level decision-making, smoother collaboration was facilitated, to respond rapidly and effectively to a new joint innovation opportunity. The PRI efforts in the BSR were enabled by previous endeavours like the BSR macro-regional strategy. The [Horizon Europe In-](#)

[terconnected Innovation Ecosystems preparatory action call](#) provided the spur to boost joint innovation ecosystem efforts, especially across 3 of the regions in the Directors' Network.

LESSONS LEARNT ▪ The initiative strengthened domestic commitment in and across regions to the Food Systems S3 priority, emboldening a stronger, strategic orientation, and enhancing collaboration among key innovation actors. Furthermore, the PRI facilitated a more results-oriented approach, allowing regions to deepen exploratory methods for enhancing interterritorial collaboration. PRI has helped the BSR regions to generate faster and more effective exchange channels within and across regions. This was a first case example and has provided significant impetus for a continued effort in this domain and others (e.g., hydrogen / renewable energy). PRI has acted as a stepping stone to practical, transition-driven S3 interterritorial collaboration. PRI is critically important for regions who: a) have limited S3 interterritorial experience or capacity where a strategic orientation is needed; and / or b) are experiencing a gap between local reality and ambition (e.g., governance, capacity or political commitment challenges).

TERRITORY

Baltic Sea Region S3 Directors' Network

ACTIONBOOK ACTIVITY

[Enabling multilevel cooperation](#)

[Collaborating across territories](#)

[Scaling and mainstreaming](#)

[Mobilising competences](#)

INTENSITY OF TRANSFORMATION



PARTNERS:

leading ▪ Vasterbotten, Sweden (Head of Enterprise, Innovation and Social Development, Jonas Lundström - jonas.lundstrom@regionzz.se)
 Southwest Finland (Regional Development Director, Tarja Nuotio - tarja.nuotio@varsinais-suomi.fi)
with ▪ 10 regions across the Baltic Sea Region





Climate-neutral Espoo 2030

WHAT ▪ Espoo is an innovation city committed to ambitious sustainability goals and inclusive city development. As one of the 100 Climate-Neutral and Smart Cities in the EU Mission, Espoo is leading the city-wide transformation towards climate-neutrality by 2030. Despite fast city growth, Espoo has reduced the city's total CO2 emissions, and adopted ambitious measures to continue the reductions at an increasing pace.

WHAT FOR ▪ The climate action in Espoo focuses on emission reductions from the city's largest emission sources: energy, transport and land use. In addition, Espoo works to preserve its exceptional green areas - forests covering nearly 60 % of the city's surface area - as carbon sinks to offset the residual CO2 emissions in 2030. New solutions for reconciling the needs of a growing city and protection of biodiversity are also needed to achieve the city's ambitious goal of no net loss by 2035.

WITH WHAT ▪ The implementation of the city strategy, the Espoo Story, is supported by the Sustainable Espoo Programme, a strategic cross-sectoral programme owned by the mayor and led by a high-level steering group for long-term, goal-oriented systemic development towards a climate-neutral and sustainable city.

The Espoo's Climate Watch tool provides clear and accessible information about the current CO2 emissions, potential pathways and measures to climate neutrality. Espoo's first climate budget, prepared in 2023, makes the goal of climate neutrality more concrete and transparent for citizens, decision-makers and the whole Espoo community. In addition, different funding sources, public-private partnerships and private investment contribute to the goal of climate-neutral city. Espoo's ambitious goal - climate-neutrality already by 2030 - cannot be reached without close co-operation with various stakeholders and ecosystems.

LESSONS LEARNT ▪ It is important to co-create integrated solutions taking into account simultaneously the systemic effects on all four dimensions: ecological, social, cultural, and economic sustainability. Understanding the interconnectedness of the problem is a starting point which must be followed by understanding how the city contributes to climate change, and capacity building on how to make a positive contribution to reach the ambitious targets. The City needs to act as an orchestrator in co-creating partnerships that bring together resources and expertise in driving change.

TERRITORY
Espoo, Finland

ACTIONBOOK ACTIVITY
[Agenda setting and sharing](#)
[Developing the policy and action mix](#)
[Deploying a strategy](#)
[Coordinating the policy and action mix](#)

INTENSITY OF TRANSFORMATION
■ ■ ■

PARTNERS
leading ▪ City of Espoo, Finland
with ▪ Joint commitments with key stakeholders: at the core Fortum, Caruna, Aalto University and Technical Research Centre VTT. In 2023, the city launched new open call for Climate City Commitments welcoming new business, education and research partners.



Enhancing the multilevel and transversal R&I governance system of Aragon

WHAT ▪ The Government of Aragon has been working to create a robust, multilevel and transversal S3 governance aimed at fortifying the Aragonian innovation and research ecosystem and at stimulating investments and actions through data-driven decision-making. Aragon S3 Unit supports this governance system and coordinates the continuous monitoring and evaluation of the S3 and its action plans. It promotes interinstitutional coordination, which facilitates the monitoring of the interactions of R&I actions and enables synergies between them. As a result, the Government of Aragon can continuously map the regional R&I situation and its dynamic evolution over time. The established data-collection system enhances co-responsibility between the parties responsible for the coordination of R&I actions at the local, regional, state and European level. The established governance structure involves various transversal thematic working groups, such as research career, innovation and territory, internationalisation: synergy of funds and governance, artificial intelligence, scientific and innovative culture, public procurement for innovation, entrepreneurial and innovative ecosystem, clusters, technology transfer, health and digital transformation in companies

WHAT FOR ▪ This governance initiative seeks to achieve the following primary objectives:

- Streamline regional R&I ecosystem coordination.
- Propel the entrepreneurial discovery process.

- Elevate the execution of strategic R&I policies, programs and actions through multilateral cooperation and synchronized action.
- Implement decisions informed by accurate and up-to-date data.

WITH WHAT ▪ The resources devoted to the development and implementation of the governance system include primarily contributions from all players involved in the various governance system levels, including quadruple helix entities. This encompasses financial, human, and organizational resources, manifesting as dedicated time, expertise, and collaborative efforts from each participating entity to ensure the efficacy and adaptability of the governance system.

LESSONS LEARNT ▪ The endeavor underscored the necessity of:

- Enhanced interinstitutional coordination and information exchange mechanisms.
- Keeping a continually updated actor and action map.
- Promoting synergy amongst funds and resources.
- Facilitating efficient, data-driven decision-making.

These lessons guide iterative improvements to the governance model, emphasizing the importance of agility, collaborative intelligence, and harmonized strategy in navigating the complexities and dynamism inherent to R&I ecosystems.

TERRITORY
Aragon, Spain

ACTIONBOOK ACTIVITY
[Enabling multilevel cooperation](#)
[Mobilising resources](#)
[Continuous monitoring](#)
[Mobilising competences](#)

INTENSITY OF TRANSFORMATION
■ ■ ■

PARTNERS
leading ▪ Government of Aragon (rornat@aragon.es / aragoninvestiga.es)
with ▪ General Directorate of Science and Research, General Directorate of Industrial Promotion and Innovation, Aragon Exterior (AREX), Instituto Aragonés de Fomento (IAF) and additional regional Quadruple Helix players.



Gabrovo Innovation Camp(s)

WHAT ▪ Gabrovo has been organizing Innovation Camps since 2016, following the methodology developed by the Joint Research Centre (JRC), being a pioneer in Bulgaria. Gabrovo Innovation Camps (GICs) turned into a valuable source of practical solutions as a result of the collective intelligence of participants. GICs are also a means to align the local policies with the EU guiding principles, assess the policy implementation process according to stakeholder needs and expectations and remodel the strategic development approaches based on data collected on the ground. This way, Gabrovo addresses its development challenges aiming to improved living conditions, city resilience and sustainability with a positive impact on the environment. The Camp began with a peer-to-peer capacity building event on the Knowledge Exchange Platform that served as an activating stage of the event and provided invaluable external expertise and knowledge to participants.

GIC 2022 was focused on the climate neutrality issues, urban development sustainability and its relatedness to the Green Deal; youth involvement in the territory future planning; Gabrovo S3 and how its principles to be related to the general public and searching of ways to ignite citizens and youth regarding the Smart development of the region.

The work was clustered around 4 challenges:

- Bauhaus in re-/co-designing the cities
- Mission-based climate neutral transition
- Youth Entrepreneurship in the digital era

• inclusive innovation and Gabrovo S3 implementation An assessment of knowledge gaps and capacity shortages was also conducted to capitalize on the creative potential of regional actors to translate findings and concepts into piloting ideas and prototypes. GICs reached multi-faceted societal groups and joined their creative potential in search of territory-relevant solutions and development prospects with the means of open discovery process of the collective intelligence. This is conducted within the light of the EU concepts and grand societal challenges brought down to local needs and expectations.

WITH WHAT ▪ The 2022 the Camp was organised with the support of the European Committee of the Regions, the Directorate-General for Research and Innovation, and the Joint Research Centre. Expert and financial support were received for the Knowledge Exchange Platform.

LESSONS LEARNT ▪ Any creative and inclusive approach that brings together quadruple helix actors in a non-standard way can increase the effectiveness of local and regional policies. Policy making is thus enriched with findings of collective character, external expertise of high level and research, innovative and analytical findings regarding the territory and community development. The Innovation Camps approach is a way to apply policies that are formed bottom-up and are also data-based, community-driven, and territory-related.

TERRITORY

Gabrovo, Bulgaria

ACTIONBOOK ACTIVITY

Identifying stakeholders for given societal goals

Continuously engaging with stakeholders

Experimenting and demonstrating

Managing and transforming knowledge

INTENSITY OF TRANSFORMATION



PARTNERS

leading • Gabrovo Municipality (Tanya Hristova, Mayor)

with • Joint Research Centre (JRC) – expert and financial support



Identifying stakeholders for green transformation goals

WHAT ▪ On 28 and 29 March 2019, IDEPA (now SE-KUENS) brought together experts in Covadonga to address the industrial transition through the circular economy under the slogan “a natural paradise in modern times”. In Asturias, a strongly industrialised economic model coexists with a natural environment of great value, which raises the need to reach a consensus with society on measures aimed at creating a circular hub in Asturias. The Asturias region is highly specialised in the processing industry, which accounts for 40 % of regional industrial employment. At the same time, one third of the territory is protected.

WITH WHAT ▪ The event was funded by the JRC as part of the Science Meets Regions project, subject of a public tender in July 2018. The challenge was addressed in a workshop of one day and a half, and the 38 participants were carefully selected, taking into account their skills and a balanced participation, considering the following profiles and roles:

- Authorities - institutional representation
- Administration - responsible for the challenge
- Scientific and Technological Researchers - technological opportunities
- Socio-economic Researchers - non-technological feasibility
- Industry - establish the objectives and needs
- International/national experts - framing the challenge in the international/national context
- Societal groups - advocate for social responsibility

- Rapporteur - Group leader, drafts conclusions

The methodology used was the “Innovation Camp Methodology Handbook” edited by the JRC. The event was held in a spectacular setting: the Picos de Europa Natural Park (the oldest in Spain), celebrating its 100th anniversary. The venue was organised to encourage open dialogue and explore ideas, with the preparation of a plenary, two spaces for group work, and a meeting place or Agora. A central screen showed real time events to allow social networks to follow and interact. Preparatory work was intense, with the following tasks standing out: carefully preparation of support documentation; selected participants were contacted with detailed instructions for group work; design of outreach tools; adaptation of methodology to challenge; elaboration of manual as a result.

EXPECTED RESULTS ▪ Some recommendations for a participatory process:

- Engage with technical work (avoid outsourcing all tasks);
- Build key partnerships (e.g., with industry leading this process);
- Identify and engage with appropriate firm individuals/entity (e.g., R&D and environmental departments);
- Strong legal barriers (avoid involving only research and innovation or economy ministries, go broader, e.g. environment);
- Monitor continuously, to identify unexpected results.

TERRITORY
Asturias, Spain

ACTIONBOOK ACTIVITIES
[Identifying stakeholders for given societal goals](#)
[Experimenting and demonstrating](#)
[Mobilising competences](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading • Agencia Sekuens (Government of the Principality of Asturias) (Ana Elena Fernández Monzón - anae@sekuens.es, Paz Palacio Fernández - paz@sekuens.es)
with • JRC -Science meets regions- /SPIRE



Improved joined RIS3 in East and North Finland

WHAT ▪ This practice is an example of how different regions within the same country can partner to develop integrated smart specialisation strategies, share best practices, and incorporate global challenges into their policies.

The seven regions of East and North Finland developed their joined Smart Specialisation Strategy further via participation to the PRI Pilot. The most substantial changes made were those involving relevant stakeholders (clusters) into the planning and implementation process. Additionally, the view of economic RIS3 was developed to answer the question: what challenges may we solve in a global perspective? Furthermore, the process enabled East and North Finland regional experts to grow their expertise and form better RIS3 results monitoring for the new joined RIS3.

WHAT FOR ▪ The regions of East and North Finland needed a new joined Smart Specialisation Strategy 2024 onwards.

WITH WHAT ▪ The RIS3 work and PRI participation was done via European Regional Development Funded project Smart Specialisation in East and North Finland 2022–2027 (ELMO II) that received its funding from Regional Council of Northern Savo. The project was implemented and carried out by the Regional Council of Lapland. The process involved experts from all seven regions.

LESSONS LEARNT

- Regions of East and North Finland were able to upgrade the understanding of RIS3 of regional experts. The lessons were directly implemented into the joined Smart Specialisation Strategy of East and North Finland that will set in place 1.1.2024.
- Each of the seven regions have their own Smart Specialisation Strategy. The regional experts in the process may utilise their newly learned skills for their own regions RIS3 also.

TERRITORY

East and North Finland, Finland

ACTIONBOOK ACTIVITY

[Developing transition pathways and roadmaps](#)

[Diagnosing and developing a vision](#)

[Collaborating across territories](#)

[Continuous monitoring](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading • [Lapland](#) and [East and North Finland](#)

[EU-office](#)

with • [Northern Ostrobothnia](#), [Central Ostrobothnia](#), [Kainuu](#), [Northern Karelia](#), [Northern Savo](#), [South Savo](#)





JeloviZA - Preparing a management model based on ecosystem services in decision-making processes

WHAT ▪ The project addresses the challenges of climate change in Jelovica, the lack of a management plan for the area, and the past weak participation of residents in the preparation of strategic documents of the municipalities. The main objective of JeloviZA is to improve Ecosystems; foster the conservation of vulnerable species of Natura 2000 at Jelovica; and prepare a management model based on ecosystem services in decision-making processes. This is needed to rehabilitate, restore and provide efficient ecosystem services to the damaged mountain forest ecosystem in the territory as soon as possible. Due to the effects of climate change, up to 34% of the total timber cover in Jelovica has been cut down in the last 10 years. This model will be introduced in strategic development documents of the municipalities through public involvement, strategic communication, education, and building a support network in the local area. To achieve this, specific objectives include:

- inventory and assessment of ecosystem services;
- restoration of 20ha of affected forest areas with more climate-resistant species;
- expert training to carry out the Jelovica management model in the future;
- model elaboration with different stakeholders, establishment of a strong regional network of stake-

holders who will also commit to the implementation of the Jelovica management model (Memorandum of Understanding of the main stakeholders);

- creation of a social environment that supports the Jelovica Management Model and the sustainable development of the territory.

WITH WHAT ▪ The project JeloviZA benefits from a 1.143.298 € grant from Iceland, Liechtenstein and Norway through the European Economic Area grants.

EXPECTED OUTCOME

- restoration, protection and monitoring of the 20ha damaged forest by planting indigenous/native tree species for greater resilience of the ecosystem;
- protection of habitat trees for greater diversity of the habitat of species;
- management model based on ecosystem services in decision making process;
- installation of traffic and pedestrian counters and preparation of a space load assessment;
- activities for stakeholders, such as the transfer of good practices, trainings, discussions and workshops, with which we achieve greater competence and expertise in ecosystem management;
- list and evaluate ecosystem services in the area.

TERRITORY
Jelovica, Slovenia

ACTIONBOOK ACTIVITY
[Setting milestones and targets](#)
[Collaborating across territories](#)
[Developing a strategy](#)
[Mobilising competences](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading • CIPRA Slovenia - Association for the Protection of the Alps
with • Municipality of Železniki, Slovenia Forest Service, Institute of the Republic of Slovenia for Nature Conservation, [Sora Development agency](#) (Anita Pokorn Oman - anita@ra-sora.si), CIPRA International (LIE)



Leveraging regional multi-stakeholders consortia for transformative change

WHAT ▪ Emilia-Romagna Region intends to:

- make available the experience of the open discovery process carried out as part of the S3 2021-27, in particular through the involvement of the regional Clust-ERs and with the support of the “Emilia-Romagna Open Innovation platform Romagna” EROI;
- share the methodology developed under the H2020 project TeRRitoria “Territorial responsible research and innovation through the involvement of local R&I actors”, an experiment of public engagement for the co-design of RIS3 open to social stakeholders, allowing stable dialogue with civil society and the people they represent;
- improve the capacity to move from a general strategic framework to concrete transformative innovation agendas for green transition, ensuring an inclusive approach with territories and civil society, defining instruments and actions for their implementation;
- strengthen the ability to define strategies and actions to support sustainable transition coordinated between the different levels of government and able

to maximize impact, thanks to a synergic use of the various programming tools both at European, national and regional level.

WITH WHAT ▪ For the implementation of the activities envisaged as part of the Pilot Action, the Region can leverage ART-ER Attractiveness Research Territory, the Emilia-Romagna Joint Stock Consortium born with the purpose of fostering the region’s sustainable growth by developing innovation and knowledge, attractiveness and internationalization of the region.

LESSONS LEARNED

- Strategic actions can be only delivered when a challenge-based approach is adopted, the approach is also socially driven and innovation directed, and, finally, the approach captures transversal and cross-sectoral priorities
- Multi-layered governance structures are important in implementation and should involve multiple stakeholders. Having an implementation agency that operates as a multi-stakeholder consortia can help translating the political strategy into action.

TERRITORY

Emilia-Romagna, Italy

ACTIONBOOK ACTIVITY

Mobilising resources

Scaling and mainstreaming

Managing and transforming knowledge

INTENSITY OF TRANSFORMATION



PARTNERS

leading • ART-ER (Ruben Sacerdoti)

with • National and international networks



More efficient S3 prioritization and monitoring through a Geographic Macro Regional (GMR) model

WHAT ▪ The Geographic Macro Regional (GMR) model is an economic impact analysis tool that can simulate the impact of various development policy interventions in terms of key economic variables (output, employment, prices). The sectoral and regionally disaggregated nature of the model enables monitoring these effects in detail both at the level of counties and sectors, while also taking into account territorial and sectoral feedback and synergies. The model was used in the prioritization phase of S3 in Hungary, where it supported the investigation of the development and innovation potential of individual sectors in the framework of an ex ante analysis at the county level. The model is also intended to be used to monitor S3, especially during evaluation to take account of any dynamic developments. At a next step, the model could be extended to include environmental variables and thus cover also societal challenges and goals.

WHAT FOR ▪ The aim of the GMR model is to prioritise sectors where innovative investment can help the

region embark on a path of sectoral modernisation and growth. The GMR model results were used to focus on sectors with strong growth potential in the national aggregation. The prioritisation was carried out by translating the S3 theoretical framework into practice by the GMR model.

WITH WHAT ▪ The initial model was developed by the University of Pécs, and was used in partnership with NRDIO during the elaboration of the 2021-27 national S3. Based on the positive experiences of the partnership, NRDIO and the University joined forces to establish the S3 monitoring and evaluation framework.

LESSONS LEARNT ▪ The GMR model data can be integrated into the S3 design. It can be further developed and adapted to address environmental and other social aspects through the inclusion of additional variables. One of the main advantages of the GMR model is that it ranks sectors according to, among other things, their growth potential.

TERRITORY
Hungary

ACTIONBOOK ACTIVITY
[Managing and transforming knowledge](#)
[Continuous monitoring](#)
[Evaluating impact](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ University of Pécs, Regional Innovation and Entrepreneurship Research Centre - Mr Tamás Sebestyén (sebestyent@ktk.pte.hu)
with ▪ National Research, Development and Innovation Office (s3magyarország@nkfih.gov.hu)





Portuguese Digital Identity Wallet - id.gov.pt

WHAT ▪ The ID.gov.pt mobile application (2019) is a digital wallet, developed by the Administrative Modernization Agency. It allows citizens to keep and consult their ID cards anytime and anywhere. Among the 12 documents available, there is the Citizen Card, the driving license, the car property document (single car document) or the ADSE card (health subsystem of public servants). It is also possible to use it offline, and other cards will be soon available on the app. This application is based on the Digital Mobile Key electronic authentication. It uses the national interoperability platform to retrieve the data from the relevant base registries and complies with eIDAS regulation. The data are stored (temporarily) in the app and are updated every 24 hours. Citizens can also validate their virtual ID documents using the authentic data sources emitted by them.

The ID.gov features the possibility to automatically renew the driving license within the app by getting notified 5 months before expiration. Holders need to pay to receive a renewed license both in the app and by post.

In December 2023, the Portuguese Parliament approved a new legislation according to which the digital documents/data presented in real time to third parties in the national territory, through the ID.gov application, conform to the original documents, with equal legal

and probative value and dispensing additional validation by authorities.

The Id.gov app already has more than 2 million downloads. ID.gov.pt was developed within the national simplification programme SIMPLEX, which launched the “Identification on mobile phone” measure, to create “a prototype that provides, on smartphones, an authentic and certified image of an ID document.” This measure is legally supported by Law 2/2020, of March 31, allowing citizens the portability of their personal data detained by public bodies.

WITH WHAT ▪ The development of ID.GOV.PT was led by AMA, with different departments (eg. Legal, Usability, Communication, IT Infrastructures, Digital Platforms, Interoperability) into a multidisciplinary and agile project team supported by AMA’s Board of Directors. The financial resources are ensured by the State Budget (AMA’s own budget). ID.GOV is a strong example of the Portuguese investment in the digital transition, focusing on the mobile channel to provide a simpler and easier Citizen-State relationship.

LESSONS LEARNT ▪ The main lesson that emerged from the development of ID.gov was to thoroughly ensure a coherent legal framework to attribute equal legal and probative value to the documents available in the application.

TERRITORY
Portugal

ACTIONBOOK ACTIVITIES
[Collaborating across departments](#)
[Diagnosing and developing a vision](#)
[Prioritising funds](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ Leading partner: Fernando Moreira (fernando.moreira@ama.gov.pt) [Agência para a Modernização Administrativa \(AMA\)](#)

with ▪ Institute for Mobility and Transport, Institute of Registries and Notary, Institute for Financial Management and Equipment of Justice, Tributary and Customs Authority, Institute of Social Security, Shared Services Ministry of Health, Insurance and Pension Funds Supervisory Authority



Regional animators of economic development

WHAT ▪ Regional animators are enlisted to support the entrepreneurial discovery process (EDP) through calls for tenders for public benefit organisations (PBOs). The PBOs use co-financing to organize meetings for entrepreneurs (trainings, workshops, study visits, etc.) enabling the exchange of knowledge and obtaining feedback that may allow the identification of needs or new trends affecting the regional innovation ecosystem and its smart specialisation. The calls are carried out on an annual basis. Each year, up to 7 grants are awarded.

WHAT FOR ▪ The Smart Specialisation Review carried out in 2019 highlighted the need to increase the involvement of non-governmental economic development animators, in the EDP. The calls for tenders aim to decentralise knowledge exchange with stakeholders, making it more grassroots and less influenced by the voivodship government's perspective. The goal is to enhance the EDP by leveraging the resources and expertise of regional PBOs in supporting business development, while also elevating awareness among PBOs and entrepreneurs from the region on specific

issues – such as the development of Industry 4.0 in the 2023 call.

WITH WHAT

- Financial resources: Approx. EUR 98,000 per edition.
- Human resources: Approx. 10 individuals to form the evaluation committee.
- Organizational resources: Established procedures and regulations for the call; PBOs from the region capable of preparing high quality offers and executing the tasks with high quality and on time.

LESSONS LEARNT ▪ The first edition of a new type of open call for tenders should be a pilot action, allowing to test communication matters, evaluation criteria, financing adequacy, and the ability of organizations from the region to submit accurate tenders, among other aspects. Subsequent editions should be more precise about the tender elements, such as specifying the thematic scope of meetings with entrepreneurs. It is necessary to balance expectations with the regional PBOs' potential, ensuring an adequate number of offers for evaluation.

TERRITORY

Masovian Voivodeship, Poland

ACTIONBOOK ACTIVITIES

[Continuously engaging with stakeholders](#)

[Designing ecosystem support](#)

[Experimenting and demonstrating](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ The Office of the Marshal of the Mazowieckie Voivodeship in Warsaw, Department of Regional Development and European Funds (dsrr@mazovia.pl)

with ▪ Chambers of commerce, foundations, associations and other Public Benefit Organizations (PBOs) from the Mazowieckie Voivodeship (stakeholders rotate with each edition).





Regional strategy for digital skills and culture 2021-2025

WHAT ▪ This practice provides an example of the importance of multi-stakeholders and multilevel coordination, especially for those initiative involving transversal technologies and changes in skills at all levels. The strategy, being a new policy initiative, defines actions and specific projects on digital skills addressed to citizens and local governments, local entities and local communities (including enterprises and business). It is aimed at increasing and disseminate competences and new digital knowledge (basic and advanced digital skills) in the entire territory. The Strategy is articulated into 4 axes: Digital Citizenship, Skills for the Digital Economy, Digital Education, and Digital Jobs. Within each single axis, the actions identified define output, target, actors involved, synergies, activities and funding instruments.

WHAT FOR ▪ The strategy brings together ongoing and new projects defined by different actors and government departments. It will enable the Regional Government to define actions to improve digital skills in a consistent manner and in synergy with other regional strategies and objectives. The coherent framework will also facilitate the monitoring and assessment of the actions results toward strategic objectives and skills needs.

WITH WHAT ▪ The elaboration of the strategy is based on the work of an interservice Working Group consisting of several regional departments (Innovation, Education & Employment Industry, Agriculture, Health & social services). The actions and projects identified in the strategy are and will be implemented through different funding instruments: RRP, ESF+, ERDF, Regional Funds, National funds.

LESSONS LEARNT

- Cooperation among different territorial stakeholders should be strengthened to reinforce the regional ecosystem for digital skills.
- Important to build synergies between (1) different policy instruments (e.g. S3 & innovation) to improve digital skills at regional level with respect to DESI; (2) funding instrument (EU, national, regional) to target skills.
- Critical to improve tools to assess skill needs and gaps at regional level and monitor the impact of policy instruments. The involvement of stakeholders in the assessment (Universities, Industries, SMEs, Local governments, citizens...) is key.
- Relevance of involving Statistical Offices for monitoring and tracking KPIs.

TERRITORY
Tuscany, Italy

ACTIONBOOK ACTIVITY
[Collaborating across departments](#)
[Developing the policy and action mix](#)
[Deploying a strategy](#)
[Mobilising competences](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading • [Tuscany region](#) (gianluca.vannuccini@regione.toscana.it)

with • Involvement of all territorial stakeholders following a multilevel & collaborative governance model, represented as follow: Regional government departments, Universities and regional research centers, Regional Cybersecurity Competence Center, Professionals Associations (architects, engineers, technicians), Regional business and commerce associations, Trade union associations, Local municipality associations, Citizen and volunteering associations



RIS3 Extremadura monitoring tool

WHAT ▪ The Monitoring and Evaluation System of the RIS3 of Extremadura has been implemented through the creation of a regional R&D+I Observatory. From the work carried out in the first years of the 2014-2020 period, three major problems were identified in the RIS3 Extremadura Monitoring System:

- lack of granular data on R&D activities and results, with sufficient detail and frequency of updating.
- difficulty in classifying R&D activities and results in the S3 areas of specialisation, which are not in line with classical classifications of economic and/or scientific activity.
- partial and segmented view of policies, due to the lack of integrated data from the R&D support instruments at regional, national and European level.

To solve these problems an open data tool for monitoring the smart specialisation process in the region was launched in 2019.

The tool integrates external (Horizon Europe, National calls) and internal data (Regional calls) on the regional R&D activities, allowing, through interactive visualisations and full access to the data, an in-depth exploration of the regional ecosystem.

This integration of data and its exploitation has been possible thanks to the Linked Open Data* approach and the use of semantic web technologies.

The structure of the monitoring tool is based on a se-

ries of applicable filters. Thus, the user could cross-reference data from “funding source” with “specialisation area”, as well as other filters (temporal, SDG-related, type of entity involved, etc.) and thus narrow down the search for the subsequent visualisation of the data.

In addition, all information is downloadable in Excel format and accessible under Open Data standards through a SPARQL console.

The ultimate goal of the tool is to provide evidence for analysis and decision-making on public R&D+I policies at regional level.

WITH WHAT ▪ The R&D&I Observatory is financed by the Extremadura Regional Government through the ERDF Operational Programme. A team of about 6 people (not full time) work on the tasks related to the maintenance, updating and improvement of the tool, as well as on other activities of the Observatory. The average annual budget is around 100,000 euros.

LESSONS LEARNT ▪ The RIS3 monitoring tool is the result of a collaborative work between the Technical Office and different actors in the region’s R&D&I ecosystem, in order to develop it in response to the needs of these actors. This approach has been very positive and allows to keep the tool in constant evolution and improvement, introducing new features whenever necessary. Time: between 6 and 12 months.

TERRITORY

Extremadura, Spain

ACTIONBOOK ACTIVITY

[Setting up a network governance](#)

[Prioritising funds](#)

[Continuous monitoring](#)

[Evaluating impact](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading • [RIS3 Technical Office](#) – FUNDECYT-PCTEX (oficinatecnicaris3@fundecyt-pctex.es)



ROSEWOOD4.0

Network of european regions for sustainable wood mobilisation ready for digitalisation

WHAT ▪ The practice is an example of how regional authorities can make use of interregional formats to advance their S3/S4 goals and establish mutually beneficial sustainable networks.

Following the successful conclusion of the [H2020 ROSEWOOD Network project](#) (2018-2020) initially extended within the [H2020 ROSEWOOD 4.0 Network project](#) (2020-2022), partners committed to continue collaborating during a transition period from 1 July 2022 to 31 December 2023. This collaboration was aimed at ensuring the sustainability of the ROSEWOOD4.0 project activities and the exploitation of its results.

WHAT FOR ▪ Recognising the value and benefits of the multi-regional collaboration, interested partners have committed to continue being active within the network in a regular way to discuss opportunities and actions in relation to digital solutions and tools in sustainable wood mobilization. Meetings are held every three months and entails several activities, including exchanging information, identifying further activities, discussing potential funding opportunities, etc. Moreover, for the Knowledge Platform, the EFI's Bioregions facility devoted efforts to use and maintain the Platform. This ensured that the Platform and its content (e.g. factsheets, videos) is online and reachable for the

visitors in the long-term. Network members have kept working as editors on the Knowledge Platform to continuously added new BP&I. This includes the publication of the ROSEWOOD4.0 Newsletter (4 times a year) with information regarding International and national forest events, new initiatives (e.g. launching of new projects dealing with the forest sector) and another relevant information for foresters and related stakeholders.

WITH WHAT ▪ From 01 July 2022, the ROSEWOOD4.0 Network continued working on a voluntary basis with the contribution of all the project partners, their commitment and willingness to follow with the network's activities.

LESSONS LEARNT

- Project implementation follow-up activities are necessary to fully utilize project results.
- Sustainability of valuable project results requires network initiatives and flexible forms.
- Multi-regional sector/technology focused initiatives provide members with an opportunity to strengthen collaboration, share new ideas and new information, gain a different perspective and develop long-lasting relations.

TERRITORY

Vukovar-Srijem, Croatia

ACTIONBOOK ACTIVITY

[Building legitimacy](#)

[Collaborating across territories](#)

[Collaborating across departments](#)

[Designing ecosystem support](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ [Competence Centre Ltd. for research and development](#) (cekom@cekom.hr)

with ▪ see [here](#)



Rural Urban Hub Cluj

WHAT ▪ This practice is an example of how bottom-up processes can involve communities in finding local solutions, develop learning opportunities and address rising divides. While the European Missions are working to identify solutions and innovations that will help us collectively achieve the twin green and digital transition, it is also important to promote societal mindset change – especially in communities that are very divided and deprived of access to learning opportunities. The Rural Urban Hub Cluj is a bottom-up process initiated by the local community and co-designed by the Cluster of Education C-Edu to incubate potential societal innovations. Spatially, the Rural Urban Hub covers one city (Cluj-Napoca) and two communes of the Metropolitan area (Ciurila – on the first ring, and Petrestii de Jos- on the second ring). Finding scalable and multipliable ways to gain adoption on innovation and future solutions, from all, not just those with access to more resources, is key to ensure sustainable and measurable implementation of the European Cohesion Policy. Start-up Village Landscape is an experimental initiative taking place in a group of villages in the Metropolitan area of the city of Cluj-Napoca led by the Cluster of education C-EDU since 2021. It aims to enhance job opportunities and quality of life in rural areas by leveraging the competitive advantages of urban areas through innovation and entrepreneurship. To achieve this, the experiment focuses on developing transport and digital infrastructure, boosting the local economy, strengthening administrative and community capacity, refining tourism potential, and improving

the quality-of-life indicators.

WITH WHAT ▪ The most important resource is human capital and knowledge provided by stakeholders in the community, including public sector experts, university and business advisors, and local rural leaders and community drivers. These resources were essential to drive the experiment. Public finance from the local administration were accessed as local grants to initiate the first concrete projects. Applications to European funding were also done in specific programs and projects on topics such as climate adaptation, digital transformation, and knowledge sharing (e.g., Horizon, Urbact, Erasmus).

LESSONS LEARNT

- Imagining future scenarios and taking action requires more time than initially envisioned.
- Onboarding people is crucial, and securing resources is essential to make relevant progress. After gaining attention from actors, there is a specific moment in which resources are needed to progress otherwise the risk of losing trust in the process is extremely high.
- It is essential to be aware of other people's challenges while implementing solutions – start building communities of peers to push testing and adoption.
- Progress is hindered by the excessive theoretical nature of the preliminary research phase, while the development of a trusting atmosphere and human connections amongst key stakeholders is identified as the primary factor contributing to its success.

TERRITORY

Cluj-Napoca, Romania

ACTIONBOOK ACTIVITY

[Continuously engaging with stakeholders](#)

[Designing local missions](#)

[Experimenting and demonstrating](#)

[Managing and transforming knowledge](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading • [Cluster of Education C-Edu](#) - Rural Urban Hub Unit (Emilia Botezan - emilia.botezan@primaria-clujnapoca.ro)

with • Municipality of Cluj-Napoca, Commune of Ciurila, Commune of Petrestii de Jos, Cluj Metropolitan Association, Faculty of Political Sciences and Public Administration, Technical University Cluj



S3 SUMMIT: Regional mission inside the Smart Specialization Strategy

WHAT ▪ The Summit helped identify challenges and turn them into local missions. The mission development process requires new collaboration methods between different stakeholders and regions. Hence, creating partnerships is essential for the success of the whole process. Three different events were organized to explore Smart Specialization with a multilevel approach involving regional, national, and international stakeholders.

The key elements of the exchange of views were:

- a. 1ª Jornada RIS3 Açores – involving public disclosure of RIS3 2022-2027, and addressing two central themes: the new RIS3 Azores and the European Funds available for Research and Innovation. Participants were from Azores quadruple helix.
- b. Innovation and Smart Specialization Forum - The Forum, with peer learning sessions, roundtables, and networking events. The attendees were key stakeholders from the S3 community of practice at European, national, and regional levels.
- c. Partnerships for Regional Innovation learning journey: co-creating (inter)regional missions - This workshop focused on practical hands-on work to develop a mission approach, starting from local potential and opportunities of interregional collaboration. It set the ground for all participants to start their mission initiatives. Attendees were primarily PRI Pilot participants and key stakeholders from the S3 Community of Practice at different levels.

Participants reviewed key concepts and practical steps to co-create (inter)regional missions with a construction game. This game consisted of three groups focused on challenges previously proposed by regional stakeholders and shortlisted by JRC. The exercise implied that the challenge was tackled by defining a goal, activities, inputs/outputs, outcomes and the desired impact. The result was delivered to the Azores S3 governance bodies as a background for the future mission definition in the archipelago.

WITH WHAT ▪ The S3 SUMMIT was organised with the own entity funds and human/technical resources of the Regional Directorate for Science and Technology (DRCT, Regional Government of Azores), the National Innovation Agency (ANI), and the Joint Research Centre (JRC).

LESSONS LEARNT

- Challenge-oriented missions demand a high involvement with all relevant stakeholders (4helix).
 - Mission definition requires a consensus, which is difficult to achieve.
 - There are regions in Europe that are more advanced in this process than the Azores, from which we might benefit from their experience.
 - The mission approach might be valuable for the intelligent specialization strategy post-2027.
- After its success, the organisers intend to reproduce this initiative every year.

TERRITORY

Azores, Portugal

ACTIONBOOK ACTIVITY

[Enabling multilevel cooperation](#)

[Collaborating across territories](#)

[Designing local missions](#)

[Learning from experimentation](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ [Regional Directorate for Science and Technology](#) (DRCT, Regional Government of Azores) **with** ▪ [National Innovation Agency](#) (ANI), [Joint Research Centre](#) (JRC)



Setting priority research directions within smart specialisation

WHAT ▪ Engaging in workshop meetings, videoconferences and online consultations (utilising argumentation mapping software) for working groups on smart specialisation to develop “Priority research directions within the smart specialisation of the Mazowieckie Voivodeship”. This guidance document co-created by stakeholders who actively shape and even directly edit it online during discussions, outlines the structure, content, and priority research directions for implementing S3. Participants submit proposals, present their justification based on the potential and trends in the regional economy, and convince other participants of the need to include a given direction in the document. The first edition of priority research directions was developed in 2016, while the fourth version was adopted in 2022. Evaluations and external expertise assist the collaborative efforts.

WHAT FOR ▪ “Research Directions” serve as guidelines, stipulated in the Mazowieckie’s RIS3, pinpointing priorities for R&D&I projects within smart specialisation areas. They establish a foundation for an enabling criterion in the regional jobs and growth programme’s calls concerning R&D&I, ensuring funds are concentrated accordingly. In essence, the working groups are pivotal in steering intervention within the areas described in RIS3, down to the precise articulation of each direction. Placing priority research directions outside the strategy itself allows for updating the list

without launching the time-consuming process of updating the entire RIS3. This ensures agile, timely responses to feedback from stakeholders and maintaining active engagement with and within the working groups.

WITH WHAT

- Financial resources: Evaluations, expertise – variable; EUR 110,000 annual average (2021-2023).
- Human resources: 2-4 discussion-facilitating employees.
- Organizational resources: Working groups encompassing a considerable number of enterprises, universities, institutes, etc.
- Time resources: Several months and multiple meetings for the initial version; a minimum of 2 meetings for each specialisation area per update.

LESSONS LEARNT ▪ Online meetings cannot fully substitute face-to-face interactions, which prove superior during the idea formulation and document shaping stages. Online meetings can be effective if they involve pre-structured material and follow a top-down script, yet traditional in-person meetings may prevail in efficiency. Additionally, the opportunity to meet and discuss common research topics is conducive to establishing contacts between organisations. When conducted regularly, such meetings may help consolidate the regional R&D&I ecosystem.

TERRITORY
Masovian Voivodeship, Poland

ACTIONBOOK ACTIVITIES
[Setting milestones and targets](#)
[Agenda setting and sharing](#)
[Collaborating across departments](#)
[Prioritising funds](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ The Office of the Marshal of the Mazowieckie Voivodeship, Department of Regional Development and European Funds (dsrr@mazovia.pl)
with ▪ Smart specialisation working groups (approx. 200 stakeholders from Mazowieckie Voivodeship).



Smart specialisation panels and metapanel

WHAT ▪ Smart specialisation panels and metapanel are systematic, creative meetings among stakeholders. Panels are related to a specific element of the smart specialisation, while metapanel covers all of them. Individual panels are composed of entrepreneurs, representatives of the R&D&I sector, business environment institutions, and other stakeholders. Working groups may be formed inside panels for a variety of objectives, such as developing potential projects or project proposals. Panel stakeholders also discuss topics related to innovation management system in the region, systemic barriers to cooperation between business and science as well as bottlenecks in the diffusion of innovation. Those bottlenecks are resulting, among others, from the dispersion of funding. Meetings are scheduled to discuss the industry's existing demands and challenges that might impact on its future development. For a successful implementation of the entrepreneurial discovery process (EDP), the stakeholder list is systematically examined and expanded. Additionally, details regarding how the panel/forum will be organized are available on the website www.rsi.podkarpackie.pl so that any interested organizations working in a particular field of expertise can attend the event with an attendance of 25-40 people according to the specialization topics.

WHAT FOR ▪ Designing collaborative projects and identifying solutions pertinent to the smart specialisation agenda are the main goals of panels. The Subcar-

pathian Innovation Council considers any proposals and ideas that have emerged and demonstrate a substantial impact on the direction of innovation policy before presenting them to the Province Board. These gatherings provide a stakeholder forum to have conversations about topics covered by the regional smart specialisation strategy and share knowledge, ideas, best practices, and experiences.

WITH WHAT ▪ All activities are funded by the province's self-government financial resources allocated to the initiative entitled "Smart specialization - a tool for growth of innovation and competitiveness of the Subcarpathian Province" implemented under the ROP WP 2014-2020.

LESSONS LEARNT

- Determining business sectors where joint action and creative ideas are feasible, including synergies and opportunities for trans-regional cooperation; identifying potential funding sources for economic areas proposed by panels; receiving support from national and regional levels.
- Providing recommendations for regional and national innovation support systems;
- Identifying emerging R&D+I fields with regional or interregional potential that may later be included in the smart specialization strategy;
- Developing specific initiatives that can be applied for funding from national and regional operational programs or any other sources.

TERRITORY

Subcarpathian Voivodeship, Poland

ACTIONBOOK ACTIVITIES

[Continuously engaging with stakeholders](#)

[Diagnosing and developing a vision](#)

[Managing and transforming knowledge](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ [Województwo Podkarpackie](#) (Podkarpackie Province), Department of Regional Development (Magdalena Kowalik – m.kowalik@podkarpackie.pl) (Piotr Czerepiuk – p.czerepiuk@podkarpackie.pl) (Justyna Bartnicka – j.bartnicka@podkarpackie.pl)



Support of regional innovation strategy's stakeholders

WHAT ▪ The regional self-government has steadily built up a comprehensive public system to strengthen the capacity of stakeholders to foster innovation. Synergies contributed to set up a value chain boosting innovation in the region. This system includes the following organisations:

- Podkarpackie Science Center “Łukasiewicz”: supporting innovation among residents of the Subcarpathian region, in particular children and young people
- Subcarpathian Innovation Center: supporting all phases of developing innovative solutions by students and researchers.
- Rzeszow Regional Development Agency: supporting businesses in early stages, including incubation, and providing basic and specialised services.
- The Subcarpathian Development Fund: enabling scaling SMEs activities, strengthening their competitiveness through repayable instruments.
- The Voivodeship Labor Office in Rzeszów: strengthening regional human resources potential.
- The Convention and Exhibition Centre G2A Arena: or-

ganizing events for networking and sharing knowledge.

These entities have allowed regional authorities to build a path to strengthen innovation and competitiveness of the regional economy by providing complementary support.

All these institutions were created as independent organisations and are now crucial components of the Subcarpathian Province innovation ecosystem.

WITH WHAT ▪ All activities connected with implementation of Regional Innovation Strategy are based on the financial resources of the Self-Government of the Province project entitled Smart specialisations - a tool for growth of innovation and competitiveness of the Podkarpackie Province implemented under the ROP WP 2014-2020.

LESSONS LEARNT ▪ Responsibilities of the self-government go beyond funding provision. It needs to set up the necessary conditions for entrepreneurship and an entrepreneurial ecosystem to flourish in the territory.

TERRITORY

Subcarpathian Voivodeship, Poland

ACTIONBOOK ACTIVITIES

[Setting up a network governance](#)

[Designing ecosystem support](#)

[Mobilising competences](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ Department of Regional Development
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with ▪ Chambers of commerce, foundations, associations and other Public Benefit Organizations (PBOs) from the Subcarpathian Voivodeship (stakeholders rotate with each edition).



Technology transfer and commercialisation of innovation

WHAT ▪ This practice is an example of how regional governments can promote technology transfer and leverage their regional ecosystems to promote industrial innovation.

WHAT FOR ▪ The objectives are to increase the levels of effective collaboration and technology transfer between the business environment and the academic world, researcher or knowledge generator, promoting the real application of results and use by the business sector. By taking advantage of the entire regional ecosystem, addressing the intermediation and among stakeholders roles and activities, firm innovation capacity is increased via:

1. Technology transfer.
2. Technological innovation stimulation.
3. Technological innovation valorisation and application in industry.

WHY ▪ The leading regional authority has adopted a variety of instruments and practices aimed at different stakeholders:

- public-private partnerships;
- use of R&D results;
- new technology-based firm creation and growth;
- SMEs participation in European projects supported by regional ecosystem;
- service supply to firms in relation to R&I activities (e.g., consultancy, mentorship, intellectual property rights, etc.);
- technology transfer tools
- ecosystem knowledge management.

Some examples include:

- National Council of Research: hiring CEOs for spin-offs to reinforce business orientation;
- PONS Foundation: platform for free intellectual property rights provision to SMEs;
- Carlos III University: free patent assignment and mentorship.

WITH WHAT ▪ The regional calls, with a total budget of 1.200.000 euros for 2023, are co-financed within the FEDER (2014-2020) 2021-2027 Operational Program of the Community of Madrid. FEDER will co-finance (50%) 40% of the aid, that is, (25%) 20% of the eligible costs of the projects, within the OP1 political objective : “A smarter Europe, promoting an innovative and intelligent economic transformation”; Specific objective 1.1: “Development and improvement of research and innovation capacities and the implementation of advanced technologies”; Specific priority P1. A: “Digital and intelligent transition”. The 3 years projects should have a budget of 150-900 K€.

LESSONS LEARNT ▪ Calls focusing on technology transfer and commercialisation of innovation can have a huge leveraging effect on the provision of added-value services and have a major socioeconomic impact. Emergence of (partially) unexpected synergies among entities and platforms within the regional innovation ecosystem. Among the risks identified, initiatives should avoid the consolidation of suboptimal/inefficient infrastructures.

TERRITORY
Madrid, Spain

ACTIONBOOK ACTIVITY
[Designing ecosystem support](#)
[Prioritising funds](#)
[Scaling and mainstreaming](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ Madrid Regional Ministry for Education and Research. DG Research and Innovation (Deputy DG, Vicente Parras - vicente.parras@madrid.org)
21 Projects/organisations granted since 2018 (2018-2021). New projects in evaluation during July/Aug 2023. [List and location of organisations](#)



The journey of Northern Netherlands in tackling societal challenges through S3

WHAT ▪ Northern Netherlands (NN) has embraced S3, navigating societal challenges through a bottom-up identification of priorities, to foster regional economic transformation. Since 2019, NN has strategically placed societal challenges at the core of its approach to S3, identifying four key challenges for the period 2021-2027: health, food, water, and sustainable energy. These challenges (called Transitions) are based on the competences possessed by the region and are tackled by pursuing specialization opportunities through an ongoing process of entrepreneurial discovery.

WHAT FOR ▪ To create solutions for societal challenges while simultaneously capitalizing on specialization opportunities that benefit the region, aligning initiatives with European goals and the UN's Sustainable Development Goals for 2030. Linking societal challenges to form missions and operationalizing them, albeit difficult, has been integral in achieving the S3 objectives.

WITH WHAT ▪ Leveraging two key characteristics: a bottom-up attitude and a tendency to collaborate,

while also engaging in policy experimentation (e.g., Open Innovation Call, REACT EU) to foster an innovative ecosystem and shorten the distance between actors. The initiative, rooted in prior strategies and activities, particularly underscores the forthcoming 2021-2027 programming period, integrating existing and emerging funding streams from national and European sources to deliver maximum impact.

LESSONS LEARNT ▪ Fusing S3 and mission-oriented innovation is possible but demands a careful, step-wise approach to weave a productive innovation dance.

- The bottom-up approach, while effective in certain contexts (NN), could be complemented by more top-down strategies for a balanced direction.
- Specializations and advancements in transitions are possible through continuous entrepreneurial discovery, which necessitates a fertile climate, both from the actors and governmental initiatives.
- Policy experimentation is not just for societal actors but also vital for government operations, influencing stakeholder participation and governance structures.

TERRITORY

Northern Netherlands, The Netherlands

ACTIONBOOK ACTIVITY

[Setting up a network governance](#)

[Agenda setting and sharing](#)

[Coordinating the policy and action mix](#)

[Experimenting and demonstrating](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ [SNN Northern Netherlands Alliance](#) (Luc Hulsman, RIS3 Manager - info@snn.nl) including Friesland Province, Groningen Province, and Drenthe Province.

with ▪ Entrepreneurs, knowledge centres, social organizations, and other stakeholders in the societal and economic sectors of the Northern Netherlands. “The dance floor” metaphor has been adopted, where diverse stakeholders coalesce to develop and grow grassroots ideas and initiatives. The government plays a facilitating role, creating conducive climates for idea genesis and project development, without direct decision-making involvement.



Towards S4Andalucia governance model: synergies with interregional cooperation initiatives

WHAT ▪ The practice is an example of how regional authorities can make use of interregional formats to advance their S3/S4 goals. It includes the following elements, defined by the S4Andalucia model:

- Creation of a working group in the framework of the Regions4Food project, linked to Agrotechnology, one of the S4Andalucia priorities.
- Organisation of a pilot [Workshop](#), where quadruple helix representatives debated the Agrotechnology specialization domain.
- The workshop came out with recommendations regarding the specific Agrotechnology field.

The meetings of the Group followed an open debate mechanism allowing more effective decision-making, as well as a subsequent evaluation of the results.

WHAT FOR ▪ Advancing and testing the tools foreseen by S4Andalucia governance model to improve and maintain a continuous discovery process with the quadruple helix during the implementation period of the regional Strategy. Leveraging interregional cooperation actions and mechanisms to promote and implement the S4Andalucia governance model.

WITH WHAT ▪ The organisation and coordination of

the specific working group counted on contributions from various stakeholders. The Technical Office of S4 Andalusia (IDEA Agency / TRADE), prepared the meeting, in coordination with the Regional Ministry of University, Research and Innovation and the Regional Ministry of Agriculture, Fisheries, Water and Rural Development (leading the Regions4Food project), which offered its premises and dedicated technical assistance to help energise the workshop. The S3Platform for Traceability and Big Data of the Andalusian Agriculture Ministry had an active presence. The meeting counted on the valuable support of JRC PRI Team.

LESSONS LEARNT

- Transformative innovation policies demand new approaches, based on co-creation and collective thinking.
- Interregional cooperation can benefit regional innovation and S3/S4 Strategies. EU Territorial Cooperation initiatives can help regional policymakers better address common EU challenges and seek synergies to become more resilient and responsive to \leq .
- Thematic Partnerships can become platforms and open opportunities for the implementation of S3/S4 innovation policies and governance models.

TERRITORY

Andalusia, Spain

ACTIONBOOK ACTIVITY

[Building legitimacy](#)

[Setting up a network governance](#)

[Enabling multilevel cooperation](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ Andalusia Region, S4Andalusia Technical Office

with ▪ [Regions4Food project](#), an Interreg Project led by the [Andalusian Regional Ministry of Agriculture, Fisheries, Water and Rural Development](#).



Transformative innovation funding experimentation: towards challenge and vision-oriented approaches

WHAT ▪ Northern Netherlands developed an experimental approach to funding, which could help spur transformative innovation and more productive and creative regional stakeholder interaction. The regional S3 authority has sought to combine European Regional Development Fund (ERDF) financing with the Regional Innovation Strategy for Smart Specialisation of Northern Netherlands. Beginning in 2017, Northern Netherlands experimented with the Open Innovation Call, which focused on objectives, rather than activities. The call itself was designed as a challenge, inviting stakeholders already in the design phase. In 2020 it followed up with the Open Innovation Call 2.0, which sought to involve stakeholders in the call design and implementation by presenting them with an S3 identified challenge, which they had to tackle in a no-framework, no-paper, feet on the table intensive collaboration sessions. The experimentation continued in 2023 by moving to vision funding, aimed at harvesting specialization opportunities, following out of S3 and at translating vision into an “investment agenda”.

WHAT FOR ▪ The endeavour sought to amplify the

impact of ERDF by not only supporting projects but also shaping the way actors collaborate and interact, aiming at more transformative innovation outcomes.

WITH WHAT ▪ The process was driven from the regional S3 authority and involved the drive to sustain experimentation with the limited resources at hand. Approximately €100 million of ERDF financing in the 2021 – 2027 period. The single visioning initiative developed in 2023 amounted to €5 million.

LESSONS LEARNT ▪ The experiments brought forth valuable insights into the potent synergy of clear, challenge-oriented objectives and flexible funding structures. Focusing on objectives, as opposed to rigid activities, fostered an environment where innovators were motivated by clear societal and ecosystem challenges, allowing them to navigate through innovative solutions with a degree of freedom. Furthermore, stakeholder involvement in the design and implementation phases bolstered a more inclusive, collaborative, and efficient utilization of funds and resources, ensuring that initiatives were tailored to genuine needs and opportunities within the ecosystem.

TERRITORY

Northern Netherlands, The Netherlands

ACTIONBOOK ACTIVITIES

[Prioritising funds](#)

[Experimenting and demonstrating](#)

[Evaluating impact](#)

[Learning from experimentation](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ [SNN Northern Netherlands Alliance](#) (Luc Hulsman, RIS3 Manager - info@snn.nl) including Friesland Province, Groningen Province, and Drenthe Province

with ▪ Various stakeholders in the innovation ecosystem. Stakeholder involvement was crucial, with design & implementation of calls being inclusive and collaborative.



Transforming Međimurje for innovation: the Knowledge Centre

WHAT ▪ The Knowledge Centre of Međimurje County represents a decade long initiative for the transformation of former military barracks into a vibrant ecosystem of public and educational institutions, companies and associations dedicated to innovation support in Croatia. The Centre includes the Business incubator TICM, the energy agency MENEА, the University of Applied Sciences MEV with student’s dorm and R&D institution Metal centre.

WHAT FOR ▪ The Centre of Knowledge represents an innovative urban regeneration and economic transformation effort. The initiative increased the competitiveness of the region and boosted SMEs and startups by 48%. Five-hundred jobs were created directly and 1200 - indirectly.

WITH WHAT ▪ The creation and development of the Centre of Knowledge depended on the county’s own resources and initiative. World Bank and ERDF funds were used for nine brownfield investments and for different capacity building actions in the Centre of Knowledge during the decade of transformation. The initia-

tive was coordinated by the Public institution REDEA. Separate project teams were formed for each project under the initiative. Total costs were €100 M from 2012 until 2022. Co-financing was contracted for each brownfield investment, project by project, according to the sector and the goal of each investment.

LESSONS LEARNT ▪ It comes the right time for every project. Sometimes one thinks it is the right time for a project and is then disappointed when no financial support can be ensured. However, with time, one then realizes that the project can be adapted and made better with and for the stakeholders and that the initial failure was just a step towards a better solution. The learning outcomes from this initiative include the following key takeaway points:

1. Set course based on proper strategic thinking.
2. Do not give up, even when the project seems to be abandoned or has no secured grant.
3. Seek other solutions and adapt the project scope.
4. Find consensus between visionaries and sceptics.
5. Assure ongoing open dialogue with stakeholders.
6. Make sure there is continuous political support.

TERRITORY

Međimurje County, Croatia

ACTIONBOOK ACTIVITY

[Diagnosing and developing a vision](#)

[Mobilising resources](#)

[Designing ecosystem support](#)

[Learning from experimentation](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ [Međimurje County](#) (Maša Tomašić - masa.tomasic@redea.hr)

with ▪ [Public Institution REDEA](#), [Technology Innovation Centre Međimurje](#) (TICM)



From the EDP to the “Innovation talks” format

WHAT ▪ To update the Regional S3, in 2021, alongside open consultations, four thematic forums on key EU-level issues were organized to gather stakeholder inputs and steer local research and innovation priorities. In a “learning by doing it” process, the “Innovation talks” model was gradually improved to transform the entrepreneurial discovery process (EDP) into the open discovery process (ODP). The direct participation of numerous different regional quadruple helix actors is key in “Innovation talks”. They share their experiences about how technologies are used in specialisation domains. These events serve to identify future project lines, development potential, funding sources, and new collaborative opportunities. During the initial phases, “Innovation talks” were developed by involving “clusters” of local subjects, identified by expertise areas among applications received to identify local stakeholders willing to actively participate and strengthen S3 Strategy. In the future, the regional Administration aims to involve further subjects trained on the S3 topics through a specific action foreseen in the ERDF Regional Program 2021-2027.

The S3 ODP continues to be pushed forward and kept alive at the same time, with specific Thematic Working Groups being naturally formed and proposals being gathered through surveys and debates. The first of several planned gatherings took place in June 2023 to launch “Innovative” (the S3 communication plan) with a technical session on “Bioeconomy”. More than 100 members of the regional quadruple helix community

attended the event, structured in three sessions:

- Presentations by regional and national representatives to define the subject through an examination of the Italian and regional frameworks, the importance for collaboration and alignment between multilevel policies, laws, and entities.
- A peer learning session based on seven best practices from different sectors which illustrated transversal ways of applying technologies related to bioeconomy in industrial contexts and applied research
- An informal networking moment to share opinions and co-create new initiatives.

This initiative will be repeated on different topics related to S3 at least 3 per year.

WITH WHAT ▪ In 2023 the ODP event “Dialoghi per l’Innovazione” was implemented with regional funds, but in 2024 ERDF funds will be used. Human and technical resources are provided by the Research, Innovation and Energy Department (Veneto Region) and by Veneto Innovazione SpA.

LESSONS LEARNT

- Challenges-oriented development trajectories demand a high involvement of all relevant stakeholders (quadruple helix).
- The exchange among actors can lead to new project ideas and innovation networks.
- These type of meetings are necessary to be update on the evolution of the regional system in terms of research, innovation and competitiveness

TERRITORY
Veneto, Italy

ACTIONBOOK ACTIVITY
[Identifying stakeholders for given societal goals](#)
[Continuously engaging with stakeholders](#)
[Diagnosing and developing a vision](#)

INTENSITY OF TRANSFORMATION



PARTNERS
[Research, Innovation and Energy Department](#)
(Veneto Region)
with:
[Veneto Innovazione Spa](#)
(Regional Innovation Agency)



Transition Labs for open, inclusive and responsible place-based innovation processes

WHAT ▪ The Transition Lab methodology was implemented in the energy transition context in Ostrobothnia. It encompasses four main phases, during which regional stakeholders: 1) Analyse and reflect on the current status related to e.g. societal challenges, the scientific-technological capacities and the regional political instruments (mapping) 2) Co-create common visions based on the discovered potentials and priorities (visioning) 3) Generate transition pathways and identify innovation needs, launching a call for immediate bottom-up solutions related to these (pathways and piloting), 4) Anchor the process on an organisational and policy level (sustainability and exploitation).

WHAT FOR ▪ The ultimate goal of the Transition Lab is to enhance demand-oriented innovations and create more open R&I ecosystems. The Transition Lab process enabled Ostrobothnia to take a broader conception of innovation beyond energy technologies. The Transition Lab also served as a method for awareness raising and creating a shared language. By discovering the needs for actions from the perspective of energy-users and communities, it enabled to put a focus on changes of both consumption and production patterns. Finally, the process created new connections between regional actors.

WITH WHAT ▪ The process was implemented within the H2020 project RIPEET through several co-creation workshops, with staff members from three regional organizations (triple helix). It is favourable, if the team represents different fields of expertise: process methodology, business and energy technology-related knowledge and policy. Given the aim of creating more open and inclusive R&I ecosystems, the team should take an intermediary role and have the skills to communicate with different stakeholder groups in their “language”.

LESSONS LEARNT ▪ Vision-building in the context of transformative system level innovation requires unlearning. The energy context is highly regulated and slowly changing. Thus, the vision-building exercise cannot be locked in by current practices. Stakeholders need to be willing to believe in new scenarios and not fall into a conflict trap. In terms of governance, it is crucial to have resources, tools and capacities to move onwards from the visioning phase. Combining visioning work with concrete pilot actions is a key to establish ownership. The Transition Lab process is key for producing new evidence and discovering potential bottlenecks and challenges at the regional level.

TERRITORY
Ostrobothnia, Finland

ACTIONBOOK ACTIVITY
[Continuously engaging with stakeholders](#)
[Diagnosing and developing a vision](#)
[Developing transition pathways and roadmaps](#)
[Agenda setting and sharing](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading ▪ implementation: [Regional Council of Ostrobothnia](#) (Johanna.dahl@obotnia.fi); concept development: ZSI [Centre for Social Innovation](#), Vienna, Austria (haider@zsi.at)
with ▪ University of Vaasa, Ostrobothnia: Technology Centre Merinova, Ostrobothnia



Transition roadmaps: industrialised and sustainable construction in Navarra

WHAT ▪ A strategic agenda supports Navarra’s construction sector transformation, in need of changes in the whole value chain. Analysis and change management in this sectors is made of three phases:

- 1.Characterization: mapping of key agents in the regional value chain and detecting company strategic challenges.
- 2.Future vision: benchmarking four advanced ecosystems and analysing demand to monitor possible local evolution.
- 3.Action plan: identifying priorities in workgroups, defining 28 activities in a mid-term agenda (18 priorities), and the initiative governance and funding.

WHAT FOR ▪ The construction sector is dealing with strong economic and environmental challenges:

- Responsible for 40% of energy consumption and 36% of CO₂ emissions.
- Strong reconversion after the real estate bubble and the great recession 2008-2012
- High labor risks, aging and lack of attractiveness for young & women talent.
- Historical need to increase productivity and innovation for its viability.

This process took nine months and several meetings of the steering team made by representatives of the cluster and regional agencies (for innovation and housing policies). Along the process, the Regional government has changed its view around this sector and adapted its policies previously reserved to manufacturing sectors, such as cluster policy, R&D calls, and public procurement for social housing, demanding new

construction features - wood and industrialised elements.

WITH WHAT ▪ The agenda is led by a participatory team between public and private agents (two regional government departments + cluster) with the support of a consultancy firm specialised in strategy. In this case, the process implied the mobilisation of more than 120 stakeholders in public consultations, and 46 in-depth interviews. The deployment might include funding for the governance body of the agenda and a diverse policy mix of tools to support the needed changes (grants, funding, R&D calls, new teaching activities, public procurement etc.).

LESSONS LEARNT ▪ This process took nine months and several meetings of the steering team made by representatives of the cluster and regional agencies (for innovation and housing policies). A regional transformation agenda is the sum of each stakeholders’ agenda, aligned to a shared vision. Therefore, it is key the real involvement of local stakeholders alongside institutional agents during the process. They should contribute to all three phases and take ownership of the definition and deployment of the agenda, so that they start changes both at home and at a regional level. This involvement is the result of the leadership of the relevant actors (publicly committed to change) and the perception of the urgency of change by private actors, together with well-focused support from the administration.

TERRITORY
Navarre, Spain

ACTIONBOOK ACTIVITY
[Continuously engaging with stakeholders](#)
[Developing transition pathways and roadmaps](#)
[Developing a strategy](#)
[Developing the policy and action mix](#)

INTENSITY OF TRANSFORMATION



PARTNERS

leading • Government of Navarra through Sodena – Regional Development Agency of Navarra. Luis Goñi Navarro (lgoni@sodena.com)
with • iCONS – Industrialised Construction



Urban innovation transformation: cases from theory to practice

WHAT ▪ The City of Espoo highlights some of its most transformative practical urban processes, which show how societal challenges are tackled through practical S3 projects.

Kiviruukki: The current small-scale industry and warehouse area will be turned into a new circular economy hub. It aims to be an ecosystem where innovations, excellence, international networks, test environments, services and collaboration meet. A Cleantech Garden campus and a business park will be built in the area. Kiviruukki is one of the City of Espoo's regional spearhead projects in sustainable development. A major factor behind the development plans was the VTT's research center already operating at the site.

Kera: The district is a pioneer in sustainable urban development, where solutions supporting a carbon-neutral circular economy are tested and developed. The city of Espoo has been developing the area through different sustainable urban planning projects over the years, partnering with notable businesses and institutions, e.g., Nokia and Aalto University. The development of the area is based on co-creation with essential operators. Espoo has acted as the convener and facilitator for these operators.

Otaniemi: Otaniemi is a University Campus area with Aalto University, VTT, and other RDI-focused working places including big companies, SMEs and start-ups.

Otaniemi innovation ecosystem has a shared goal of a smart and sustainable future.

WHAT FOR ▪ Showcasing the practical elements of reaching sustainable development goals through urban transformation.

WITH WHAT ▪ Espoo engaged its own urban development resources, requiring cooperation with and investments by all the landowners and operators in the area.

One of the most prominent ways for co-creating is Kera's development commitment, which guides developers to implement sustainable development goals in the long-term. The goals have been defined in extensive cooperation with local operators and stakeholders, and it has been signed by the City of Espoo and the area's landowners.

Espoo's ambitious goal - climate-neutrality already by 2030 - cannot be reached without close co-operation with various stakeholders and ecosystems.

LESSONS LEARNT ▪ Urban transformation based on signed commitments will prioritise long-term sustainability. Involving local actors and stakeholders early in the planning process helps foster a sense of ownership: commitments and the implementation process guide developers towards sustainability goals.

TERRITORY
Espoo, Finland

ACTIONBOOK ACTIVITY
[Setting up a network governance](#)
[Mobilising resources](#)
[Deploying a strategy](#)
[Coordinating the policy and action mix](#)

INTENSITY OF TRANSFORMATION
■ ■ ■ ■

PARTNERS
leading ▪ City of Espoo, Finland
with ▪ VTT Technical Research Centre, Aalto University, Omnia Joint Authority of education, Laurea, Metropolia, ITS Finland, Kone, HEVi, CLC, SOK, L&T, Nokia, Ramboll, Sitowise, Helsinki-Uusimaa Regional Council and many others.





Innovation for place-based transformations

Tools for ACTION

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The following is a collection of tools for taking action towards place-based transformations.

This selection is an updated version of the tools included in the PRI Playbook (Pontikakis et al., 2022). They are categorised by the type of tools they represent (concept, methodology, EU policy initiative and example) and by their level of applicability (local, regional, national, European or all). Each tool is linked to the activities described in the ACTIONbook. The tools are listed in alphabetical order.

This collection of tools for ACTION is the result of ongoing collaborations with colleagues at the Joint Research Centre, across units and directorates; other Directorates at the European Commission; and external experts. Below, we would like to acknowledge and thank penholders for the tools included in this collection.

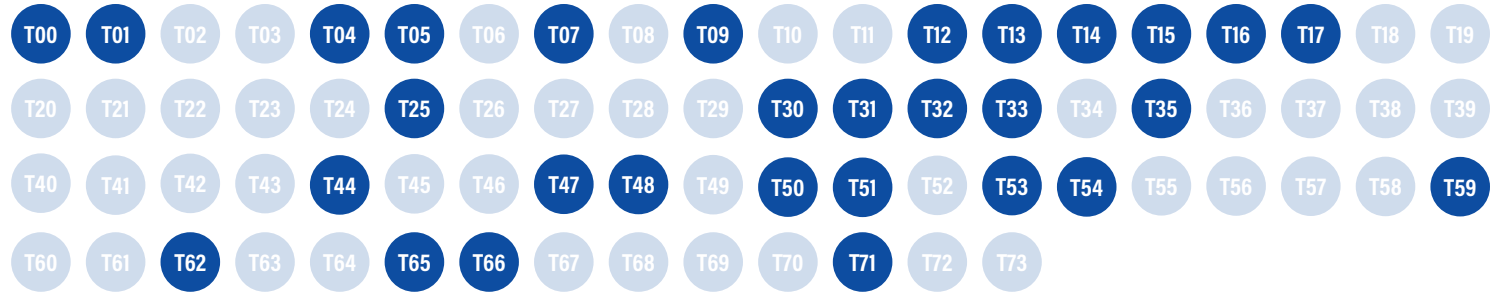
Carla Alvial-Palavicino, Antonio F. Amores, Margherita Bacigalupo, Peter Benczur, Caterina Benincasa, Erica Bol, Ana Boskovic, Alina Brebenel, Patrick Brenier, Christoph Brodnik, Jessica Cariboni, Georgios Chronopoulos, Alex Coad, Magdalena Cymerys, Sarah De Nigris, Anastasia Deligkiaouri, Dario Diodato, Mathieu Doussineau, Zuzana Dutkova, Peter Eder, Adrian Eeckels, Carlotta Fioretti, Nikoleta Giannoutsou, Ângela Guimarães Pereira, Fabrizio Guzzo, Andrea Halmos, Dries Huygens, Annita Kalpaka, Kristian Krieger, M. López Álvarez, Carmen Madrid, Sofía Maier, Marina Manzoni, Anabela Marques Santos, Cristian Matti, Fernando Merida, Michal Miedzinski, Daniel Nepelski, Luis Pedauga, Martina Pertoldi, Andreea Piriú, Emanuele Pugliese, Anna Paola Quaglia, Andrea Renda, Pierre Rialland, Mattia Ricci, Laura Roman, José M. Rueda Cantuche, Pier Paolo Saraceno, Angela Sarcina, Simone Sasso, Christian Saublens, Sven Schade, Isabelle Seigneur, Alice Siragusa, Johan Stake, Iraklis Stamos, Luca Tangi, Siria Taurelli, Giulia Testori, Davide Tonini, Rene Van Bavel and Vera Winthagen.

More colleagues have contributed to this collection with their inputs and comments. We are extremely grateful for their time and insight.

T00	A new European Bauhaus self-assessment compass	T37	Mapping funding opportunities
T01	AI in the public sector	T38	Measuring and monitoring resilience
T02	Art-Science collaborations to spur innovation, transformation & outreach	T39	Monitoring and evaluation in an impact-based policy
T03	Best available techniques and emerging techniques for industrial emissions	T40	Monitoring and evaluation: what and how to evaluate?
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Tool types

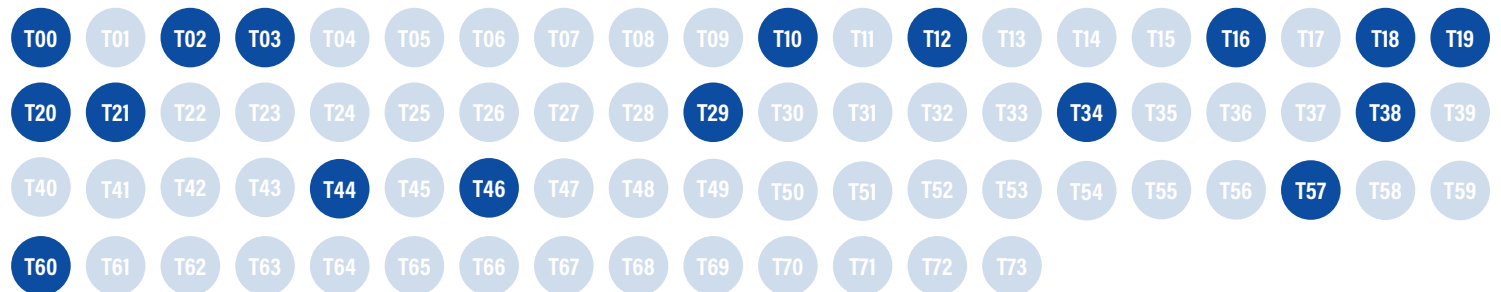
concept



methodology



eu policy initiative



example



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

A new European Bauhaus self-assessment compass

PURPOSE Applying values and principles of the new european bauhaus

USE Guiding decision-making towards neb values and principles

ACTIONBOOK ACTIVITIES [all activities](#)

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Lorenzo De Simone

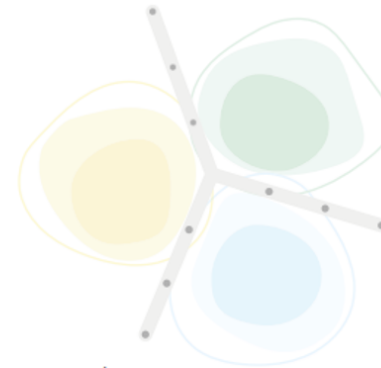
MORE → [New European Bauhaus - Use the Compass](#)
→ [New European Bauhaus - Main page](#)

Participatory process

AMBITION I: to consult

AMBITION II: to co-develop

AMBITION III: to self-govern

**Multi-level engagement**

AMBITION I: to work locally

AMBITION II: to work across levels

AMBITION III: to work globally

Transdisciplinary approach

AMBITION I: to be multidisciplinary

AMBITION II: to be interdisciplinary

AMBITION III: to be beyond-disciplinary

The NEB activates different stakeholders at different levels, from big companies to citizen initiatives, from national governments to city councils. It brings a cultural and creative dimension to the Green Deal to enhance sustainable innovation, technology and economy. The initiative brings out the benefits of the environmental transition through tangible experiences at the local level. It gives space for creation and experimentation founded on three values:

- aesthetics, quality of experience and style, beyond functionality;
- sustainability, from climate goals, to circularity, zero pollution, and biodiversity;
- inclusion, from valuing diversity and equality for all, to securing accessibility and affordability.

While it is based on three working principles:

- participatory process
- multilevel engagement
- transdisciplinary approach.

The Compass is a guiding framework for decision and project makers wishing to apply the NEB principles and criteria to their activities. It can be applied to a wide range of project typologies. It also indicates possible directions for change, with three growing levels of ambition, to support (decision and project) makers at the earliest stage of their activities. The (self)-assessment tools will then add granularity to this framework and introduce specific lists of measurable criteria for specific types of projects. You can use the Self-assessment Compass for any innovation project or activity you plan to carry out or to evaluate ongoing projects.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

AI in the public sector

PURPOSE Delivering better public services using Artificial Intelligence

USE Making the public sector more efficient and effective

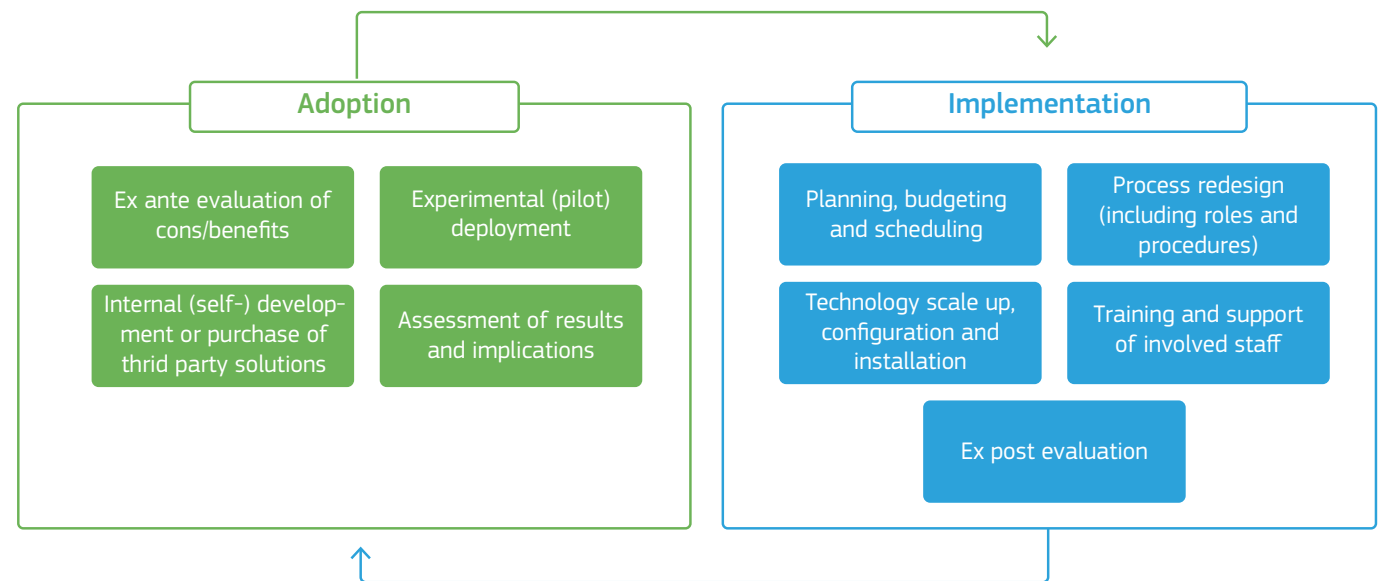
ACTIONBOOK ACTIVITIES [Designing ecosystem support](#)
[Experimenting and demonstrating](#)
[Scaling and mainstreaming](#)
[Mobilising competences](#)

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MORE → [AI watch. Beyond pilots](#)
→ [AI Watch - Artificial intelligence in public services](#)
→ [Innovative public services](#)

Artificial Intelligence (AI) is part of our daily lives. Think about the navigation services in our smart phones, the parking assistants in our cars, or the personalised suggestions on movie and music streaming platforms – in one way or another, they are all using AI. As you may know, also the public sector is increasingly making use of AI to improve public services. In June 2022, the JRC had identified and analysed over 600 cases of using AI in the public sector in the EU. The updated version of the database is available for consultation under the [Public Sector Tech Watch](#). The cases of AI in the public sector range from rather simple chat bots to algorithms that support the review of applications for public funding. As

a so-called general-purpose technology, the possibilities to use AI to improve public services are far reaching. Currently, AI is predominantly an enabler to increase the overall efficiency of the public sector through process and task automation, but also analysis and processing of large amounts of data. However, using AI in the public sector does come with its own set of challenges, for example, related to the trustworthiness and explainability of AI, or challenges in building and using those systems. For these reasons, the journey towards the adoption of AI in the public sector is still in its early stages, and the JRC has also made a number of recommendations to help Member States throughout this process.



Appropriation of AI in the public sector.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Art-Science collaborations to spur innovation, transformation & outreach

PURPOSE Providing a framework overview for the implementation of sustainable art-science collaborations

USE Fostering transdisciplinary collaborations, participation and experimentation for regional innovation

ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Building legitimacy](#)
[Conducting participatory foresight](#)
[Learning from experimentation](#)

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MORE → [JRC SciArt project](#)
→ [Knowledge Valorisation Platform with best practices, including links with further information and contact details](#)
→ [S+T+ARTS collaboration toolkit](#)
→ [S+T+ARTS Collaboration Roadmap](#)

The involvement of artists and cultural organisations in research and innovation frameworks is not commonly supported by public administrations, governance or funding systems. However, the arts and creative practices are key to cultural transformations – enabling systemic shifts, as well as vibrant and socially robust knowledge ecosystems. This tool spotlights the benefits – be it social, commercial, cultural, educational or policy – brought about by supporting the inclusion of artistic and transdisciplinary practices for systemic innovation and multilevel governance of a territory. Art-science is the result of artists and scientists collaborating on a given topic of interest, generating exposure and feedback between customs and value structures. This enables inter-cultural dialogue and embeds practices in different knowledge eco-systems – driving meaning, value, participation, as well as creativity and

competence development. Collaborations between artists, scientists and policymakers have the potential to root scientific and expert knowledge (back) within a socio-cultural context, making these more relatable and thus meaningful and relevant to a non-expert public. Art-science collaborations contributes to knowledge valorisation, contests disciplinary silos, and co-creates new imaginaries for research and governance. Art-science collaborations and arts-based interventions can be implemented in a variety of organisations, administrations, and governance instances. Operationally, they function best when tailored to needs, spaces and expectations, taking into account resources and cultures.

Find out more about how to implement art-science collaborations through these [resources, tools and references](#) or otherwise [contact us](#). Funding opportunities can be explored [here](#).



Fostering transdisciplinary practices for regional innovation



Image: Anatomy of an Interconnected System, 2017.

Lament

Lament embraces overlooked stories of transformations in post-wildfire environments along two trajectories: with a focus on soil and through community engagement. Beyond the spectacular force of wildfires, Lament reflects on wildfires and the anthropogenic shifts in fire regimes by inquiring into more-than-human becoming in soil. Lament is an art-science project involving local communities, scientific researchers, EC policymakers and environmentalists around sites affected by wildfires.

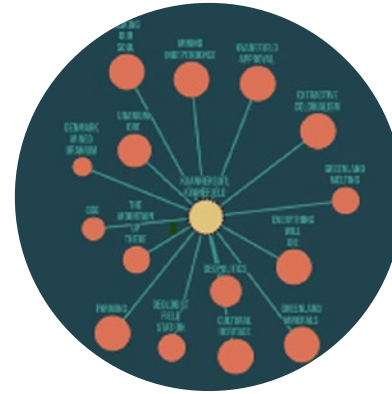


Image: from the archive Kuannersuit/ Kvanefjeld by L Autogena & J Portway

Kuannersuit / Kvanefjeld – The Mountain that became the epicentre for a discussion about Greenland’s future

How to create stronger exchanges between local communities, scientific research and policy needs? Working with and across stakeholders, artists Autogena & Portway look at a community divided on the issue of uranium mining. Exploring the difficult decisions and trade-offs faced by a culture seeking to escape a colonial past whilst defining its own identity in a globalised world, this interdisciplinary project creates connections and dialogue between key actors around the Kvanefjeld mountain. Kuannersuit / Kvanefjeld - the mountain that became the epicentre for a democratic discussion about Greenland’s future - is an art installation, video documentary and evolving online archive which examines the divisive issue of uranium mining in Greenland.



Image: Synocene presentation at Museum of Art & History Brussels, 2023.

Nature, AI and Human narratives around Nature2000 sites

Synocene is a transdisciplinary art-science project, workshop and artwork that engage local communities, Natura 2000 forests, and artificial intelligence around our manifold understandings of Nature. It enables people to express themselves and participate in the co-creation of an artwork whilst probing perceptions and needs of living next to nature reserves. A visual artist, a musician, an AI expert and a policymaker create participatory frameworks to explore how we understand nature and nature protection, co-creating processes of speculative positive futures.



Image: Parc des Ateliers. COURTESY: Atelier LUMA / PHOTOGRAPH: © Adrian Deweerdt

Using natural and renewable resources for design and architecture on a bioregional scale

Based in Arles (Fr), Atelier Luma brings together a team of designers, engineers, scientists, and experts from the fields of culture, craftsmanship, humanities, social sciences and innovation, to explore the potential of non-extractivist and often discredited local materials such as invasive plants, agricultural coproducts, algae, and industrial waste. Find out how to apply a multidisciplinary design approach to the environmental, economic, and social challenges of your territory by contacting Atelier LUMA.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Best available techniques and emerging techniques for industrial emissions

PURPOSE Innovating sustainably

USE Implementing Best Available Techniques and emerging techniques in industrial activities

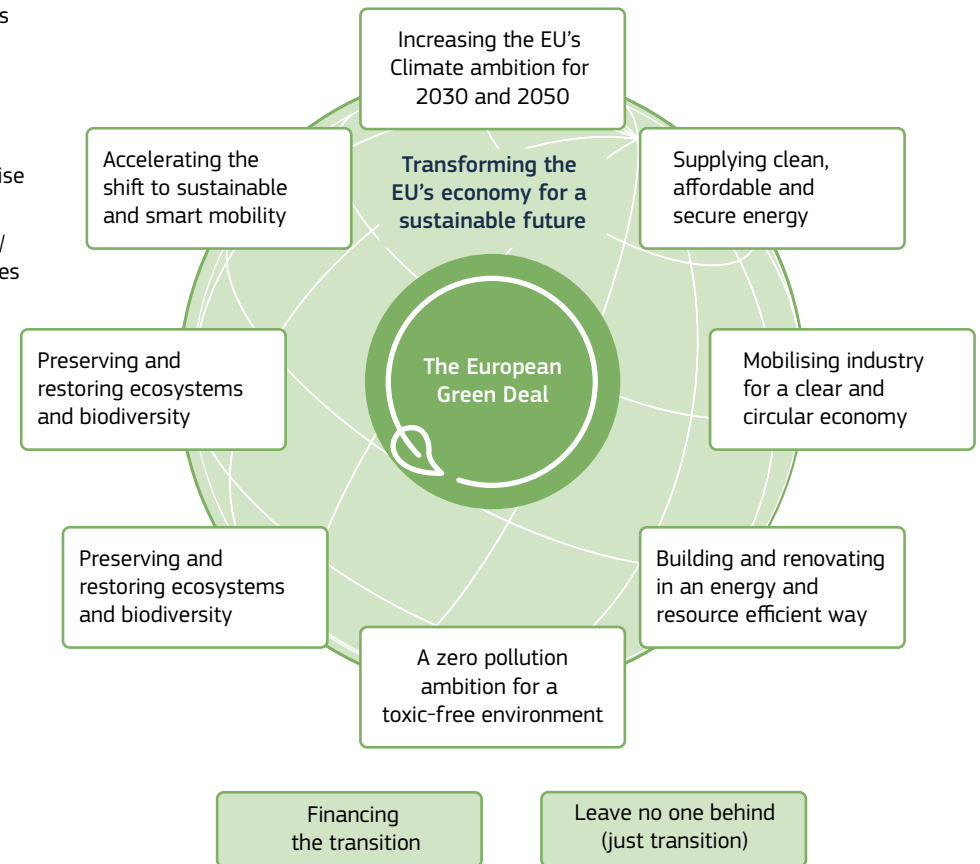
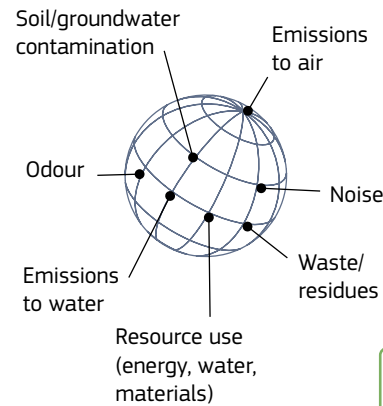
ACTIONBOOK ACTIVITIES [Building legitimacy](#)
[Continuous monitoring](#)
[Evaluating impact](#)

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MORE → [European IPPC Bureau](#)
→ [Industrial emissions and safety](#)

Best Available Techniques (BAT) indicate the techniques which are: i) the most effective in achieving a high general level of protection of the environment as a whole, ii) developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions. They refer to both the technology used and the way the installation is designed, built, maintained, operated and decommissioned. Emerging techniques (ET) refer to the techniques that, if commercially developed, could provide either a

higher general level or the same level of environmental protection and higher cost savings than existing BATs. The application of the BAT concept has assisted to reduce significantly, at EU level, the industrial emissions to air and water and to promote circularity in industrial processes. Application of emerging techniques promotes innovation and helps achieve further reduction in emissions. Both approaches will help define priorities on investment decisions and will contribute to the development of strategic technology investment pathways.



Environmental impact of industrial activities / role of BAT and ET in the EU Green Deal.

Broad-based business innovation

PURPOSE Designing a policy and action mix to support diverse business innovation capabilities, including SMEs

USE Enlarging the pool of innovating firms, strengthening overall business innovation performance

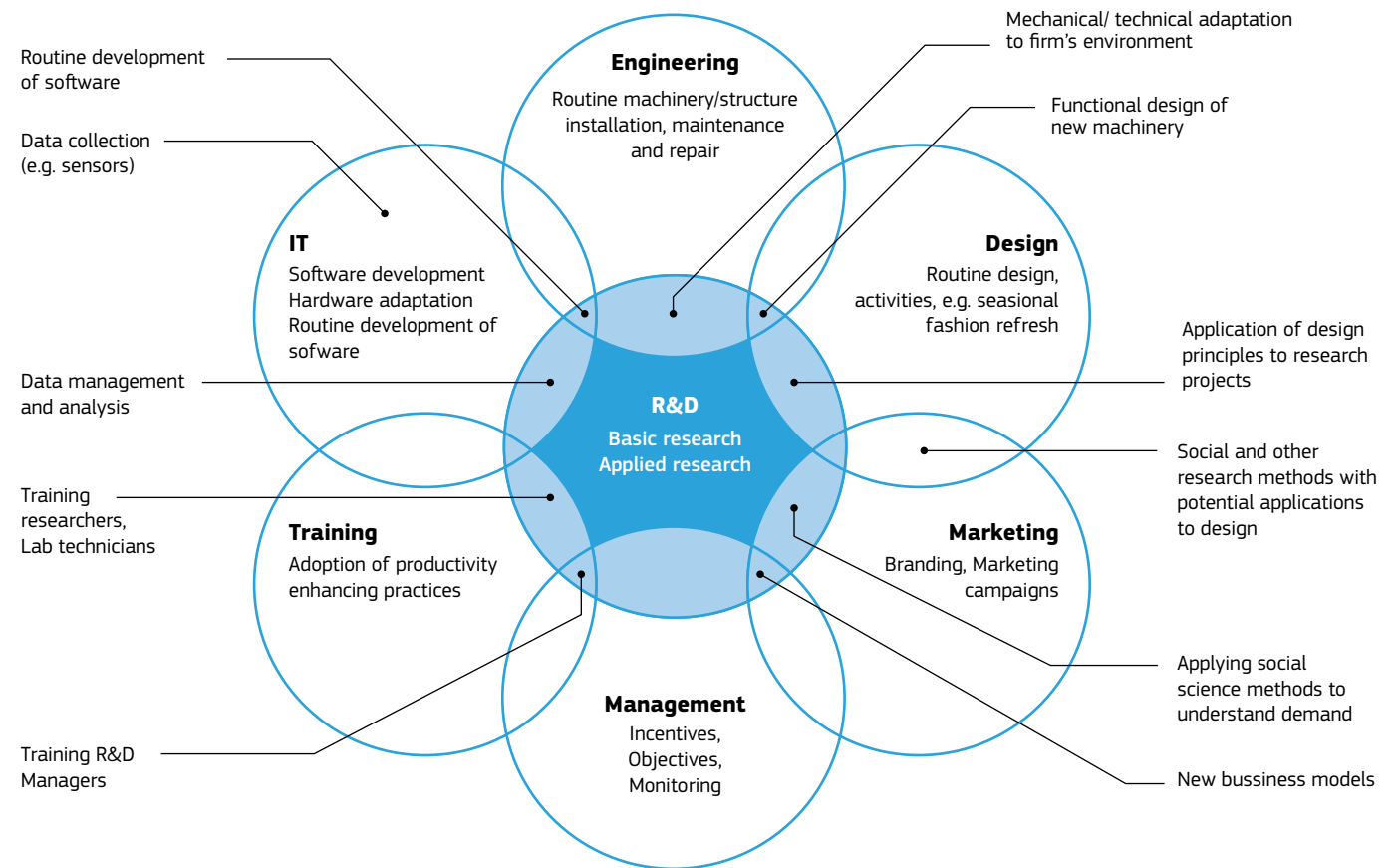
ACTIONBOOK ACTIVITIES [Developing the policy and action mix](#)
[Mobilising resources](#)
[Designing ecosystem support](#)

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MORE → [Innovation Capabilities and Directions of Development by Martin Bell.](#)

Broad-based innovation capabilities include R&D and also non-R&D innovation activities (see figure below), which are important for services firms and for SMEs.

Non-R&D innovation is complementary to and can be a stepping stone to more, more systematic and more valuable business R&D and innovation activities.



R&D and non-R&D innovation activities. Source: Adapted and expanded from a similar diagram on design innovation by Gallindo-Rueda and Millot (2015, p. 51)

If most firms in the territory are not yet reporting systematic innovation activities, the kinds of support needed to enlarge the pool of innovators should go well beyond collaborative projects with universities, that tend to exclude SMEs that do not yet engage in systematic

innovation activities. The table below helps you visualise how you can support capacity building through policies targeted at the different innovation needs of your innovation ecosystem.

Capacity building / development stage	A. From no innovation to innovation that is at least new-to-the-firm	B. From primarily new-to-the-firm to innovation that is at least new-to-the-market	C. From new-to-the-firm and new-to-the-market to innovation that is at least new-to-the-world
Policy tasks			
1. Increase the pool of innovators	Innovation training Innovation vouchers/microfinance Knowledge-intensive employment subsidies	Loan guarantees Public procurement Knowledge-intensive employment subsidies	R&D subsidies R&D tax incentives
2. Increase the intensity of innovative effort	Favourable capital depreciation allowances	R&D subsidies R&D tax incentives	R&D subsidies R&D tax incentives
3. Diversify by extending the range of innovation modes and fostering collaboration	Promote collaboration between firms, establish inter-firm networks of learning	Promote collaboration between firms, service providers and vocational education providers	Promote collaboration in dense networks of firms, universities, public research institutes and others

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Capacities for transformative innovation in public administrations

PURPOSE Indicating necessary capacities for a well-functioning multi-level governance set-up

USE Planning a rigorously coordinated process including capacity building from the start

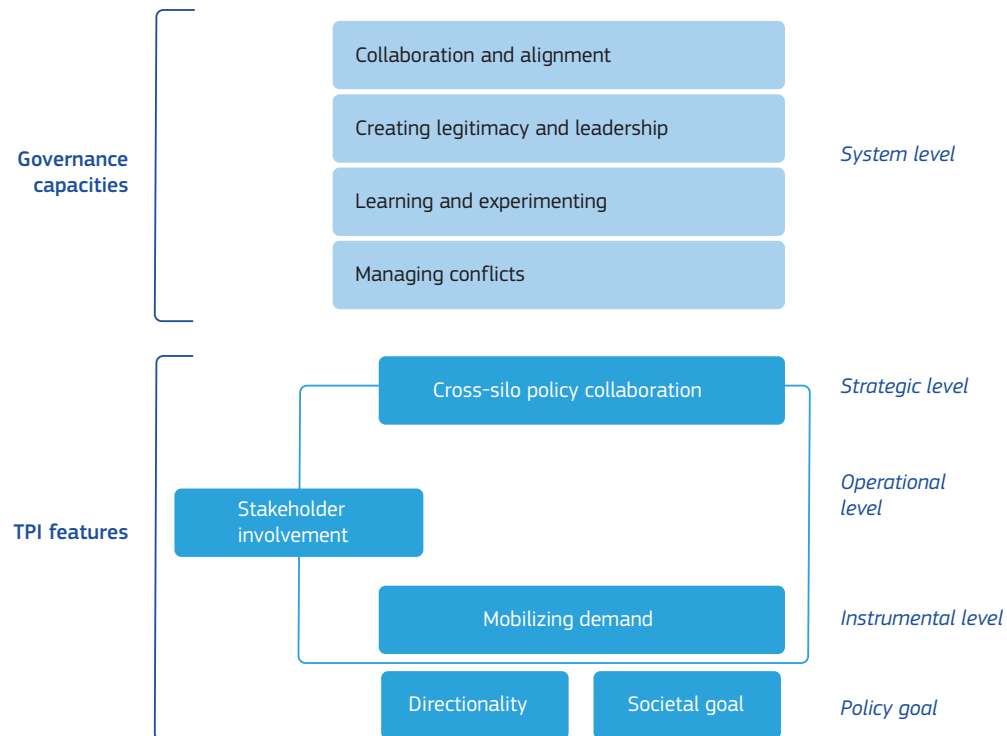
ACTIONBOOK ACTIVITIES [Diagnosing and developing a vision](#)
[Enabling multilevel cooperation](#)
[Collaborating across departments](#)

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MORE → [Governance capacities for transformative innovation](#)
→ [Innovative capacities of governments](#)
→ [Capacities for missions](#)

Coordination is key considering the number of pitfalls that could exist when a State prioritises a strong goal. The government at all levels has a role in facilitating the transformative policy initiative (TPI). The underlying mechanism is to involve different ministries depending on the theme with one of them as a lead, but the diffusion part will eventually be undertaken by the other ministries. All the players involved will be helping each other in a coordinated approach. In addition, in certain new and more inclusive governance arrangements, the government could refrain from being the leader but would act as an enabler to achieve more open, transparent and diverse policy networks and policy processes across stakeholders. Directionality, societal goals and a cross-cutting policy field embedded in the societal agenda with several specific-policy domains (such as envi-

ronment, energy, health, agriculture) should be identified. In parallel, coordination arrangements between national, regional and local governments together with subnational capacity building are necessary. Striving for horizontal and vertical alignment across domains as well as multi-level and temporal policy alignment can be important for a successful transition. This requires a set of governance capacities, in particular regarding collaboration and alignment, creating legitimacy and leadership, learning and experimenting, and managing conflicts. Depending on the governance model (administration-based governance, network-based governance, or society-based governance), different pathways can be explored for developing relevant governance capacities.



T06

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Challenge-led system mapping

PURPOSE Providing a practitioner-oriented narrative for designing and implementing innovative participatory processes

USE Designing and implementing system mapping processes

ACTIONBOOK ACTIVITIES

- [Identifying stakeholders for given societal goals](#)
- [Setting milestones and targets](#)
- [Developing the policy and action mix](#)
- [Designing local missions](#)

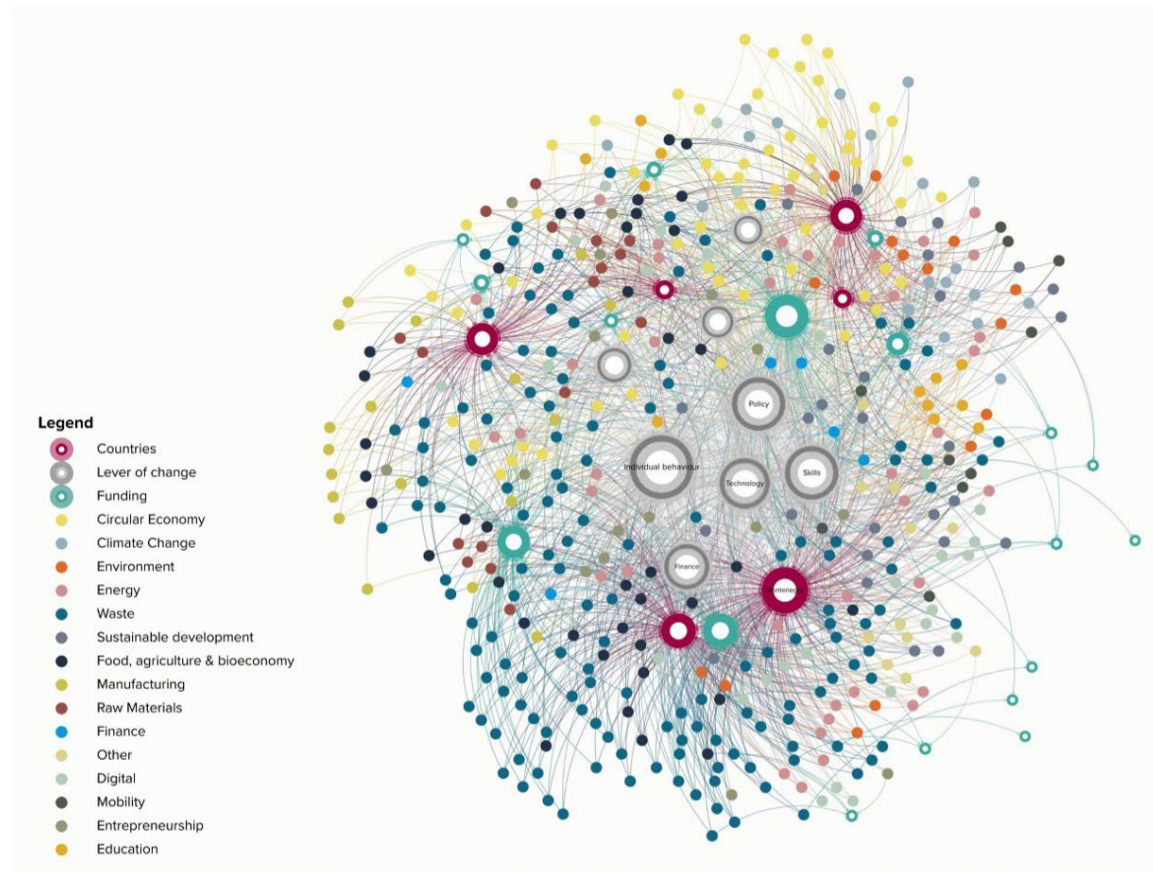
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MORE

- [Challenge-led System Mapping. A knowledge management approach.](#)
- [Webinar Network Analysis as a tool for science, policy and practice interface](#)
- [Example: EIT Cross-KIC project on Circular Economy in the Western Balkans Here](#)

Challenge-led systems mapping is a flexible learning-by-doing participatory approach aimed to improve the collective understanding of system components and transformative change while allowing the exploration of governance structures, thematic priorities and innovation capacity at multiple territorial levels. Mapping processes focused on innovation portfolios allows multi-stakeholders to explore strategic opportunities,

prototyped actions, projects and interventions throughout multiple nested and articulated portfolios responding to different financial logic and institutional frameworks. At the same time, knowledge management and visualisation contribute to a collectively created notion of the socio-technical system facing specific multilevel, cross-regional and place-based topics.



Circular Economy innovation portfolio map for the Western Balkans.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Challenge-oriented innovation

PURPOSE Enabling challenge-driven innovation

USE Designing transformative policies that create multiple value

ACTIONBOOK ACTIVITIES [Identifying stakeholders for given societal goals](#)
[Setting milestones and targets](#)
[Designing local missions](#)
[Experimenting and demonstrating](#)

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MORE → [Mission-Oriented Innovation Network \(MOIN\) 2021 Casebook](#)
→ [Mission-oriented Innovation Policy Observatory](#)
→ [OECD Mission-Oriented Innovation Policies toolkit](#)

Challenge-oriented (or mission-driven) innovation policy starts with well-defined societal goals and designs its research and innovation as well as regulatory measures around such goals to address them in a timely manner. Such policies consider the whole innovation cycle from research to demonstration and market deployment, mix supply-push and demand-pull instruments, ranging across various policy fields, sectors and stakeholders. Such a transversal approach is needed to achieve the SDGs. In contrast to traditional innovation policy, it aims at building policy coordination and joint ownership with

stakeholders, and guiding directionality to tilt players in the market towards societal grand challenges. You can apply the ROAR framework to advance such transformative policies, where the state behaves as ‘market co-creating’ and ‘market-shaping’. With ROAR, you can promote strategic thinking about the desired direction or Routes, the structure and capacity of public sector Organisations, the way in which policy is Assessed, and the incentive structure for both private and public sectors, or Risks and Rewards.

Routes – direction	Organisations	Assessment and evaluation	Risks and rewards
<p>Focusing on a challenge determines the direction of policy, i.e. its goal, rather than one best way to get there.</p> <p>Challenge-oriented policies should be:</p> <ul style="list-style-type: none"> • Broad to engage the public; • Enable concrete missions to create societal value; • Attract cross-sectoral investments; • Involve industry; • Allow bottom-up initiatives and experimentation; • Achieve measurable success. 	<p>To succeed implementing challenged-oriented policies, public organisations should develop and nurture skills and structures to learn and create dynamic public-private partnership through:</p> <ul style="list-style-type: none"> • Capabilities for leadership and engagement; • Experimentation capabilities; • Evaluation capabilities able to integrate approaches such as user research, social experiments and system level reflection; • Transversal skills, across disciplines and sectors. 	<p>Promoting functional finance as a government spending approach, where fiscal policy focuses on achieving desired missions, while budget deficit plays a minor role.</p> <p>Cost benefit analysis and net present value prevent proactive market creating and shaping. Instead, dynamic efficiency involves using resources to achieve changes over time to achieve goals.</p> <p>Defining concretes target and objectives is critical.</p>	<p>Treating investments as a portfolio, to balance wins and losses, thus reaping (financial) benefits to fund investments in other areas/policies/initiatives and/or learning from failures.</p>

Grand Challenge



Mission



Areas of interest & cross-sector



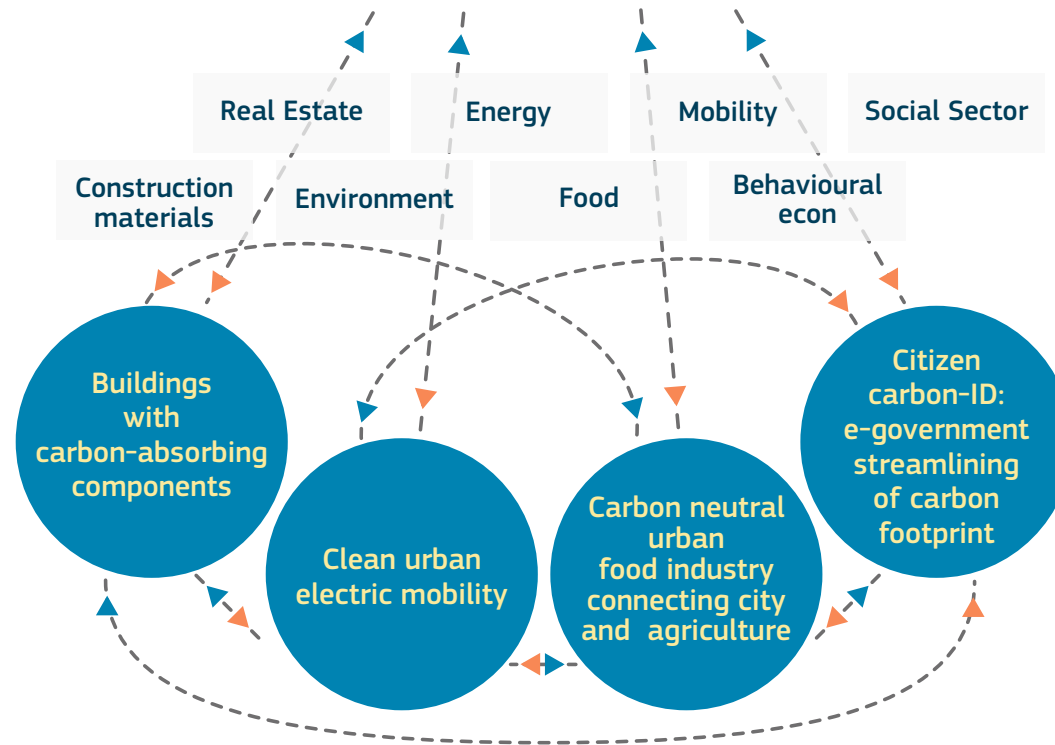
R&I Projects

CLIMATE CHANGE



100 CARBON NEUTRAL CITIES BY 2030

Reach net zero greenhouse gas emissions balance of 100 European cities by 2030



100 carbon neutral cities by 2030. Source: Mazzucato 2018.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Citizen engagement in support of biodiversity: BiodiverCities

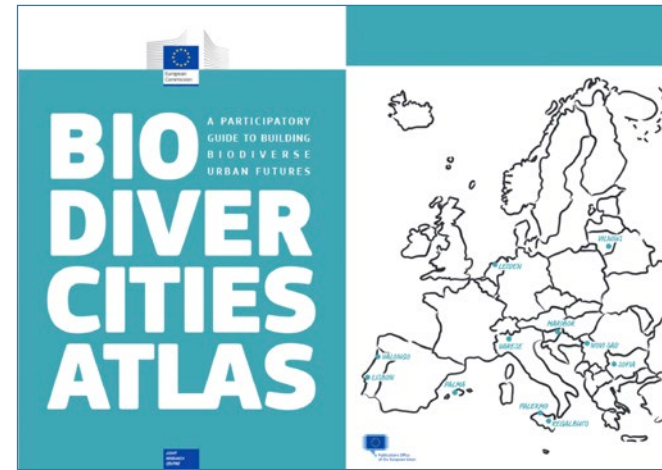
PURPOSE Engaging citizens in policymaking and research for biodiversity protection

USE Inspiring cities to learn and replicate

ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Building legitimacy](#)
[Conducting participatory foresight](#)
[Agenda setting and sharing](#)

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MORE → [Participatory and Deliberative Democracy - Main page](#)
→ [BiodiverCities Atlas: A participatory guide to building urban biodiverse futures](#)
→ [Subscribe to our newsletter](#)
→ Attend one of our trainings



The BiodiverCities Atlas shows the case-studies of ten European cities - Palermo, Regalbuto, Varese, Lisbon, Valongo, Palma, Leiden, Maribor, Novi Sad and Vilnius. They were selected to conduct a co-creation process, locally engaging citizens in support of urban biodiversity. The [Atlas](#) presents highlights, institutional and practical challenges, and lessons learnt from the local engagement processes, accompanied by several contributions from social and natural researchers. The diversity of citizen engagement formats, political and institutional cultures used across these ten cities, has showed how public institutions and citizens can work together to meaningfully address, pressing challenges such as biodiversity decline or liveability of our cities. Three lessons of relevance to different policy domains are:

1. Move away from behavioural change and information-transfer mindsets, rather focus on social and institutional change. Novel understandings of change are needed, as daily choices and ways of living are embedded in complex regulatory, infrastructural and cultural systems. Without tackling these, change risks being left to individual pledges. Engaging citizens enables space to invite different publics to political discussions that matter to all.
2. For responsible, humble and reflexive policymaking, invest in institutional change and in building new ca-

pacities. This demands renewed institutions (i.e.,

institutional innovation) that, at all levels, start to work differently, internally and with citizens for an inclusive and sustainable present. BiodiverCities sheds light on what the political and institutional enabling conditions are for citizen engagement to happen at local level, proposing ways to address challenges met along the way.

3. Situated knowledge is not “dull” knowledge. From technological developments to climate change, several contemporary challenges imply governing uncertainties of different kinds: uncertainties in the features of the challenge itself, of its outcomes, of its ethical and socio-cultural implications and its political management. Understanding local contexts, political culture, concerns and needs, by valuing situated knowledge, limits the risk of creating new vulnerabilities and tensions.

How can we support?

The European Commission’s Competence Centre on Participatory and Deliberative Democracy is equipped to provide the expertise, tools and methods needed to support citizen engagement processes. It is collaborating actively with an extended community of practitioners across EU countries and can offer guidance and support to other interested institutions, e.g., trainings to public officials and local administrations.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Citizen science

PURPOSE Innovating in evidence-based policymaking

USE Fostering social innovation in local contexts

ACTIONBOOK ACTIVITIES

- [Identifying stakeholders for given societal goals](#)
- [Continuously engaging with stakeholders](#)
- [Designing ecosystem support](#)

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MORE

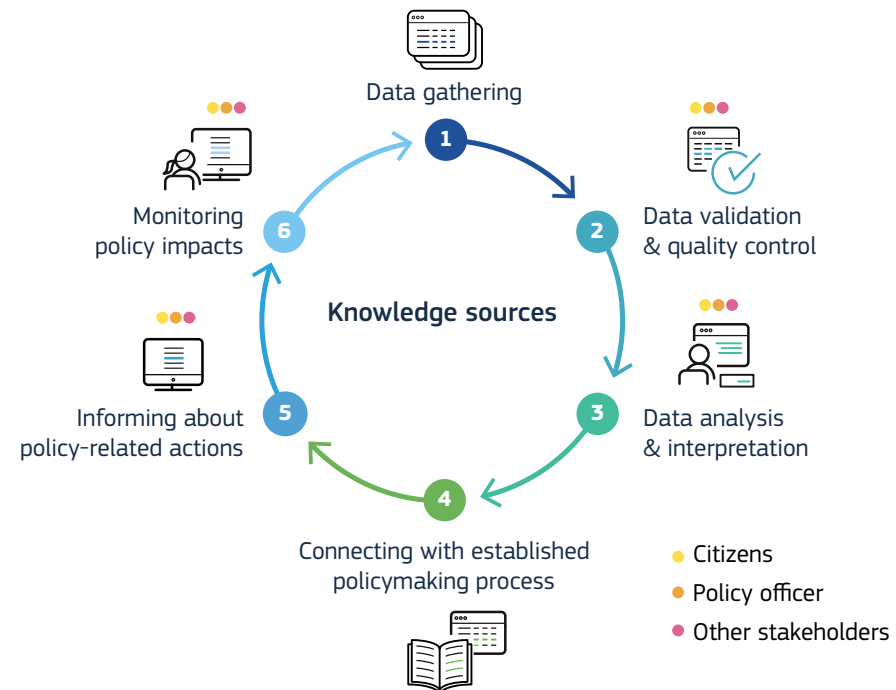
- [Activity Report on Citizen Science – discoveries from a five year journey](#)
- [Scaling up Citizen Science](#)
- [Citizen science and the United Nations Sustainable Development Goals](#)

Citizen Science (also known as public participation in scientific research) evolved from a long tradition in fields, such as biodiversity and meteorology, into almost all scientific fields. Simultaneously, regional and global communities became well organised and interconnected, and we arrived at a situation in which Citizen Science is not only prominent in research and civil society, but also well recognised in policy (e.g. related to Open Science and Better Regulation).

On the one hand, citizen scientists can contribute with valuable knowledge to scientific research, and thereby help innovate evidence-based policymaking. The benefits have been recognised long ago in terms of bird monitoring, weather monitoring and other environmental fields. Today, structured approaches exist that enable citizens to contribute data that they observe in their immediate environment to official monitoring processes at

sub-national, national and international levels. Such engagements enable citizens to provide valuable contributions to science and policy, while they also help raise awareness and educate about environmental topics. The monitoring of the Sustainable Development Goals (SDGs) can be well supported.

On the other hand, knowledge creation and sharing between citizens, scientists and public administrations can also help develop a shared understanding of matters of concern, and it can empower all participants to co-design solutions that fit each other's needs. For example, people living in the same neighbourhood might collect data about certain environmental stresses (such as noise or odour), patterns and sources of these stresses could be identified, possible solutions discussed with all that are involved, and then implemented with the relevant public authorities.



Integrating citizen science with evidence based policy making, a cycle of six steps.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Citizens engagement in innovation policy

PURPOSE Empowering citizens

USE Proactively influencing innovation policy

ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Building legitimacy](#)
[Conducting participatory foresight](#)
[Agenda setting and sharing](#)

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MORE → [Competence Centre on Participatory and Deliberative Democracy](#)
→ [Community of Practice at the Competence Centre on Participatory and Deliberative Democracy](#)

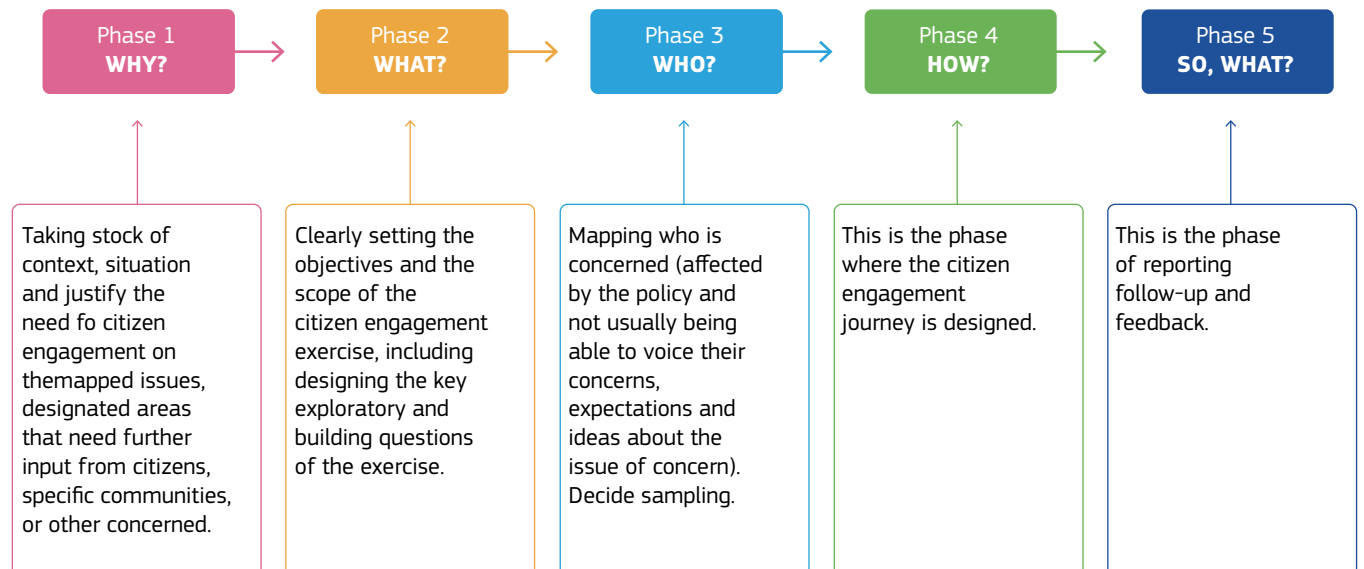
By engaging citizens in participatory and deliberative exercises, policymakers can contribute to making innovation processes resonate with citizens' expectations and knowledge. This is especially true when these processes become inclusive and reach out to citizens who do not usually have a voice in innovation or innovation policy. Participatory and deliberative exercises thus increase the likelihood of generating fit-for-purpose and responsive innovations that could be more readily taken-up in society.

Well-designed and targeted participatory exercises can deliver timely and useful insights to help innovators grasp, leverage or mitigate social, ethical and other non-economic aspects of innovation. Therefore, by engaging citizens more systematically, innovators could explore societal concerns, expectations and values in relation to the problem a particular innovation is meant to address, and eventually generate both better public value and higher business returns.

Engaging citizens can also help pre-emptively understand, and respond to, possible controversies generated

by arguably reckless technological innovations. Hence, citizens can play an active role within innovation ecosystems. Through engagement, collaboration and co-creation, they get empowered to influence future pathways for innovation, resulting in improved trust in innovation systems and in innovation policy. They further get engaged more prominently in the monitoring of the deployment of technology, seen through the real impact on their lives.

In practical terms, you can plan a citizen engagement exercise over five basic phases, as depicted below. Citizen engagement exercises can be set up independently, or in conjunction with stakeholder-oriented formats, including the involvement of policymakers and innovators alike. The Commission's Competence Centre on Participatory and Deliberative Democracy is equipped to provide the expertise, tools and methods needed to support the design and implementation of these exercises. It is collaborating actively with an extended community of practitioners across EU countries, and can offer guidance and support to other interested institutions.



The five phases of planning a participatory process.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Co-creation for policy

PURPOSE Providing a practitioner-oriented narrative for designing and implementing innovative participatory processes

USE Organising policy co-creation processes and events in a purposeful and structured way

ACTIONBOOK ACTIVITIES

- [Identifying stakeholders for given societal goals](#)
- [Enabling multilevel cooperation](#)
- [Collaborating across departments](#)
- [Collaborating across territories](#)
- [Developing the policy and action mix](#)
- [Designing local missions](#)

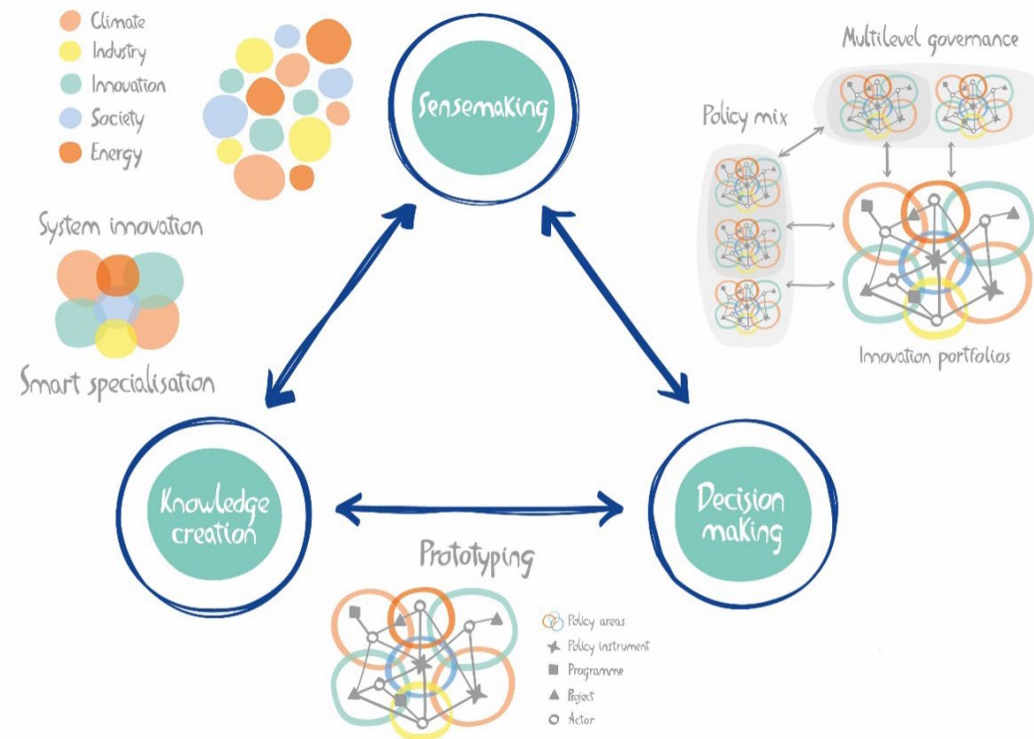
AUTHORS Cristian Matti
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MORE

- [Co-creation for policy. Participatory methodologies to structure multi-stakeholder policymaking processes](#)
- [Transitions policy lab webinar on co-creation for policy](#)

The co-creation for policy handbook provides practical steps and recommendations for identifying synergies among stakeholders across territories, sectors and levels. It shows how to ensure optimal knowledge management and efficient communication to optimise resources use, policy convergence and the achievement of positive results when designing or implementing policy. By com-

binning community engagement and knowledge management services, the handbook highlights how participatory processes can be embedded in the policymaking cycle to improve the societal value of generating collaborative innovation, goodwill and co-created evidence for informing policymaking.



Knowing cycle in policy co-creation processes. Source: Matti et al., 2022.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Competence framework for 'innovative policymaking'

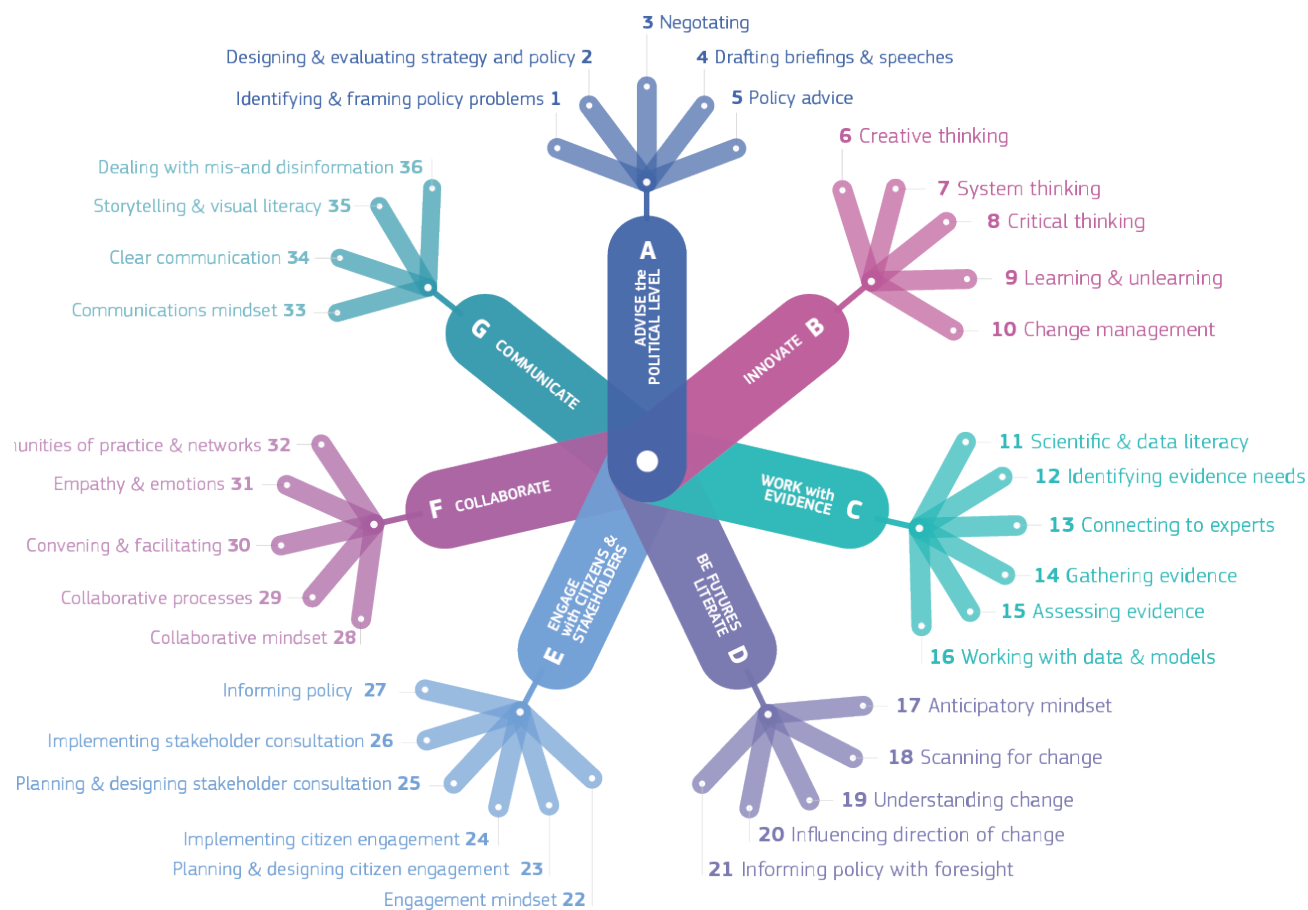
PURPOSE Supporting policymakers to develop relevant competences on innovative policymaking

USE Developing and mastering competences needed in innovative policymaking

ACTIONBOOK ACTIVITIES [Conducting participatory foresight](#)
[Designing ecosystem support](#)
[Mobilising competences](#)

AUTHORS (EC-SMART-FOR-POLICY@ec.europa.eu)

MORE → [Competence framework on innovative policymaking](#)



In a fast-changing world and faced with global challenges of climate change, digital and green transitions, the public sector and policymaking institutions are actively seeking and deploying new and innovative approaches to policymaking and regulation. This also requires **policymakers to continue developing new competences**, or upgrade existing ones, to rise to the global challenges and be able to deliver innovative and future-proof policy solutions. The EU Policymaking Hub is the professional development programme of the European Commission exactly targeted at developing such policymaking skills and competences. For this, it has developed a vision and a framework for innovative policymaking competences. While traditionally the focus on policymaking competence development centred on the

activities structured around the policy cycle, namely policy planning, policy design and impact assessment, policy implementation and policy evaluation phases, the ability to tackle global, interconnected and complex societal challenges requires a more developed and future-oriented vision of policymaking competences. The policymaking competence framework identifies a **set of seven essential crosscutting competence areas** that are necessary for innovative policymaking at every stage of policymaking. The framework contains seven competence clusters (A-E). Each cluster contains competences, described in knowledge, skills and attitudes required to master this competence from a foundational up to an expert level. There is a total of 36 competences on innovative policymaking.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Competences: empowering civil servants to create sustainable prosperity

PURPOSE Pursuing transformative ideas in the public sector

USE Developing and nurturing employees with an entrepreneurial mindset

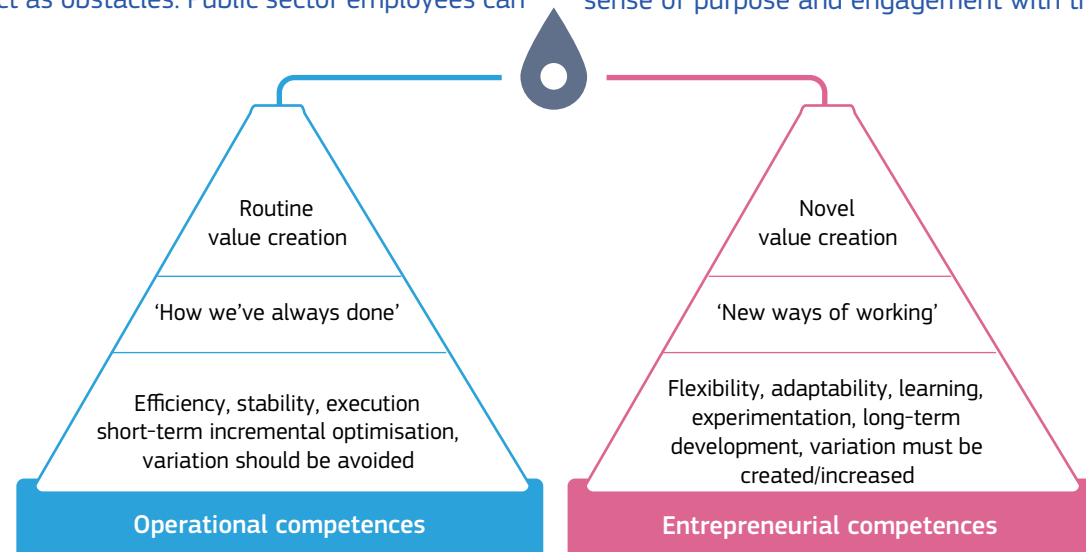
**ACTIONBOOK
ACTIVITIES** [Setting up a network governance](#)
[Enabling multilevel cooperation](#)
[Scaling and mainstreaming](#)
[Managing and transforming knowledge](#)
[Mobilising competences](#)

AUTHORS Margherita Bacigalupo
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MORE → [The entrepreneurial Employee in the public and private sector. What, why, how.](#)

“Experimenting with new ideas is not part of my job. Public organisations should not waste public money on trial-and-error”. In an increasingly volatile, uncertain, complex and ambiguous world, can public administrations focus only on routine value creation, i.e. delivering what has worked so far to address well-defined problems? Given the unprecedented pace of innovation, worsening environmental conditions, and changing citizen needs, public administrations need to future-proof their strategy by supporting purposeful innovative ideas that create value for society and contribute to the SDGs. To this aim, civil servants need to be equipped with the entrepreneurial competences to address complex challenges and ill-defined problems creatively, to cope with uncertainty ambiguity and risk, to mobilise resources so that they can transform such ideas into public value. This can be hard to achieve, given that current organisational structures and cultures may tend to allocate resources and rewards to deliver routine work. In this light, public sector employees could think that experimenting with new ideas is not part of their job or organisation. Furthermore, resistance to change and fear of failure can also act as obstacles. Public sector employees can

become more entrepreneurial by performing a balancing act: being flexible and exploring new ways of working and interacting with different stakeholders, while also delivering on their daily tasks, where execution and efficiency are prioritised. Entrepreneurial employees care about their job, try hard to envision experiment, and collaborate to create new kinds of value for others and they are an important asset for your organisation to address “glocal” sustainability challenges. Employees with an entrepreneurial drive surely work in your organisation already. They just need to be given slack resources, time and autonomy as well as trust to pursue their ideas. You may have a key role in providing leadership and institutional support. By enabling your team to become more entrepreneurial you are likely to help your organisation remain relevant and keep delivering value to its intended beneficiaries despite disruptions, setbacks and uncontrollable externalities. What is more, you will also see how the motivation of the staff working in your organisation will increase, as pursuing the creation of value someone cares about enhances their sense of purpose and engagement with their job.



Balancing operational competence and entrepreneurial competences.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Competences for the green and digital transition

PURPOSE	Inspiring change in your education and training systems
USE	Equipping citizens with competences to play a creative role in the twin transition
ACTIONBOOK ACTIVITIES	Collaborating across departments Collaborating across territories Mobilising competences
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MORE	→ Scaffold video → Scaffold guide

Technological innovations, climate change, demographic trends, migration flows, together with sudden shocks such as financial crisis, pandemic outbreaks or shifts in global order are changing societies and economies thus affecting how Europeans live and engage in society, including in the labour market. They also affect your job as policy maker, faced with challenges of unprecedented complexity.

One of such challenges is ensuring people have the knowledge, skills and attitudes that allow them to fulfil their aspirations while contributing to shared global responsibilities (e.g., the SDGs). How can you equip people with the future-fit competences that empower them to thrive in a fast-changing world when the future is so uncertain? How can you teach them what they need to shape the digital and green transitions to achieve collective prosperity? This is the case even when those who are in education and training today may end up working in sectors that do not yet exist, developing knowledge in disciplines that are emerging, interacting with technologies that are yet to come.

First and foremost, it is essential that you decouple learning from education provision. Learning happens at school in as much as in non-formal training or through informal learning experiences. By taking a lifelong and life-wide approach to learning, you ensure that you focus not only on providing people with basic skills (litera-

cy, numeracy and basic digital skills) and civic competences, but also competences that will help them face complexity and change.

Such competences include, for example, personal and social competences, at the core of individual resilience and well-being; the capacity of learning to learn, essential to shape the course of transformation and adaptation ([LifeComp](#)). Also included is the capacity to turn ideas into action, fundamental to generate new value for oneself and society ([EntreComp](#)). Then, sustainability competences are critical and key to ensure that human action and value creation remains within planetary boundaries ([GreenComp](#)). Least but not last, digital competences are essential and build confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and participation in society ([DigComp](#)).

The European Commission has developed a series of reference documents and support tools to help you innovate in lifelong learning by embedding the competences society needs to make the twin transition a process of transformation that is just and inclusive. The European Training Foundation and the European Commission have also developed a set of cards, [Scaffold](#), to help educators and trainers, but also self-learner, play and integrate competences in their learning activities.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Competences: futures literacy

PURPOSE Understanding possibilities ahead to make more informed decisions in the present

USE Stretching your thinking and imagine possible futures

ACTIONBOOK ACTIVITIES

- [Diagnosing and developing a vision](#)
- [Conducting participatory foresight](#)
- [Developing transition pathways and roadmaps](#)
- [Setting milestones and targets](#)
- [Agenda setting and sharing](#)
- [Mobilising competences](#)

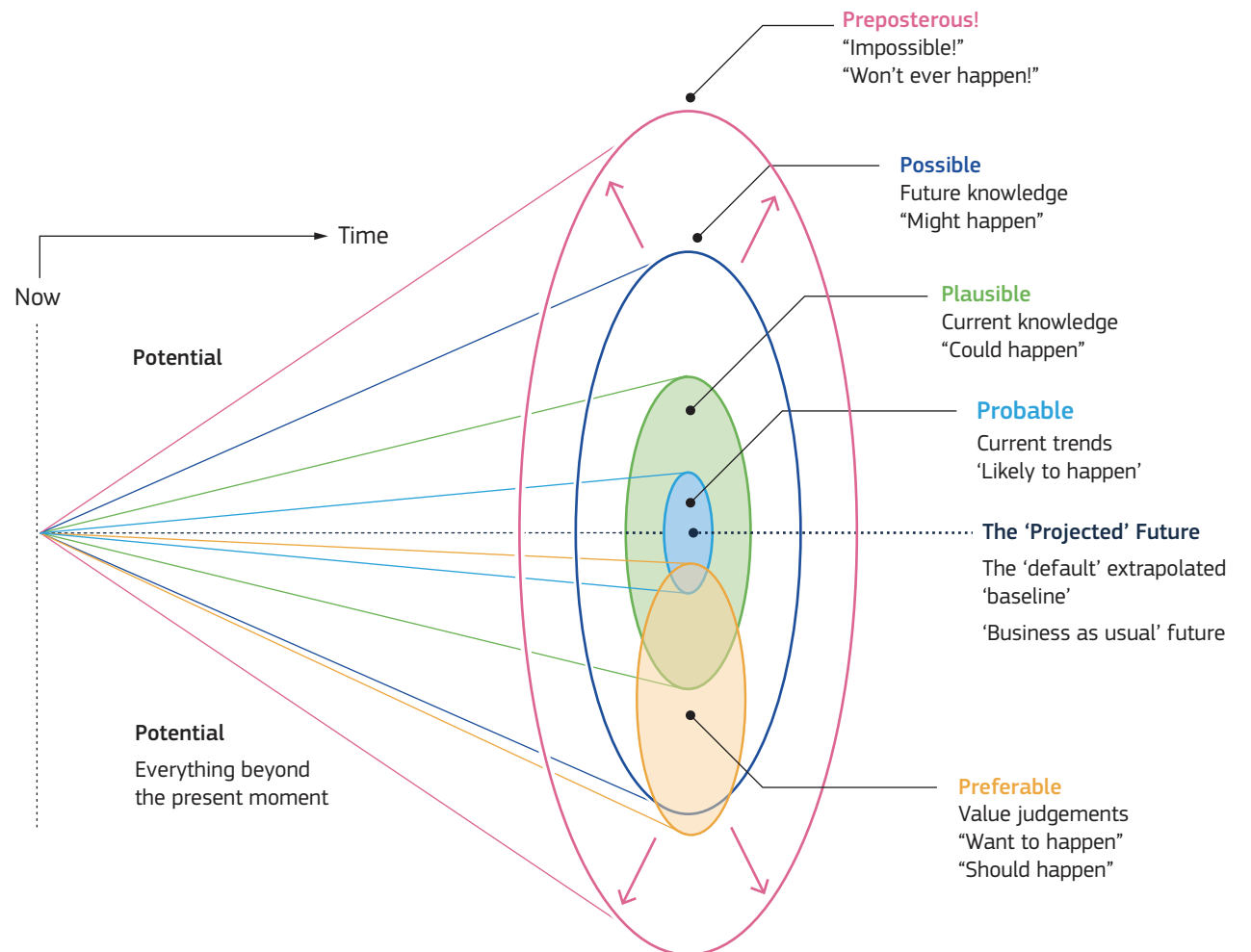
AUTHORS Erica Bol
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MORE

- [The Futures Cone, use and history – Joseph Voros](#)
- [Competence Centre on Foresight, Joint Research Centre, European Commission](#)

When thinking about the future we tend to extrapolate the present into the future as a business-as-usual future. But next to this business-as-usual future there are multiple more futures that can unfold. Probable futures, that can arise due to current trends, or even possible futures, that might happen due to new developments

we might not even be aware of now. By stretching our thinking, and being able to imagine all of these different futures, the discussion about the preferable future is much richer, and also prepares us to be more flexible and open to alternatives.



The Futures Cone. © Adopted & Extended from Joseph Voros (2003).

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Competences: SELFIE tools for organisational capacity & competence development

PURPOSE Providing tools of collective and individual self-reflection

USE Conducting self-reflection on digitalisation

ACTIONBOOK ACTIVITIES [Mobilising competences](#)

AUTHORS Nikoleta Giannoutsou
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MORE

- [European Framework for Digitally Competent Educational Organizations](#)
- [European Digital Competence Framework for Educators](#)
- [SELFIE](#)
- [SELFIE for Work Based Learning](#)
- [SELFIEforTEACHERS](#)

The SELFIE tool developed by the JRC engages school leaders, teachers, students and in-company trainers (SELFIE WBL) in an anonymous, collective reflection on how digital technologies are used for teaching and learning. The results of the reflection are captured in a report, which is used as a basis for discussion among the school community and action planning. The SELFIE process aims at promoting a culture of participation and collective responsibility for the introduction of change in schools. (see top figure). SELFIEforTEACHERS helps teachers self-reflect on their digital competence and supports their further development (see bottom figure). The tool is a continuous learning process, allowing teachers to understand what digital competence entails. By completing a self-reflection, teachers can identify their needs and plan their professional learning based

on the tool feedback. Through their dashboard, teachers can keep a history of their self-reflections and compare their progress over time and group and global averages. SELFIE and SELFIEforTEACHERS can benefit schools, teachers but also education and training systems by providing aggregated data which can inform digital education planning and teacher training. The self-reflection tools can be considered as an instrument-based approach to innovation and policy-making as they emphasise the emergence of new practices around these tools and have the potential to gather around their use a community of stakeholders at different levels of governance (school community, educators, companies, school leaders, teacher training centres, regional and national authorities).

Collective reflection process with SELFIE and SELFIE WBL.



- 1 Set up
- 2 Respond
- 3 Discuss
- 4 Plan
- 5 Monitor
- 6 New round

Monitoring progress based on SELFIEforTEACHERS self-reflection results.



TYPE
concept
methodology
eu policy initiative
example

LEVEL
local
regional
national
european

Contribution of civil society organisations

PURPOSE Involve civil society organisations in policymaking

USE Engaging with a broader range of stakeholders

ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Conducting participatory foresight](#)
[Agenda setting and sharing](#)

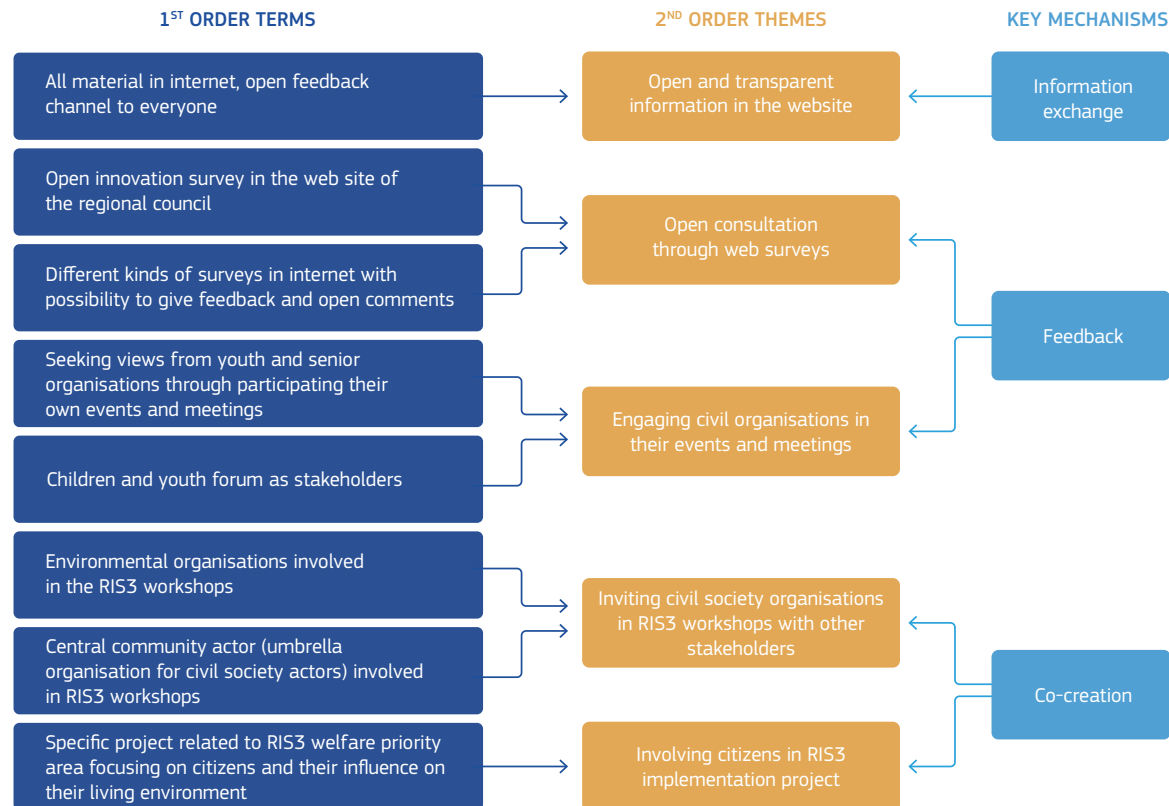
AUTHORS Solange Mifsud
(JRC-PRI-Pilot@ec.europa.eu)

MORE → [Facilitating the participation of civil society in regional planning: Implementing quadruple helix model in Finnish regions](#)

Following the post-Covid-19 era, there is currently a great desire for Civil Society Organisations (CSOs) to emerge and contribute, however, this is not at all straightforward. Common impediments surrounding CSOs are awareness, motivation and skills issues. Also, their initiatives tend to be highly heterogeneous and location-specific. However their inclusion in a partnership could contribute to valuable input and increase the diversity of knowledge, values, ideas and perspectives. They could push for a more place-specific endeavour by bringing attention to local problems and needs, lead to creative ideas and could play a major role as co-creator of innovation. They could turn a partnership into a more democratic process, possibly motivated by an alternative vision and a more progressive understanding of re-

gional development. However, there can be an automatic mismatch between the need for and ability of, CSOs to act on behalf of citizens' and community desires to bring about change. The need for CSOs to fill the policy space tends to be greater where local government has less discretion and fewer resources to act, than in a scenario where local government has significant resources and policy discretion, which would probably be the occasion where CSOs are mostly needed. Their participation in innovation policy could be in policy design aiming to enhance the accountability and transparency of policy-making and improving government decision-making. In the figure below, you can see the different mechanisms to facilitate the participation of CSOs in regional planning.

Mechanisms to facilitate the participation of the civil society in regional planning. Source: Roman and Fellnhofner, 2022, p.5.



T18

TYPEconcept
methodology
eu policy initiative
example**LEVEL**local
regional
national
european

Energy consumption taxation

PURPOSE Measuring the burden of taxation on household energy consumption in the EU

USE Understanding tax incentives toward the green transition

ACTIONBOOK ACTIVITIES [Building legitimacy](#)
[Evaluating impact](#)
[Continuous monitoring](#)

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Sofía Maier, Mattia Ricci

MORE → [EUROMOD](#)

The taxation of energy consumption is a central topic in the current policy debate. On the one hand, energy taxation is a key lever for the achievement of the ambitious EU 2030 climate targets. Raising minimum rates for energy products underpins one of the major legislative initiatives of the European Green Deal, such as the Revision of the Energy Taxation Directive. On the other hand, the current energy crisis is causing dramatic increases in the price of energy products across the EU, raising calls for reducing their taxes to support households and firms.

However, measuring and monitoring the burden of taxation over energy consumption is a challenging task. Differences in consumption patterns across Member States – such as the use of heating in countries exposed to different climates – imply that even similar tax systems might affect consumers differently across the EU. Furthermore, energy consumption is subject to multiple and interacting rates of tax, such as VAT and specific excises, which are expressed in different units (i.e. percentage vs unit of currency).

The indicator of implicit energy consumption taxation (see the graph below for 2019) represents households' total burden of taxation over the price of each energy

product (in percentage terms). It allows measuring the tax burden over energy consumption for households in each Member State.

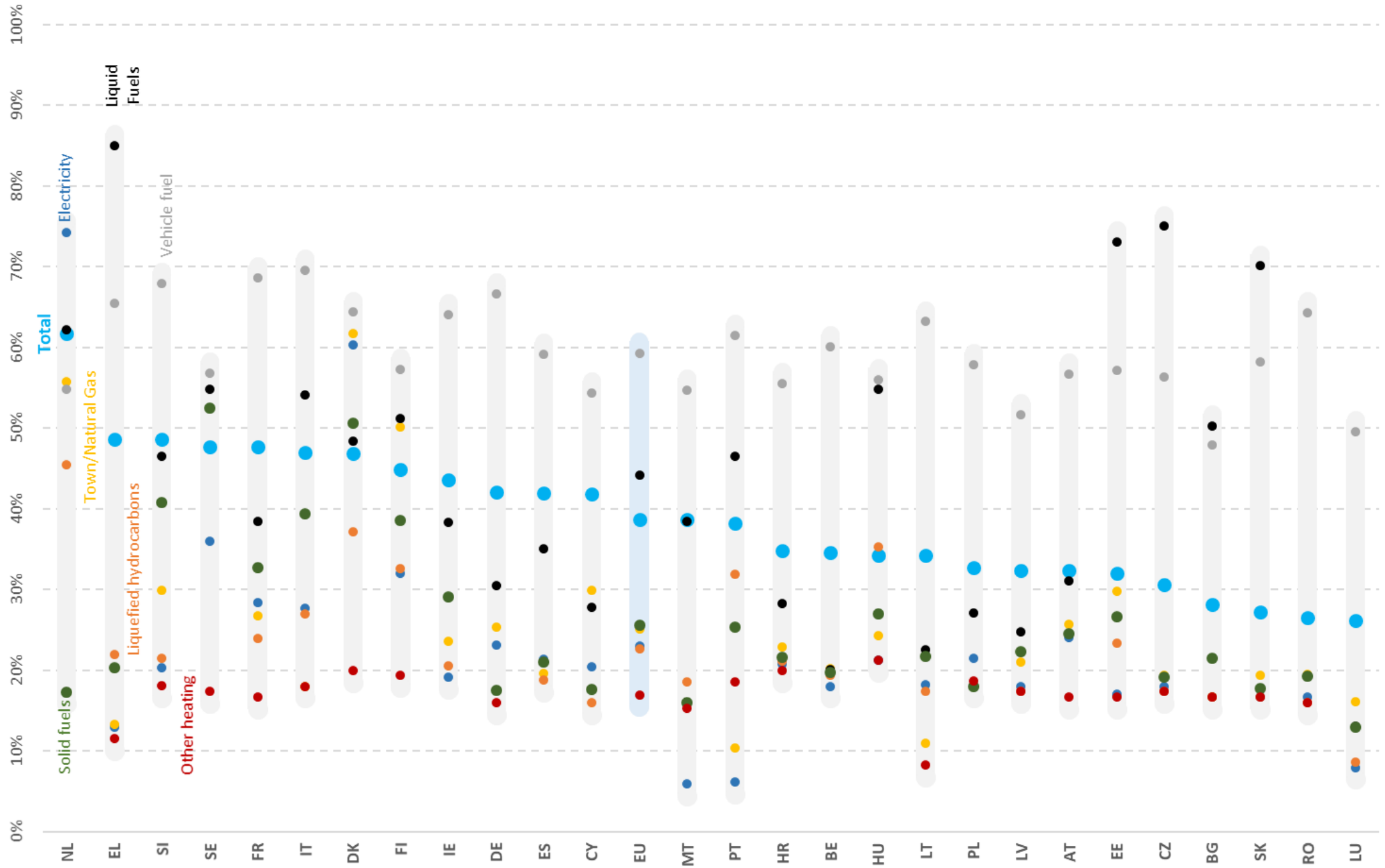
In the EU, the implicit tax rate of the energy bundle ranges between 60% and 20%. While rates vary significantly across countries, vehicle fuels (e.g. petrol and diesel) and liquid fuels (e.g. heating oil) generally feature the highest rates of taxation. At the other extreme, 'other heating products' (e.g. district heating) are usually the least taxed. Moreover, solid fuels (e.g. coal, biomass) are in various cases taxed in the low range despite their important environmental and health impact, while less polluting energy sources, like gas, are more heavily taxed.

Information on implicit tax rates at the product level and across the EU27 can help policy makers to identify where there is comparatively more room for tax rate adjustments, also in consideration of practices in other Member States.

These taxes are generally regressive, when measured against household disposable income. Remarkably, the redistributive consequences of two very similar implicit tax rates can substantially vary from country to country depending on their consumption patterns.

We employ the recently developed EUROMOD Indirect Tax Tool (ITTv4) to calculate the tax liabilities paid by households (VAT and excises) over the main types of energy products in each Member State based on incomes and the tax policy in place in 2019, and on consumption data from the EU Household Budget Survey 2015 (exc. Germany and IT, for which we used 2010). Differences in implicit tax rates over energy consumption across countries reflect differences in their tax systems as well as in their consumption patterns

Implicit tax rates over energy consumption in the EU, in 2019.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

EU taxonomy for sustainable activities

PURPOSE Defining sustainable activities based on evidence-based criteria

USE Establishing the degree to which an investment is environmentally sustainable

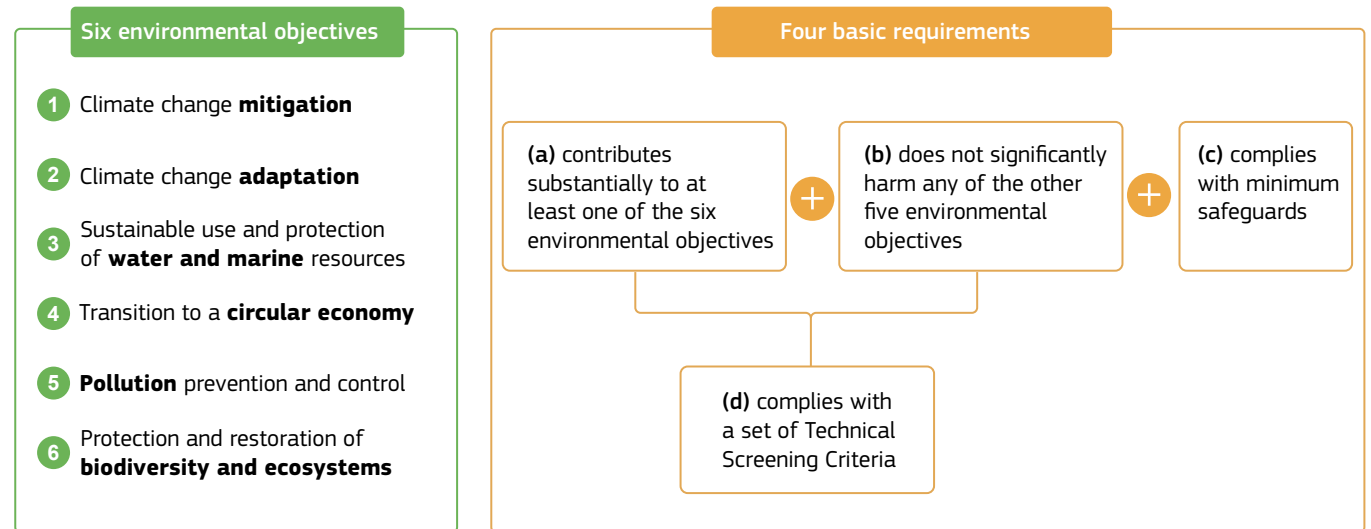
ACTIONBOOK ACTIVITIES [Mobilising resources](#)
[Continuous monitoring](#)

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MORE → [EU taxonomy for sustainable activities](#)
→ [Platform on Sustainable Finance](#)
→ [Taxonomy Delegated Acts](#)

The EU taxonomy is a classification system establishing a list of environmentally sustainable economic activities. With this, the EU taxonomy aims to provide companies, investors and policymakers with a common language and a clear definition of what is 'sustainable'. A relevant element of the EU Taxonomy is its underlying concept of sustainability. The Taxonomy Regulation defines six environmental objectives and lays down that, to be qualified as environmentally sustainable, an activity shall fulfil four conditions (see figure below). The rationale behind this approach is that an environmentally

sustainable activity shall not only substantially contribute to one of the defined objectives: it shall also do no significant harm to the other ones. This framework is being further developed through specific Delegated Acts, which contain the Technical screening criteria for each environmental objective and for each economic activity. As reference, the Climate Delegated Acts cover approximately 90 economic activities that are responsible for nearly 80% of the direct Greenhouse Gas emissions in Europe.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

European Digital Innovation Hubs

PURPOSE Accelerating digital transformation of businesses and public sector

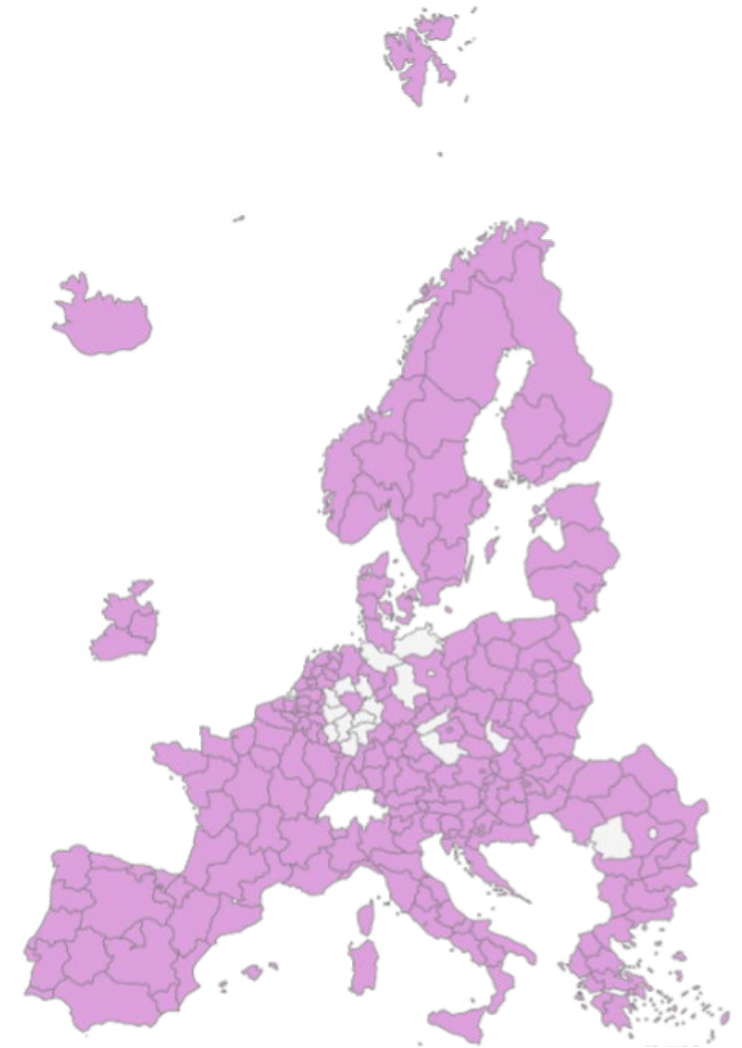
USE Providing cutting-edge digital technologies and expertise in every European region

ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Deploying a strategy](#)
[Coordinating the policy and action mix](#)

AUTHORS Sarah De Nigris, Annita Kalpaka, Johan Stake, Daniel Nepelski (daniel.nepelski@ec.europa.eu)

MORE → [European Digital Hubs Network – Digital Transformation Accelerator](#)
→ [Digital Strategy - European Digital Innovation Hubs](#)
→ [JRC – Digital Innovation](#)

Increased digitalisation is a key tool for addressing some of the major challenges that European businesses face. To this end, the Digital Europe Programme established a network of European Digital Innovation Hubs (EDIH). The initiative aims to encourage a wide participation of small and medium-sized enterprises (SMEs) from all geographical areas, including the EU outermost regions and other economically disadvantaged regions and various work strands serve this purpose. The EDIHs networks objective is to provide tailor-made digitalisation support to SMEs and public sector organisations in all regions and sectors of the EU to introduce new innovative production processes, new business models and upgraded innovative products and services. As of 2023, the EDIHs network comprehends 227 hubs. 85% of the European regions host organizations forming the EDIH network and EDIHs services are available in nearly 90% of the European regions. The EDIHs provide services in such key technologies as Artificial Intelligence, Cybersecurity and Internet of Things. The SMEs can reach out to EDIHs to receive digitalisation services such as test before invest, advanced digital skills, innovation and internationalisation support, support to find investments and more. The EDIHs interventions start by assessing the level of digital maturity of each SME or public sector organization that requires their services through a new Digital Maturity Assessment Tool developed by the JRC, with a view to measure the increase of digital maturity achieved after the EDIH intervention. The EDIHs exhibit properties of a pan-European network and have very strong research and innovation underpinnings. Majority of the participants are universities and research organizations strengthened by private companies from the digital sector.



Regional coverage of the European Digital Innovation Hubs network

TYPE

concept
methodology
eu policy initiative
example

LEVEL

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regional
national
european

European Startup Village Forum

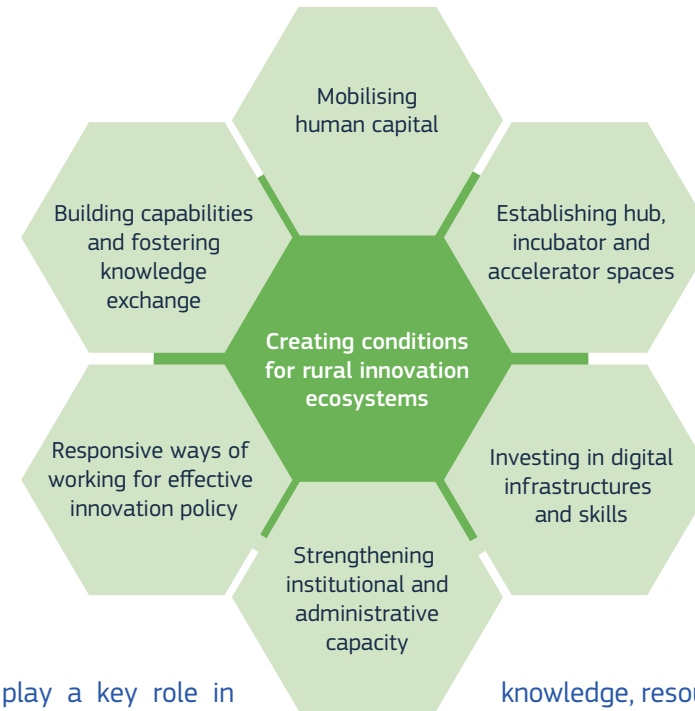
PURPOSE Strengthening innovation and entrepreneurial ecosystems in rural areas

USE Gaining a deeper understanding of the factors that drive innovation and entrepreneurship in rural areas

ACTIONBOOK ACTIVITIES [Designing ecosystem support](#)
[Experimenting and demonstrating](#)
[Scaling and mainstreaming](#)

AUTHORS Fernando Merida
Simone Sasso
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MORE → [Long-term vision for the EU's rural area](#)
→ [The European Start up village Forum](#)
→ [SVF Mapping tool](#)



Research and innovation play a key role in tackling challenges and reap opportunities for wellbeing and growth in rural territories. The European Startup Village Forum initiative aims to develop new evidence and gain a deeper understanding of the factors that drive innovation and entrepreneurship in rural areas, while facilitating the exchange of knowledge and expertise on how to promote startup-driven innovation in these areas. This initiative is part of the European Commission's Long-term Vision for the EU's Rural Areas. The vision identifies several areas of action towards stronger, connected, resilient and prosperous rural areas by 2040. It recognises the role of innovation to help tackle challenges and reap opportunities for wellbeing and growth in rural areas and includes a specific flagship action on research and innovation for rural communities. A startup village is a place (or a network of small places) that embraces innovation and ambitious entrepreneurship as a way to unlock development potential and support wellbeing in rural areas. By combining local place, people, and purpose with external

knowledge, resources, and markets, the Startup Village strives to provide favourable conditions for entrepreneurial and innovative ecosystems to flourish. The Startup Village Forum works as an open space where institutions and stakeholders can meet, discuss and shape actions and tools for supporting innovative entrepreneurship in rural areas. By bringing science-based and community-based knowledge and experiences together with high-level political traction, the Forum explores the different dimensions of rural innovation ecosystems and discusses insights on the challenges and potentials for entrepreneurial development in rural areas. Next to the yearly Forums, the initiative has been developing a mapping exercise to identify existing Startup Villages in the EU and their readiness degree, as well as a set of analytical studies to measure rural innovation and entrepreneurship and better understand the conditions that enable the development and strengthening of entrepreneurial and innovation ecosystems in rural areas.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Financing instruments and private finance blending

PURPOSE Facilitating access to finance

USE Obtaining capital and diversifying asset classes

ACTIONBOOK ACTIVITIES

- [Developing the policy and action mix](#)
- [Mobilising resources](#)
- [Deploying a strategy](#)
- [Prioritising funds](#)
- [Scaling and mainstreaming](#)

AUTHORS Solange Mifsud
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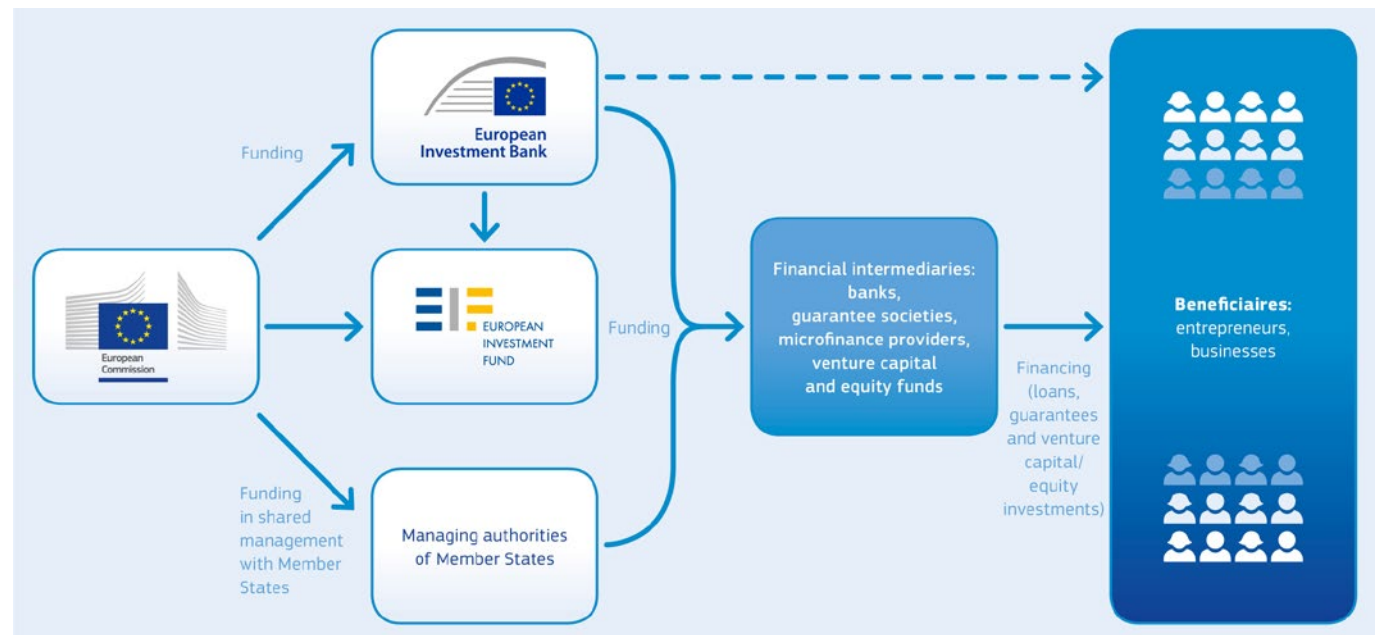
MORE

- [Financial instruments: equity, guarantees, and loans](#)
- [Blending public and private funds for sustainable development](#)

Blending different sources of financing provides sustainable funding strategies that accelerates social and economic development in regions and countries. There is a need to overcome the regulatory, organisational and attitudinal barriers in setting up synergies of different streams of financing at the national and territorial level. Hence, eliminate the fragmentation but enable the convergence in using EU Funds and blending techniques. Sometimes projects with potentially large benefits for society are not implemented due to lack of private incentives to attract the required financing. Financial engineering can help solve this market failure by modifying the risk-reward trade-off of such investments. Financial instruments can be engineered in different forms, namely equity and debt, loan guarantees and venture capital, and capacity building and risk sharing facilities. The European Investment Bank (EIB), which is the lending arm of the EU is responsible for 75% of the [InvestEU](#) pro-

gramme while the European Investment Fund (EIF) which is part of the EIB is key in enabling access to finance to SMEs through the [EIF's financial intermediaries](#) found in each EU Member State.

Financial instruments can also be combined with grants in [one single operation](#) under the shared management framework. This financing mix is primarily necessary where investments are not sufficient to generate adequate returns in order to make the project viable. Such funding combination can also be useful to stimulate investment demand, be ambitious in policy objectives and attract private financing. Blended finance plays a key role where the perceptions of risk refrain investment on purely commercial terms. Such financial set-ups connect target groups to the market making a project's capital base sustainable while incentivizing tapping into new or riskier potential markets.



Access to EU finance. Source: [EU funding](#).

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Financing sustainable instruments and green bonds

PURPOSE Ensuring public finance supports the green transition

USE Using sustainable financing instruments to steer the impacts of public finance

ACTIONBOOK ACTIVITIES

- [Mobilising resources](#)
- [Deploying a strategy](#)
- [Prioritising funds](#)

AUTHORS Solange Mifsud
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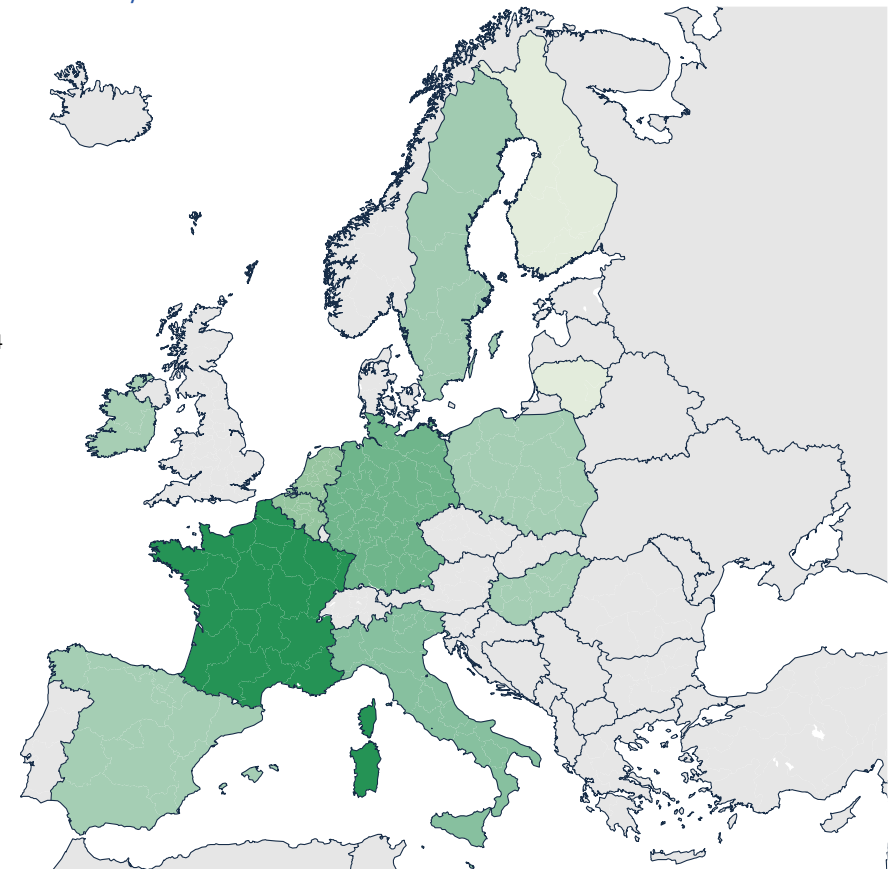
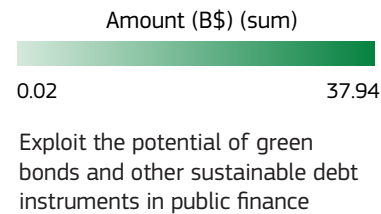
MORE

- [European Green Bonds: Council adopts new regulation to promote sustainable finance](#)
- [Green bonds as a tool against climate change?](#)

Sustainable debt instruments play an increasingly important role in scaling up financing of investment for the green transition. As a type of fixed-income security issued to finance projects with positive environmental or climate effects, green bonds have emerged as the most successful and promising instrument of green finance so far. In October 2023, the Council adopted a Regulation to standardise a European green bond. It puts forward uniform requirements for issuance of bonds under the designation of a “European Green Bond” or “EuGB” for environmentally sustainable bonds. The EuGB is the first official EU standard for green bonds made available to investors globally and is based on a registration system and supervisory framework for external reviewers of European green bonds. The creation of this standard leads to easier comparability and more consistency that

benefit both issuers and investors of green bonds. An issuer interested in funding green projects adhering to the EU taxonomy can make use of this type of bonds, which gives more trust to investors that their investment is sustainable. The green bond issuance to finance up to 30% of the EUR 750 billion allocated for NGEU, and the European green bond standard are expected to accelerate market growth by stimulating further private and public issuances, and help respond to sustainability-concerned investors. There is evidence that governmental issuers can benefit from lower funding costs by issuing green bonds, while investors are not exposed to high downside risk during periods of financial market stress. Think about your territory. What is the percentage of financing instruments that is green/sustainable?

The use of green bonds in public finance.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Foresight

PURPOSE Using anticipation in policy design

USE Orienting regions towards opportunities emerging from the twin transitions

ACTIONBOOK ACTIVITIES

- [Diagnosing and developing a vision](#)
- [Conducting participatory foresight](#)
- [Developing transition pathways and roadmaps](#)
- [Continuous monitoring](#)

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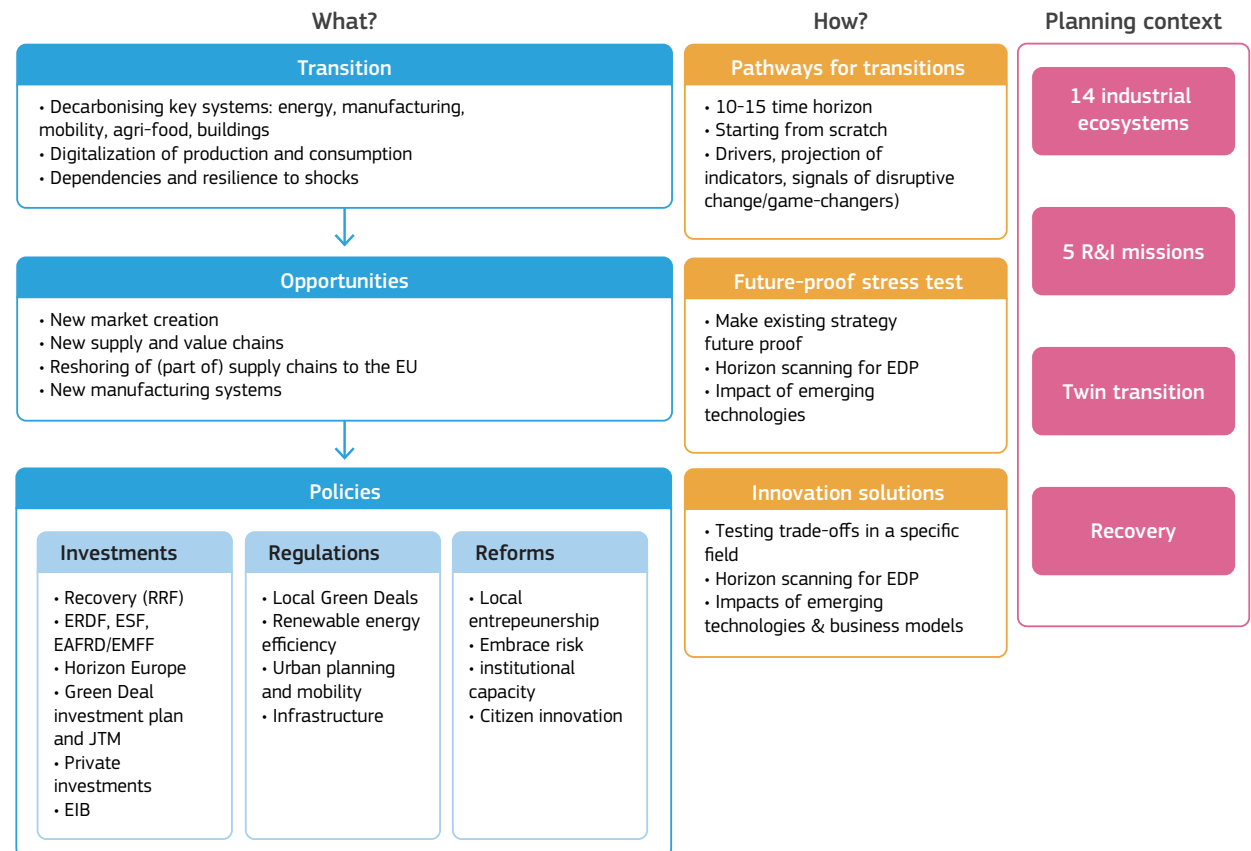
MORE

- [Foresight tools](#)
- [Future technologies](#)
- [National STI trends](#)

The twin transition requires paradigm shifts towards new value chains and systems. The recovery from the Covid-19 crisis aims at the same time to bring the EU closer to this transition, and to increase resilience of European territories for the unexpected. The needs for paradigm shifts, increased resilience and strategic autonomy requires EU territories to draw on collective anticipatory intelligence. The nature of the changes required also calls for different approaches to anticipation, and on combining both quantitative and qualitative knowledge and methods.

The PRI TOP-sight tool considers Transitions (green, digital, strategic autonomy), Opportunities (markets, value chains, industrial systems, reshoring of activities, etc.) and public Policies (national, regional, urban, local) to reap benefits for local jobs and value creation through PRI. It identifies opportunities for innovations emerging from the twin transition, primarily within the 14 industrial ecosystems. This tool allows you to draw opportunities from analysis of specific transitions, and translate them into policies regarding investments and strategies, regulations, and reforms.

TOP-SIGHT



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

GovTech

PURPOSE Bringing digital innovation to the public sector (through public procurement)

USE Transforming the public sector through the adoption of innovative digital technologies

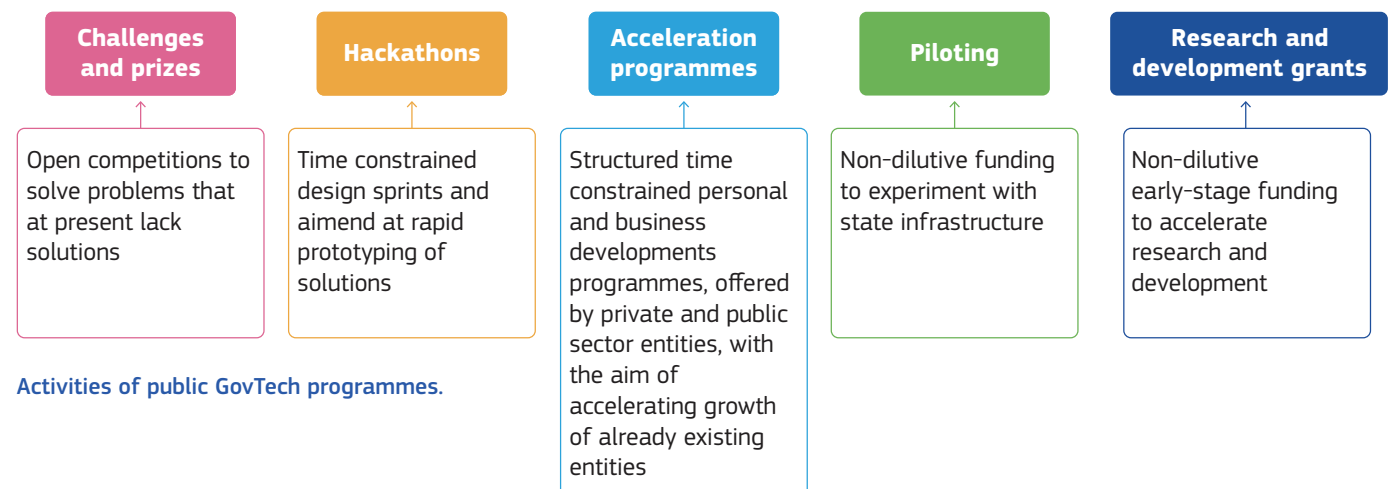
ACTIONBOOK ACTIVITIES [Designing ecosystem support](#)
[Experimenting and demonstrating](#)
[Scaling and mainstreaming](#)

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MORE → [GovTech Practices in the EU](#)
→ [Scoping GovTech dynamics in the EU](#)
→ [Innovative public services](#)

Governments at all levels are facing a myriad of complex and interrelated challenges. These require governments to act and adapt quicker and be more effective than during non-turbulent times. How can digital technologies help public administrations effectively respond in dynamic, multilevel, multi-actors operating in interrelated ecosystems? Digital Technologies can help governments become more efficient, effective, pro-active, and inclusive while increasing the value they provide to the public, citizens and businesses, through their services. However, buying off-the-shelf digital solutions from established vendors is not always sufficient. Therefore, for the acquisition of innovative technologies through public procurement many governments are starting to investigate into GovTech practices. The term “GovTech” refers to governments working with start-ups and SMEs to develop and acquire innovative digital solutions. Amongst the distinct types of public procurement methodologies, adaptive Public Procurement of Innovation (PPI) models are those most suited to meet public administrations and their user needs. This is due to SMEs and start-ups partners offering the natural agile, adaptive ground and flexible practices to procure innovative digital solutions. This is critical when addressing interoperability (IOP), cross border operations, and contextu-

alization of national and EU regulations into local and regional contexts. Governments in the EU engage with GovTech because, in addition to creating innovative digital solutions to societal problems, this field promises to bring a new working culture to the public sector and foster innovation made in Europe. However, there are challenges faced by governments working with start-ups and SMEs, related to the structure of the market, complex and time-consuming procurement rules, and different working cultures between governments and GovTech companies. Yet, while being more agile, adaptive and innovative with respect to bigger companies in answering procurer needs (also for interoperability and contextualisation requirements), for small enterprises the costs for complying with procurement processes are highly impactful on their resources. It is therefore important to support the innovative processes and practices of both SMEs and Public Administrations, both to allow small enterprises to enter the market and allow public procurement processes of public administrations the necessary agility and sustainability of their ecosystems (e.g. continuity and coherence in the maintenance of public procurement systems). To address those challenges, governments across Europe have started setting up dedicated GovTech programmes.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Green public procurement

PURPOSE Using the purchasing power of government to achieve sustainability goals

USE Working across government in reconsidering public procurement procedures that create multiple value

ACTIONBOOK ACTIVITIES [Mobilising resources](#)
[Deploying a strategy](#)

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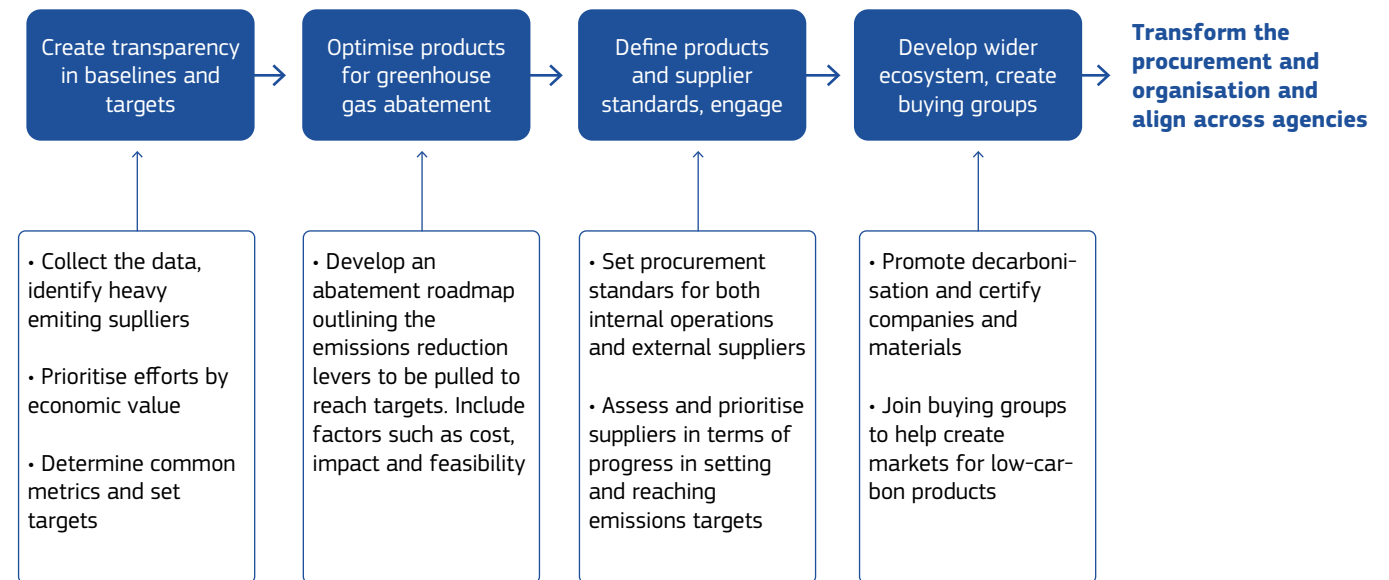
MORE → [WEF Green Public Procurement 2022.pdf \(weforum.org\)](#)
→ [Buying green handbook - Green Public Procurement - Environment - European Commission \(europa.eu\)](#)

Governments, by using their purchasing power to choose goods, services and works with a reduced environmental impact, can make an important contribution towards local, regional, national and international sustainability goals. Countries increasingly recognise that Green public procurement (GPP) can be a major driver for innovation, providing industry with incentives for developing environment-friendly works, products and services. However there are obstacles to successfully implementing GPP, including in particular: the perception that green

products and services may be more expensive than conventional ones; public officials' lack of technical knowledge on integrating environmental standards in the procurement process; the absence of monitoring mechanisms to evaluate if GPP achieves its goals.

- Have you already made use of GPP?
- What are the real or potential obstacles you face when/if implementing GPP?

Below, you can find a series of common obstacles and how you can overcome them.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Identifying local challenges

PURPOSE Identifying and solving local problems collaboratively

USE Breaking policy framing into smaller steps

ACTIONBOOK ACTIVITIES [Developing transition pathways and roadmaps](#)
[Setting milestones and targets](#)
[Developing a strategy](#)
[Designing local missions](#)

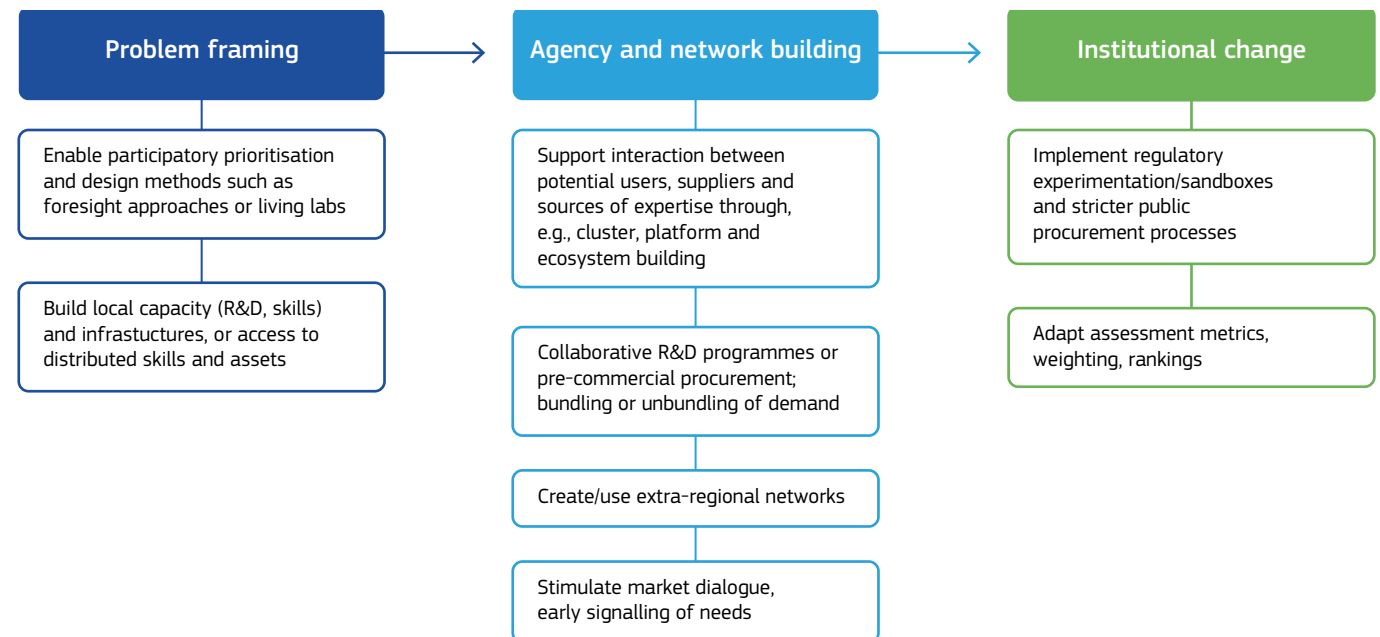
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MORE → [Towards a problem-oriented regional industrial policy: possibilities for public intervention in framing, valuation and market formation](#)

Try and think about local problems as being more than market failures. Instead, they represent opportunities where through innovation, you and your stakeholder network can build a more sustainable territory, while creating multiple value for the local community and its economic development. Innovation policies need to be designed around a close understanding of the local context and those mostly affected by them. It is key to engage local decision makers, networks and institutional entrepreneurs as they have knowledge of the problem,

shared values, and the willingness to co-create locally-tailored solutions. This will generate access to resources, legitimacy, and solutions to local problems. This way market creation is enabled through shared visions of local problems shaped by local stakeholders (problem framing), their interactions and sense of ownership towards building solutions (agency and network building), and the active involvement of institutions (institutional change). You can take a look at the steps below.

Market formation: possible areas for public intervention. Source: adapted from Flanagan et al., 2023



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Industrial transition pathways

PURPOSE Implementing and coordinating industrial transition pathways

USE Helping public and private groups to build territorial transition pathways

ACTIONBOOK ACTIVITIES [Diagnosing and developing a vision](#)
[Developing transition pathways and roadmaps](#)
[Designing ecosystem support](#)
[Deploying a strategy](#)

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MORE → [Transition pathway for tourism](#)

Transitions in territories should go hand in hand with transitions at EU level. The European Industrial Strategy is developing, for accelerating the digital and green transition and securing the European open strategic autonomy, the co-creation of transition pathways for 14 European industrial ecosystems. Transformative innovation processes at territorial level need to be aligned with transitions planned at systems level in Europe. Connecting well territories and their transition strategies to the EU system-level transition pathways is crucial for a coordinated approach in transforming EU's in-

dustrial ecosystems towards sustainability. Additionally, territories can integrate the place-based perspective in the transition of European industrial ecosystems and help involve a diversity of players across Europe in the transition of EU systems. This way, territories can be a bridge between European value chains and local decision-makers in their territory. Clusters can be a good bridge for such connections. The figure below indicates initiatives and financing opportunities for better coordination between territories and European value chains in implementing the twin transition

Building blocks for increasing coordination between places and EU industrial ecosystems

Initiatives for coordinating territorial and European systems transformation	Examples of additional initiatives for financing coordination
<p>Euroclusters or Join Clusters Initiatives</p> <ul style="list-style-type: none"> • Support the implementation of the industrial strategy • 1 Eurocluster for each industrial ecosystem and 16 horizontal Euroclusters. 	<p>Interregional Innovation Investments (I3)</p> <p>Funds mature joint innovation projects and supports S3 stakeholders in specific value chains.</p>
<p>Industrial Alliances</p> <p>Facilitate stronger cooperation between a wide range of public and private partners in a given value chain (incl. civil society).</p>	<p>Important Project of Common European Interest (IPCEI)</p> <p>State-aided larg-scale projects which address major market failures of significant benefits to the Union and its citizens, bringing together knowledge expertise, financial resources and economic actors from across the union.</p>
<p>Interregional S3 Partnerships</p> <p>Connect EU regions around thematic areas of smart specialisation.</p>	<p>Interreg Europe</p> <p>Cooperation instrument for public actors. Could be used for mapping multilevel gaps and for defining new policy instruments for involving territories in the transition process.</p>
<p>European Partnerships</p> <p>Bring together EC and private and public partners around selected R&I initiatives</p>	<p>European Innovation Ecosystems (EIE)</p> <p>Funds cooperation among national, regional and local actors and supports connecting innovation ecosystems and upscaling companies.</p>
<p>Connected Regional Innovation Valleys</p> <p>Cooperation among Regional Innovation Valleys in thematic areas, focusing on reducing reliance on the fossil fuels, increasing global food security, mastering the digital transformation (including cybersecurity), improving healthcare, and achieving circularity.</p>	

T29

TYPEconcept
methodology
eu policy initiative
example**LEVEL**local
regional
national
european

Industry 5.0 Community of Practice (CoP 5.0)

PURPOSE Accelerating implementation of human-centricity, sustainability and resilience (Industry 5.0 principles) in practice

USE Promoting and applying Industry 5.0 principles and practices

ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Setting up a network governance](#)
[Learning from experimentation](#)

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MORE → [Industry 5.0 \(europa.eu\)](#)



Industry 5.0 provides a vision of industry that aims beyond efficiency and productivity as the sole goals, and reinforces the role and the contribution of industry to society. It places the wellbeing of the worker at the centre of the production process and uses new technologies to provide prosperity beyond jobs and growth while respecting the production limits of the planet. It places research and innovation at the service of the transition to a sustainable, human-centric and resilient European industry. During the pilot phase (November 2023 – June 2024), CoP 5.0 will conduct an in-depth analysis focused on examining the application of the concept of learning ecosystems which are agile and future-oriented environments equipped to lead the digital and green transition with a focus on human-centricity, resilience and sustainability. It will elaborate on different dimensions, such as understanding the role of industry 5.0 in building and co-shaping learning ecosystems via learn-

ing organisation model, understanding enabling factors for learning ecosystems, making synergies with existing EU policies. CoP 5.0 will co-develop a prototype Industry 5.0 assessment tool. This qualitative tool will be designed to help companies and organizations evaluate their Industry 5.0 performance based on three critical pillars: human-centricity, resilience, and sustainability. The co-development phase will be followed by a prototype validation phase. The tool could potentially contribute to the future Industry 5.0 Key Performance Indicator (KPI) development. In parallel with the above-mentioned two work-streams, CoP 5.0 will compile a comprehensive inventory of Industry 5.0 pilot projects and actions, including from EU funded projects, or independently organised activities like company peer groups, cross-organizational learning, value chain intelligence approaches etc. This inventory will serve as a valuable resource for mapping the Industry 5.0 landscape in Europe.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Innovation councils

PURPOSE Ensuring innovation policy coordination and stakeholder engagement

USE Collectively making long-term choices

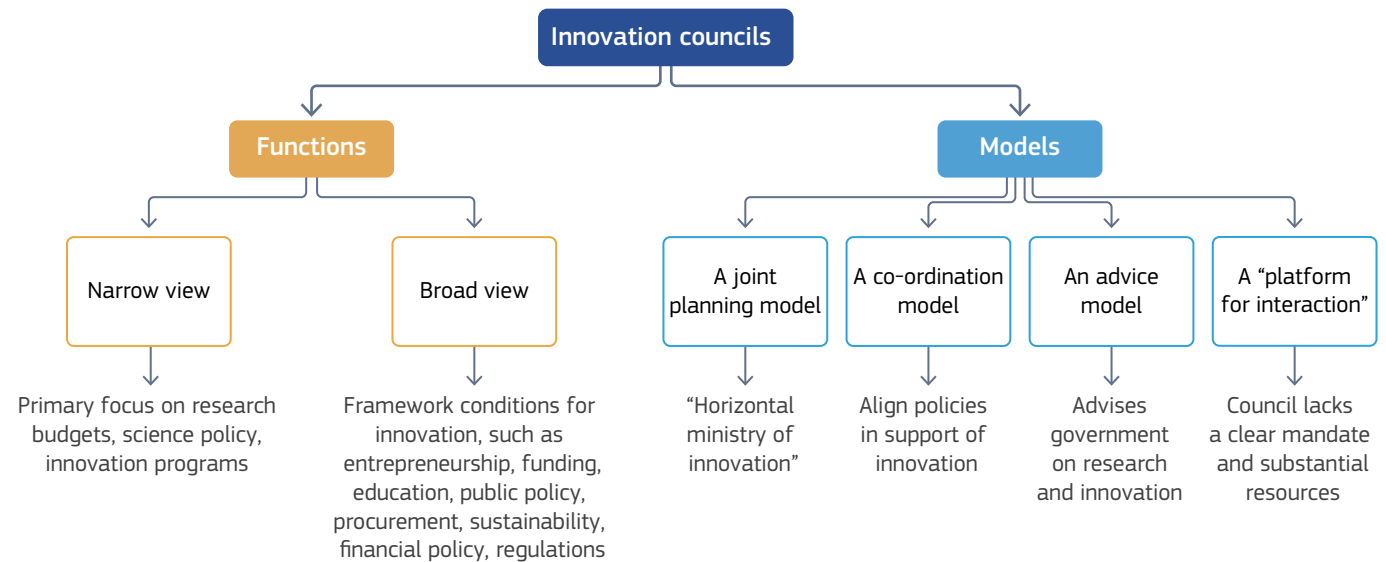
ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Building legitimacy](#)
[Mobilising resources](#)

AUTHORS Dimitrios Pontikakis
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MORE → [National Research and Innovation Councils as an Instrument of Innovation Governance - Characteristics and challenges](#)
→ [How is research policy across the OECD organised? : Insights from a new policy database | OECD Science, Technology and Industry Policy Papers | OECD iLibrary](#)

Clear goals and strong coordination among public and private stakeholder groups are required to direct innovation capacities towards meeting societal challenges and play a central role in transitioning to a more sustainable economy and society. Innovation (or research and innovation) councils are widespread institutions with plurality in their composition and a certain degree of independence and detachment from the electoral cycle. Innovation councils can provide advice, coordinate, allocate funding, monitor, evaluate and do foresight.

Therefore, an innovation council needs political endorsement and support to have a meaningful role; resources to keep the momentum (secretariat), prepare and have the strategic intelligence (data, studies) to provide evidence-based guidance; have a sense of urgency, a common purpose and ambition. Such councils can help align different levels of government for long-term commitments and ensure reflexivity and the resilience of collective efforts towards long-term societal wellbeing.



Functions and models of innovation councils.

Source: based on Schwaag (2021) and Schwaag et al. (2015)

T31

TYPEconcept
methodology
eu policy initiative
example**LEVEL**local
regional
national
european

Innovation policies for affordability

PURPOSE	Making innovations more affordable to promote greater access, impact and capability
USE	Developing policy mixes that lower cost and accelerate the diffusion of sustainability solutions
ACTIONBOOK ACTIVITIES	Mobilising resources Scaling and mainstreaming
AUTHORS	Dimitrios Pontikakis (JRC-PRI-PILOT@ec.europa.eu)
MORE	→ Frugal innovation

Many innovations for sustainability such as heat pumps, EVs, green hydrogen, stationary battery storage, are still prohibitively expensive, preventing their widespread diffusion. Although prices tend to drop over time as these solutions are manufactured to scale, the radical price reductions necessary for the widespread adoption implicit in Europe's ambitious goals will require much additional innovation to develop more affordable solutions. Historical experience suggests that public policy can play a key role in accelerating their development.

Why are innovation policies for affordability necessary?

High-technology markets characterised by large-scale R&D and monopolistic competition can take a long time to cater to majority adopters. Early adopters are prepared to pay a high price premium which is necessary to offset the high costs of R&D. For this reason solutions tend to cater to the needs of early adopters first. However, early adopters typically account for a very small share of the potential market. More widespread diffusion usually requires the development of technological prototypes that are adapted to the means and needs of the majority of potential adopters. It often takes new entrants to identify majority adopter needs and adapt technological solutions accordingly (see some real-world examples in the box below). Real-world examples point to what may well be a more general tendency for the initial persistence of solutions offering continuously improved technology capability for a constant high price. Mass adoption however may rather depend on the development of progressively lower priced solution prototypes that offer a mostly fixed bundle of technological capability that is sufficient for the majority of use cases. The trigger for these solutions to emerge does not usually come from an incumbent, can sometimes be traced outside the market, and can include publicly-supported and non-profit initiatives.

How innovations by new entrants, publicly-supported and non-profit initiatives helped make key technologies more affordable.

Many of the technologies entering widespread use in recent years were already in limited use many decades ago but had to wait for suitably adjusted technological prototypes before they could become affordable. For instance, it took the introduction of personal computers to bring graphical user interfaces and networks out of the niches in which they emerged in the 1960s and into widespread use by the turn of the century. Because mass-market prototypes require an intimate understanding of use cases, some of the innovations that opened the path to mass adoption were not initially driven by market considerations. Some were pioneered by non-profit organisations (e.g. MIT's "one laptop per child" initiative demonstrated untapped demand for low-cost laptops that triggered the development of much more affordable portable computers known as 'netbooks'), whereas others have their roots in user innovation and draw on prosumer knowledge (such as the Raspberry-Pi inexpensive computer board initially designed to educate students on hardware-level programming but now used extensively in low cost computing applications). Solar photovoltaic is another telling example, with its initial application in small niches (such as the US space programme) going as far back as the 1960s. Driven by demand of niche uses, the thrust of technological development in the early years aimed at increasing photovoltaic panel efficiency rather than reducing price. It took government subsidies aimed at promoting mass adoption to promote massive cost cuts that accelerated take up, especially over the past decade.

What is the role of public policy?

In this context public policy has a role to support a greater pool of firms to innovate with the ultimate aim of providing affordable solutions for the majority of users. Some possibilities include:

- **Collective provision of sustainable solutions** makes sense where there are clear benefits from procuring and delivering solutions at scale: examples include sustainable mass transport, ride-sharing, promotion of pay-per-use sustainable vehicle business models, municipal heating, some forms of energy storage, etc. Whereas governments often support such services, the support does not normally have an innovation objective. However collective provision can open up otherwise unavailable **innovation spaces**, availing precious early opportunities for local companies to gauge demand, experiment with prototypes and understand complex behavioural and regulatory interactions. However, introducing innovation spaces in public subsidies, public investments and public procurement requires building provisions for innovation into the design of their technical specifications, earmarking a budget for experimentation. The collec-

tive provision of sustainable solutions can also raise awareness about not only the environmental benefits of some of the solutions but in many cases their other superior performance characteristics (e.g. reduced noise pollution, ride comfort, and increased safety for electric vehicles, reduction in overall waste due to home composting and recycling etc.) that in turn promote private adoption of sustainable solutions.

- **Public support for innovation that develops more affordable sustainable product and service prototypes** can be a crucial role of public policy in cases where additional innovation is necessary before mass-market prototypes emerge or are suitably adapted to local circumstances. This can take the form of public research for more affordable solutions, specific support for new entrants (startups or FDI), regulatory sandboxes, horizontal business innovation support subsidies or small sum innovation vouchers for so-called **frugal innovation**, which are also made available to small companies, repair workshops, citizen scientists and prosumers. Combining the objective of affordability with adaptation to **local needs** (e.g. last-mile sustainable logistics), may also provide a pathway for the development of unique technolog-

ical niches (e.g. place-based sustainable housing and transport, renewable energy and storage solutions or solutions linked to other production uses such as suitably adapted agrivoltaics, desalination plants, environmental remediation technologies).

- **Public support for mass manufacturing / service provision** may make sense in cases where mass-market prototypes already exist and the bottleneck is in unit-cost reductions. Public policy can support those investments that allow mass manufacturing (e.g. gigafactories for batteries) or service provision (e.g. digital solutions that improve access, adaptation to the needs of social groups that face digital barriers). These investments can be risky and require a fertile business ecosystem.
- **Systemic interventions** such as the provision of complementary industrial services, competition-enhancing measures (e.g. in the energy market) or support to investments (e.g. combined investments in renewables and energy storage) that reduce the prices of crucial factor inputs (e.g. the provision of relevant skills, access to scarce raw materials) could be another path.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Innovation portfolios

PURPOSE Exploring and converting strategic priorities and objectives into transformative investment

USE Mapping innovation activities to guide strategic decision-making and support evaluation processes

ACTIONBOOK ACTIVITIES

- [Setting up a network governance](#)
- [Enabling multilevel cooperation](#)
- [Collaborating across departments](#)
- [Mobilising resources](#)
- [Designing local missions](#)
- [Coordinating the policy and action mix](#)

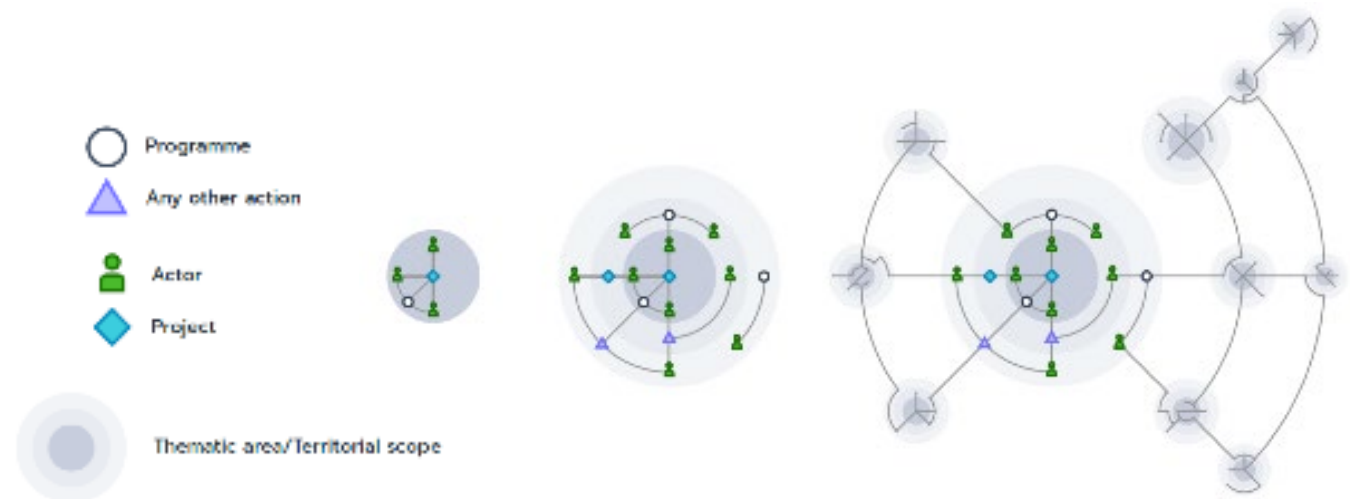
AUTHORS Cristian Matti, Carla Alvial-Palavicino, Christoph Brodnik
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MORE

- [MOTION handbook. Developing a transformative theory of change](#)
- [System Change: A Guidebook](#)
- [Webinar on innovation portfolios](#)
- [Tackling Policy Challenges Through Public Sector Innovation](#)

Innovation portfolios represent constantly evolving frameworks in which projects, programmes and initiatives create links to interrelated policies and foster new strategic relationships across sectors, locations and levels of government. This perspective on portfolios facilitates multi-stakeholder collaboration to identify and exploit synergies between projects, programmes and different policy frameworks. The approach contributes to multiple innovation activities by enabling continuous interactions between actors, resource flows and opportunities. Innovation portfolio management provides a structured framework to turn initial concepts and prototypes into tangible investment opportunities. This process brings to light potential synergies that align with the current strengths of the targeted system. In addition, the framework helps design transformative innovation policy instruments to address critical societal challenges. It shows how a portfolio of innovation programmes and projects plays a crucial role in performing systemic brokering functions by strengthening complementarities between interventions at different system

levels and maximising the benefits of public research and innovation investments to support systemic change. Research and innovation agencies often use portfolios to coordinate an investment architecture for systemic transformation projects across different programmes. These programmes address multidimensional aspects of innovation systems and focus on different phases of the innovation process — from idea generation and prototyping to the advanced phase of demonstrating products, services and business models. Portfolios also serve as a tool to facilitate monitoring, evaluation and learning of systemic change through a programmatic logic. They help programme managers face the challenge of simultaneously orchestrating multiple programmes and lines of action by highlighting some complex aspects of systemic dynamics such as 1) purpose and alignment reflected in the goals/vision behind the investment strategy, 2) resilience related to network building and governance and 3) diversity encompassing multiple themes and sub-themes, actors and locations.



Source: Alvial-Palavicino et al (2021)

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Innovation Procurement

PURPOSE Using public procurement strategies for enabling the development of new and innovative solutions

USE Driving demand side innovation addressing public challenges and needs and creating opportunities for companies

ACTIONBOOK ACTIVITIES

- [Enabling multilevel cooperation](#)
- [Collaborating across departments](#)
- [Developing a strategy](#)
- [Mobilising resources](#)
- [Deploying a strategy](#)
- [Scaling and mainstreaming](#)

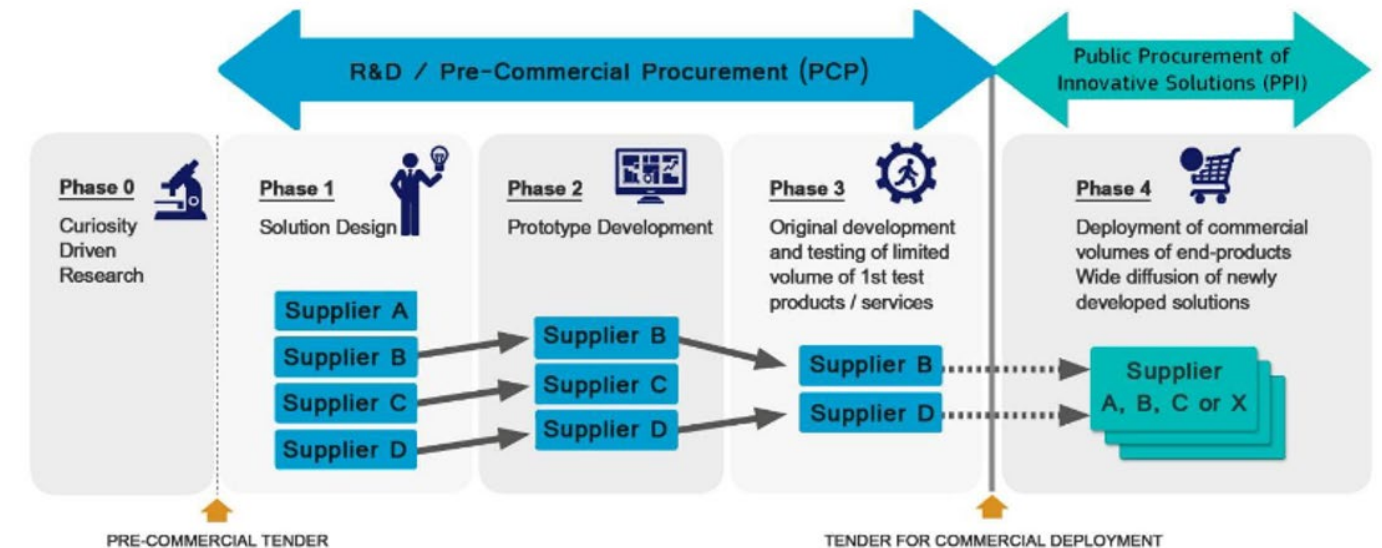
AUTHORS Carmen Sillero Illanes
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MORE

- [European Assistance For Innovation Procurement](#)
- [EAFIP toolkit](#)
- [Innovative public procurement for implementation of RIS3](#)

The public sector plays a significant role in various domains such as mobility, health, construction, e-government, waste management, and recycling. Within these areas, there is often a need for new and innovative solutions to improve the functioning of public organizations. This need can arise from identifying pressing issues within the organization itself, such as the need to control forest fires, or from policy decisions like the Green Deal that requires the public sector to reduce CO2 emissions. These challenges often require solutions that do not yet exist as commercially proven products. In such cases, the public sector can act as the first buyer, signaling market acceptance and encouraging the development of innovative solutions, being at the same time a powerful tool for supporting start-ups, by proactively engaging in innovation procurement, the government

can drive the creation of new products and services that address these pressing needs. When developing an innovation procurement action plan, it is beneficial to align the procurement needs with specific local or regional challenges or priorities. This ensures that the solutions sought after through procurement initiatives are in line with the strategy to be undertaken by the city or region. When the challenges faced required innovation solutions already available in the market, we refer to Public Procurement for Innovation Solutions (PPI). When there are no solutions near to the market, Pre-Commercial Procurement (PCP) facilitates the step but step process that include solution design, prototyping and initial production testing. This approach helps de-risk and refine the most promising innovation along the way.



Overview of a phased pre-commercial procurement process

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Interoperable Europe

PURPOSE Increasing public administration efficiency, and better cross-border and -sector public services

USE Developing interoperable by-design public services, and policies

ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Collaborating across departments](#)
[Collaborating across territories](#)
[Coordinating the policy and action mix](#)
[Managing and transforming knowledge](#)

AUTHORS Andrea Halmos, Alina Brebenel, Sven Schade
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MORE → [Monitoring Hub -NIFO](#)
→ [Connecting the EIF with Smart Cities & Communities \(EIF4SCC\) - NIFO](#)

Interoperability facilitates legal, organisational, semantic and technical alignment, as recommended by the European Interoperability Framework (EIF) to achieve more convenient digital public services. The communication from the Commission '[2030 Digital Compass: the European way for the Digital Decade](#)' underlines the need to speed up the digitalisation of public services by 2030, including by ensuring interoperability across different levels of government and domains. The [Interoperable Europe Act](#) introduces a new paradigm, setting the ground for digital public services conveniently accessible to any citizen without discrimination in the EU, by creating a structured cooperation framework on cross-border interoperability amongst Member States. Cross-border interoperability is enabled by both centralised national infrastructures, as well as, through decentralised systems that entail data exchange between local or regional administrations across Member States. Advancing public sector interoperability, therefore, requires the active involvement of administrations at the local and regional level, as well. In addition to the Interoperable Europe Board (reuniting representatives from Member States) the Act provides for the set-up of the Interoperable Europe Community, a community of public and private stakeholders (including representatives of public authorities at local and regional level) as well as civil society organisations and academic contributors. The Interoperable Europe Community could contribute to the Interoperable Europe Portal and participate in working groups that the Interoperable Europe Board may set up to examine specific points of its strategic agenda. The Interoperable Europe Portal will become a knowledge hub for public administrations to implement interoperable digital public services: it will include online training courses, access to innovative use cases, country knowledge and reusable interoperability solutions. To help national and regional administrations to achieve interoperability and contribute to the successful implementation of the Interoperable Europe Act, the Commis-

sion is going to further develop its trainings and learning materials under the Interoperable Europe Academy and further open the Academy to those levels of the governments most in need of training and peer-to-peer learning. To this end, new modalities to disseminate knowledge and encourage peer-to-peer learning will be implemented and particular attention will be paid to the principle of multi-linguality. [Public Sector Tech Watch](#) provides examples, where public administrations have used emerging technologies such as AI or blockchain, while the GovTech Connect community helps collaboration between the public and private sector, for the creation of re-usable solutions with the specific goal to foster innovation and encourage efficiency and uptake of tried fixes to foregrounding issues. The Interoperable Europe Act opens the possibility to understand the impact of underlying policies for the implementation of such solutions through setting up regulatory sandboxes. The Commission is also promoting the EIF for [smart cities and communities](#), a sectorial Interoperability Framework for local and regional administrations and makes available re-usable solutions such as [Reference Architectures](#), [semantic interoperability solutions](#) and [testbeds](#) that can help put in place interoperable public services and related datasets. The [SEMIC Support Centre](#) is particularly helpful when establishing data spaces or interconnecting them. The [JoinUp platform](#) hosts these solutions and will give access to a variety of additional re-usable, interoperable solutions in future. The portal also hosts information about how Member States are doing in their digital government transformation journey, how they align with the EIF and in future will also host information gathered as part of the obligations of the Interoperable Europe Act. While the [Living-in.eu community](#) focuses on the digital transformation of local and regional administrations, the Interoperable Europe Portal helps connecting different levels of government and allows them to reap the benefits of digital transformation in a new cross-border paradigm.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Joint calls

PURPOSE Helping align various calls for proposals and ensuring complementarities by design

USE Setting up transnational partnerships

ACTIONBOOK ACTIVITIES

- [Agenda setting and sharing](#)
- [Enabling multilevel cooperation](#)
- [Collaborating across departments](#)
- [Collaborating across territories](#)
- [Prioritising funds](#)

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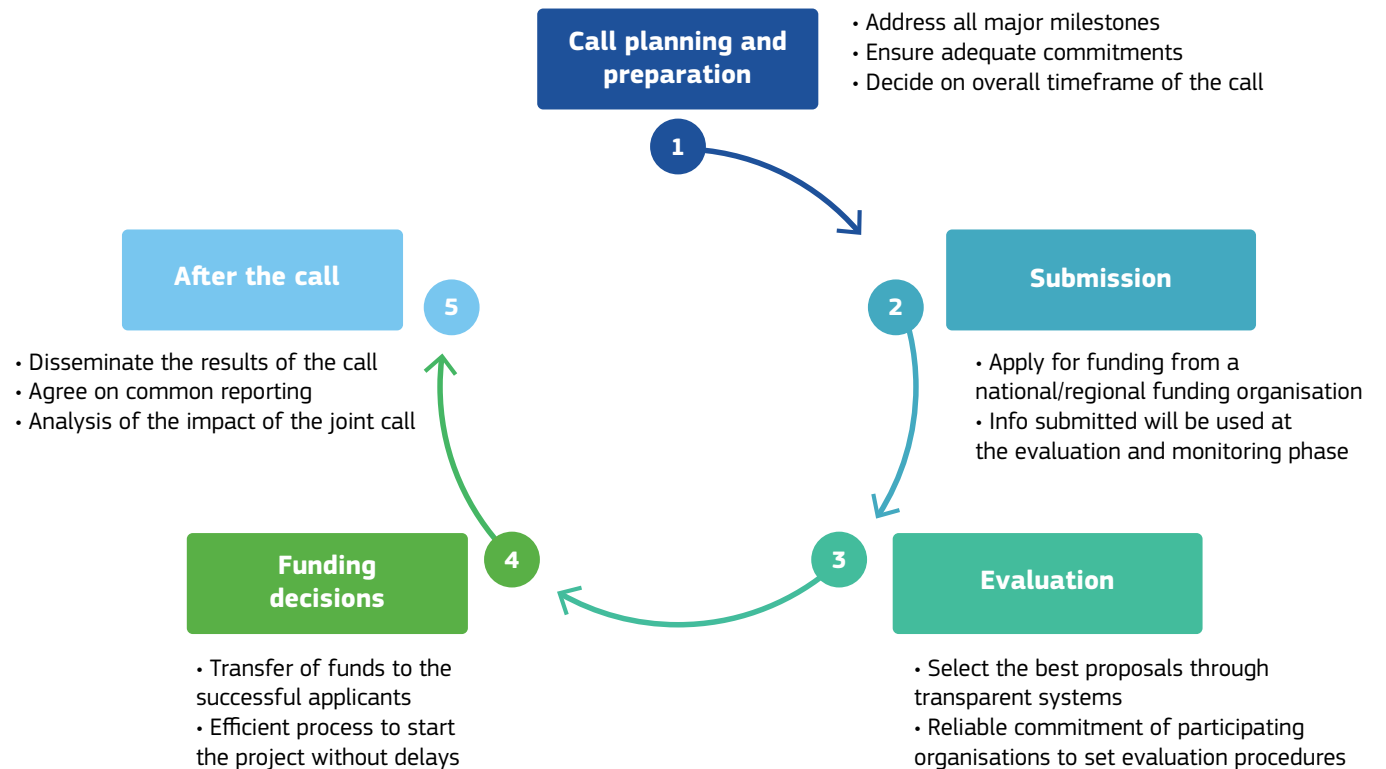
MORE

- [Joint Undertakings: analysis of collaboration mechanisms with ESI Funds in an S3 context](#)
- [An assessment of the impact of the FP7 ERA-NET scheme on organisations and research systems](#)

Joint calls generated by private-public partnerships display active networks leading to opportunities to create new forms of sustainable cooperation and funding arrangements. These help mobilise multiple R&I stakeholders at Member State and regional levels. Usually industry-led partnerships behind joint calls carry particular characteristics. They feature a governance structure based on critical mass from the private sector and tend to have strong links with national and regional levels. They generally develop their research agenda within

the EU's relevant policies leading to closer ties with regional and national initiatives. Then, they involve key stakeholders, part of international value chains, that could be of strategic importance to respective Member States and regions. In this manner, they, would be able to have access to a broad scientific community in relation to advanced technologies.

You can follow these key steps below to implement transnational calls for proposals, developed by the ERA-LEARN platform.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

JRC tools for sustainable urban development

PURPOSE Providing tools for strategies for sustainable development

USE Designing and implementing a strategy for sustainable development

ACTIONBOOK ACTIVITIES

- [Designing local missions](#)
- [Experimenting and demonstrating](#)
- [Learning from experimentation](#)
- [Mobilising competences](#)

AUTHORS

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Carlotta Fioretti
Martina Pertoldi
Fabrizio Guzzo

MORE

- [STRAT- Board](#)
- [Handbook of sustainable urban development strategies](#)
- [SAT4SUD - Self-assessment tool for sustainable urban development strategies](#)

Cities, alongside regions, can play a pivotal role in achieving the SDGs. The ‘urban dimension’ of EU policies has grown over recent years. During the 2014-2020 programming period, cohesion policy has made sustainable urban development (SUD) strategies compulsory, and their relevance has been even strengthened in 2021-27. Strategies in urban areas should apply an integrated and place-based approach, with emphasis on multi-sectoral policy, multilevel and multi-stakeholder governance, and promoting multi-territorial and community-led processes.

The Urban Agenda for the EU (2016) explicitly mentions the need for sound and strategic urban planning linked with smart specialisation strategies. SUD strategies can cover a variety of activities that could help implementing innovation policies at local level, directly including

R&I in their portfolio or investing in complementary policy areas such as education, training, infrastructures and entrepreneurship.

JRC provides methodological support to cities, managing authorities and other stakeholders involved in the design and implementation of SUD strategies. There are six building blocks that operationalise the EU integrated approach to sustainable urban development: strategic dimension, territorial focus, governance, cross-sectoral integration, funding and finance, and monitoring. To build synergies between innovation policy and cohesion policy, these six building blocks are meant to be used in the scope of the Cities mission when preparing and executing integrated climate neutrality plans to support climate neutrality in an integrated and sustainable way (RTD, 2021, [Info Kit for Cities – Cities mission](#)).



STRAT-Board

Online interactive tool by the JRC and DG REGIO under the umbrella of the Knowledge Centre for Territorial Policies (KCTP). It aims to provide a continuously updated state of play on how the European Structural and Investments Funds (ESIF) support the integrated approach to urban and territorial development.



Handbook of Sustainable Urban Development Strategies

This handbook provides methodological support to cities, Managing Authorities and other stakeholders involved in the design and implement of sustainable urban development strategies under Cohesion Policy by creating room for exchange and policy leaning.



SAT4SUD – Self-assessment tool for Sustainable Urban Development Strategies

Such tool is intended to be used by Local Authorities and Managing Authorities of EU Cohesion Policy. It aims to support them when verifying to what extent the strategy builds on an integrated and participatory approach.

JRC tools for sustainable urban development available on the Urban Data Platform plus.

TYPE

concept methodology
eu policy initiative
example

LEVEL

local regional
national european

Mapping funding opportunities

PURPOSE Mapping the main EU sources of funding to support the transitions

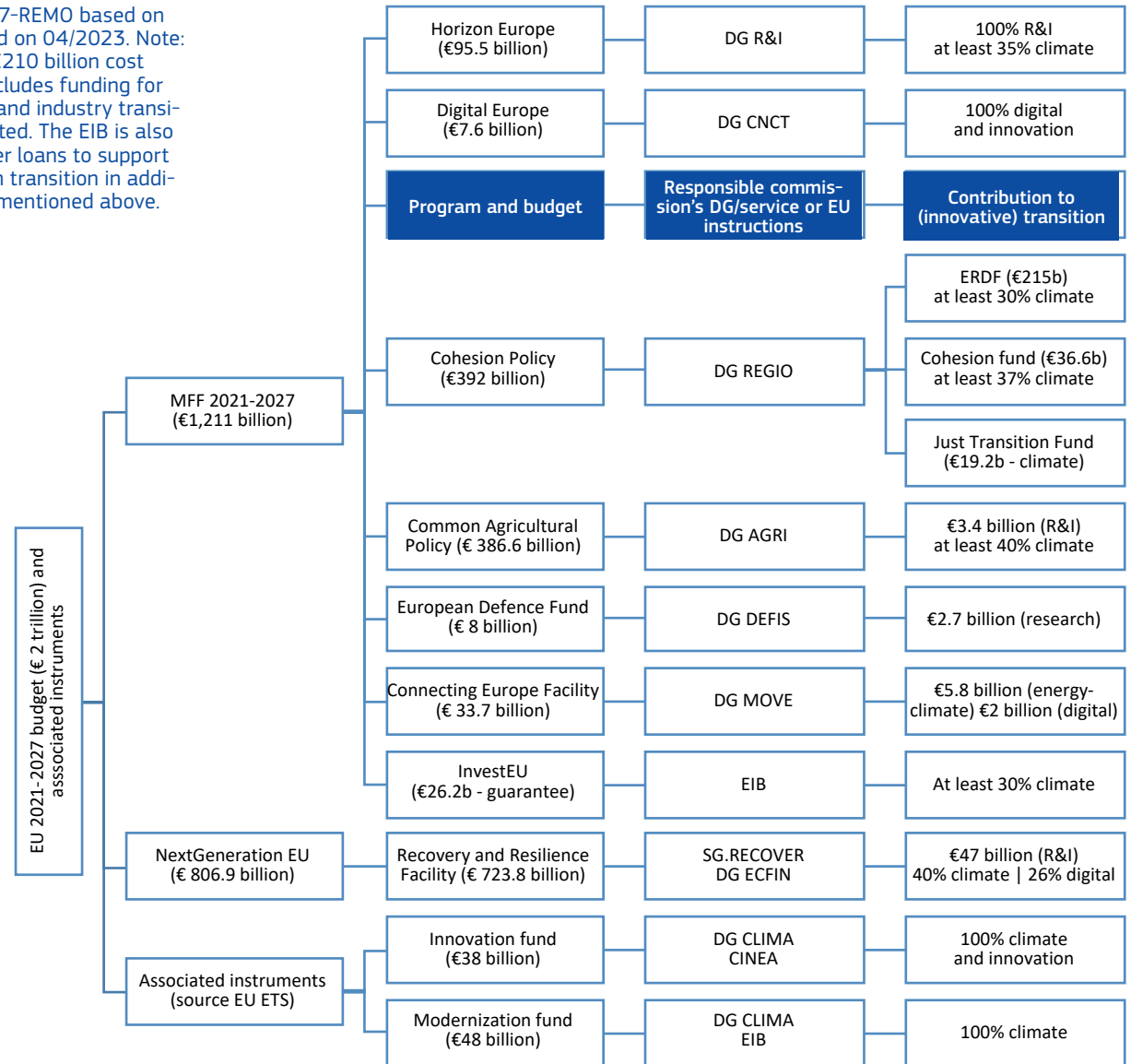
USE Getting an overview of EU funds for the twin transitions

ACTIONBOOK ACTIVITIES
[Developing a strategy](#)
[Mobilising resources](#)
[Prioritising funds](#)

AUTHORS
 Anabela Marques Santos (anabela.marques-santos@ec.europa.eu)
 Carmen Madrid

MORE
 → [European Green Deal Investment Plan](#)
 → [Territorial Economic Data viewer](#)

Source: JRC-B7-REMO based on data extracted on 04/2023. Note: REPowerEU (€210 billion cost estimated) includes funding for clean energy and industry transition not reported. The EIB is also providing other loans to support R&I and green transition in addition to those mentioned above.



To achieve the European Green Deal targets require considerable public and private investments. At least €260 billion of additional annual investment are required to achieve the current Commission's 2030 climate and energy targets. The European Green Deal Investment Plan targets to mobilise at least €1 trillion to

support sustainable investments over the next decade through the EU budget and associated instruments, in particular InvestEU. The figure below gives an overview of the main sources of funding (grants and loans), to support the green and digital transitions, and in particular Research and Innovation (R&I).

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Measuring and monitoring resilience

PURPOSE Building knowledge of strengths and weaknesses to navigate transitions

USE Identifying and monitoring vulnerabilities and resilience capacities

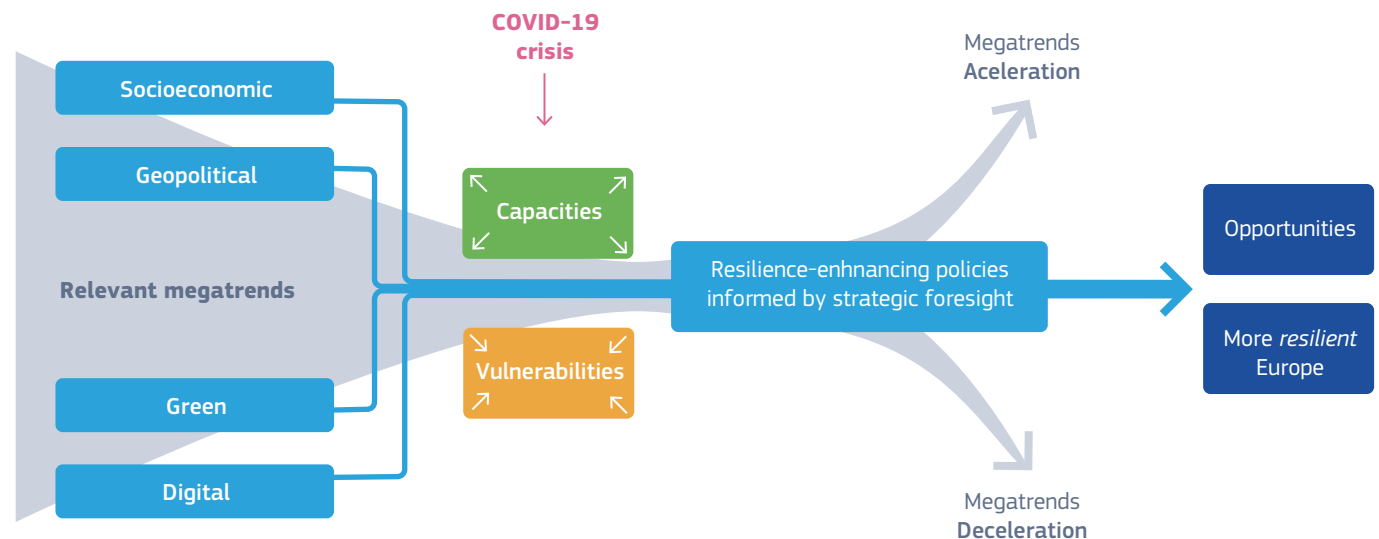
ACTIONBOOK ACTIVITIES [Mobilising resources](#)
[Managing and transforming knowledge](#)
[Continuous monitoring](#)
[Evaluating impact](#)
[Mobilising competences](#)

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MORE → [2020 Strategic Foresight Report](#)
→ [Resilience repository](#)

The resilience dashboards aim to provide a holistic assessment of resilience in the EU and its Member States. In relation to ongoing societal transformations and challenges ahead, the dashboards assess resilience as the ability to make progress towards policy objectives amidst challenges. Through a broad set of forward-looking indicators drawing on strategic foresight, the resilience dashboards inform about a Member State's ability to make progress and assess its relative strengths and weaknesses across four interrelated dimensions: social and economic, green, digital, and geopolitical. The RDB comprise 124 quantitative indicators showing vulnerabilities (i.e. features that can exacerbate the negative impact of crises and transitions, or obstacles that may hinder achieving long-term strategic goals) and capacities (i.e. enablers or abilities to cope with crises and structural changes and to manage the transitions) that can become increasingly relevant, both to navigate on-

going transitions and to cope with potential future shocks. To this end, the RDB help to identify areas that need further efforts to build stronger and more resilient economies and societies. The RDB can contribute to the ex-post assessment of Europe's recovery and resilience strategy. The dashboards ultimately aim to answer the question: through our policies and recovery strategy, are we effectively making the EU more resilient? Partnerships for Regional Innovation can play a key role in enhancing the resilience of regions. Assessing and monitoring resilience at regional level can help local government shed light on policy areas that could deserve their attention. The JRC can offer help for the regions to design and develop such assessment and monitoring tools for their respective circumstance, in terms of data selection, preparation and benchmarking. In addition, the JRC is aware of some [ongoing efforts](#) for the territorialisation of the resilience dashboards.

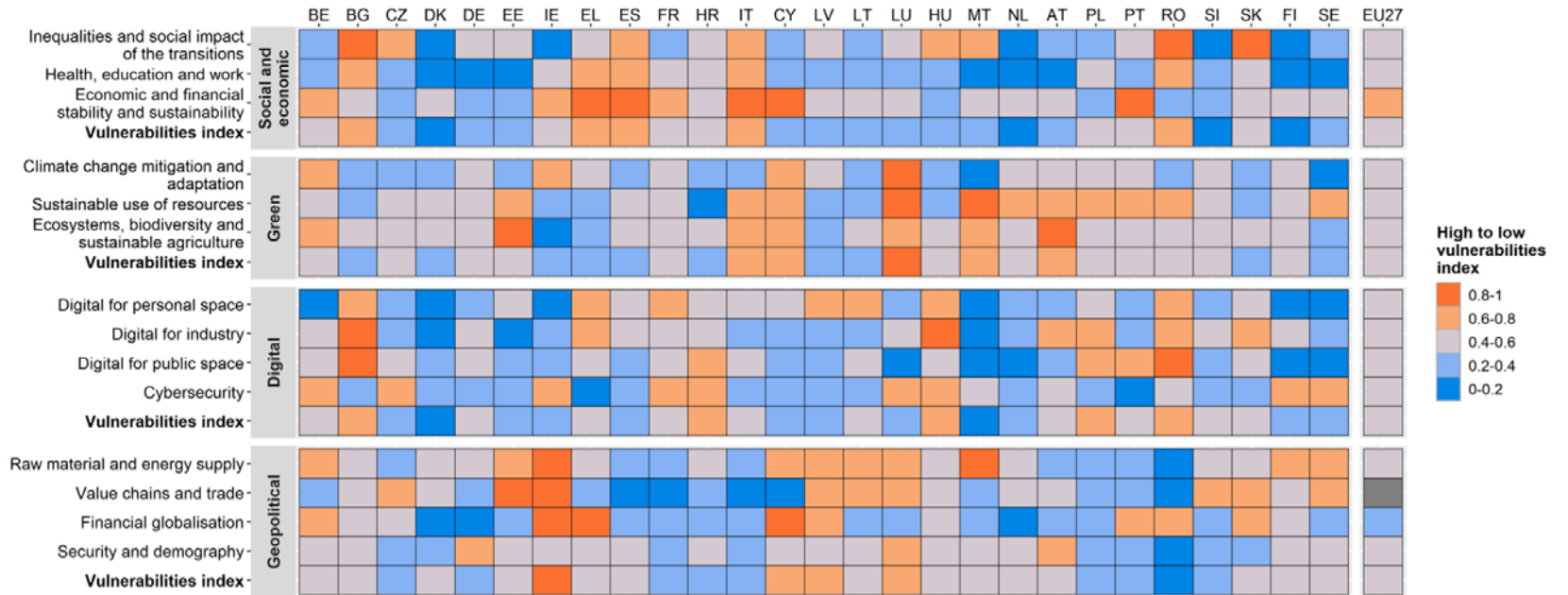


Four dimensions of resilience – from the EU and Member States to regions.

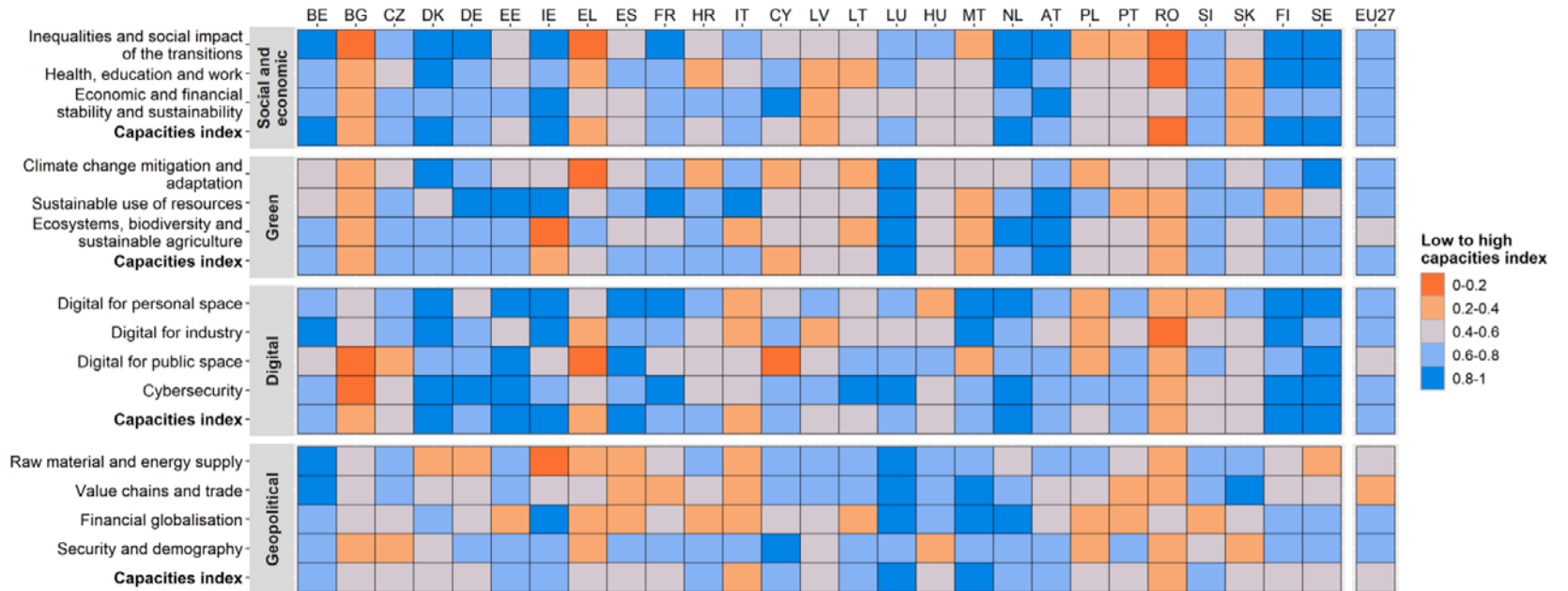
Note: The synthetic indices aggregate the relative situation of countries across all considered indicators. A higher vulnerabilities index indicates higher vulnerabilities (from blue to dark orange), while a higher capacities index indicates higher capacities (from dark orange to blue), compared with other countries. The figure below shows the vulnerabilities and capacities indicators per dimension and area. Each dimension includes approximately 30 indicators distributed as vulnerability indicators and resilience capacity indicators.



Vulnerabilities indices per dimension and area



Capacities indices per dimension and area



Synthetic indices across all areas and all dimensions (data up to 2021).

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Monitoring and evaluation in an impact-based policy

PURPOSE Understanding the role of monitoring and evaluation in policy design

USE Putting in place an evaluation and impact assessment procedure transitions

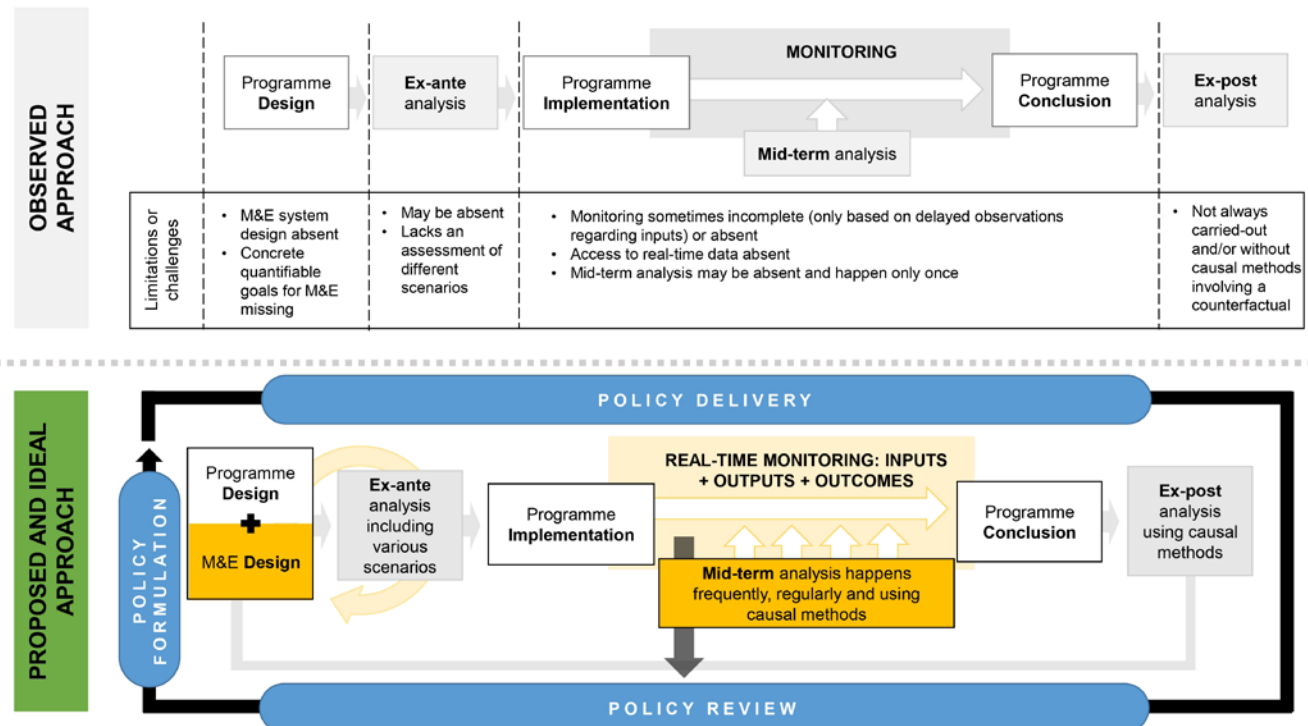
ACTIONBOOK ACTIVITIES [Identifying stakeholders for given societal goals](#)
[Deploying a strategy](#)
[Continuous monitoring](#)
[Evaluating impact](#)

AUTHORS Anabela Marques Santos (anabela.marques-santos@ec.europa.eu)
Alex Coad

MORE → [EVALSED: The resource for the evaluation of Socio-Economic Development - Evaluation guide](#)
→ [Suggestions for Monitoring and Evaluation of Transformative Innovation Policy](#)

For PRI, M&E are key elements in the different phases of the policy cycle, and they are more than a legal obligation. They are part of the policy intelligence, and lessons learned from previous evaluations should support programme design and/or policy formulation, instead of having a M&E system appearing after the programme implementation stage only (see figure below). Consequently, and following Molas-Gallart et al. (2021), we

highlight the need of designing and implementing a M&E system in parallel with programme design, to support the definition of quantifiable goals and policy actions to achieve them. Designing a M&E system implies planning for the different steps and players of the M&E system, namely, to define the indicators, the sources for data collection and the methods for evaluation.



Top: Unsophisticated M&E. Bottom: Proposed and ideal M&E system
Source: Marques Santos and Coad (2023:15).

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Monitoring and evaluation: what and how to evaluate?

PURPOSE Having an evaluation system fit for PRI

USE Putting in place a continuous evaluation system

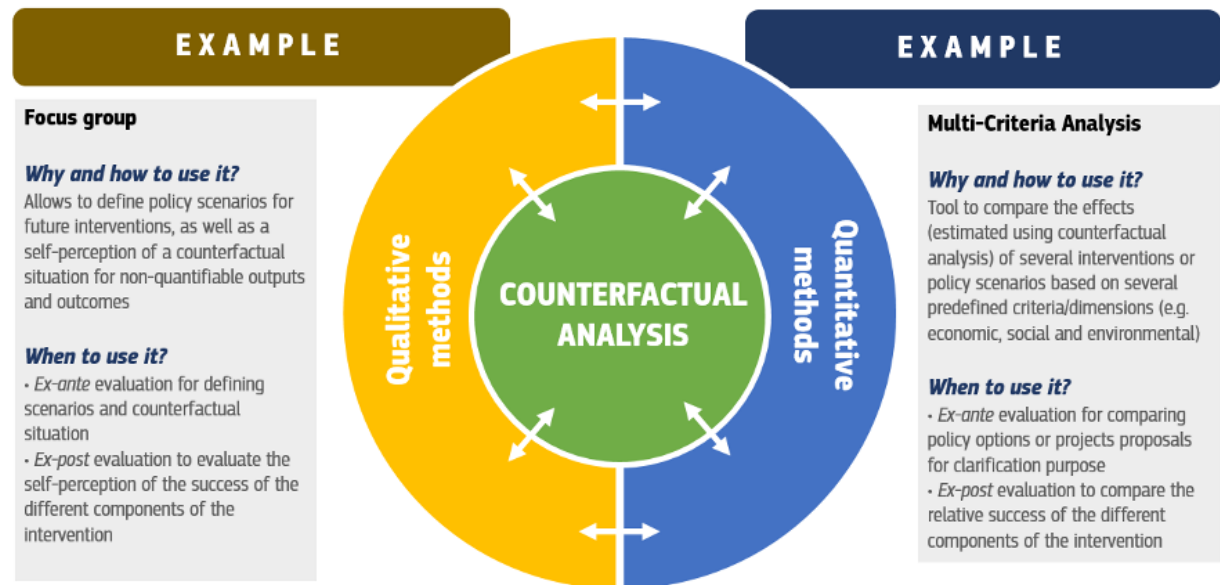
ACTIONBOOK ACTIVITIES [Building legitimacy](#)
[Scaling and mainstreaming](#)
[Continuous monitoring](#)
[Evaluating impact](#)

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Alex Coad

MORE → [EVALSED :The resource for the evaluation of Socio-Economic Development - Evaluation guide](#)
→ [Suggestions for Monitoring and Evaluation of Transformative Innovation Policy](#)

Evaluation refers to the process of determining the success or failure of a policy/programme. In a traditional approach, there are three main different types of evaluation: i) ex-ante analysis conducted before programme implementation; ii) mid-term analysis carried out once during the period of implementation; and iii) ex-post analysis aiming to account for the achievement of expected impacts. The evaluation framework of PRI should follow a traditional approach but include a more continuous process. It should go hand in hand with the evaluation of investment projects to be implemented in the territory and the monitoring process. As an impact-based policy, the starting point lies in defining the expected impact(s) and then designing the programme/policy intervention and identifying the inputs to achieve it (or them). Inputs include not only funding opportunities but also multilevel governance, policy-mix, and stakeholder involvement. The assessment of outcomes should also go beyond the direct effect at the beneficiary-level and include spillover effects in the territory and along the value chain (multilevel perspective). It also involves

adding other evaluation criteria (e.g. equity and acceptability) in addition to the traditional ones (relevance, coherence, efficiency, effectiveness, utility, and sustainability). In the PRI approach, we recommend to use a mix of techniques and methods for evaluation, combining counterfactual analysis with other qualitative and quantitative approaches. Qualitative methods refer to surveys, interviews, focus groups and case studies. They can help identify important variables and mechanisms to measure in quantitative analysis. Furthermore, the counterfactual situation (without policy intervention) can potentially be designed or estimated thanks to specific questions included in the interviews or focus group. Quantitative methods include combining counterfactual analysis with other techniques like Multi-Criteria Analysis (MCA) and Cost-Benefit Analysis (CBA). Since PRI is about trade-offs, co-benefits, and stakeholders' involvement, for instance, the impact assessment conducted using counterfactual analysis and eventually different scenarios can be combined with MCA and CBA.



PRI evaluation approach as a combination of methods.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Monitoring the SDGs at local and regional level

PURPOSE Monitoring sustainability in an integrated and holistic way

USE Tracking place-based progress on sdgs to inform policy

ACTIONBOOK ACTIVITIES

- [Managing and transforming knowledge](#)
- [Continuous monitoring](#)
- [Evaluating impact](#)
- [Mobilising competences](#)

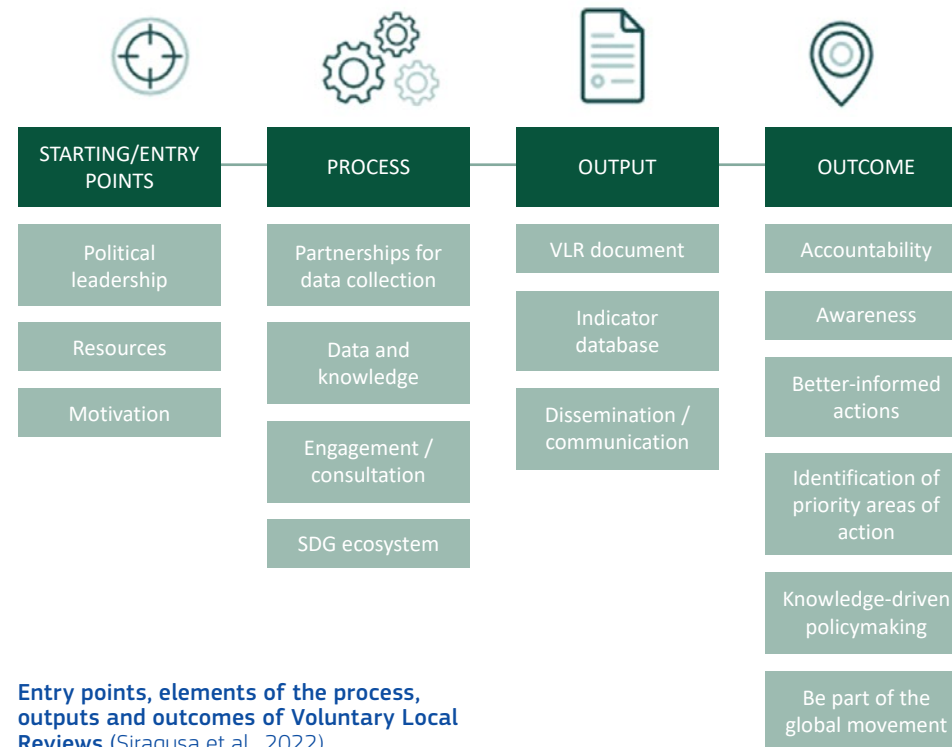
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MORE

- [Monitoring the SDGs at regional level in EU. REGIONS2030 pilot project Final Report](#)
- [European Handbook for SDG Voluntary Local Reviews – 2022 edition](#)
- [The Localisation of the Sustainable Development Goals - EU Science Hub \(\[europa.eu\]\(http://europa.eu\)\)](#)

The 2030 Agenda for Sustainable Development and the SDGs provide an invaluable framework for local and regional governments like yours to drive holistic and transformative action towards sustainability. In recent years, the SDG Voluntary Local Reviews (VLRs) have emerged as a powerful tool for assessing the implementation and progress of the 2030 Agenda at the local level. By 2023, more than 250 Local and Regional Governments globally (104 of which in Europe) have submitted their VLR! We understand the importance of tailoring these reviews to your region's unique needs, specificities and particularities, allowing you to adapt targets and key indicators to address specific challeng-

es. Through your own VLRs, you can monitor progress, benchmark with peers, and refine your strategies accordingly. After several consultation processes and pilot projects, we are excited to introduce new methods, tools and indicators (including both official and experimental ones), to develop effective SDG local monitoring systems that cater specifically to European cities and regions. These tools enable governments and stakeholders to transcend sectoral boundaries and make informed decisions based on reliable and timely data. With our reports and handbooks, we aim to provide you with the necessary insights and resources to leverage the potential of VLRs and other supporting tools.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Monitoring: an example from Catalonia

PURPOSE Designing dynamic and participatory monitoring systems

USE Monitoring PRI features

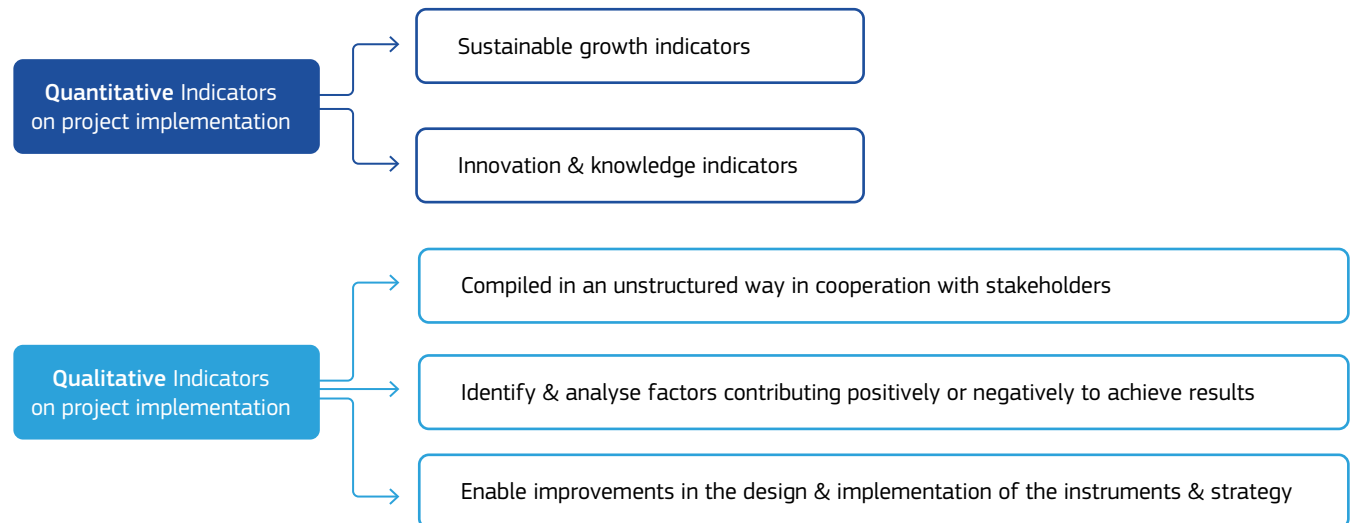
ACTIONBOOK ACTIVITIES [Setting up a network governance](#)
[Experimenting and demonstrating](#)
[Continuous monitoring](#)
[Learning from experimentation](#)

AUTHORS Solange Mifsud
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MORE → [RIS3CAT \(Catalonian RIS3\) Monitoring System](#)
→ [S3 for SDGs in Catalonia](#)

Monitoring systems in a PRI dimension require to be dynamic and participatory, thus focusing more on strategic learning than on achieving pre-established objectives. This comprises key elements including governance, articulation of the contribution by key stakeholders, strengthening synergies, maximising collective impacts, and putting in place a common system of indicators and monitoring leading to a dynamic overview for proper decision-making. The monitoring system has to be planned immediately at the kick-off of the strategy. However, you should bear in mind that a dynamic and participatory monitoring system has to be flexible so

that the questions that it is trying to answer can evolve over time. This will lead to more effectiveness. The monitoring system has to take into account the complexity of the real situation in all its dimensions and interrelations, dovetailed with the development and exploration of tools and indicators to capture such complexity. You can see in the figure below some sources of indicators that you may want to consider when developing a monitoring system fit for the needs in your region. These are the indicators used in the Catalonia monitoring system. Could you take inspiration from these practical indicators?



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Monitoring: what to?

PURPOSE Critically tailoring monitoring for PRI

USE Putting in place a monitoring system

**ACTIONBOOK
ACTIVITIES** [Diagnosing and developing a vision](#)
[Setting milestones and targets](#)
[Managing and transforming knowledge](#)
[Continuous monitoring](#)

AUTHORS Anabela Marques Santos
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Alex Coad

MORE → [Territorial Economic Data viewer](#)
→ [The Annual Climate Action Monitor](#)

Under a traditional approach, monitoring refers to a periodic process of analysing the outputs. In the context of place-based transformations, it must go beyond and focus on examining its outcomes and impacts. Nevertheless, in both cases, it should be carried out during the execution phase of a programme/policy intervention, with the aim of correcting any deviation from desired objectives/goals. Transformative monitoring (or PRI monitoring) should differ in terms of scope, dimensions, and focus of analysis on the basis of its singular characteristics, as described in the figure below. For instance,

instead of monitoring achievements, measured by indicators associated with subsidized beneficiaries, it should focus on the monitoring of outcomes and net impacts. Furthermore, it should also screen the spillovers at the territorial level to assess not only the desired effects but also the non-desired effects. Such concepts are also associated with policy footprint, i.e. the quantification of the environmental footprint of the policy choice along the value chain, from the development and production of new products/technologies to their end-of-life after their use.

	TRADITIONAL APPROACH	PRI APPROACH
SCOPE	<ul style="list-style-type: none"> • Performance-based analysis 	<ul style="list-style-type: none"> • Impact-based analysis
DIMENSIONS	<ul style="list-style-type: none"> • Socio-economic dimensions 	<ul style="list-style-type: none"> • Stakeholders involvement • Policy-mix (synergies and complementarities) • Socio-economic and environmental dimensions
FOCUS	<ul style="list-style-type: none"> • Achievements at beneficiary-level Static in given period <p>(e.g. R&I investments, number of subsidized firms, number of employment created by subsidized firms, firms in R&D cooperation between firms or university-firm)</p>	<ul style="list-style-type: none"> • Multiple-level perspective • Direct impacts and spillovers at territory-level (desired and non-desired effects) • Dynamic over time to ensure the continuity of the effects

Traditional versus PRI monitoring methodological approaches.

Source: Based on Marques Santos and Coad, 2023.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

National and regional science for policy ecosystems for innovation

PURPOSE Connecting scientific institutions with policymakers

USE Obtaining evidence-informed innovation policymaking at various levels of governance

ACTIONBOOK ACTIVITIES

- [Identifying stakeholders for given societal goals](#)
- [Collaborating across territories](#)
- [Designing ecosystem support](#)
- [Mobilising competences](#)

AUTHORS Kristian Krieger
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MORE

- [Science meets Regions](#)
- [Science for Policy Ecosystems](#)
- [Competences for scientists and policymakers](#)

Innovation strategies require entire ecosystems of support, involving a wide range of enterprises, government measures and services, citizens, social partners, finance, and research and technology organisations. By mobilising a diverse set of stakeholders, you can ensure that sector-specific challenges and needs can be anticipated and addressed collaboratively while benefits of innovation can be widely shared. One of the critical relationships for innovation within such ecosystems connects scientific institutions with policymakers: Scientists can help policymakers make sense of cutting-edge innovations, as well as develop and identify policy options with the greatest transformative potential. Policymakers can help direct research into fields of direct relevance for innovation and innovation policies. Scientific expertise on the varied impacts of different intervention also helps connect different governmental services, promoting a Whole-of-Government approach to innovation. Yet, you can face challenges along the way. Obstacles range from a simple mismatch of timeframes and diverging incentives to deep-seated cultural differences. However, you can refer to a set of practical tools developed by the

JRC to overcome these obstacles, strengthening capacity for science-policy engagement both of individual researchers and policymakers, as well as of scientific institutions and policymaking bodies at various levels of governance. Participatory events involving key stakeholders from the science-policy interface: Participatory science for policy ecosystems workshops and innovation camps (several are in the pipeline) have been successfully used for SWOT analyses, co-creation of capacity building projects in support of using evidence in policymaking, mutual learning and networking between sectors and across Member States, regions and cities. Building competences for science-policy engagement with training: training modules and materials have been developed for both scientists and policymakers to allow individuals to develop the knowledge, attitude, and skills to better engage with partners and processes in the other sector. Pairing and placement schemes: a pairing scheme will be put in place allowing regional and local policymakers to spend time with scientists working on issues that are relevant to the policy challenges they face.



Three tools for harnessing the power of science for policy ecosystems for innovation.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

ODP: an international dimension

PURPOSE Adding a stronger international dimension to discovery process

USE Linking local strengths with the global opportunities for policy and projects

ACTIONBOOK ACTIVITIES [Identifying stakeholders for given societal goals](#)
[Setting up a network governance](#)
[Agenda setting and sharing](#)
[Collaborating across territories](#)

AUTHORS Ramojus Reimeris
(JRC-PRI-Pilot@ec.europa.eu)

MORE → [Cross-border Smart specialisation strategy of Galicia- Northern Portugal \(RIS3T\)](#)

While entrepreneurial discovery process (EDP) emphasises on the local/regional or national assets, the international the national and especially international opportunities can be often overlooked or not fully exploited in practice. Open discovery process (ODP) aims to further develop mechanisms of openness to link local strengths with global opportunities. The international dimension is embedded into the discovery process to some extent, as countries/economies do not act in isolation and participating stakeholders do bring their experience and plans for further international actions. However, such attention to international dimension does not fully cover the discovery phase, as it is more focused on the implemen-

tation afterwards. Then, how can sustainability innovators, like yourself, include international stakeholders into the thinking process of ODP and facilitate their participation so that all stakeholders benefit? To start, you can look at the international landscape when you conduct stakeholder mapping. Then, the international stakeholders in the personal or organisational capacity should be joining the ODP and “doing the thinking together”, based on identified mutual interests. On the programme level, clearly formulated linkages to global value chains, European Innovation Partnerships, Horizon Europe missions, etc. can represent the international dimension. Take a look at the figure below to get some inspirations.



Components for stronger international dimension of ODP.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

ODP: science-based ODP building on the Seville process

PURPOSE Supporting policy implementation

USE Forming science-based stakeholder consensus

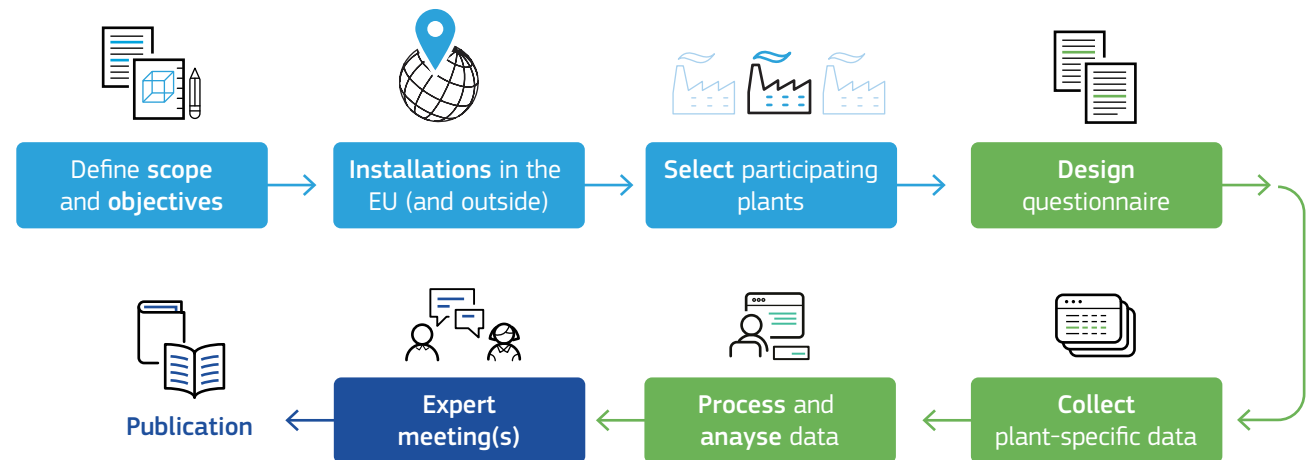
ACTIONBOOK ACTIVITIES
[Building legitimacy](#)
[Setting milestones and targets](#)
[Learning from experimentation](#)

AUTHORS Georgios Chronopoulos
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MORE
 → [Video on the Sevilla process](#)
 → [European IPPC Bureau](#)
 → [Industrial emissions and safety](#)

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Phases of the Sevilla process, applied to large scale agro-industrial installations.

T47

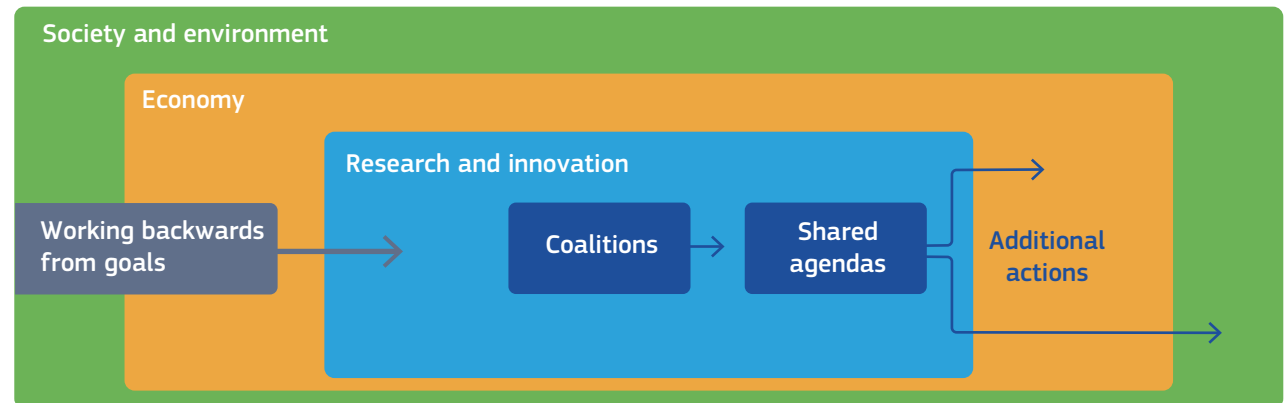
TYPEconcept
methodology
eu policy initiative
example**LEVEL**local
regional
national
european

Open Discovery Process (ODP)

PURPOSE	Building partnerships, action plans and projects
USE	Engaging and working with stakeholders on local problems
ACTIONBOOK ACTIVITIES	Identifying stakeholders for given societal goals Setting up a network governance Agenda setting and sharing Coordinating the policy and action mix
AUTHORS	Ramojus Reimeris (JRC-PRI-Pilot@ec.europa.eu)
MORE	→ Articulating shared agendas for sustainability and social change: A contribution from the territory to the EU debate on transitions to sustainability → Designing missions. Mission-oriented innovation in Sweden – A practice guide by Vinnova

Participatory governance is embodied in processes that empower citizens to participate in public decision-making. Participatory governance broadly refers to the democratic mechanisms that are intended to involve citizens in public policymaking processes. There is evidence that participatory governance practices are contributing to stronger government transparency, accountability and responsiveness, and improved public policies and services. Participatory governance is being promoted in different contexts to increase the engagement of citizens in public policymaking process and in broader processes of public value co-creation.

The development of smart specialisation strategies rely on identification of priority areas and the exploration of the potential for economic transformation within these areas. Strategic priority areas are selected through a participatory process within a top-down approach steered by national and/or regional authorities – entrepreneurial discovery process (EDP, see T60 [S3: Smart specialisation strategies](#)). Because of S3, regions are focused on local needs, policy design is becoming more evidenced-based and broader consultation is contributing to have regional stakeholders more involved in regional innovation policymaking.



Open discovery process relies on working backwards from goals with coalitions of stakeholders in a multilevel perspective.

Participatory governance and EDP

PURPOSE Co-creating public value with stakeholders

USE Engaging stakeholders in policymaking

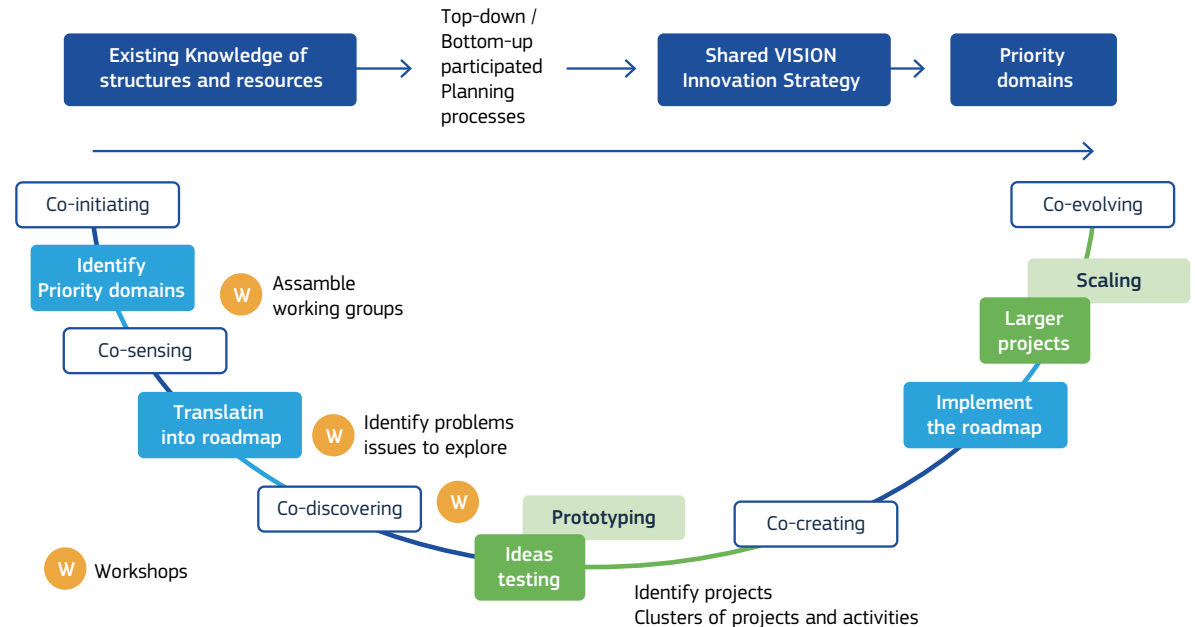
ACTIONBOOK ACTIVITIES [Identifying stakeholders for given societal goals](#)
[Setting up a network governance](#)
[Agenda setting and sharing](#)

AUTHORS Ramojus Reimeris,
Dimitrios Pontikakis
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MORE → [Smart Specialisation Platform](#)

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S3 as Strategic Planning Process and S3 as a balanced planning and participatory incremental process.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

POINT reviews

PURPOSE Informing policy development across domains

USE Collecting evidence about the affected systems

ACTIONBOOK ACTIVITIES

- [Identifying stakeholders for given societal goals](#)
- [Enabling multilevel cooperation](#)
- [Developing the policy and action mix](#)
- [Prioritising funds](#)

AUTHORS

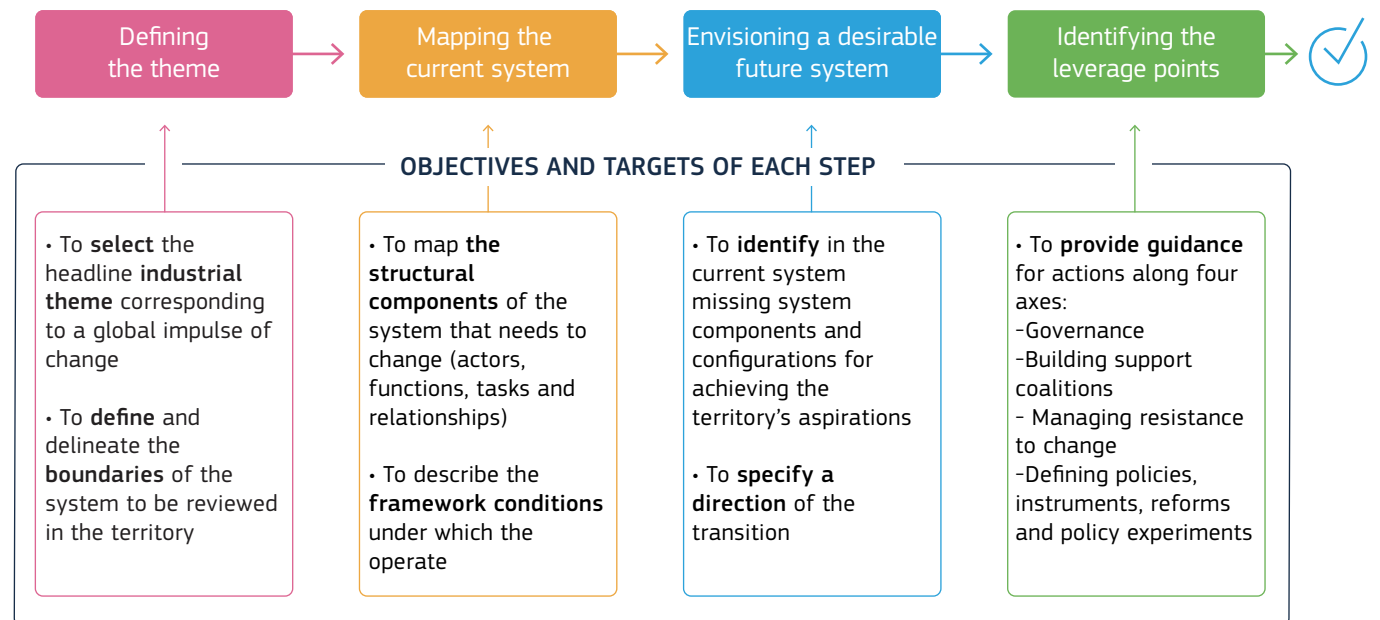
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MORE

- [POINT Reviews: an overview](#)
- [POINT Review of Industrial Transition of Bulgaria](#)
- [POINT Review of Industrial Transition of Greece](#)

A POINT (Projecting Opportunities for INdustrial Transitions) review is an expert study of the policy support system. It is a tool designed to generate policy recommendations for transformative, system-level, innovation. A first objective of a review is to collect missing evidence necessary for understanding the extended industrial system undergoing transition. A second objective is to identify opportunities for industrial development and offer concrete policy pathways. The overall aim is to contribute to the development of a credible, coherent and ambitious direction for transition that delivers co-benefits for the economy, society and environment. You can follow the POINT methodology by the JRC to conduct expert reviews, drawing on desk, field research and extensive stakeholder consultations. The POINT methodology evaluates policy contributions to

four essential functions of any industrial system: orientation; resource mobilisation; production; consumption. POINT adopts a framing of system-level innovation that includes groups such as workers, users and households that may otherwise be missed. The broad framing enables you to identify relevant policies that should be coordinated and develop complementary actions and reforms under a coherent directional logic. A review draws on extensive research, wide stakeholder consultations and international experiences. Below you can check the four main steps of a POINT review. A SWOT analysis of key functions can be supported by quantitative evidence and can be also combined with complexity analysis to showcase the most technologically promising paths.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Policy mix for the digital transition

PURPOSE Enabling the uptake of benefits from digital technologies

USE Putting in place a policy and action Mix for the digital transition

ACTIONBOOK ACTIVITIES

- [Setting up a network governance](#)
- [Enabling multilevel cooperation](#)
- [Collaborating across departments](#)
- [Developing the policy and action mix](#)
- [Coordinating the policy and action mix](#)

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MORE

- [Shaping Europe's digital future](#)
- [Shaping the digital transformation: EU strategy](#)

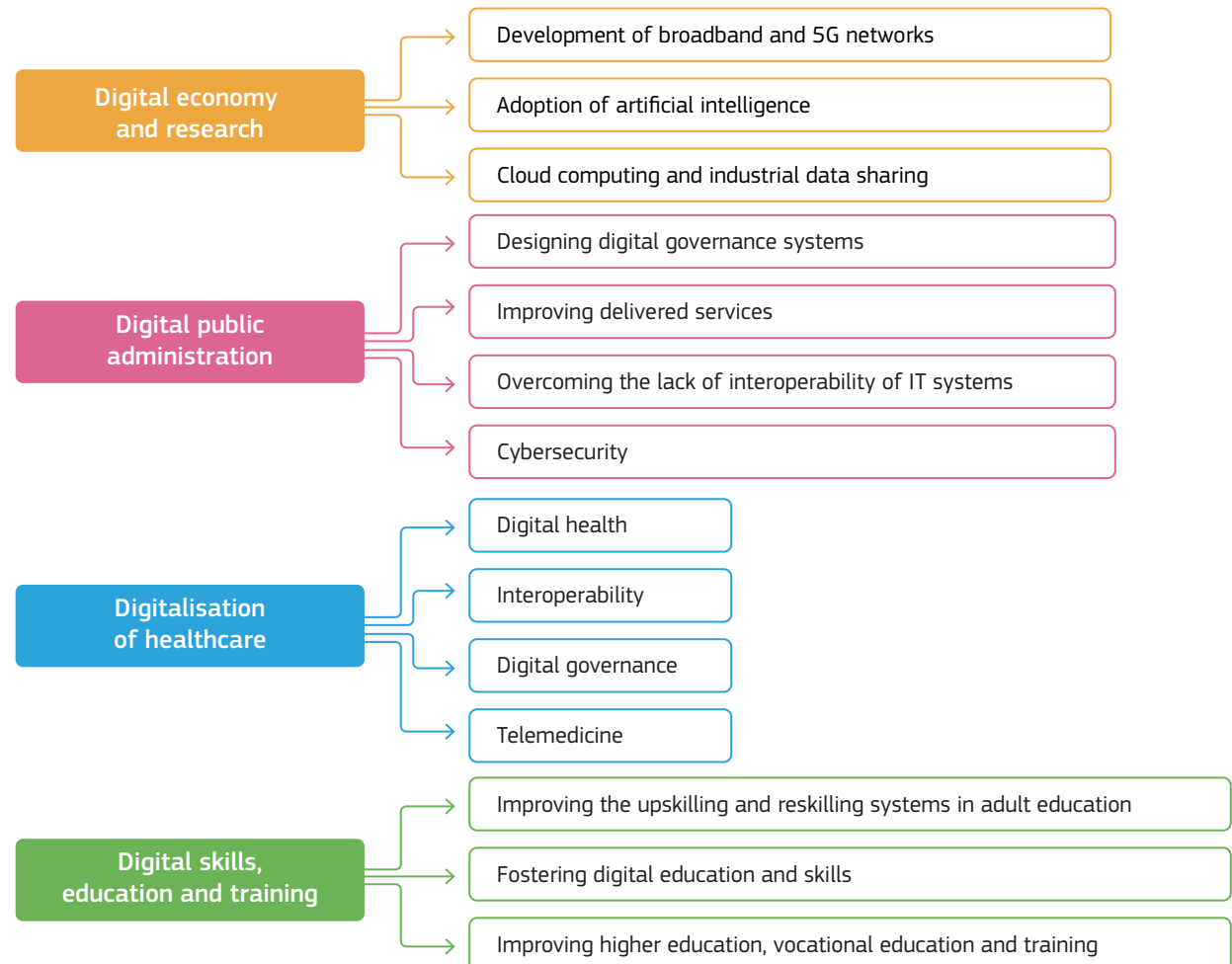
The digital and green transitions (or transformations) are at the core of the agenda for future sustainable growth adopted by the European Commission. The digital transition stands to mainstream the use of digital technologies by public and private sectors for the benefits of the society. The digital transition is based on three pillars: technology that works for the people; a fair and competitive digital economy; an open, democratic and sustainable society.

- Can you think how the digital transition has changed the

way you interact with your stakeholders?

- What benefits and challenges you face, or will face, at work as a consequence of more digital public administration?

Digital solutions that put people first will open up new opportunities for businesses, encourage the development of trustworthy technology, foster an open and democratic society, enable a vibrant and sustainable economy, help fight climate change and achieve the green transition.



Example of policy mix.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Policy mix for the green transition: the Ruhr area

PURPOSE learning about policy approaches and instruments for a fair green transition

USE putting in place a Policy and Action Mix for the green transition

ACTIONBOOK ACTIVITIES

- [Setting up a network governance](#)
- [Enabling multilevel cooperation](#)
- [Collaborating across departments](#)
- [Developing the policy and action mix](#)
- [Coordinating the policy and action mix](#)

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MORE

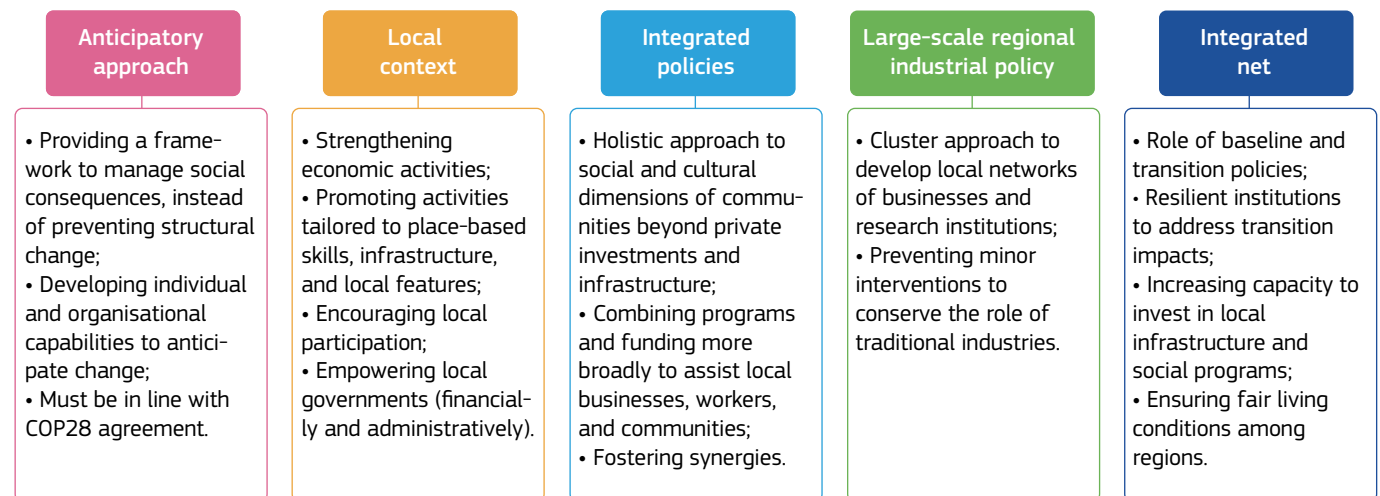
- [Lessons learnt from structural change processes in Germany](#)
- [The possible implications of the green transition for the EU labour market](#)

Phasing down coal production has contributed to economic decline, high unemployment and emigration rates and environmental degradation in German mining regions. To address these interrelated issues, a series of policy measures has been implemented since the 1960s. Their goals include (i) economic diversification and re-orientation; (ii) workforce support; (iii) social well-being and quality of life; and (iv) environmental remediation and protection (see the table below).

In addition, nationwide “baseline policies” included measures such as the German social security system, with unemployment protection and pension system; the labour system, with for example a codetermination mechanism and trade unions; and the system for regional fiscal equalization. Despite not directly related to coal phasing down, they played a major role together with a structural approach to policy to promote systematic transformations in coal regions.

Economic diversification and reorientation	Support to attract new businesses and financially support existing local enterprises beyond coal	Expansion of educational and research activities contributing to tertiary activities and attraction students and scholars	Focus on green energy, digitalization and automation technologies, while supporting existing regional potentials and clusters
Workforce support	Integrating labour market policies into regional development policies	Financing or co-financing job procurement and employment measures	Extension of qualification and career counselling infrastructure
Social well-being and quality of life	Urban development	Cultural and leisure activities by developing and modernizing physical infrastructure	
Environment remediation and protection	Decommissioning and environmental remediation	Water management	

Could you envision such a systemic approach to policy transition in your region?



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Priority compass

PURPOSE Having data-driven identification of regional level opportunities and capabilities

USE (As one of the tools) informing innovation policy design

ACTIONBOOK ACTIVITIES [Building legitimacy](#)
[Designing ecosystem support](#)
[Prioritising funds](#)

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MORE → [Economic Complexity Analytics: Country Factsheets](#)
→ [Economic complexity to address current challenges in innovation systems: A novel empirical strategy linked to the territorial dimension](#)

Many institutions use complexity analyses for country level macroeconomic analyses. However, we need to look at regional systems of innovation to better inform industrial policy. As most of innovation and industrial policy happens at the regional level, relevant policy instruments require understanding which regions are better prepared in terms of technological capabilities. This framework is designed to help policymakers identify knowledge-based investment priorities and the potential feasibility of the several options they have. It uses machine learning algorithms (developed within the economic complexity paradigm) to highlight which technologies and production lines may be feasibly developed by a region or a country, based on their current capabilities. It is a quantitative tool, whose aim is to provide orientation for policymakers from the early phases of the strategy design and throughout its implementation. Traditionally you (we) may have used patent analysis that relies on patent counting to infer the activity of a regional innovation system. Now, you have access to complexity analysis to grasp the technological fields your region is active in to infer its capabilities. With such analysis, you can describe the potential of the innovation system not just in terms of simple indicators, but also as a multidimensional analysis of the possibilities

of the region in different directions. You will be able to inform each region of their comparative advantage in different dimensions.

Focus on three dimensions of capabilities

- **Sectors:** Vertical technological capabilities at the sectorial level, identified by crossing patent and export data to highlight technologies leading to a comparative advantage in a specific export market.
- **Green sustainability:** Technological capabilities specific to the green effort of the Commission, identified through the Y classification of the EPO.
- **Key Enabling Technologies:** Transversal technological capabilities spanning different sectors, identified through expert opinion.

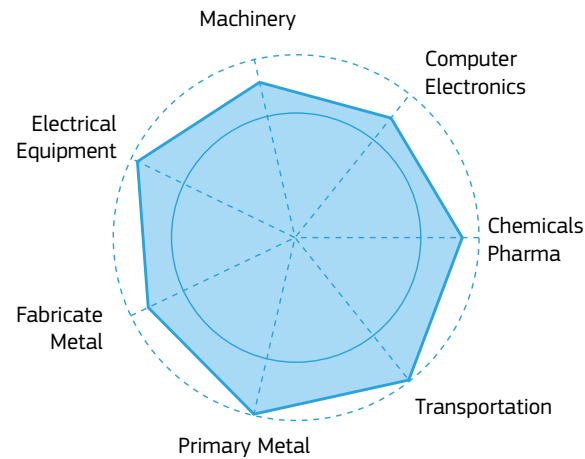
Identification of Green Technologies

The identification of industrial priorities and their connection to technological fields requires constant monitoring, as the institutional goals and the technological landscape evolve. To advance on this task, we are working on an automatic matching of patents with BREFs (Best Available Techniques reference documents) allowing connecting green priorities to technological fields at a very high level of disaggregation automatically and as fast as priorities updates.

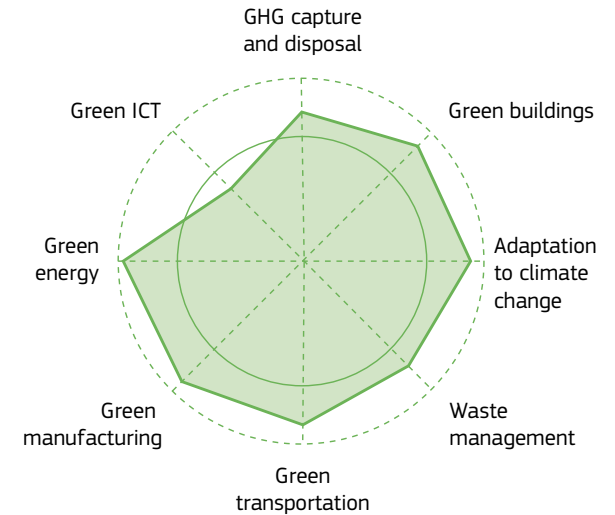
Priority compass in action: the case of Andalusia

The priority compass uses Complexity analysis to help policymakers select knowledge-based investment priorities at the regional level. The radar plot highlights areas where the region holds greater technological capabilities. The blue radar focuses on advanced manufacturing sectors, while the green and red radars focus on green and horizontal technologies, respectively. For each radar plot, the central circle represents the average technological capabilities of the region, which means the radar is underlying the relative technological capabilities, rather than the absolute ones. The radars can be used to evaluate the relative strengths and weaknesses of the region. This is aimed to inform policy makers, but it does not provide directly industrial strategies: it is up to the policymaker, for instance, to decide whether to focus investment in technologies where the region is strong or weak. We observe that in general Andalusian comparative advantage in advanced products is lagging behind, but they have an advantage in Primary Metal and Transportation. Andalusia holds relative strength in all green technologies except for Green ICT, while – for key enabling technologies – it is relatively well positioned in Nanotechnologies.

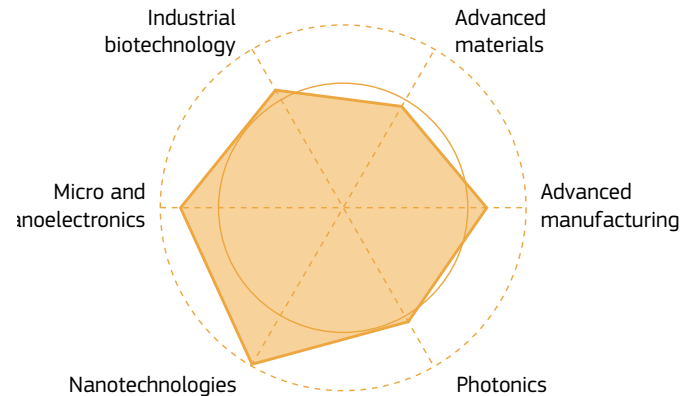
SECTORAL OPPORTUNITIES



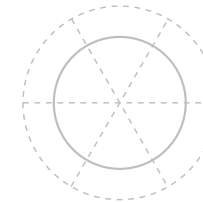
TECHNOLOGIES FOR SUSTAINABILITY



KEY ENABLING TECHNOLOGIES



The central circle represents the average technological capabilities of the region.



Compasses for Andalusia region, Spain.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Promoting multiple-value creation and co-benefits

PURPOSE Engaging different groups in innovation for multiple value creation

USE Explaining practical processes of creating multiple value creation and co-benefits

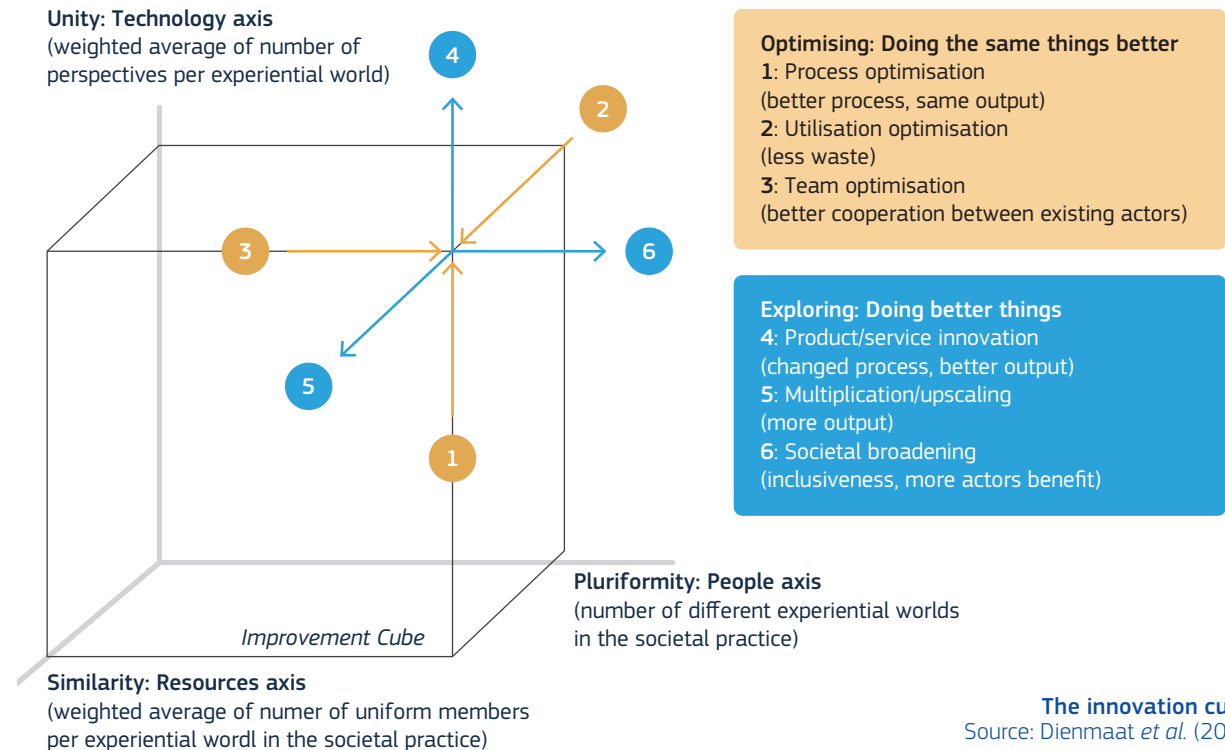
ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Diagnosing and developing a vision](#)
[Developing transition pathways and roadmaps](#)
[Developing a strategy](#)
[Designing local missions](#)

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MORE → [Vanguard Initiative](#)
→ [Why sustainable development requires societal innovation and cannot be achieved without this](#)
→ [Sustainable business model innovation: The role of boundary work for multi-stakeholder alignment](#)

Collaborative working is key in the recovery process of the pandemic and in the generation of resilient value chains. This approach offers new innovation opportunities which would not be achieved through change-makers working in isolation. This also provides stimulus to explore new commercial openings. An innovation framework of value orientations and player-based improvement perspectives leads to societal innovation which serves multiple needs and functions in a novel manner. It targets society in a broad sense more than a particular sector. Transition policy mixes include elements of creative destruction, involving policies for the creation of the new and for destabilising the old. Societal innovation involves different stakeholder groups bringing in different perspectives with the aim of creating value and avoiding negative costs to society. It works as a

multi-player innovation challenge leading to co-benefits. Turning our current production-consumption systems into sustainable systems while maintaining their societal benefits requires the involvement of consumers, governments, companies, knowledge institutes and intermediaries. Respecting differences by considering them as flexible components of a process is key in intentional multi-player networks. Innovators need to acknowledge that they require each other in fulfilling their own needs. Take for example the Innovation Cube as a guide with its six value orientations. Ask yourself whether your goal is to improve current practices (incremental innovation) or if you want to explore new avenues (radical innovation). This collective system building can lead to faster diffusion and adoption of the new practices.



The innovation cube.
Source: Dienmaat *et al.* (2020)

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Promoting public sector innovation

PURPOSE Promoting innovation for societal goals

USE Developing faster, more efficient solution to public policy challenges

ACTIONBOOK ACTIVITIES [Setting up a network governance](#)
[Setting milestones and targets](#)
[Managing and transforming knowledge](#)

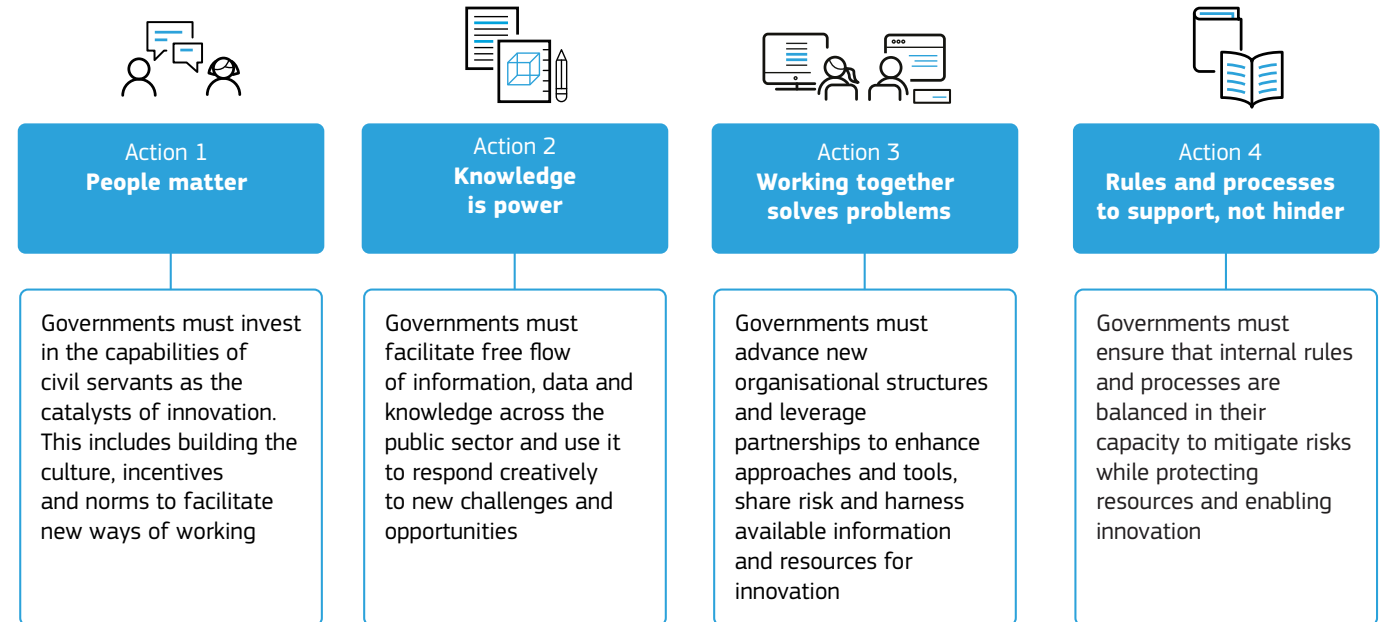
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MORE → [OPSI Publications - Observatory of Public Sector Innovation](#)
→ [Innovations in public governance](#)

In both business and the public sector, innovation can be key to fostering prosperity, to reducing costs and improving services. Public sector innovation is defined by the European Commission as the process of generating new ideas, and implementing them to create value for society. Each public innovation addresses a public policy challenge, and a successful public innovation is one that achieves the desired public outcome. Fostering innovation in public organisations requires changes that encourage organisations and the people that work for them to come up with new ideas, try new approaches and work in new ways.

There are two main categories of public sector innovation: innovation in and innovation through the public

sector. While the first mostly describes the modernisation of public services to render them more citizen- and business-friendly, the latter focuses on large-scale high-cost and high-risk innovations where the business sector was initially reluctant to invest, such as space technology or nanotechnology, transport (e.g. high-speed trains), or digital infrastructure (e.g. the internet). People are at the heart of both types of public sector innovation. Be supportive of your colleagues and employees – that is, make sure they have the competences, motivation and opportunity to come up with new approaches (see T13 [Competences: empowering civil servants to create sustainable prosperity](#)).



Four action areas to promote public sector innovation:

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Public-private partnerships for skills development

PURPOSE Developing the skills that individuals need in a greener and digital society

USE Connecting public and private stakeholders for effective implementation of skills-related policies

ACTIONBOOK ACTIVITIES [Designing ecosystem support](#)
[Coordinating the policy and action mix](#)
[Mobilising competences](#)

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MORE → [Public-private partnerships for skills development. Vol. I](#)
→ [Public-private partnerships for skills development. Vol. II](#)
→ [Youth guarantee implementation](#)

To ensure that young people and adults are employable, systems of vocational education and training (VET) around the world build various forms of collaboration between the public and private sectors. Public-private partnerships (PPPs) that focus on skills development are one form of collaboration found in any VET system. Player cooperation and public and private investments are important factors to make lifelong learning a reality for all.

PPPs in the field of skills can be useful instruments of skills policies and programmes, to attain positive outcomes for learners. These PPPs are a space where public and private stakeholders come together with their respective competence, innovation capacity, human and material resources to enable what none of them could achieve alone (see box below).

PPPs for skills development feature 3 dimensions, namely function, scope and membership. In terms of function, we find:

- PPPs that focus on knowledge, for example skills intelligence and data analysis, context and demand analysis, and foresight;
- PPPs that focus on resources, for example learning equipment, laboratories, dormitories;

- PPPs that focus on VET provision are the most frequent, for example: various forms of work-based learning programmes, joint curriculum and programme design and delivery, joint management of training centres, innovation of learning environments, transition from school to work, up-skilling and re-skilling.

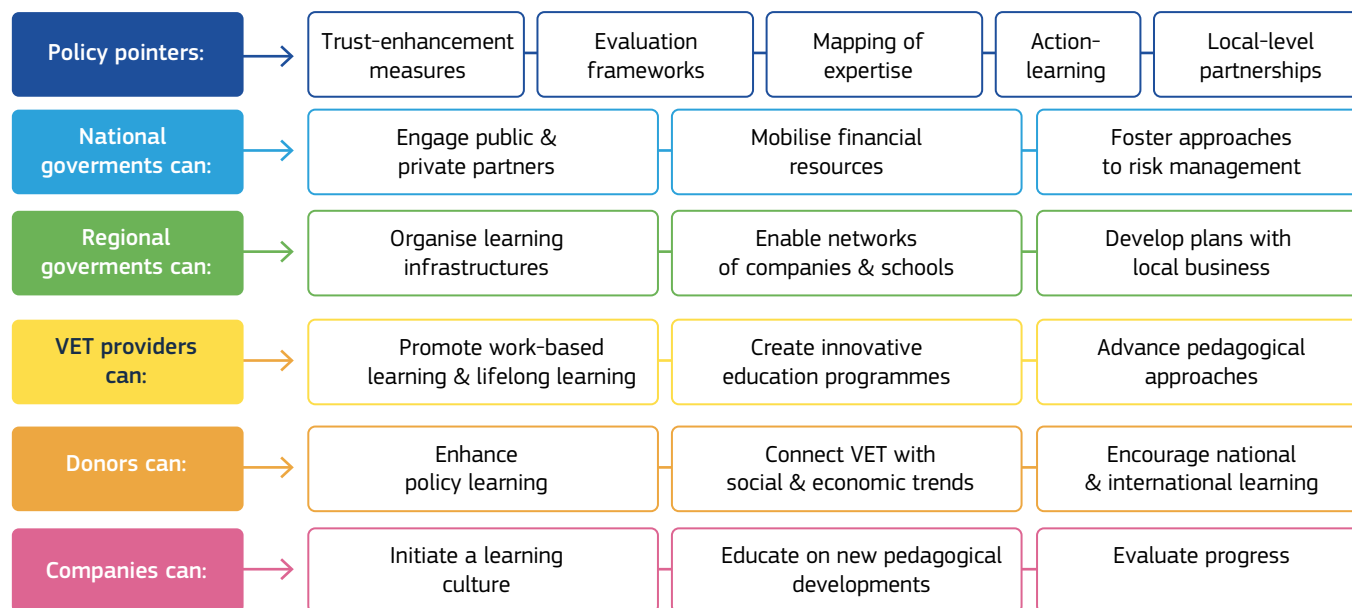
In terms of scope, the PPP types range from 'fully integrated in the VET system' to 'ad hoc pilot initiative' depending on the extent of diffusion of the practice within the VET system.

Finally, in terms of membership the PPP types depend on the openness to new partners joining, which can vary from 'open' or 'semi-open' to 'closed' PPPs.

You can find evidence from 23 case studies in a report by the European Training Foundation. It analyses the purpose of the partnerships, their scope and membership, governance, financing and risk management arrangements, as well as the motivation, role and capacities of the partners. This ETF report shows that PPPs for skills development do not exist in a vacuum but build on conditions and are influenced by contextual factors. The following graph summarises what public institutions, companies, schools and training centres as well as donors can do to sustain PPPs that serve skills development purposes.

What are public-private partnerships for skills development?

PPPs for skills development are mechanisms for coordinating action and sharing responsibility between public and private stakeholders in VET. They jointly formulate, design, finance, manage and/or sustain engagements that produce good quality skills and employability for the learners. Stakeholders in PPPs may include public institutions or semi-public organisations, such as schools, agencies and state enterprises, and individual businesses, associations, chambers of commerce and civil society organisations. PPPs on skills development may unfold at the school/company level, within or across sectors, at the national or sub-national scale.



Public-private partnerships for skills development.

Source: European Training Foundation

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Regional exports: value added and employment content

PURPOSE Providing a useful analytical tool to understand the economic potential of EU regions

USE Monitoring and analysing value added and employment content by industries in the regions

ACTIONBOOK ACTIVITIES [Managing and transforming knowledge](#)
[Continuous monitoring](#)
[Evaluating impact](#)

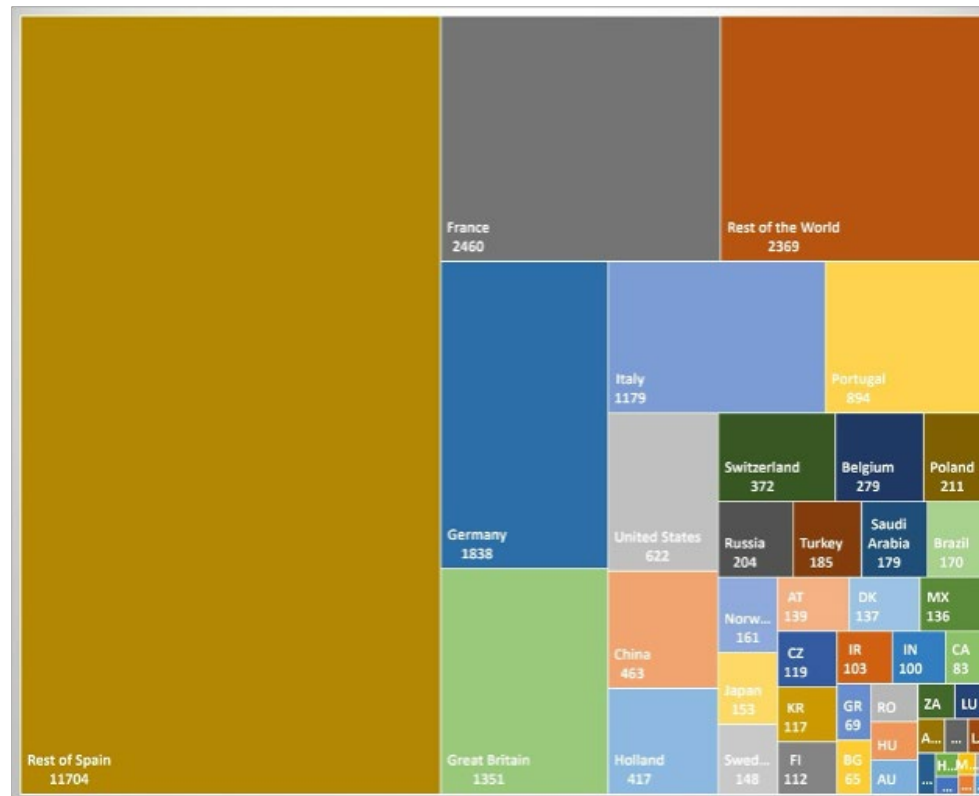
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MORE → [European Union inter-country supply, use and input-output tables — Full international and global accounts for research in input-output analysis \(FIGARO\)](#)
→ [New Indicators on Integration of Global Value Chains in Employment and the Economy of Andalusia](#)

The volume and complexity of the (regional, national and international) trade of goods and services has recently increased on a global scale. When looking into territorial economies, it is necessary to know to what extent each territory participates in the processes, and their impacts (environmental, social and economic), of different value chains. The traditional indicators, based on gross imports and exports, are insufficient for this purpose. First, they do not include net inputs in terms of value added or employment. Second, they do not account for more than the direct effect of trading links in the economy without singling out the indirect effects on other upstream supplying industries in regions. Therefore, we need the use of Input-Output analysis and multi-regional input-output tables, to estimate the value added and employment content of regional exports and

the final demand of regions. With FIGARO Input-Output tables, together with regional accounts data from the corresponding regional statistical office, it is possible to estimate by detailed industry granularity the value added content of regional exports (by trading partner) and the final demand of regions. If data on regional employment and emissions were also available, this methodology could also estimate the employment and environmental content of regional exports and final demand of regions. In this example for Andalusia (Spain), it is possible to disaggregate the indicators separating their trading links respect the rest of Spain, the EU or the rest of the world, using official regional statistical information while other countries remained unchanged. By doing so, standard input-output analysis can be done in order to quantify how much Andalusian value added

content there were in the Andalusian exports (e.g. of food products) to the rest of Spain, China or other EU country. This case study can be extrapolated to any particular regional analysis within the EU provided the appropriate support from the regional government and, in particular, its statistical office. The knowledge of these indicators can add additional information for the regions about the employment, environmental or capital resources contained in exports distinguishing by countries or regions and the value of imports within exports, shedding light to the weaknesses and strengths of one region in the global value changes.



Andalusian value added in exports by country of destination (Mill. Euro)

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Regional Innovation Valleys

PURPOSE Bridging the innovation divide and spreading Europe's leadership in innovation

USE Strengthening and advancing European innovation ecosystems, connecting all EU territories to respond to societal challenges and fostering stronger cohesion

ACTIONBOOK ACTIVITIES

- [Setting milestones and targets](#)
- [Enabling multilevel cooperation](#)
- [Collaborating across departments](#)
- [Collaborating across territories](#)
- [Developing a strategy](#)

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Magdalena Cymerys

MORE → [Regional Innovation Valley - Matchmaking map](#)



EU regions, irrelevant of their innovator-performance level, need to invest collectively with other regions during the next wave of innovation in a highly competitive, volatile and ever-changing geopolitical context. The Regional Innovation Valleys (RIVs) initiative aims to create clusters of regions with different levels of innovation to support the development of a strong and diversified European ecosystem by creating interregional innovation projects including in deep tech innovation, linked to key EU priorities such as food security, energy, health, circular economy, and digitalization as defined in the New European Innovation Agenda (NEIA). RIVs have an ambition to secure the EU leadership in the innovation trend by financing and broadening of the value chain in specific domains. Matchmaking with different partners will benefit access to new talent, knowledge and networks that are fundamental to create a robust innovation ecosystem. RIV is a bottom-up instrument bringing together cohesion and innovation policies, and the lessons to be learnt in this current pilot will be crucial for further design of upcoming calls. This initiative was de-

signed as part of Flagship 3 of NEIA on Accelerating and strengthening innovation in European Innovation Ecosystems across the EU and addressing the innovation divide. RIVs aim to create connections that involve regions with lower innovation performances by building on strategic areas of regional strength and specialisation as indicated in their respective smart specialisation strategies. Until now, the European Commission has launched a Call for expression of interest enabling regions to express their interest to become RIV and work together. In addition, two complementary calls have been launched where the European Commission dedicated EUR 122 million under Horizon Europe (European Innovation Ecosystems) and under the European Regional Development Fund (Interregional Innovation Investments (I3) Instrument). To facilitate matchmaking and interconnections, the European Commission created a Matchmaking Map displaying regional authorities committed to tackle the most burning social challenges, as defined in NEIA.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Regulatory sandboxes

PURPOSE Allowing experimentation of new innovative developments in a controlled-risk environment with relaxed regulations

USE Creating cutting-edge products and services and maintaining competitive advantage

ACTIONBOOK ACTIVITIES [Deploying a strategy](#)
[Experimenting and demonstrating](#)
[Learning from experimentation](#)

AUTHORS Solange Mifsud
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Andrea Renda

MORE → [European blockchain regulatory sandbox for Distributed Ledger Technologies](#)
→ [European regulatory sandbox for blockchain](#)
→ [Regulatory sandboxes in artificial intelligence](#)
→ [Supporting FinTech innovation in the Czech Republic](#)

Regulatory sandboxes are real-world testing environments where conditional exemptions from regulations currently in force allow rapid experimentation, learning and innovation. Lessons from these “structured contexts for experimentation”¹ may then provide the basis for informed adjustments of laws and rules. Sandbox experiments are typically not about the demonstration of one innovation, but rather involve bringing together various stakeholders in the development and testing of in-

terrelated innovations. Regulatory sandboxes require the introduction of a compatible legal framework and a regulatory authority (e.g. an independent energy regulator, or a telecommunications, transport, food safety or data protection oversight body) to approve exemptions from prevalent rules for a limited time and for well-defined purposes, providing safeguards and oversight to minimize risks.

Potential benefits of Regulatory sandboxes

To regulators	To innovators	To consumers
Inform long-term policy making through learning and experimentation	Reduce time to market by streamlining the authorisation process	Accelerate the introduction of new and potentially safer products
Signal commitment to innovation and learning	Reduce regulatory uncertainty	Enlarge the pool of consumers who can access improved products and services
Promote communication and engagement with market participants	Gather feedback on regulatory requirements and risks	
Update regulations that may prohibit beneficial innovation	Improve access to capital and remove market-entry barriers for businesses (SMEs and start-ups)	

Adapted from © OECD 2023

Developments at EU regulatory level

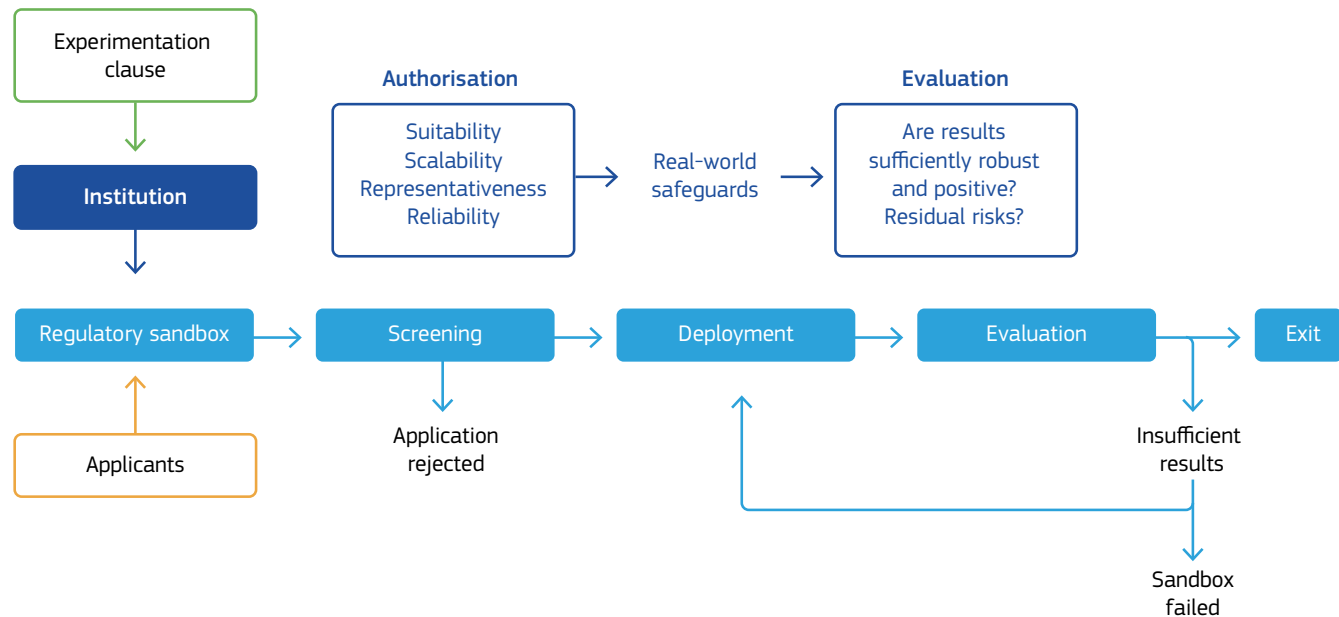
In February 2023 the European Commission launched the European Regulatory Sandbox for Blockchain which is supported by the Digital Europe Programme and delivers on the SME Strategy². It will run from 2023 to 2026 and aims to be a pan-European framework for regulatory dialogues in developing innovative cases in any blockchain infrastructure. It provides legal certainty for decentralised technology solutions and allow regulators and supervisors to ameliorate their knowledge on

cutting-edge blockchain technology. Every year of this initiative, the most innovative regulator participating in the regulatory sandbox will also be awarded a prize. The European Blockchain Regulatory Sandbox cooperates with other relevant sandbox frameworks, particularly with the EU Digital Finance Platform³ and the Artificial Intelligence Sandbox once this will be established under the AI Act⁴.

Guidance for sandbox design and implementation

The figure below shows a possible step-by-step guidance to designing and executing a regulatory sandbox. First, regulatory sandboxes require that an experimentation clause is included in legislation, allowing public institutions to design and implement experimental policymaking in a controlled environment. A given institution then opens up the possibility for businesses aiming at a change in legislation to apply to enter a regulatory sandbox environment. This is typically the case of highly regulated sectors including financial services, energy, transport and health., and which makes it difficult for an applicant to fully meet the legislative

requirements with the adoption of a new innovative business model. Applications have to be assessed based on the potential benefit of allowing the innovative solution, the scalability of potential positive results, the representativeness of the sample of consumers/users chosen, and the reliability of the experimental design. Once the application is authorised, the deployment phase begins, possibly requiring several iterations before results are considered to be robust enough to allow for admission of the innovative solution to the market.



Designing and implementing a regulatory sandbox. Source: elaborated by Andrea Renda.

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

S3 for SDGs: How to embed sustainability and the SDGs in S3

PURPOSE Strengthening sustainability dimension and integrating SDGs in S3

USE Assisting policy practitioners in designing and implementing sustainability-oriented S3

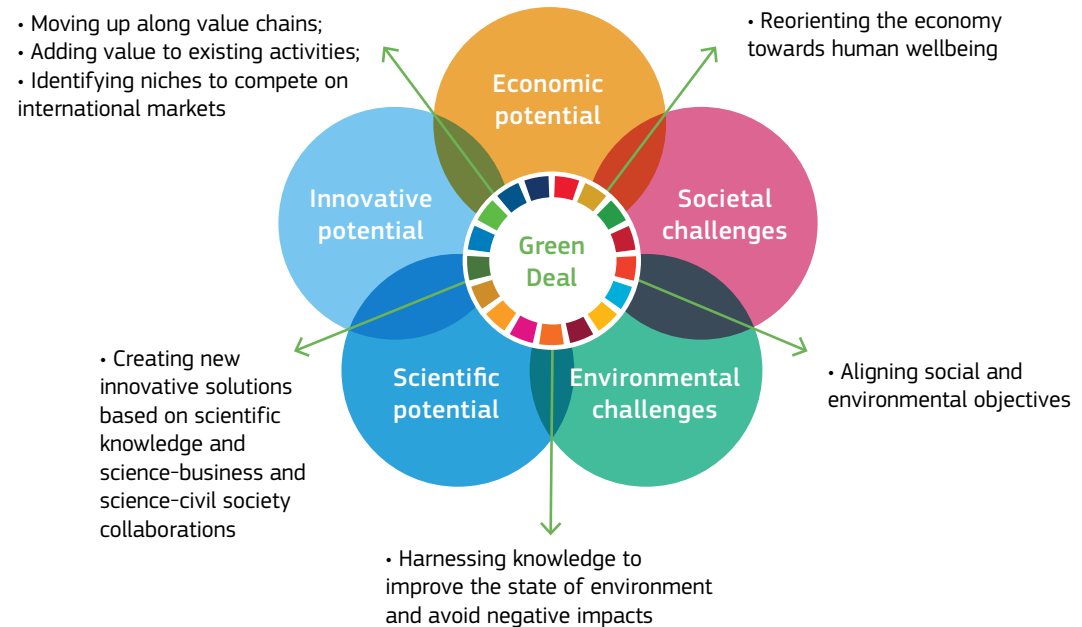
ACTIONBOOK ACTIVITIES [Agenda setting and sharing](#)
[Developing a strategy](#)
[Deploying a strategy](#)

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Angela Sarcina

MORE → [Reflection framework](#)
→ [S3 and environmental commons](#)
→ [Theoretical and conceptual background](#)

Smart Specialisation for Sustainable Development Goals (S3 for SDGs) is a concept and a methodological approach embedding sustainable development and the Sustainable Development Goals (SDGs) in the whole policy cycle of smart specialisation strategies, from design to monitoring and evaluation. The rationale of S3 for SDGs is that research and innovation can foster economic development whilst addressing wider social and environmental sustainability challenges faced by territories. The approach illustrates how S3 can evolve to focus on supporting transformative innovation and sustainable development. S3 for SDGs proposes to localise global challenges to make them understandable and meaningful for different territorial contexts and local communities. The approach helps to mobilise new stakeholders and build new partnerships to support

challenge-oriented experimentation and innovation. Together with experts and S3 practitioners, the JRC developed a reflection framework to help policymakers integrate sustainability challenges and goals in S3 at regional and national levels. The framework is designed to guide a reflection on the implications and challenges of integrating sustainability challenges and the SDGs in each step of S3. The tool is based on an extensive literature review and a co-creation process that engaged more than 30 policy practitioners from 11 regions and countries from the EU and beyond. The framework builds on diverse experiences of the territories invited to participate in the co-creation exercise. New dimensions of S3 for SDGs call for broader engagement of stakeholders and systemic consideration of synergies and trade-offs of research and innovation.



New dimensions of Smart specialisation for SDGs call for broader and more systematic considerations of synergies, trade-offs and relevant stakeholders. Source: Nakicenovic et al. (2021)

S3 components and questions to guide reflection

DIAGNOSIS: ANALYSING THE INNOVATION POTENTIAL	GOVERNANCE: SETTING OUT THE S3 PROCESS AND GOVERNANCE	VISION: DEVELOPING A SHARED VISION AND SCENARIOS	PRIORITIES: TOWARDS CHALLENGE-LED EDP AND S3 PRIORITY AREAS	DEFINING AN ACTION PLAN WITH A COHERENT POLICY MIX	MONITORING AND EVALUATION (M&E)
<p>Does the diagnosis include evidence on current and potential future impacts and risks for your region or country associated with global environmental and societal challenges for the economy, society and natural environment?</p> <p>Does the analysis of the existing specialisations and competitive assets of your region or country include evidence and reflection on the strengths and weakness of actors, institutions and infrastructures to adapt and innovate to address sustainability challenges and the SDGs?</p> <p>How are various types of scientific evidence, qualitative and quantitative research methods and sources of expertise on sustainability challenges and opportunities collected and interpreted to support the design and implementation of Smart Specialisation?</p> <p>Does the diagnosis consider diverse perspectives on the societal challenges, including from previously not involved or marginalised groups?</p>	<p>Do the design, implementation and monitoring of S3 ensure a broad, inclusive and continuous participation of stakeholders relevant to the sustainability transformation of your territory?</p> <p>What are the specific arrangements for identifying and addressing the risk of capture of the process by dominant incumbents who impose their perspectives on sustainability transition or are less concerned with sustainability objectives?</p> <p>Are there governance mechanisms within and across public and private sectors that allow the identification and generation of inter-institutional synergies between policies, instruments and budgets?</p>	<p>What is the importance of sustainability challenges and the SDGs in the S3 vision and visions underpinning other relevant development strategies of your region or country?</p> <p>How is desirable future portrayed in the S3 vision? What is the relative importance of economic, social and environmental dimensions in the vision?</p> <p>Is the vision known and shared by the key stakeholders?</p> <p>Does S3 include a reflection on alternative development scenarios and transition pathways to explore the role of research and innovation in achieving sustainability goals? Does the reflection on alternative pathways consider their potential economic, social and environmental impacts?</p>	<p>Were societal challenges taken into account in the definition of your S3 priority domains? If yes, how do they address sustainability challenges and the SDGs?</p> <p>What are the incentives, drivers and barriers for including sustainability-related specialisation areas and objectives, including the SDGs, in the S3 priorities?</p> <p>How do you balance top-down goals and bottom-up perspectives in selecting and shaping your priority domains? What is the role of EDP in this context?</p> <p>Do any of the selected S3 priorities focus on existing or emerging niches with a potential to experiment, demonstrate or scale transformative innovation with an ambition to address sustainability challenges and the SDGs in your region or country?</p>	<p>Would you describe your S3 as challenge-led or mission-oriented? Has the inclusion of sustainability challenges in S3 resulted in specific objectives and led to changes in the selection and design of instruments and supported activities?</p> <p>Does the action plan include instruments designed to support experimental and transformative innovation focused on sustainability challenges?</p> <p>What are the barriers and drivers to developing and implementing instruments supporting sustainable innovation in your region and country? How can you introduce them without disrupting parts of the innovation eco-system that have proven to work well?</p> <p>Does the S3 action plan include coordination mechanisms to ensure internal coherence of S3 and external synergies between S3 and other relevant policy areas? Is there a wider framework in your region or country to support policy coherence and directionality towards sustainability?</p> <p>Are the action plan designed to ensure corrective measures are taken to adjust the plan and instrument design based on the continuous process of entrepreneurial discovery and insights from M&E?</p>	<p>Does the S3 monitoring and evaluation (M&E) system allow you to identify and analyse sustainability outcomes and impacts of research and innovation instruments? Have you considered how such outcomes can be measured?</p> <p>Is there evidence of innovation and experimentation supported by S3 in your region or country that created considerable sustainability benefits or unintentionally generated negative social or environmental impacts? What are these impacts and has corrective action been taken?</p> <p>Do the M&E include methods, indicators and processes designed to capture transformative outcomes of supported projects such as social learning, behavioural change, or technology substitution?</p> <p>Do M&E processes encourage continuous learning from S3 experiments and implementation? How are lessons from evaluation communicated to and between departments?</p> <p>Does the M&E system ensure continuous participation and feedback from and between key stakeholder groups and civil society? What are the links between M&E and the EDP?</p>

TYPE

concept
methodology
eu policy initiative
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regional
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european

S3: Smart specialisation strategies

PURPOSE Providing an outline of the s3 concept and its perspective

USE Developing smart specialisation strategies

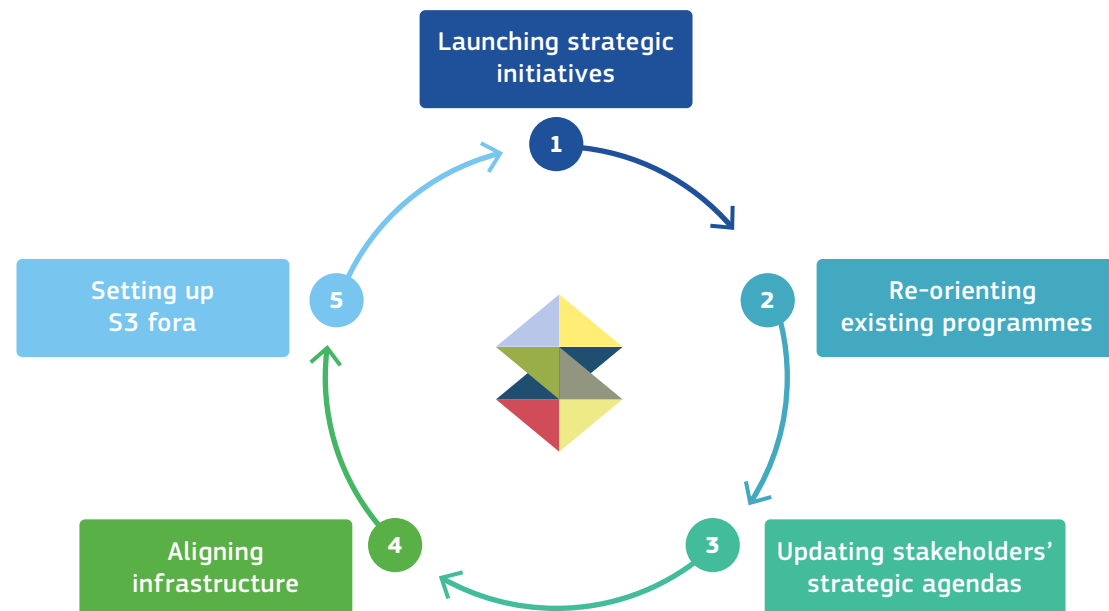
ACTIONBOOK ACTIVITIES [Continuously engaging with stakeholders](#)
[Diagnosing and developing a vision](#)
[Developing a strategy](#)
[Deploying a strategy](#)

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MORE [→ S3 Community of Practice](#)
[→ Smart Specialisation Platform](#)
[→ European Regional Development Fund](#)
[→ Smart Specialisation Strategies and Regional Productivity](#)

Smart Specialisation Strategies (S3) are regional innovation strategies established for a more effective use of Cohesion Funds in the 2014-2020 programming period. They became an ex-ante conditionality whereby the design of a smart specialisation strategy (S3) was a prerequisite to access the European Structural and Investment Funds devoted to research, technological development and innovation, and maintained for the 2021-2027 period as a so-called enabling condition. They aim at focusing R&I efforts on a limited number of priorities based on an assessment of opportunities of the regions and full involvement of local stakeholders (mainly business, research organisations and the public sector) via an entrepreneurial discovery process. The S3

experience reshaped the innovation policy process as illustrated below. S3 has promoted a methodical approach to regional economic development. Furthermore, S3 has enhanced participatory governance in the identification of priorities and the overall design, as well as in the implementation of the strategy, leading to a more open, market-oriented and inclusive decision-making process. S3 has led to a cultural change in many regions, territories and Member States. The Smart Specialisation Community of Practice (S3 CoP) is the central node on guidance, networking, support and peer-learning on S3, covering its conceptual development and its implementation in the EU. The S3 Platform (S3P) covers implementation of smart specialisation outside the EU.



TYPE

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Science, Technology and Innovation for the SDGs roadmaps

PURPOSE Mobilising the innovation potential to address localised sustainability challenges

USE Providing tailor-made guidance for the design of STI for SDGs roadmaps

ACTIONBOOK ACTIVITIES [Diagnosing and developing a vision](#)
[Developing transition pathways and roadmaps](#)
[Developing a strategy](#)
[Learning from experimentation](#)

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Michal Miedzinski, Pierre Rialland

MORE Background on STI for SDGs roadmaps
→ [Guidebook for the Preparation of STI for SDGs Roadmaps](#)
→ [Overview of the existing STI for SDGs roadmapping methodologies](#)
Examples of STI for SDGs roadmaps
→ [Progress Report of the Global Pilot Programme on STI for SDGs Roadmaps](#)
→ [Pilot methodology for mapping SDGs in the context of Smart Specialisation Strategies](#)

Science, technology and innovation (STI) can accelerate progress to address sustainability challenges underpinning the SDGs and the European Green Deal. STI for SDGs Roadmaps are conceived as strategic policy frameworks for action that can mobilise STI to achieve place-based sustainability challenges. Roadmaps are an interface aligning key national strategies and policies, including national development plans and STI policies, with the SDGs priorities. They focus on the identification of the STI priorities to address key societal, environmental and economic challenges in line with the SDGs.

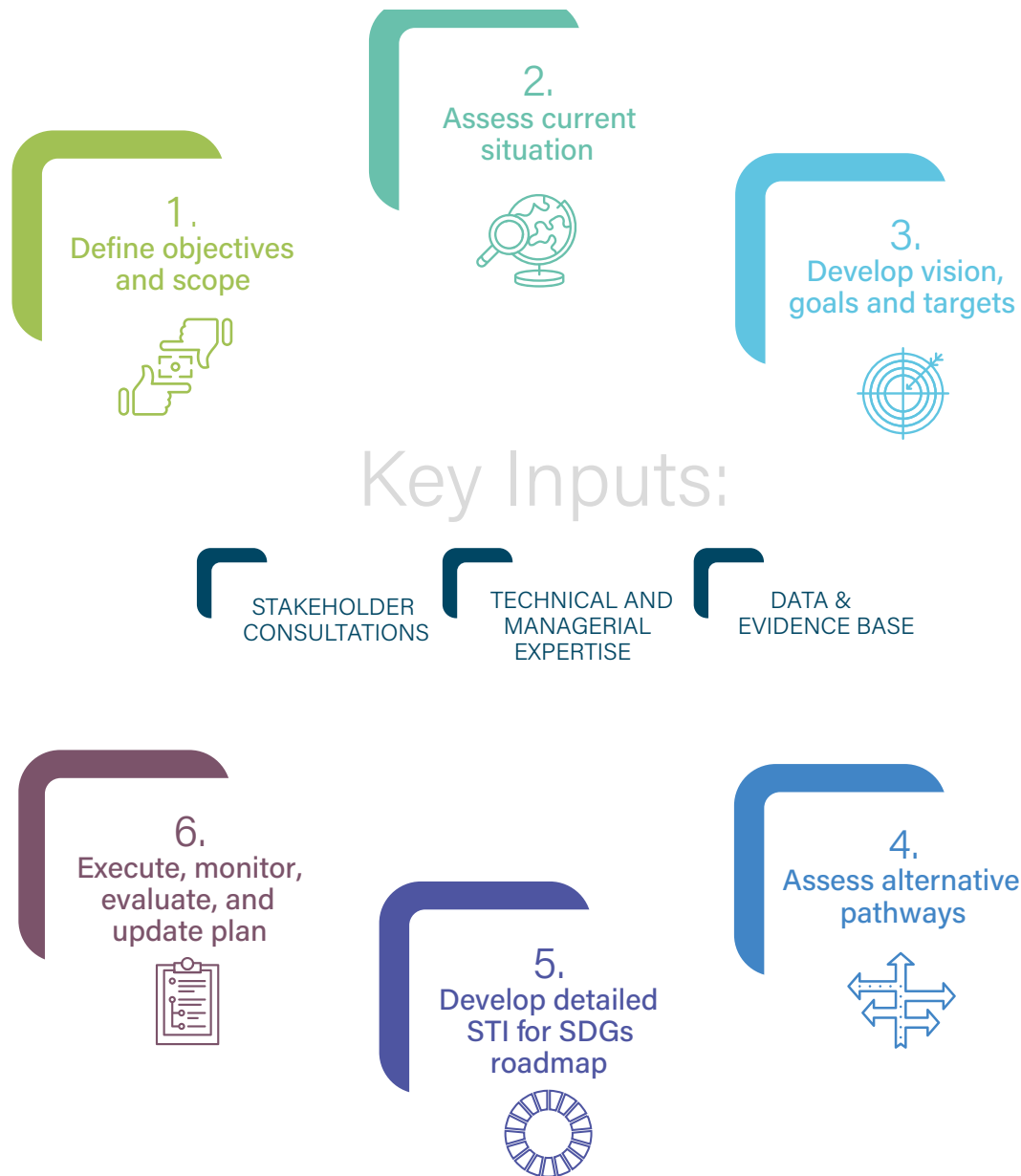
The JRC approach builds on the experience on S3, and supports the design of roadmaps based on extensive quantitative and qualitative analysis. The analysis identifies local sustainability challenges and assesses the potential of the STI system to address them. It relies on foresight activities by considering different pathways to tackle a given sustainability challenge, and makes use of participative processes and co-creation principles to strengthen ownership and fostering capacities of local stakeholders. As an outcome, the approach aims to embed a stronger directionality of STI policies by focusing on sustainability-oriented goals that can guide future investments in research and innovation.

The JRC provides methodological guidance for the development of STI for SDGs roadmaps. This guidance is modular and tailor-made to fit the country's context and needs. It is based on the six steps to develop STI for SDGs roadmaps as defined by international experts contributing to the work of the United Nations Inter-Agency Task Team on STI for SDGs (figure in the next page).

• Step 1: Define objectives and scope – JRC provides

guidance through brainstorming and understanding of the need for STI for SDGs Roadmaps, capacity assessment and capacity building. In this phase, JRC also supports policy makers in understanding the roadmap's placement within the broader national policy context.

- Step 2: Assess the current situation – JRC support includes, among others, the identification of synergies with other policies, analysis of statistical indicators to identify the existing STI potential and identify pressing sustainability challenges.
- Step 3: Develop vision, goals and targets – JRC facilitates the achievement of consensus on goals and targets through stakeholders' validation of STI priority domains.
- Step 4: Assess alternative pathways – JRC helps to consider various transition pathways through analytical and participatory foresight approaches, including horizon scanning and scenario analysis.
- Step 5: Develop detailed STI for SDGs roadmap – JRC assists in the definition of the policy mix providing guidance to strengthen the directionality and consistency of STI policy with the SDGs and ensuring the mise-en-place of coordination mechanisms to ensure policy integration.
- Step 6: Execute, monitor, evaluate, and update plan – JRC support includes the definition of sound M&E mechanisms that take into account direct and indirect socio-economic and environmental outcomes of STI roadmap, while ensuring iterative monitoring aimed at learning and continuous adjustment processes.



Flowchart of six key steps in developing STI for SDGs roadmaps

Source: United Nations Inter-Agency Task Team on STI for SDGs and European Commission, JRC, 2021.

TYPE

concept
methodology
eu policy initiative
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Small-scale experimentation for transitions

PURPOSE Nurturing and experimenting with co-evolution of technology, user practices, and regulation

USE Creating protected niches to address a societal challenge

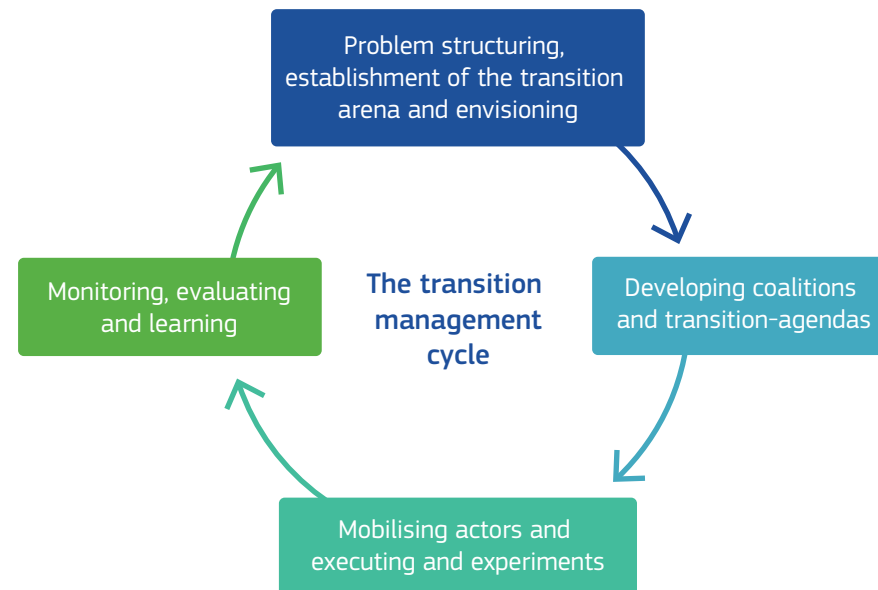
ACTIONBOOK ACTIVITIES [Diagnosing and developing a vision](#)
[Developing transition pathways and roadmaps](#)
[Experimenting and demonstrating](#)
[Learning from experimentation](#)

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MORE → [Deepening, Broadening and Scaling up - A Framework for Steering Transition Experiments](#)

Creating modular protected spaces, or niches, for experimentation can facilitate sustainable transitions as they are guided by broad societal needs. Such spaces recognise that technological and social change are interrelated. They thus allow to experiment the co-evolution and alignment of new technology together with user interactions, new social practices, financial and regulatory structures, and sustainability goals. Some examples include experimentation to address water management, mobility in urban areas, and access to food. You should use niche for transition experiment together with other concepts and tools, such as directionality complex sys-

tems analysis, transition pathways, shared agendas, monitoring and evaluation, WoG approach and stakeholder engagement. To create transition experiment niches, you can focus on identifying and framing local problems for your region and create shared visions by being flexible yet ambitious. If short term goals are not met, the plan(s) should change rather than goals. You can promote shared agendas and work with stakeholders to create networks and coalitions to act upon shared strategies. Failure is part of the process and is needed to learn. You should also make sure to monitor and evaluate progress towards a shared vision.



Distinctive characteristics of transition experiments.

Source: Loorbach and Rotmans (2006)

	Classical Innovation Experiment	Transition Experiment
Starting point	Possible solution (to make innovation ready for market)	Societal challenge (to solve persistent societal problem)
Nature of problem	A priori defined and well-structured	Uncertain and complex
Objective	Identifying satisfactory solution (innovation)	Contributing to societal change (transition)
Perspective	Short and medium term	Medium and long term
Method	Testing and demonstration	Exploring, searching and learning
Learning	1st order, single domain and individual	2nd order (reflexive), multiple domains (broad) and collective (social learning)
Actors	Specialised staff (researchers, engineers, professionals, etc.)	Multi-actor alliance (across society)
Experiment context	(Partly) controlled context	Real-life societal context
Management context	Classical project management (focused on projects goals)	Transition management (focused on societal 'transition' goals)

A transition experiment is an innovation project with a societal challenge as a starting point for learning aimed at contributing to a transition.

Transition niche can become established once the problem is addressed in a fair and responsible manner, and design and demands have stabilised. Governments can favour niche creation for example through subsidies. Yet it is a broader community made of engineers, scientists, policy-makers, citizens, users and other interested groups that should engage in a bottom-up approach. Should you need any benefits of transition experiments, take a look at left Panel above.

TYPE

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european

Strategic intervention logic

PURPOSE Aligning strategic aims to stakeholder capabilities, resource allocation and expected results

USE Ensuring that each decision is taken on evidence-based information

ACTIONBOOK ACTIVITIES [Diagnosing and developing a vision](#)
[Setting milestones and targets](#)
[Developing a strategy](#)
[Evaluating impact](#)

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MORE → [An intervention-logic approach for the design and implementation of S3 strategies](#)

A strategic intervention-logic approach is a six-step cascade process to identify solutions to territorial challenges by involving all stakeholders when making decisions over strategy adoption. This approach relies on the following: (1) all stakeholders share their data, ideas, expertise and expectations; (2) a documented assessment of the ecosystem can lead to a better selection of the next generation of activities and investments; (3) the proof of the available capabilities is used to demonstrate that stakeholders are able to deliver what they promised, (4) the expected results are taken into consideration to adopt a distribution grid for allocating financial and human resources (reverse action plan); (5) a clear description of what is expected from policy makers and stakeholders at each step reinforces the governance value chain, and (6) a permanent feedback system regarding the achievements and changes in the ecosystem is put in place to ensure constant monitoring and continuous improvement. With such approach, stakeholders are able to define their role in strategy implementation and hence, effectively deliver what they promised to achieve.

The concept of Smart Specialisation is rooted in the utilisation of the assets and resources that a territory can mobilise to address socio-economic challenges. The assessment of territorial capacities and capabilities is a precondition for any strategy design. An analysis of the territorial research and innovation capacities, existing infrastructures and equipment, and human capital is crucial to establishing the framework conditions. This assessment of the place-based assets aims to ensure that regional stakeholders involved in the S3 Entrepreneurial Discovery Process (EDP) and regional intermediary bodies will implement or fully benefit from the Strategy.

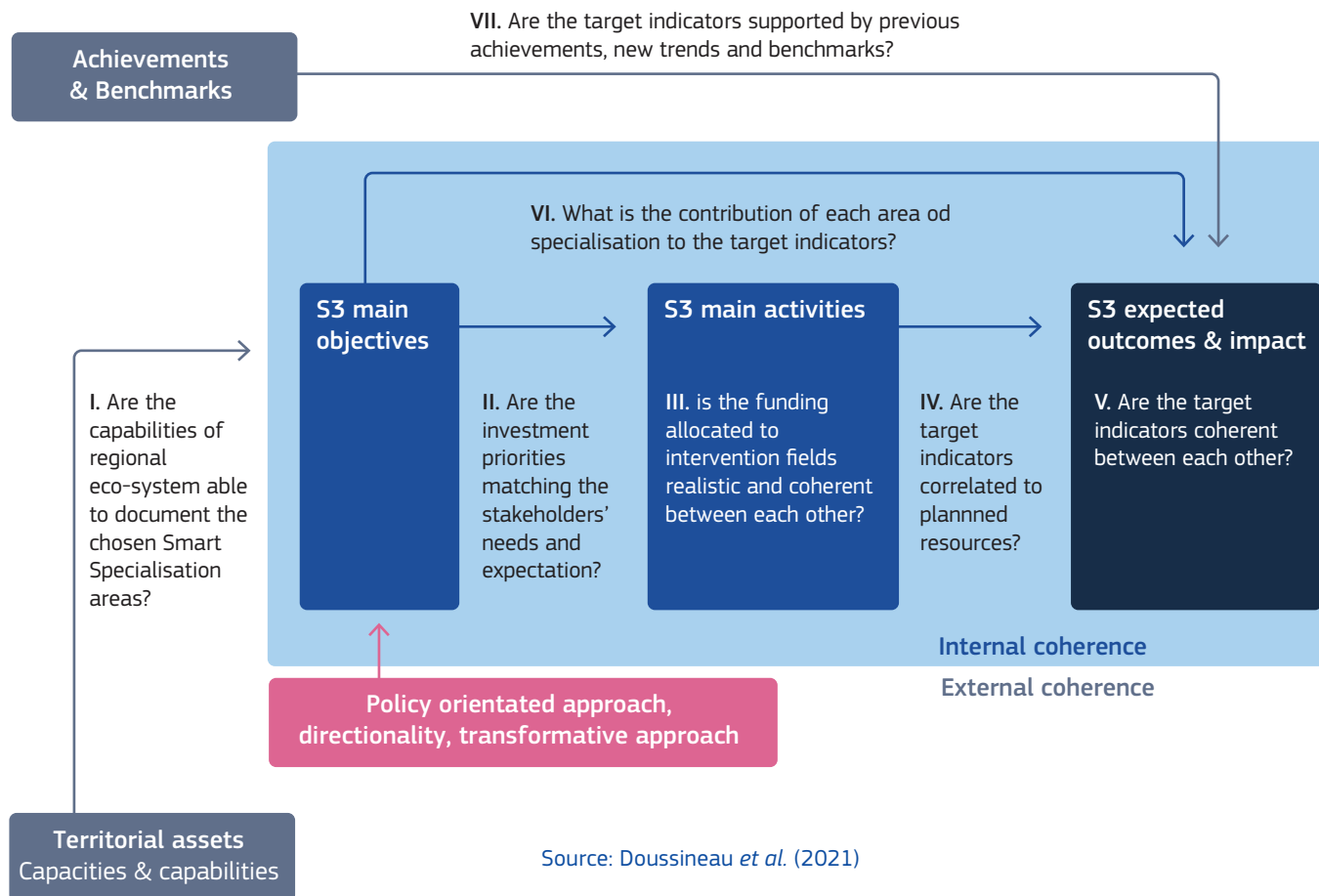
Any public policy intervention is designed through vari-

ous actions such as assigning a budget, deciding on priorities, funding sources, and support measures. In public policy evaluation theory, the coherence of a public intervention involves looking at how well or not different actions work together. It may highlight components where synergies improve the overall performance or, conversely, point out tensions between objectives and associated activities, which are potentially incoherent or inefficient. One can then further differentiate between the internal and external coherence of the logic of intervention. Assessing “internal” coherence requires considering how the various components of the same intervention operate together to achieve its objectives. Coherence is also necessary for other “external” components such as previous achievements or international benchmarking, or between interventions within the same policy area. The following questions should be addressed to appreciate the strengths of the intervention logic:

1. Are the chosen Smart Specialisation areas related to the existing capabilities of the regional ecosystem (external coherence)?
2. Do the investment priorities match stakeholders’ needs and expectations (relevance)?
3. Is the funding allocated to intervention fields realistic and coherent between each other (internal coherence)?
4. Are the target indicators coherent with the planned resources (internal coherence)?
5. Are the target indicators coherent between each other (internal coherence)?
6. What is the contribution of each area of specialisation to the target indicators (impact)?
7. Are the target indicators supported by previous achievements, new trends, and benchmarking (external coherence)?

As shown in the figure below, all decisions taken to design the Strategy and its implementation modalities should be well documented and coherent with other choices. The operational capacity of smart specialisation requires human resources, management accountability skills and implementation budget. The administration should be able to respond to questions such as “Are the necessary human resources available?”, “Are the implementation costs suitably taken into consideration?”, “Who will be accountable for the management and implementation of the different parts of the strategy?” The department responsible for implementing the

strategy must have the capabilities and skills needed. The regional administration must identify who will lead the implementation process and correctly quantify the implementation costs. The operationalisation of smart specialisation strategies must be performed across departments, avoiding the JIMA (“Just In My Administration” silo syndrome). The governance matrix must include an overview of the management activities, budget and accountability activities, implementation bodies and the accountability of the key stakeholders. The administration must realistically forecast the implementation costs.



TYPE

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Supporting firm growth

PURPOSE Building knowledge and a sustainable capacity base to navigate transitions

USE Strengthening human capital to be equipped in advanced working environments

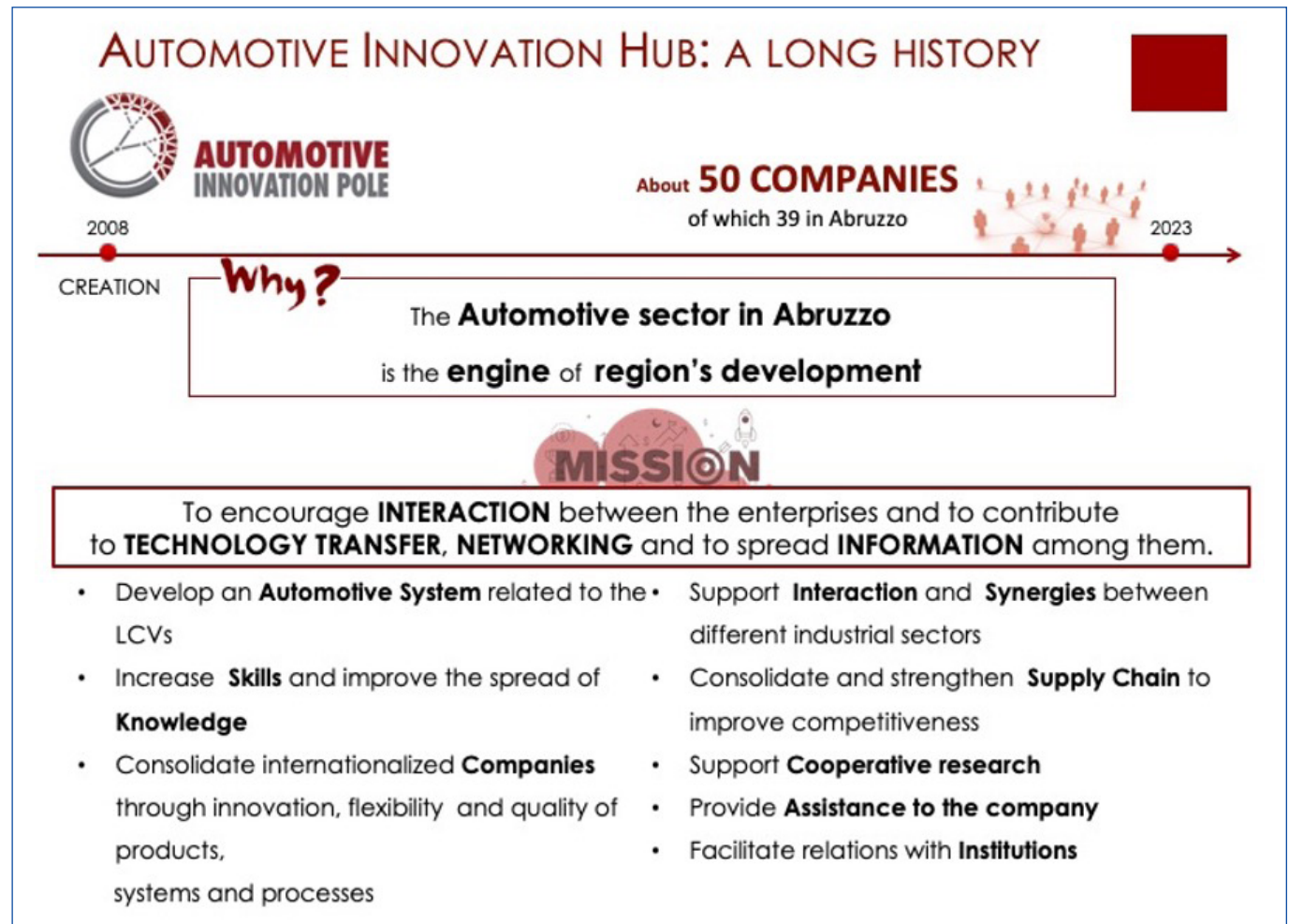
ACTIONBOOK ACTIVITIES [Mobilising resources](#)
[Designing ecosystem support](#)
[Deploying a strategy](#)

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MORE → [Policy brief: Clusters. Driving the green and digital twin transitions](#)
→ [Abruzzo, a dynamic automotive ecosystem](#)

In designing the future of the automotive sector, regional governments may prioritise the ambition to incentivise and support regional firms to invest in skills in order to improve their management innovation and transformative capability, especially in response to major green transition in the automotive sector. Looking at the case of Abruzzo region in Italy, a new technical body was introduced by the regional government to strengthen the governance system and address challenges in the delivery of the Smart Specialisation Strategy. This

included the exploration of possible synergies between the different domains of specialization, such as within the context of the 'green-digital twin'. In its endeavour to support firms in the region, Abruzzo also focused on enhancing the cooperation between stakeholders of similar ecosystems. This action focused on identifying similar challenges, such as exchange of staff, collaboration either between firms and R&D centres or only between firms, and collaboration in and between supply value chain.



TYPE

concept
methodology
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example

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european

Sustainable development as a transition

PURPOSE Embracing socio-technical systems change

USE Thinking of transitions as complex multilevel processes

ACTIONBOOK ACTIVITIES

- [Identifying stakeholders for given societal goals](#)
- [Diagnosing and developing a vision](#)
- [Developing transition pathways and roadmaps](#)
- [Scaling and mainstreaming](#)

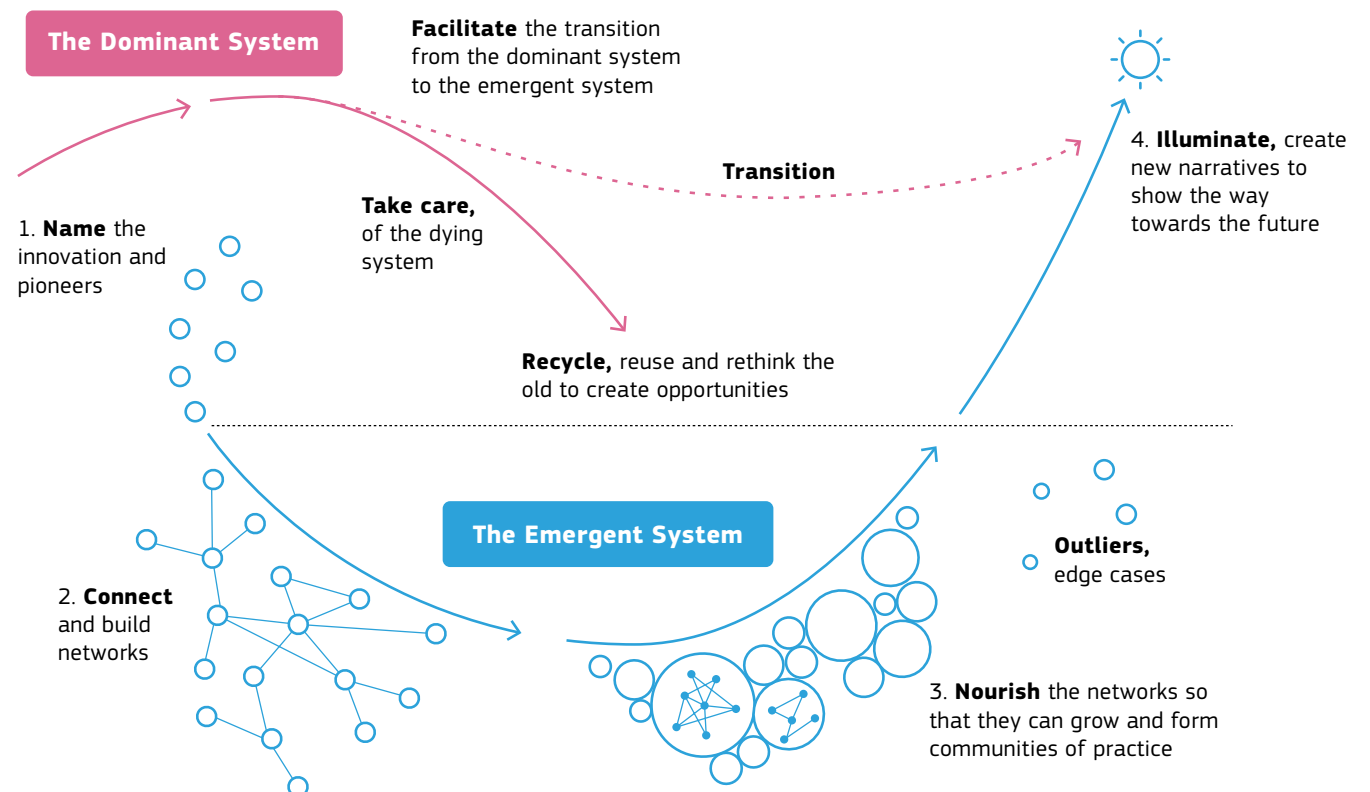
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MORE

- [Two loops model](#)
- [Pioneering a new paradigm](#)

Dominant socio-technical systems are characterised by individuals, norms, institutions, infrastructures and technologies, which are intertwined and reinforce each other. This leads to lock-ins, path dependency and resistance to change in current systems. Technological green fixes can hide the urgent need for transitioning from current business models to socio-technical systems in line to achieve the SDGs. To this aim, transformations (or transitions) that are more ambitious are needed. For example, new socio-technical systems should enable citizens to engage and contribute to the SDGs beyond their buying choices. A socio-technical system transition involves social, behavioural and technological change in an interrelated way, so that the end

result is change in all elements of the old production and consumption configurations. Can you think about socio-technical systems that require urgent transitioning for sustainability? [hint: energy, mobility, food, water, healthcare and communication]. The two loops model highlights transitions as a non-linear process, without predefined steps for change. It describes two systems: the dominant system, with its growth and subsequent decline; and an emergent system formed by alternative niches arising in the landscape. Given the coexistence of the two systems, when designing and implementing policies, we need to ensure a fair transition from the old system, but also support the emergence and viability of alternatives that can contribute to the SDGs.



Two loops model. Source: adapted from Berkana Institute

TYPE

concept
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european

Technological infrastructures for energy transition

PURPOSE Co-developing technological infrastructures in support of energy transition

USE Initiating a process that identifies and co-creates suitable technological infrastructures

ACTIONBOOK ACTIVITIES [Designing local missions](#)
[Deploying a strategy](#)
[Experimenting and demonstrating](#)

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MORE → [Centro Ibérico de Investigación en Almacenamiento Energético](#)

Strategic research infrastructure investments on energy efficiency and renewables are powerful tools to reduce energy dependency, however their large investment requirements, their complex setting and mostly their maintenance costs, make these assets a challenging resource whose localisation can be controversial. However when territories cooperate and involve public and private groups as well as users, these projects entail systemic transformative potential. Key infrastructures are vital prerequisites for innovation activities, as they facilitate the organisation and diffusion of innovations. The

complexity for policy makers is to avoid “supply-side” competition, which can result in duplication of services, equipment and infrastructures. Hence the importance of finding complementarities between infrastructures. Public-Private cooperation offers an integral mode of conceiving these facilities by providing the organizational frame for enhancing complementarities, generating knowledge conducing to ‘producing’ innovations and bringing new products or processes to society. Collaboration could take place, among others, in the following phases of the infrastructure development.

Building blocks for Technological Infrastructures on Energy transition and diffusion of sustainability solutions

Co design	Green Public Procurement	New governance and public accountability	Open data Open science	Open innovation	Monitoring and Evaluation	Funding
A sound Open Discovery Process, allowing stakeholders engagement for identification of needs and challenges, definition of capacities, life cycle awareness, business model design.	All along the different phases of the facility development. GPP can be a driver for innovation, engaging multiple actors, providing industry with incentives for developing new solutions, environmental friendly works products and services.	Public private governance allowing for multilevel cooperation. Transparency and public accountability.	When researchers share knowledge and data as early as possible in the research process with all relevant actors it helps diffuse the latest knowledge.	User-centric environments characterised by early and continuous involvement of users and by user-driven rapid prototyping cycles. Establishing sustainable partnerships.	New measurements of performance, based on cooperation intensity and contribution to territorial wellbeing, connectiveness and fairness. Stakeholders and impact evaluation.	Multilevel and territorial cooperation allow synergies between private and private funds, always in compliance with State Aid regulations.

An example of energy infrastructure: Iberian Energy Storage Research Center – CIIAE

To be located in Extremadura (Spain), with a budget of €53m, CIIAE is an example of funding synergy between Recovery and Resilience Plans and ERDF, with the support of regional and national research centers, aiming at the full cycle of capacity building and implementation of technologies for the production, storage and distribution of green energy, covering the challenges related to

energy manageability. Technology diffusion is foreseen through collaboration between the public and private sector at national and international (Spain & Portugal) level. CIIAE covers competing energy storage solutions in the electricity sector, hydrogen, power-to-x, and thermal energy storage.

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Territorial Economic Data viewer (TEDv)

PURPOSE Supporting policy monitoring

USE Comparing regional performance

ACTIONBOOK ACTIVITIES

- [Building legitimacy](#)
- [Developing a strategy](#)
- [Developing the policy and action mix](#)
- [Prioritising funds](#)

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MORE

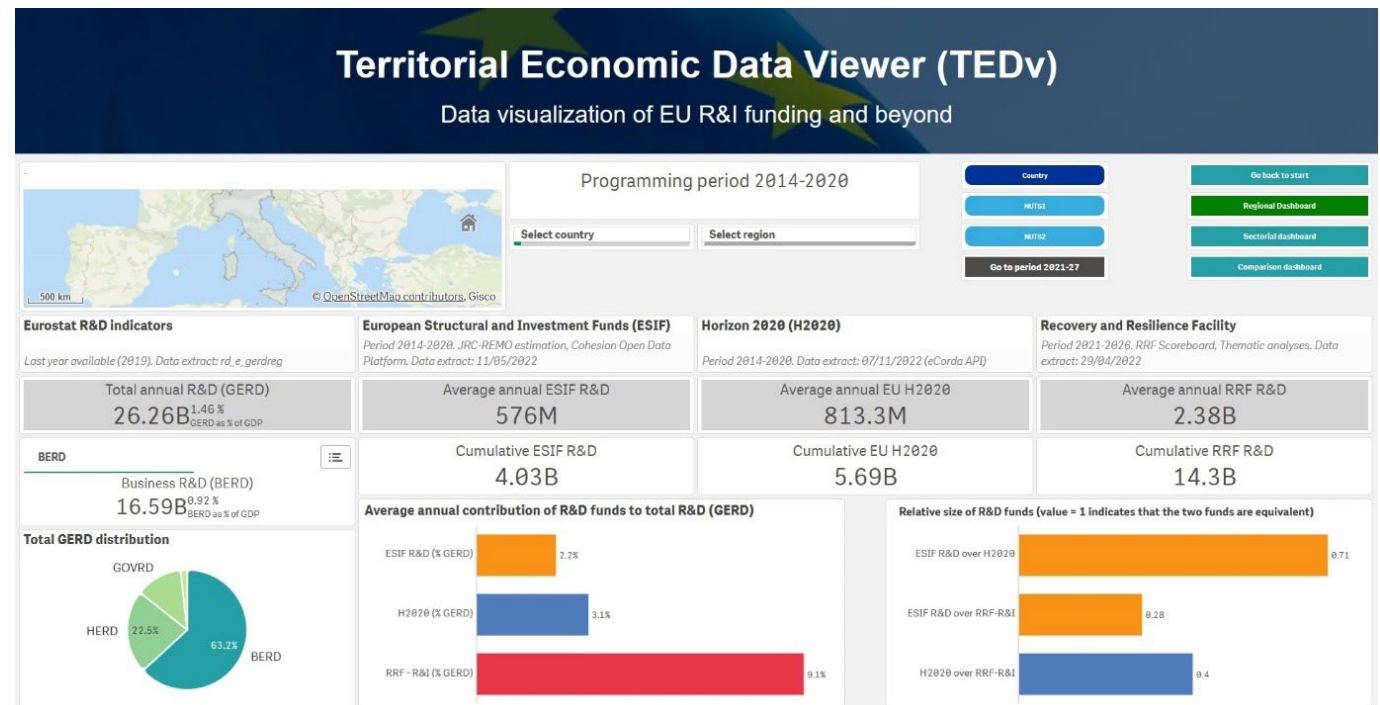
- [Territorial Economic Data viewer](#)
- [TEDv Working Paper_JRC133404](#)

The Territorial Economic Data viewer (TEDv) is a data visualization tool to monitor the use of different Research and Innovation (R&I) funding programs and the socio-economic regional performance.

- Users can compare the concentration of different EU funds in a particular territory and their contribution to the total Research and Development expenditure of a territory.
- TEDv displays the sectorial/thematic concentration of different R&I funding programs, showing the territorial

funding specialisation pattern.

- It allows comparing territories in terms of the allocation of different Research and Innovation funding programs. For instance, users can see how much competitive R&I funds (e.g. through H2020 of Horizon Europe) the region has managed to attract compared to regions with similar characteristics.
- Users can also compare the socio-economic performance of a region over time with the country and EU average.



TYPE

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european

Universities and transformative innovation

PURPOSE Understanding how universities can contribute to systems change through innovation

USE Considering alternative pathways for change depending on the specific territorial context

ACTIONBOOK ACTIVITIES [Collaborating across territories](#)
[Experimenting and demonstrating](#)
[Managing and transforming knowledge](#)
[Mobilising competences](#)

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MORE → [Governance and systems innovation](#)
→ [Collaboration between universities](#)
→ [Innovation pathways](#)
→ [Tools from EU](#)
→ [Tools from US](#)

The table below identifies potential avenues for universities to reinforce their capacity to deliver on transformative innovation, both in the territory they are located and beyond. Depending on the local context, different pathways can be selected or combined. Pathways are

suggested in relation to education, research and business. However, overall, a more systemic governance and stakeholder engagement approach would be required for universities to better integrate societal transformation in universities' DNA.

Dimension	Pathways
Education	<ul style="list-style-type: none"> Widen the focus from research and start-ups to people as drivers of innovation, and build alliances across tertiary education (with polytechnics, universities of applied sciences, VET schools); Organise transformative education and programmes: mission-oriented teaching with student engagement in developing tomorrow's solutions, reinforcing transdisciplinary and transectoral capacities for creating systemic change and understanding complexity; Upskilling and reskilling of those already at work (lifelong learning), rethinking vocational training.
Research	<ul style="list-style-type: none"> Multidisciplinarity for both agenda setting and development of solutions; Create opportunities for interaction and stakeholder engagement for a holistic view of territorial challenges.
Business	<ul style="list-style-type: none"> Importance of industrial doctorates as a bridge between firms and university; Mapping of required competences in the specific fields and alignment with skills offer; Strengthening the role of technology, e.g. high-tech platforms and technology centres for business support; digital innovation hubs; research, training and services related to digital, blockchain, AI.
Engagement	<ul style="list-style-type: none"> Widen stakeholder and citizen engagement in line with an Open Discovery Process; Join forces with other universities and connect them with local stakeholder; Engage with system actors representing value chains (such as (Euro)clusters, university contributions to Transition Pathways of European industrial ecosystems); Partner with public administrations; Optimise internal whole-of-governance (external engagement depends on good internal connectivity); Build trust for long-term place-based partnerships. If needed, introduce new, soft institutions like additional platforms, working groups or discussion circles.
Governance	<ul style="list-style-type: none"> Consider a more systemic and holistic approach to transformative innovation in universities: consider a closer integration between its three missions, promote whole-of government within universities, diversify incentive schemes and evaluation models; Public authorities can consider diversifying financing (ERDF, ESF, RRF,...) based on innovation performance, support strong territorial leadership in universities and public administrations, diversify collaboration instruments; Reinforce links with and support to regional or urban missions; Diversify the toolbox for systems change: regulatory sandboxes, new fiscal models and business models, agenda setting for future pathways, universities as lead users for new market creation.

Avenues for universities to deliver on transformative innovation.

Source: author's elaboration based on inputs from Trippel et al., 2023; Hazelkorn, E., Kroll, H., Cavicchi, A., and Morgan, K.

TYPE

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Regional exports: value added and employment content

PURPOSE Informing decision-makers on the impacts of alternative strategies

USE Maximising benefits of waste management at local level

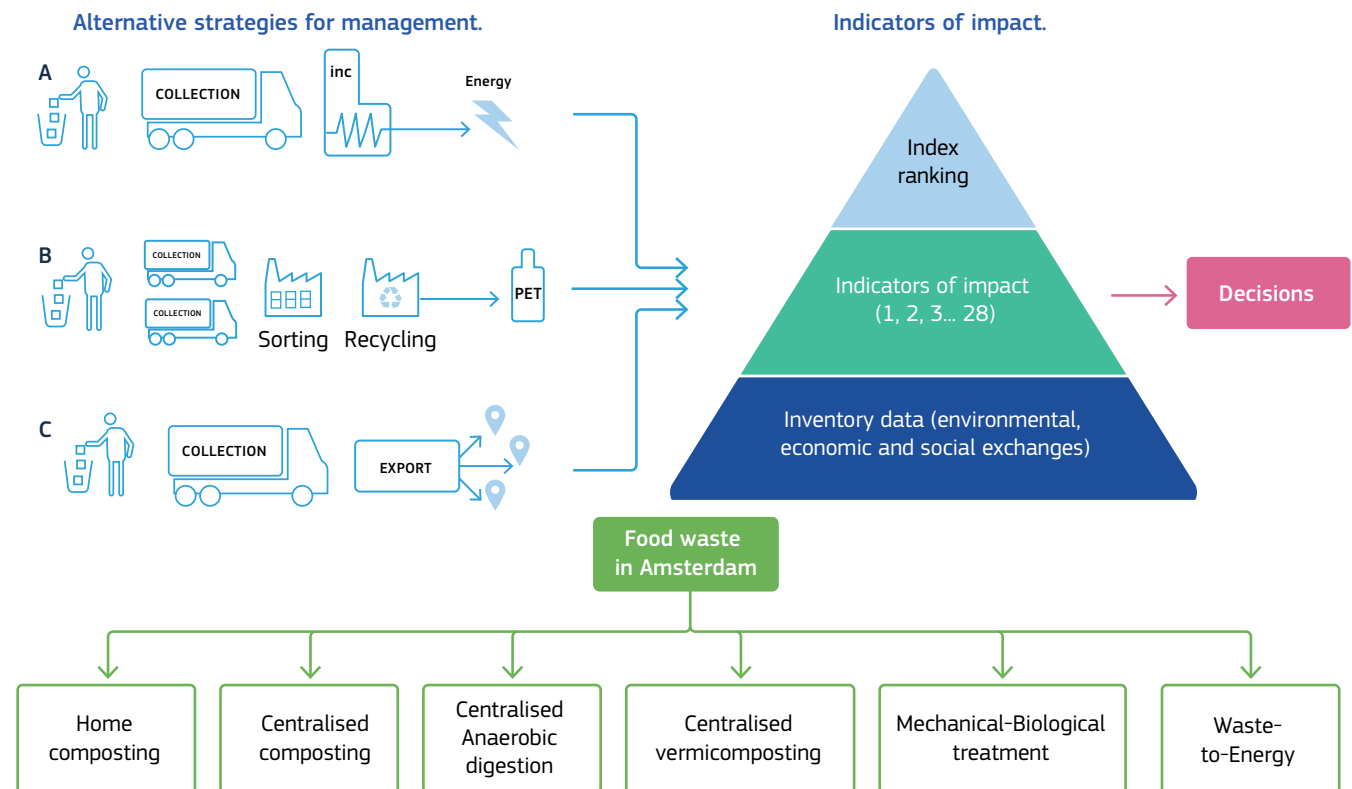
ACTIONBOOK ACTIVITIES
[Building legitimacy](#)
[Continuous monitoring](#)
[Evaluating impact](#)

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→ [GDSE tool description](#)
→ [New Circular Economy Business Model](#)

While a variety of solutions and technology for waste management exist, optimal eco-innovative management strategies of waste strongly depend upon regional factors such as recycling capacity installed, demand/markets for secondary resources, density and other characteristics or constraints of the region. In this context, sustainability assessment tools can be applied to inform decision-makers on the environmental, economic, and social impacts of eco-innovative waste management strategies. These tools are mainly quantitative, based on life cycle thinking and allow modelling local innovative strategies providing a quantification of the environmental, economic, and social impacts across sustainability dimensions (e.g. climate change, smog, total employment in the waste sector, capital and operational costs). The indicators should be decided by con-

sulting local stakeholders (authorities, citizens, industry, operators, NGOs, etc.) and experts. Additional techniques may then be used to aggregate the different indicators of impact in order to obtain a more easy-to-communicate ranking of the strategies studied or even a single-score final indicator. For example, the H2020 REPAiR project developed an operational framework to quantify the impacts of regional/municipal waste management strategies, and identify and rank the best ones using MCDA (Taelman et al., 2020). This was applied to various cities in the EU, to feed local circular economy strategies. The framework included life cycle (and material flow) analyses of waste management systems. There are also more specific and quick calculators, e.g. the tool developed by the JRC to estimate the impacts of pre-selected food waste prevention strategies.



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Waste management in a circular economy– innovation and regulation

PURPOSE Promoting the implementation of initiatives to reuse and recycle waste

USE Managing waste according to the EU waste hierarchy in ways that create multiple value

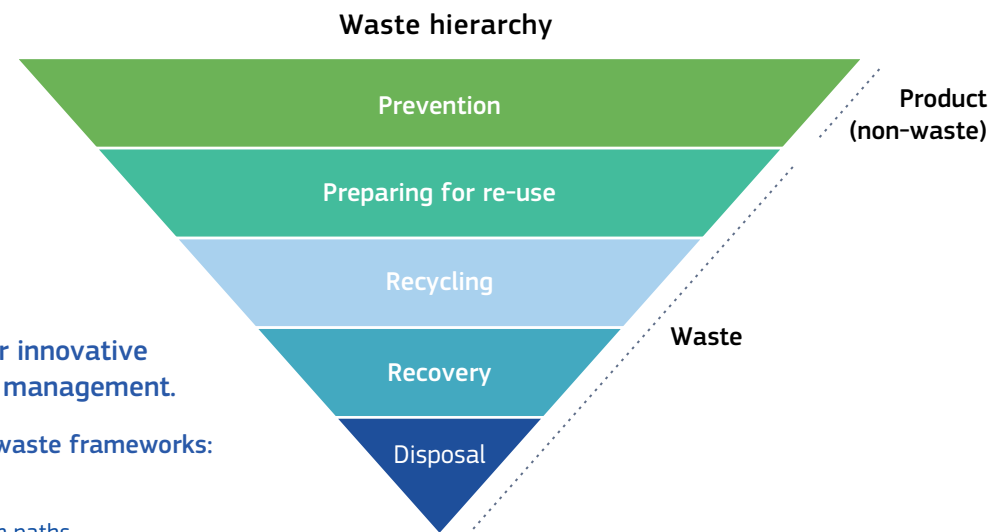
ACTIONBOOK ACTIVITIES [Building legitimacy](#)
[Collaborating across territories](#)
[Coordinating the policy and action mix](#)

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MORE → [EU Waste legislation](#)
→ [The EU's circular action plan](#)

Waste management services provide collection, transportation, processing, recycling, and disposal of materials that have been discarded. The foundation of EU waste management is the “waste hierarchy”, launched in the Waste Framework Directive. It establishes an order of preference for managing and disposing waste. Waste prevention is the desired option in a circular economy, but waste generation is still growing because of increasing material use. Sound waste management helps protect human health, reduces environmental impacts, and alleviates import dependency of primary resources from other states. Management options are strongly constrained by local conditions like for example urban density, geography, or climate, and hence mostly organised at municipal level. Technologies may vary in their performance, therefore technical guidance and measures that form part of EU and national legislation are essential. To increase flexibility and account for regional and local specificities, waste legislation at EU level

often involves performance-oriented requirements that are technology neutral and promote innovation by increasing the attractiveness of engaging in R&D and avoiding lock-in into suboptimal standards. Examples of such legislation include preparing for re-using and recycling targets for certain waste streams (e.g. paper, metal, plastic waste, or end-of-life vehicles), the ban of pollution-causing practices without prescribing fixed alternatives (e.g. the phasing out of landfilling biodegradable waste), or minimum quality standards to ensure that recycled waste can be placed on the internal market as a standardised product. Ex-ante impact assessments that compare policy options as well as stakeholder inputs ensure that tangible social, economic and environmental benefits are generated by new EU legislation. The regulatory EU framework on waste aims to foster new opportunities for private companies, national authorities and citizens throughout the EU to turn waste into a valuable resource.



Five elements to consider for innovative regulation on circular waste management.

Innovation-friendly regulation waste frameworks:

- Bear in mind the waste hierarchy
- Consider different implementation paths
- Minimise prescriptive actions
- Contemplate the local context
- Build on stakeholder inputs

Whole-of-government approach: options to implement it

PURPOSE Defining options for putting in place a whole-of-government approach

USE Improving collaboration and coordination among government departments and governance levels

ACTIONBOOK ACTIVITIES [Enabling multilevel cooperation](#)
[Collaborating across departments](#)

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MORE → [Investments across governance levels](#)
→ [Governance of Innovation Systems, Vol. 1: Synthesis Report - OECD](#)
→ [The Future of Regional Development and Public Investment in Wales, United Kingdom \(gov.wales\)](#)

Implementing a whole-of-government (WoG) approach can be a complex exercise that requires a careful balancing act between existing features of the governance system and new features aimed at improving collabora-

tion, coordination and effectiveness across government departments and agencies. Based on earlier experiences with WoG, the following principles could guide the implementation.

General purpose	Options
Identification of all relevant policies, departments and agencies in your territory	<ul style="list-style-type: none"> Using systems mapping approaches to better understand the role of different policies; Using power maps to better understand the potential role of different policies and the division of responsibilities in different departments, managing authorities and agencies in the territory as well as at lower and higher governance levels; Reviewing the identification over time with an evolving transformation agenda;
Increasing the problem awareness and ownership among decision-makers, as well as the capacity to act upon it	<ul style="list-style-type: none"> Using digital visualisations on the potential impact of climate change in the territory, organising (temporary) staff exchanges between departments; Calculating future impact on each sector and the related cost of inaction; Analysing necessary capacities and seek internal and external support for training needs; Setting up joint stakeholder consultations between departments; Applying horizon scanning and other foresight approaches involving relevant departments; Developing strong political leadership; Creating small wins to build trust; Procuring early involvement of all departments to increase ownership; Assessing obstacles to cooperation and the identification of possible solutions; Considering a variety of policy tools (including new business models, living labs, demonstrators,...) and using the whole territory as a living lab;
Setting up a tailored governance structure for implementing the transformation agenda	<ul style="list-style-type: none"> Setting up tailored governance structures, e.g. interdepartmental working group(s), possibly with rotating presidency to increase ownership, or involving a coordinating department (e.g. the president's office), developing guidelines on decision-making and attendance; Involving a third party (e.g. a subcontractor) for collecting data, making proposals and mediating joint solutions. Considering the cost of not coordinating and diversifying between more and less relevant departments (e.g. a core group and a wider group); Organising stakeholder engagements across policies and set up relevant governance structures for a shared stakeholder governance; Finding the right balance between top-down and bottom-up steering; Connecting planning, implementation, monitoring and evaluation;
Organise involvement of lower and higher governance levels	<ul style="list-style-type: none"> Negotiating involvement in policy design and implementation at higher governance level, possibly through collaboration with other territories to increase impact; Communicating impacts of higher level policies and funding programmes on lower levels (planning level versus solutions level); Creating a sharing and learning culture for co-design; offering guidance, support and expertise and platforms for collaboration to lower level territories where needed;

TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Whole-of-government approach: power maps

PURPOSE Identifying relevant actors towards a whole-of-government approach

USE Setting the ground for customised governance

ACTIONBOOK ACTIVITIES [Agenda setting and sharing](#)
[Enabling multilevel cooperation](#)
[Collaborating across departments](#)

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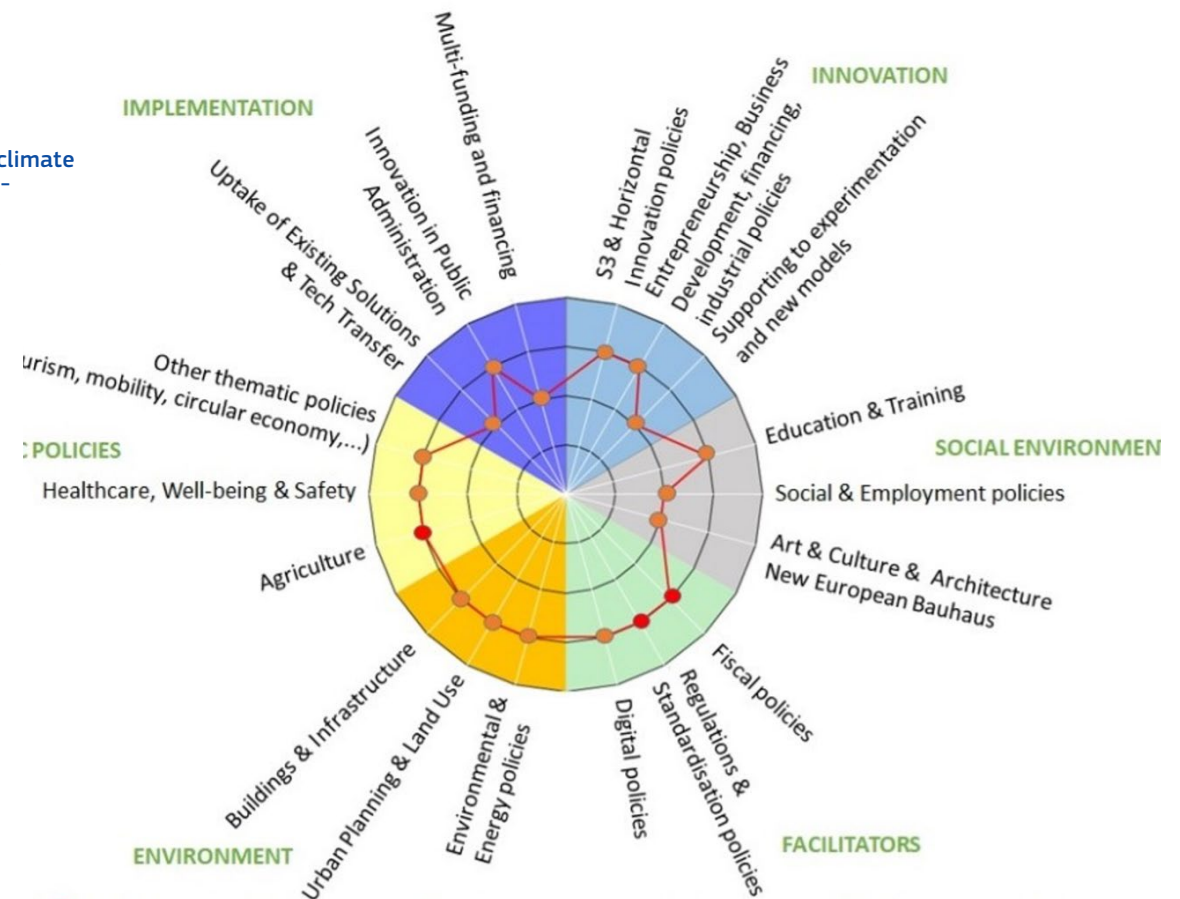
MORE → [Governance of innovation pathways for climate resilience \(Forthcoming\)](#)
→ [Coordination challenges in interterritorial cooperation](#)

Setting up tailored whole-of-government structures, that can adequately develop and implement a territorial transformation agenda, requires a good understanding of the relevant policies, of their potential concrete contribution to shaping and implementing the agenda, as well as where the responsibilities are located (inside or outside the territory, at what level, and whether it is a shared responsibility). Additionally, understanding the relative importance of each policy allows to prioritise the most relevant one (and therefore optimise the cost of coordination) and develop more optimal governance solutions. By using a quantification of the relevance and degree of ownership (green – orange - red) of each policy for a given territory, powers maps can be designed for a given territorial transformation agenda. Power

maps illustrates the horizontal and vertical governance challenges related to the transformation envisaged. The chart illustrates the governance coordination challenges for the climate adaptation agenda of Gorenjska region, where, for no single policy measure, the region has full responsibility, requiring a multilevel governance approach in all policy areas. Power maps can complement or be combined with systems mapping. They can also be developed for different governance levels in the same territory, as a basis for optimising collaboration and developing a well-functioning governance model. It may also support interterritorial collaboration, e.g. as territories may look for collaboration with similar counterparts in terms of relevant policy areas and degree of ownership.

Power map for the climate adaptation agenda - Gorenjska region.

Full responsibility
Partial responsibility
No responsibility



TYPE

concept
methodology
eu policy initiative
example

LEVEL

local
regional
national
european

Working backwards to create multiple value: the case of NutriAlth3D

PURPOSE Developing innovation to solve local problems collaboratively

USE Linking local strengths with the global opportunities for policy and projects

ACTIONBOOK ACTIVITIES [Identifying stakeholders for given societal goals](#)
[Continuously engaging with stakeholders](#)
[Diagnosing and developing a vision](#)
[Agenda setting and sharing](#)

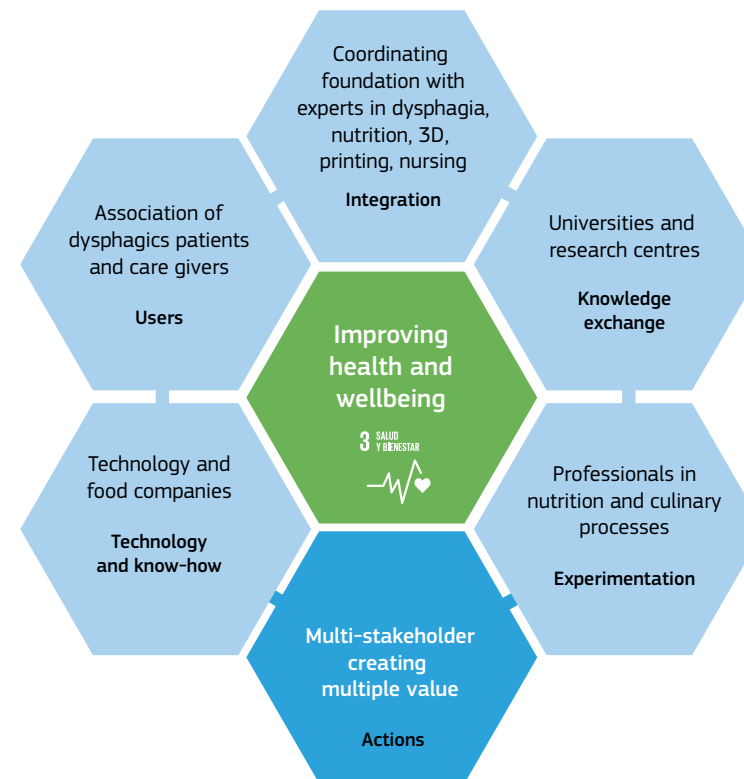
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MORE → [NutriAlth3D](#)

Over a population of 46.8 million people, in Spain two million people are affected by the inability to swallow food or drinks (oropharyngeal dysphagia). People suffering from this swallowing disorder eat mashed food, which causes them to lose interest in eating and can lead them to dehydration and malnutrition. This affects also their health and social life and that of their families, as they may feel uncomfortable eating in public. Yet, early detection and multidisciplinary intervention

can help them achieve a healthier life. For this, stakeholders from various sectors and fields joined forces to tackle this problem and find a multidisciplinary solution to create social and economic value (see T07 [Challenge-oriented innovation](#)).

With this goal in mind, stakeholders adapted existing technology to deliver 3D printing food that is easier to swallow, while maintaining quality and taste.



Multi-stakeholder collaboration to achieve common goal and create multiple value.

References

- Diepenmaat, H., Kemp, R., & Velter, M. (2020). *Why Sustainable Development Requires Societal Innovation and Cannot Be Achieved without This*. Sustainability 12, no. 3: 1270. doi.org/10.3390/su12031270
- Doussineau M., Saublens C., & Harrap N., (2021) *An intervention-logic approach for the design and implementation of S 3 strategies: from place-based assets to expected impacts*, Publications Office of the European Union
- Flanagan, K., Uyarra, E., & Wanzenböck, I. (2023). Towards a problem-oriented regional industrial policy: possibilities for public intervention in framing, valuation and market formation. *Regional Studies*, 57(6), 998-1010
- Galindo-Rueda, F., & Millot, V. (2015), “*Measuring design and its role in innovation*”, OECD Science, Technology and Industry Working Papers, <https://doi.org/10.1787/18151965>
- Loorbach, D. (2007). *Transition management. New mode of governance for sustainable development*. Utrecht: International Books.
- Loorbach, D., & Rotmans, J. (2006). Managing transitions for sustainable development. *Understanding industrial transformation*, 44, 187-206.
- Matti, C., Rissola, G., Martinez, P., Bontoux, L., Joval, J., Spalazzi, A. & Fernandez, D., (2022). *Co-creation for policy: Participatory methodologies to structure multi-stakeholder policymaking processes*, (Eds.) Matti, C. and Rissola. Publications Office of the European Union, doi:10.2760/495731
- Mazzucato, M., (2018), “Mission-oriented research & innovation in the European Union”, European Commission, <https://data.europa.eu/doi/10.2777/360325>
- Mazzucato, M., Kattel, R., & Ryan-Collins, J. (2020). Challenge-driven innovation policy: towards a new policy toolkit. *Journal of Industry, Competition and Trade*, 20(2), 421-437
- Nakicenovic, N., Zimm, C., Matusiak, M. & Ciampi Stancova, K., (2021). Smart Specialisation, Sustainable Development Goals and Environmental Commons, EUR 30882 EN, Publications Office of the European Union. doi:10.2760/43732
- OECD (2023), “Regulatory sandboxes in artificial intelligence”, *OECD Digital Economy Papers*, No. 356, OECD Publishing, Paris, <https://doi.org/10.1787/8f80a0e6-en>
- Palavicino, C. A., Matti, C., & Brodnik, C. (2023). Co-creation for Transformative Innovation Policy: an implementation case for projects structured as portfolio of knowledge services. *Evidence & Policy*, 19(2), 323-339
- Pontikakis, D., Gonzalez Vazquez, I., Bianchi, G., Ranga, L., Marques Santos, A., Reimeris, R., Mifsud, S., Morgan, K., Madrid Gonzalez, C., & Stierna, K. (2022a) *Partnerships for Regional Innovation Playbook*, Publications Office of the European Union, doi:10.2760/292307
- Roman, M. & Fellnhöfer, K., (2022). Facilitating the participation of civil society in regional planning: Implementing quadruple helix model in Finnish regions. *Land Use Policy*, 112
- Santos, A. M., & Coad, A. (2023). Monitoring and evaluation of transformative innovation policy: Suggestions for Improvement. *Socio-Economic Planning Sciences*, 90, 101714
- Schwaag Serger, S., (2021), *Innovation councils – effective governance mechanism, advisory body or ‘nice to have’?* https://strata.gov.lt/images/renginiai/20210217/Innovation_councils_effective_governance_mechanism_advisory_body_or_nice_to_have.pdf
- Schwaag Serger, S., Wise, E., & Arnold, E., (2015), “*National Research & Innovation Councils as an Instrument of Innovation Governance*”, Vinnova
- Siragusa, A., Stamos, I., Bertozzi, C., & Proietti, P. (2022). *European Handbook for SDG Voluntary Local Reviews-2022 Edition* (No. JRC129381). Joint Research Centre
- Trippel, M., Schwaag Serger, S., & Erdős, K. (2023). *Rethinking the Role of Universities in Place-Based Innovation Policies for Sustainability Transitions*. European Commission
- United Nations Inter-Agency Task Team, S.T.A.I.F.S. & European Commission, J.R.C. (2021), *Guidebook for the Preparation of Science, Technology and Innovation (STI) for SDGs Roadmaps*, Publications Office of the European Union
- Voros, J. (2003). A generic foresight process framework. *Foresight*, Vol. 5 No. 3, pp. 10-21

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