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Institutional capacity-building strategic agenda

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Summary

The objective of this report is to present the strategy, methodology and proposed actions regarding the Institutional capacity building agenda to support the design and implementation of cross-cutting R&I policies and programmes on Circular Economy. Section 1 includes a short introduction for the report; Section 2 introduces the overall systemic approach and value proposition of CICERONE including the knowledge assets produced during the project.; Section 3 provides an explanation of the co-design process by which this strategic agenda was developed as part of a collaboration setting; Section 4 describes the strategic framework for capacity development by integrating instructional design elements and the conceptual elements. Section 5 presents the improvement pathways as a staged process included in an overall action plan. The capacity building agenda has been co-developed as part of a collaborative setting by following a triangulation of the different methods and alignments with the MOOC, Policy toolkit, and roadmap, respectively. The framework combines multilevel capacity development with an instructional design model to shift from a capacity building to a capacity development perspective. Improvement pathways are presented as an action plan implemented in two stages: 1) Launching activities on capacity development (focus on the POs at individual level) 2) Co-designing activities (support the pilot programmes with technical assistance and knowledge management.)

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Content

ACRONYMS

CE: Circular Economy

CEAP: Circular Economy Action Plan

CE R&I: Circular Economy Research and Innovation

CEPS: Centro de Estudios Políticos y Sociales

DG RTD: Directorate General Research and Innovation

DEL: Deliverable

EUCCH: European Circular Cooperation Hub

EESC: European Economic and Social Committee

ECESP: European Circular Economy Stakeholder Platform

EU: European Union

ECOSOC: Economic and Social Council

HLPF: High-Level Political Forum

IETU: Institute for Ecology of Industrial Areas Poland

KIC: Knowledge Innovation Community

KPI: Key Performance Indicator

MOOC: Massive Online Open Course

PO: Program Owner

RVO: Rijksdienst voor Ondernemend Nederland

SMEs: Small and Medium Enterprises

SDGs: Sustainable Development Goals

SRIA: Strategic and Research Innovation Agenda

UM: University of Maribor

UN DESA: United National Department on Economic and Social Affairs

WRF: World Resource Forum

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SUMMARY

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The objective of this report is to present the strategy, methodology and proposed actions regarding the Institutional capacity building agenda to support the design and implementation of cross-cutting R&I policies and programmes on Circular Economy. Section 1 includes a short introduction for the report; Section 2 introduces the overall systemic approach and value proposition of CICERONE including the knowledge assets produced during the project.; Section 3 provides an explanation of the co-design process by which this strategic agenda was developed as part of a collaboration setting; Section 4 describes the strategic framework for capacity development by integrating instructional design elements and the conceptual elements. Section 5 presents the Improvement pathways as a staged process included in an overall action plan.

The capacity building agenda has been co-developed as part of a collaborative setting by following a triangulation of the different methods including inputs from programme owners and a series of sensemaking sessions organized to discuss different aspects of the agenda and align with the MOOC, the Policy toolkit, and roadmap, respectively.

This strategic framework follows an improvement pathway logic where gaps and opportunities are addressed through a combined multilevel capacity development and instructional design model which facilitates a tailor-made and context-based approach to provide practice- based knowledge and ensure the best possible match between the needs of the programme owners and the available resources. The shift from a capacity building to a capacity development perspective enables a more horizontal process where individuals, organizations and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time. The 4 guiding principles and 5 capacity areas define the learning components of this strategic framework:

- Guiding principles: 1) Systems thinking, 2) A portfolio approach 3) Funding mechanisms and 4) Policy competence.
- Capacity areas: 1) Circular Economy, 2) Systems Innovation, 3) Policymaking in practice, 4) EU Policy Mix and Cross-cutting areas

This overall narrative of improvement pathways is presented as an action plan implemented through a staged process that facilitates the integration of capacity development activities with the set of services provided by the EU Circular Cooperation Hub. The two-year action plan consists of two main stages:

- First stage. Launching activities on capacity development. Activities will focus on the POs at individual level by putting emphasis on a broad set of elements, tools, and resources available (MOOC, Policy toolkit) to address their challenges.
- Second stage. Co-designing activities. These activities are aimed at supporting the pilot programmes by combining capacity development actions with technical assistance and knowledge management.

The co-design of activities is an important mechanism to support systemic processes and it facilitates the alignment of problems, solutions, interests, and broad innovation resources. Activities can be operationalised though cross-functional teams as the task force responsible for bringing solutions in the form of new practices and coordination mechanisms. The development of these teams will be based on the Working Groups set at platform level by focusing on the implementation of joint programming activities and other related platform services as knowledge sharing.

The cross-functional teams will facilitate interfaces in two work streams:

1. Mentoring, Workshops and training – Tools & Methods. This stream will support the implementation of the pilot programmes.
2. Developing cross-cutting areas. Interfaces created through cross-functional teams go beyond the pilot programme to explore further development of capacity areas.

KEY WORDS

Joint programming, capacity-building, circular economy, capacity development, instructional design, sensemaking

1 INTRODUCTION

The institutional capacity-building strategic agenda, referred as strategic agenda in this document, contains the strategic framework and the methodology for institutional capacity-building on circular economy research and innovation of the H2020 project CICERONE. Together with a Massive Online Open Course (MOOC) developed by World Resources Forum (WRF) and a roadmap and a toolkit, developed by CEPS - Europe's leading independent think-tank -, this agenda will introduce a framework to develop capacity of European programme owners (POs) to navigate current resources and understand systemic relations throughout the operationalization of the future EU Joint Programming platform: the EU Circular Cooperation Hub (EUCCH).

The strategic agenda is included as part of the deliverable 3.6. of the CICERONE project. The agenda underlines the necessary elements that will help the future platform and its members, namely Programme Owners, to enable joint programming on the programmes identified in the CICERONE Strategic Research and Innovation Agenda (SRIA). The future EU platform will provide a series of services, amongst them, capacity building. This service aims to strengthen the skills and knowledge base for programme owners to implement circular economy priorities in their activities at the national, regional, and local levels. The main goal of this agenda is thus to define how policymakers and POs can build their capacities on Circular Economy Research and Innovation (CE R&I) to enable its accelerated diffusion. It will also help understanding the capacities, skills and knowledge required for joint programming. The strategic agenda aims to eventually reach the four levels of capacity: individual, intra organizational, inter organizational and external by following a multilevel approach as these levels are interconnected. The agenda also includes detailed actions for institutional capacity-building and explores the gaps and improvement pathways in the organisation of circular economy research and innovation funding by public authorities in priority areas.

The agenda is structured in four main sections: CICERONE's systemic approach, the co-design process, the strategic framework of the agenda and the improvement pathways. While the first two focus on the context in which the agenda has been developed, the two latter include elements such as the learning components and pathways for developing capacity that programme owners can follow. This deliverable is linked to Task 3.3 of the CICERONE project which seeks to support policy adoption and institutional capacity-building on CE R&I throughout the European Union (EU).

2 CICERONE's SYSTEMIC APPROACH

Following the emergence of systemic approaches for circular economy transition, new capacities and skills are needed that can respond to the challenge of breaking away from the status quo and the "business as usual" of our current economies and systems. The European Green Deal is one step ahead in this direction by stating that the EU's research and innovation agenda will take a systemic approach to achieve the aims of the Deal[1]. It also advocates for the implementation of transformative innovation policies.

CICERONE is an H2020 European-funded project that aims to find concrete and implementable responses to this challenge. Implemented by a Pan-European consortium with 24 partners, including programme owners; CICERONE's learnings, knowledge, and resources will nourish a future PO platform: the **EU Circular Cooperation Hub**, which will be led by EIT Climate KIC during the first two years of its existence, potentially with the support of DG RTD. The H2020 project CICERONE's mission is to bring national, regional, and local governments together to jointly tackle the circular economy transition needed to reach net-zero carbon emissions and meet the targets set in the Paris Agreement and European Green Deal. The project developed a Strategic Research & Innovation Agenda (referred to as "CE SRIA" or simply "SRIA") for Europe, to support owners and funders of circular economy programmes in aligning priorities and approaching the circular economy transition in a systemic way.

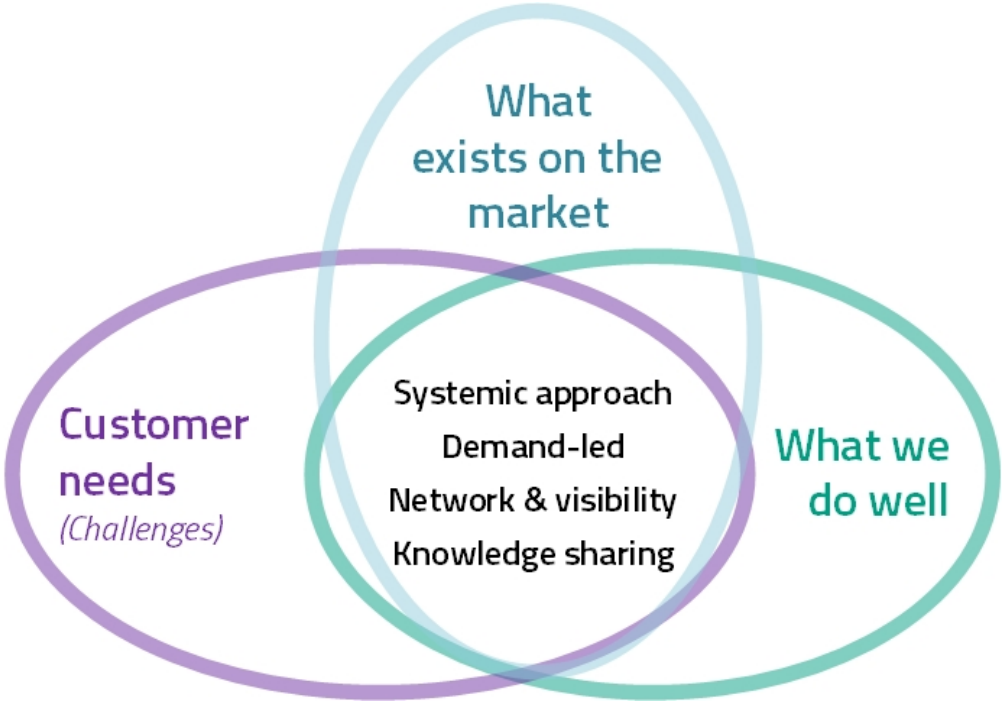
To succeed in transitioning to a circular economy, new approaches are necessary. After three years of implementation, benchmarking, research and delivery, CICERONE argues that an appropriate vehicle to pursue a systemic approach to the circular economy is joint programming. CICERONE builds upon the experience of a rich and experienced community working on the circular economy transition. Therefore, we have used the knowledge consolidated in other projects and platforms. Joint programming is defined by the ERA learn platform as *a structured and strategic process whereby European Member States agree, on a voluntary basis and in a partnership approach, on common visions and Strategic Research and Innovation Agendas (SRIA) to address major societal challenges*. The Joint Programming Process was launched by a communication of the European Commission in 2008. In all stages of the joint programming process (from planning to deployment and diffusion), stakeholder engagement plays a key role in the governance of partnerships to ensure directionality of activities and enhance policy learning (Dinges et al., 2020).

CICERONE tackles circular economy by following a systemic approach across sectors defined in the SRIA. Its value proposition relies on what already exists on the market, the identified customer and

[1] Communication on the Green New Deal (2019)

programme owner needs, and the services provided by the CICERONE consortium. In a nutshell, CICERONE was born to tackle the lack of a systemic multi-governmental network for circular economy as well as the lack of capacity-building on systemic thinking in most EU member states.

Figure 1 CICERONE's value proposition



Source: own elaboration based on CICERONE DEL 3.1 Strategic design of the platform

A systemic approach to the circular economy is necessary to address the systemic co-production of social, behavioural, and technological change in an interrelated way. This approach defines system innovation through the effect of a simultaneous intervention that redefines the system's logic by improving the set of skills and competences, and by transforming infrastructures, industry structures, products, regulations, as well as society preferences and behaviours across value-chain challenges (energy, agriculture, built environment, industry, etc.). However, there is still no systemic approach to value chains in the European Union. This results in the implementation of single-point solutions or solutions implemented in separate departments in different sectors which may create incompatibilities in the longer run. Therefore, systemic, and coherent approaches that avoid such results are needed. Member states would thus benefit from systemic thinking to tackle the challenge of circular economy transition, collaborating across sectors and regions with systems innovation and joint programming including multiple governance levels and working across regions. What is more, collaboration between member states to develop new competencies and solutions to improve circularity will require better tools. The partners of CICERONE, including EIT Climate-KIC, have long worked on systemic thinking and design, joint programming, orchestration, and collaboration, among

other areas of expertise. A systemic approach has thus been at the core of the design of this strategic agenda.

2.1.1 The EU Circular Cooperation Hub

The main outcome of the H2020 project CICERONE is the creation of a programme owner's platform to work on joint programming in the areas identified in the SRIA: the European Union Circular Cooperation Hub (EUCCH). An implementation plan (2021-2023) complements this agenda. Together with other deliverables, they will provide elements to start operationalizing the platform in 2021. The EU Circular Cooperation Hub will provide four key strategic services, namely:

Table *1* Strategic Services proposed for the EU Circular Cooperation Hub - CICERONE

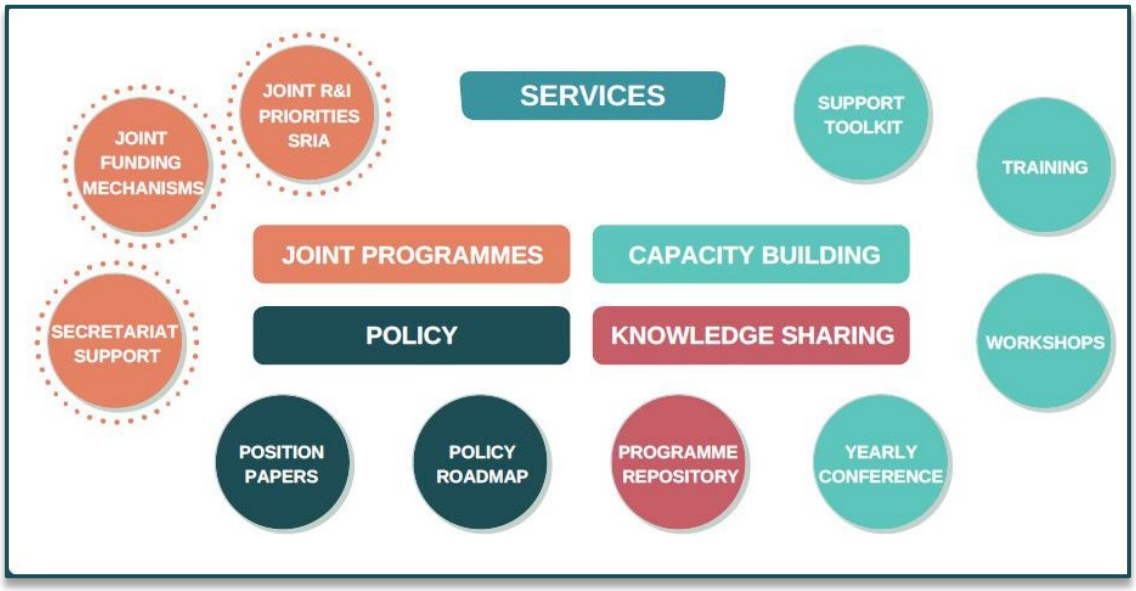
Strategic Service	**Description**
Joint programming	Systemic thinking is necessary to tackle circular economy in collaboration across sectors and regions with systems innovation. This includes orchestration and supporting collaboration for joint programming (multi-level, cross regional).
Capacity building	New tools and competence development, including the definition and prioritizing of tools for common initiatives, and potential tools for a strategic cluster cooperation.
Knowledge sharing	Knowledge sharing between member states and regions. This may include benchmarking, follow-up and tracking systems for the impact of activities.
Policy influence	Policy recommendations and advocacy through the community management will be key.

Source: extracted from several CICERONE DELs

As a result of the knowledge, capacities, inputs, and relationships that emerged throughout the implementation phase of CICERONE, the EU Circular Cooperation Hub will orchestrate and support collaboration for joint programming as a key element to follow a systemic approach to the circular economy transition. However, this strategic agenda focuses on an overall logic on how capacity-building actions will be designed in such a platform. In addition to joint programming, the platform will provide policy recommendations and advocacy actions through the engagement of a diverse community. The strategic agenda also aims to create new tools and develop competences at the individual, organizational, and institutional level, especially in joint programming. The future EUCCH platform will thus enable the interface between users' needs and existing resources and knowledge to help national and regional programme owners deliver R&I activities for promoting CE transition. The following figure was presented at the policy workshop organized in October 2020 to validate the

services and sub-services (in circles). The services that will potentially be delivered in the first two years of the platform are identified in the implementation plan (DEL 3.8).

Figure 2 Services of the EUCCH platform



The future platform should also provide thematic/sectoral information to help fill in knowledge gaps between Member States such as providing information about past/ongoing projects in circular economy sectors, supporting countries which have no advanced practices in circular economy and addressing the knowledge gap among urban and regional policymakers on the potentials and challenges of the value chain for bio resources. Additionally, there is a need for new policies, which support the regional development to adapt the circular economy principles. The EIT Climate KIC learning platform will be used during the initial stage of the implementation to start operationalizing some of the capacity building services such as the MOOC.

2.1.2 Capacity assessment

European programme owners face several challenges to boost a circular economy transition in Europe more efficiently, among others, the fragmentation of institutions and resources as well as a focus on single sector and single-point solutions rather than systemic approaches. Member States have thus often focused their national strategies on waste management or have marginally promoted circular economy through working groups or civil society platforms. Pushed by policy developments such as the European Green Deal and the Circular Economy Action Plan (CEAP), European Member States are increasingly adopting circular economy strategies. Recent strategies include more inclusive partnerships and value chain approaches thus going closer to CICERONE's systemic approach.

The development of these strategies allows comparing the level of prioritization of the circular economy transition amongst different Member States, regions, and cities. For instance, Member States such as Czechia, Estonia and Bulgaria are currently developing their own strategies (Terry & Vivas Lalinde, 2019). Many regions are also developing their own regional circular economy strategies. In addition, cities are key regarding the design and implementation of circular economy strategies, especially in relation to utilities such as waste and wastewater management and the implementation of EU legislation[2]. Cities such as Paris, Oslo, Porto, Maribor, The Hague, Rotterdam, and Amsterdam, have developed their own circular economy plans and strategies. EIT Climate KIC researched on the state of art regarding the development of circular economy strategies at national, regional, and local levels in the European Union as part of the development of a whitepaper on circular economy with Veolia (Terry & Vivas Lalinde, 2019).

The results are consolidated in the table below. The colour coding follows a three-colour logic: green showcases places where strategies have been published and are available online, even if it is a version under consultation; places where there is evidence on the development of new strategies such as press releases or mentions in official websites or publications are marked in yellow. Finally, in red are places where there is no evidence of strategies published or in development[3]. The last update was done in April 2020[4].

[2] For instance, the revised EU waste directive, includes a common EU target for recycling 65 % of municipal waste by 2035, a binding landfill target to reduce landfill to maximum of 10 % of municipal waste by 2035; and separate collection obligations are being strengthened and extended to hazardous household waste (by end 2022), bio-waste (by end 2023) and textiles (by end of 2025).

[3] We assumed that those strategies that could not be found online do not exist.

[4] If you find inconsistencies, or new strategies are being developed, please send an email to (cristian.matti@climate-kic.org) so we can update this table.

Table 2 Benchmarking circular economy strategies in different countries

Member State	National Strategy	Regional strategies*	City strategies*
AUSTRIA			
BELGIUM			
BULGARIA			
CROATIA			
CYPRUS			
CZECHIA			
DENMARK			
ESTONIA			
FINLAND			
FRANCE			
GERMANY			
GREECE			
HUNGARY			
IRELAND			
ITALY			
LATVIA			
LITHUANIA			
LUXEMBOURG			
MALTA			
NETHERLANDS			
POLAND			
PORTUGAL			
ROMANIA			
SLOVAKIA			
SLOVENIA			
SPAIN			
SWEDEN			

References	No evidence	Being developed	Strategies available

**at least in one region/city*

Source: own elaboration based on Terry & Vivas Lalinde (2019)

2.1.3 Understanding the needs of European Programme Owners

This strategic agenda is addressed to European programme owners[5] who manage circular economy research and innovation programmes. There is not a single category in which all European programme owners fit. However, there are key elements that help differentiate different POs such as access to funding opportunities, the existence or lack of circular economy governance structures, access to knowledge as well as participation and collaboration in platforms and networks. Throughout the implementation of the CICERONE project, a diversity of needs of programme owners at European, national, and regional levels were identified by a survey (DEL 4.2). Long-term up-scaling projects, necessary for bridging the gap between research and implementation, were comparably lower represented and the objectives and key performance indicators of the programmes disclose different and partly contradictive strategies of the European countries, which could indicate a need for more integrative approaches regarding resources, sectors, funded activities, and beneficiaries addressed (DEL 1.2). On the other hand, most respondents to the survey underlined the importance of practical approaches.

During the design and conceptualization of the business model of the future platform, especial attention was paid to identifying the needs that the future platform services will be covering to be able to understand how to prioritize them according to the different funding scenarios. The following table thus identifies the needs covered by each of the four-services of the future CICERONE platform:

[5] Programme owners are typically national/regional ministries or authorities responsible for defining, financing, or managing national/regional research programmes.

Table 3 Strategic services and Programme Owners needs

Strategic Service	Sorted Programme Owners related needs
Joint programming	1. Lack of systemic approach and clear research agenda 2. Support needed to develop appropriate and efficient funding schemes to implement projects / calls under SRIA 3. Duplication of research schemes on similar circular economy topics 4. Support needed to build effective mechanisms of cooperation with regional/national/European institutional stakeholders for SRIA implementation
Capacity building	1. Insufficient knowledge on some circular economy aspects 2. Lack of qualified experts/staff 3. Support needed to better align funding priorities with CE policies at EU, national, regional levels 4. Support needed to monitor joint programmes, via the use of efficient KPIs 5. Support needed to facilitate updates of the SRIA over time 6. Need for "an understanding external operational environment" 7. Need for exchanges on Circular economy between the various actors involved
Knowledge sharing	1. Lack of knowledge on some CE aspects 2. Exchange & collaborate with counterparts on similar issues 3. Lack of common forum / working space for POs on CE 4. Lack of cooperation / coordination between POs
Policy influence	1. Insufficient recognition of circular economy at several institutional levels & difficulty to get in touch with Policy makers 2. Insufficient funding 3. Lack of systemic approach on circular economy

Source: extracted from business model DEL

There are cross-cutting programme owners needs such as funding, knowledge, collaboration, and the need for new approaches to governance that are systemic and match the PO needs in other areas. Resources to develop and implement circular economy actions are often fragmented and scarce. What is more, there is a lack of nationally defined systems on the circular economy development criteria for the verification and follow-up of expected outcomes and impact of the taken actions. This would require efficient tracking systems, and aligned strategies related to metrics and Key Performance Indicators (KPI) to be as impactful as possible. Although multiple platforms regarding cross-European and cross-sectoral strategic coordination in national and regional level have been created, they often miss a systemic approach and lack mechanisms to facilitate the synchronisation of different national R&I agendas with European priorities. Finally, there is a lack of consolidated information and capacity

building for CE programming for R&I, also identified in the survey. The circular economy transition also requires changes in the public procurement processes and increased capability of the regional authorities to uptake new developments in the circular economy. Furthermore, the change in common behaviour and mind-set among public authorities and citizens can be carried out by sharing good practices and means to raise public awareness on circular economy and provide alternative behaviour patterns.

2.1.4 Knowledge assets

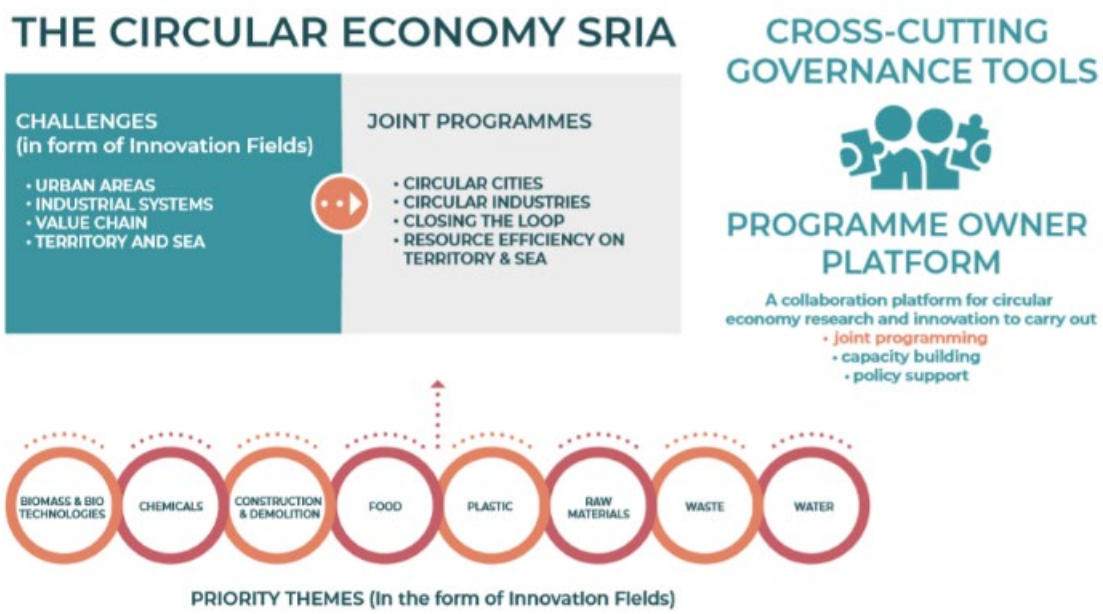
Knowledge creation has been an essential aspect of the co-design process of this deliverable (see section 3 for more details). On the one hand, new knowledge has been created, including three key knowledge assets: the SRIA, the MOOC and the policy toolkit and roadmap. The development of these documents has been integrated to the overall process for the co-design of this strategic agenda. On the other hand, there is a wide variety of contributions of the circular economy community, some of which are included in section 2.3.4.

2.1.5 Strategic and Research Innovation Agenda

This SRIA is a strategic guidance document that specifically focuses on the topic of circular economy in the European Union. A focus on systemic change and adopting a cross-cutting interdisciplinary approach is at the heart of the CE SRIA. This is reflected by the SRIA's systemic framework of eight priority themes (biomass and biotechnologies, chemicals, construction and demolition, food, plastic, raw materials, waste, and water) that build on four societal areas that face sustainability challenges (urban areas, industrial systems, value chains and territory and sea) to identify priority areas for circular economy research and innovation to tackle EU region-wide issues and facilitate the transition to a circular economy.

Within each theme and challenge, a set of circular economy innovation fields (i.e. broad areas of priority research and innovation) were identified. These are R&I actions that facilitate circular economy transition. These innovation fields were strategically linked to form four systemic joint programmes (i.e., structured, and strategic research and innovation programmes to ensure an interdisciplinary, cross-sectoral, and systemic approach in circular economy R&I). The four joint programmes are: 1) Circular Cities, 2) Circular Industries, 3) Closing the Loop and 4) Resource Efficiency on Territory and Sea. Each joint programme consists of circular economy objectives that the programme aims to achieve.

Figure 3- CICERONE SRIA and rational of programme owner platform



Members of the programme owner platform are foreseen to use both the joint programmes and innovation fields to collaborate on circular economy programming. Contributing, rather than duplicating, the ambitions and efforts of European strategies and initiatives is a central tenet of the four joint programmes. In this way, the SRIA provides significant added value not only by providing a basis for programme owners to join forces working on circular economy research and innovation, but also in contributing to sustainable socio-economic development in the EU.

2.1.6 MOOC: Implementing Systemic Circular Economy through Joint Programming

This Massive Open Online Course (MOOC) is the introductory edition of a series of online courses that will be produced by the EU Circular Cooperation Hub. The main objective of the current MOOC is to increase the programme owners' knowledge base about the key definitions, challenges and opportunities associated with applying systemic solutions for circular economy programming, and to build and improve capacity, skills and know-how for co-design and implementation of joint programmes in their activities. The main objective of the MOOC is to increase awareness of challenges and opportunities for circular economy systems innovation. It provides an overview of the main outcomes and findings of the H2020 CICERONE project and allows to better understand the potential benefits provided by the future platform. It will be compounded by four modules:

- Module 1: Circular Economy: Concepts and Principles
- Module 2: Building a systemic approach to Circular Economy
- Module 3: Joint Programming: Collaboration in practice
- Module 4: Resources and Services for Enabling Implementation

The key target groups for this MOOC are programme owners who are typically national, regional ministries or authorities responsible for defining, financing, or managing national, regional research programmes. Other stakeholders such as SMEs will be indirect beneficiaries. More specific training and capacity development initiatives will be further developed. A first version of the MOOC will be available in EIT Climate KIC e-learning platform in the beginning of 2021.

2.1.7 Policy toolkit & roadmap

The main objective of the roadmap is its use by policymakers as an instrument for decision-making for implementing circular economy research and innovation policy, using the SRIA as a reference. On the other hand, the policy toolkit provides recommendations and actions directed at programme owners. It is thus an instrument for implementation. The document includes two parts: 1) a roadmap with key actions and milestones to implement a coordinated EU approach to circular economy innovation and 2) a toolkit with good practices, examples and enabling conditions for the success of innovation programmes and their deployment.

2.1.8 Existing resources

This strategic agenda is not only based on the work of the CICERONE consortium, but it builds upon existing resources from institutions and organizations working on the circular economy transition. At the international level, the UN High-Level Political Forum (HLPF) recently reviewed SDG 12 on responsible consumption and production and is preparing an upcoming review of SDG 13 on climate change. The Economic and Financial Committee of the United Nations General Assembly and the Economic and Social Council (ECOSOC) held a joint meeting on the transition to a circular economy as a means for accelerating implementation of multiple Sustainable Development Goals. UN DESA partners have a unit focused on capacity development to support members in building integrated, evidence-based, inclusive, and well-funded national strategies and plans to achieve sustainable development. UNIDO's policy advice and capacity development unit has created trainings, workshops and online courses on circular economy and industrial transitions for global stakeholders such as the project PAGE which focuses on green skills. Additionally, global leaders on circular economy such as the Ellen McArthur Foundation have courses that suit learners at every stage.

The new European Skills Agenda highlights the key role of skills in the transition to a green economy and will include a Digital Education Action plan to build capacity in this important area. On the other hand, the OECD has emphasised the need for governments to increase their efforts to improve education and training policies by covering several areas such adult training and reskilling process and the benefits of the digital transformation for reconfiguring governance mechanisms.

The most paradigmatic case in the European Union is the European Circular Economy Stakeholder Platform (ECESP). Established in 2017 in response to the first Circular Economy Action Plan, this platform is a unique example of interinstitutional collaboration between the European Economic and Social Committee (EESC) and the European Commission. The two institutions are working closely together to promote the Platform as a space for the exchange of ideas and a growing body of information, and to make the circular economy happen faster to the benefit of all. The work of the ECESP is all published online and is recognised beyond the EU as an example of best practice in how to implement circularity effectively (Lohan, 2020). In its sections: “knowledge”, and “education and training”, there is a diverse set of knowledge assets widely accessible.

3 THE CO-DESIGN PROCESS

This section presents the overall methodology for the development of the institutional capacity building agenda, whose main elements will be introduced in sections 4 and 5. The methodology used to develop this strategic agenda has been co-developed as part of a collaborative setting with the CICERONE partners working on Task 3.3. The process has followed a triangulation of the different methods including an extensive literature review on key elements for capacity building such as system innovation and the policy process, the analysis of key outputs and documents of the CICERONE projects such as a benchmark and a survey to POs and the sensemaking sessions organized by EIT Climate KIC to discuss different aspects of the agenda and align with the MOOC, toolkit, and roadmap, respectively. Additionally, inputs gathered in the CICERONE policy workshop were applied during the sensemaking sessions and the overall development of this document.

The systemic process is an essential pillar in the CICERONE project embedded in its design and implementation but also in the value proposition. Consolidated outputs were presented at the policy workshop that took place in October 2020. In this workshop, the narratives of the 1) Platform model and services and 2) Capacity building approach were presented. Both narratives were developed as part of a continuous interaction between partners including feedback loops from programme owners. The strategic institutional capacity building agenda presented in this document thus follows a demand -led approach by targeting the needs of program owners. More specifically, the co-design process has combined the project goals, technical knowledge, and the partners' capacities with shared visions about the mid-term development of the EU Circular Cooperation Hub. For doing so, a team constituted by a leading expert and the partners in charge of the MOOC and the Policy toolkit has explored, analysed, and reconnected programme owner's needs with the capacity building elements produced as part of the CICERONE project. Along this line, the iterative process can be explained through the lenses of the continuous cycle of learning and adaptation or "knowing cycle" (Choo, 1998) which integrates three strategic information processes: sensemaking, knowledge creation and decision making (see Figure 4).

- **Sensemaking[6].** A series of co-design-oriented conversations took place with a cross-functional team to interpret and understand changing conditions and their meaning for the whole programme owner's community. In the context of CICERONE, sensemaking provided a space to contextualise the role of POs and the required knowledge resources within active research and innovation processes driven by concepts such as Smart Specialization and Systemic

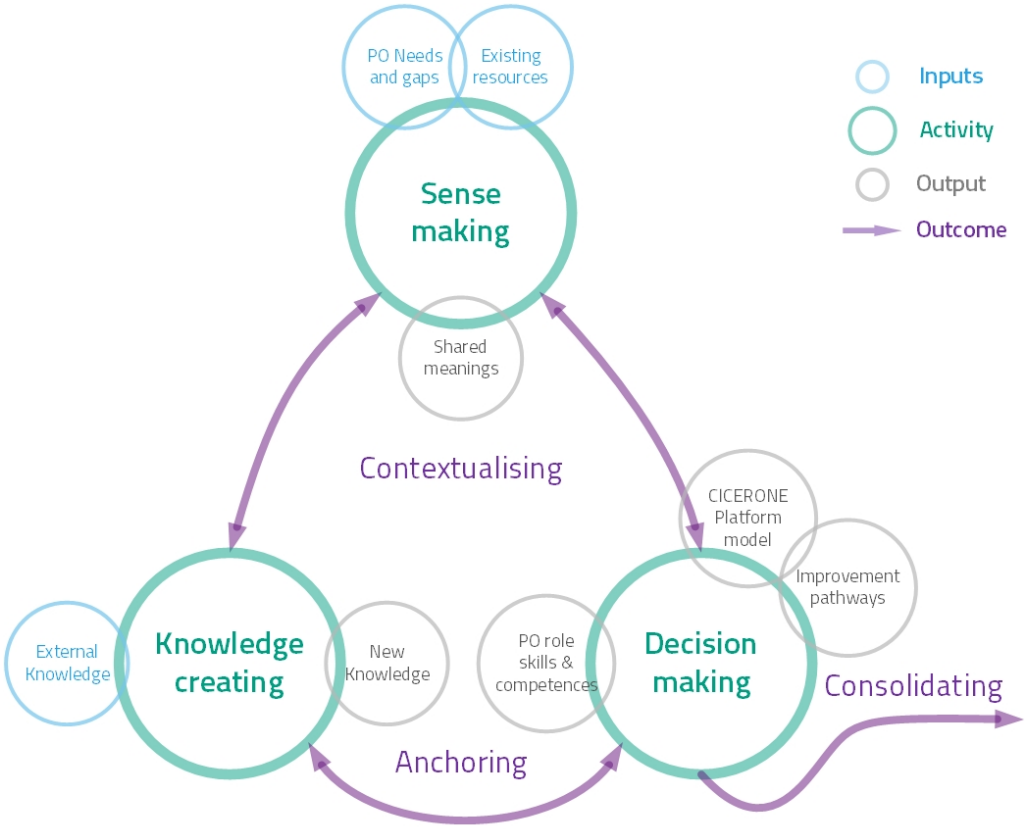
[6] **Sensemaking** or **sense-making** is the process by which people give meaning to their collective experiences. It has been defined as "the ongoing retrospective development of plausible images that rationalize what people are doing". Sensemaking is a capability and practice that is core to many aspects of systems innovation work at EIT Climate-KIC.

Innovation. It also helped to contextualise the required decisions on actions as part of building up the narrative for the EU Circular Cooperation Hub services.

- **Knowledge creation.** This co-design process required anchoring of the learning produced in those conversations. In the context of CICERONE discussions on capacity building, knowledge creation can happen by converting and combining different external and internally produced knowledge into a shared vision of the support needed for the design and implementation of a R& I policy process concerning new actions, allocation of resources as well as the engagement of new actors. More specifically, knowledge integration on policy processes, circular economy and the broad European policy framework are considered by following a systems innovation approach. In doing so, transversal elements are identified as part of the value proposition developed in the project.

- **Decision-making.** To go from a shared vision to activated transformative processes for decision making, it is essential to enact a process of consolidation, which means selecting the priorities and transversal elements coming from multiple levels and perspectives. In the context of CICERONE, the team focused on understanding how to support PO's roles in terms of skills and competences as well as knowledge resources required to design and implement R&I policies on circular economy by considering the development of the CICERONE platform model: the EU Circular Cooperation Hub, and the strategic direction given by the improvement pathways in terms of key topics to prioritise.

Figure 4 The knowledge cycle for building up the Institutional Capacity Building Agenda



Source: author's own elaboration based on Choo (1996)

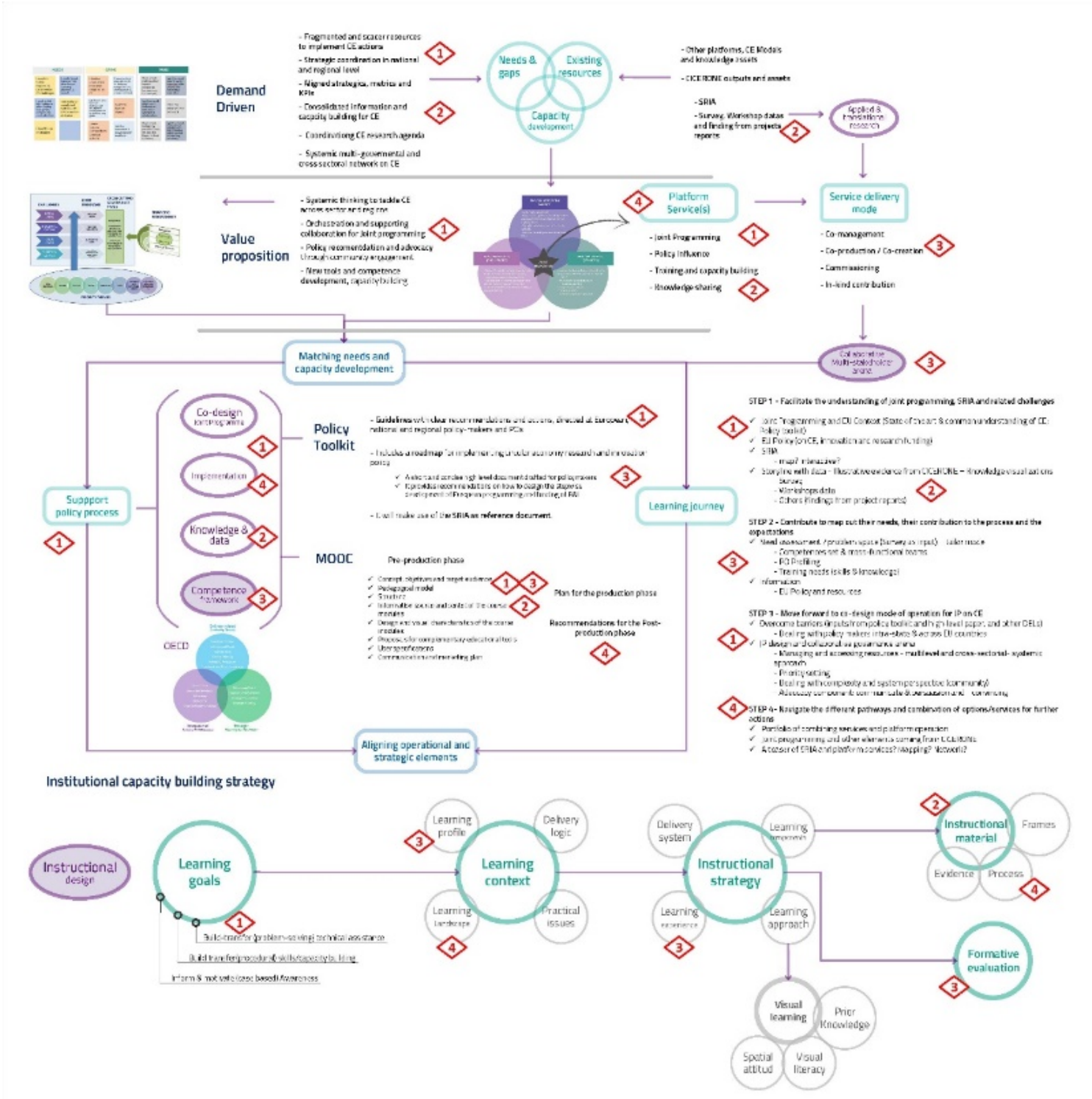
The following subsection expands on the most important elements which emerged for the building up of the improvement pathways included in section 5, as well as the linkages with the co-design process implemented for the alignment amongst the Business Model – Governance Model – Financial Model and Value Proposition.

3.1.1 Sensemaking sessions

EIT Climate KIC organized a series of sensemaking sessions with Task 3.3. lead partners through the summer and autumn of 2020 to ensure consistency between the different deliverables of this work package. This also enabled a common sense of direction of the partners. In addition, internal meetings with the entire consortium as well as ad-hoc calls with the task 3.3. leads to catch-up or discuss specific issues were set up weekly or bi-weekly since August 2020. Partners involved were requested to identify their difficulties beforehand so that the sessions could be more fruitful. In practice, sensemaking sessions have been implemented online with the application of online platforms (Miro) for design and ideation processes where flow charts, evidence and logic models are presented and discussed as part of an ongoing process for designing a new concept, idea, or proposal (see Figure 5). In the specific case of the capacity building narrative, participants have discussed the evolving understanding of the linkages between the assessment of programme owners needs and existing

resources, and the value proposition developed on capacity building activities with initial assets such as the MOOC and the Policy Toolkit.

Figure 5 Screen capture of logic model for the CICERONE capacity building narrative



Source: own elaboration, gathered from Miro platform (2020)

The overall process of sensemaking aims to facilitate the process for knowledge co-creation and related decision-making processes (see summary of key framing questions in section 6). Table 4 showcases the outcomes of the sensemaking sessions such as shared meaning of key concepts, knowledge creation and decisions made in key areas. One the key decisions was following a modular format following four key learning components as building blocks of the capacity building agenda: Circular Economy, System Innovation, Policy making in practice and EU Policy Framework (see section 4.2). They are also the basis of the MOOC and the mid- term actions for capacity building. Another important decision was to follow a multilevel governance and multilevel approach by considering different layers: individual, organisational, inter-organisational and community levels. The focus on the policy process is explored from the systemic aspects concerning the EU governance and policy landscape and the circular economy specific challenges as well as the operational aspects in terms of the set of resources and competences required. Finally, the strategic agenda follows a staged process (see section 5.1) by including an initial stage where the MOOC and the toolkit provide the main elements to address the gaps and improvement pathways, and a second stage where further feedback loops with programme owners are expected.

Table 4 Summary of sensemaking sessions – Capacity Building narrative - CICERONE

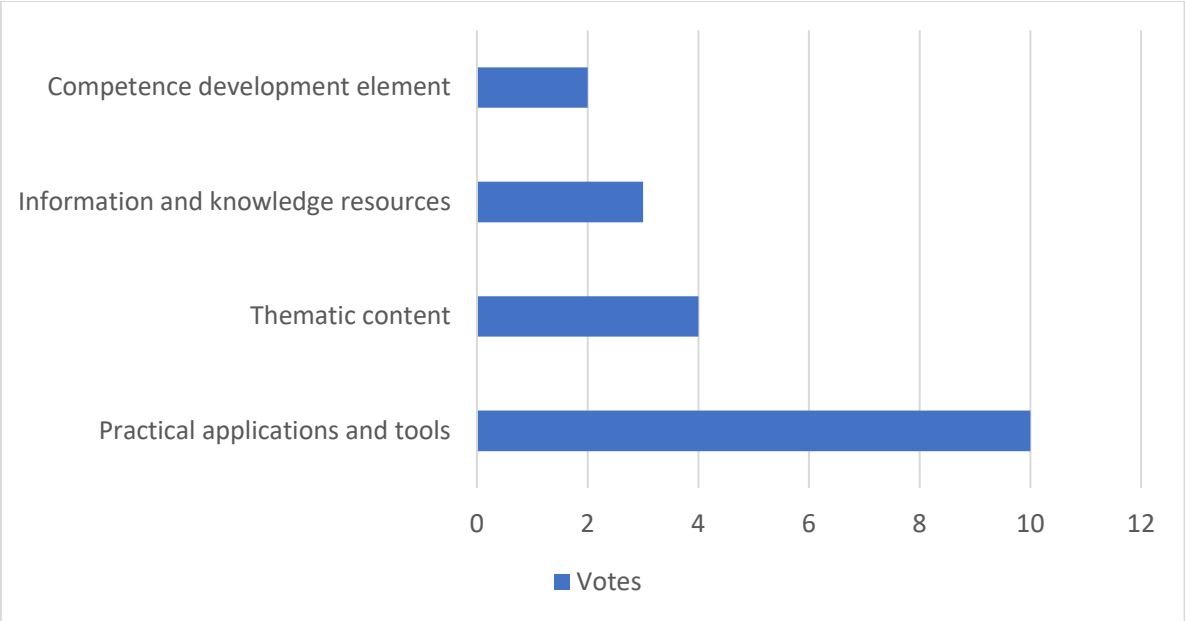
Sensemaking session Timeline	**Participants**	**Main Outcome**	**Knowledge creation**	**Decision-Making**
Sensemaking I *August 2020*	CEPS WRF IETU RVO UM CKIC	Understanding knowledge gaps and matching needs and competences	Needs and resources assessment of European programme owners	Multilevel approach
Sensemaking II *September 2020*	CEPS WRF UM CKIC	Common terminology and shared meaning	Knowledge services, capacity development and instructional design approach as a framing approach for capacity building	Four learning components in modular format
Policy workshop October 22 & 29	Number of participants	Sensemaking with the programme owner community and expectations check		

Sensemaking III *November 2020*	CEPS WRF UM IETU CKIC	Agreement on learning components and milestones	Transformative innovation policy	Modular format and staged process

Source: own elaboration

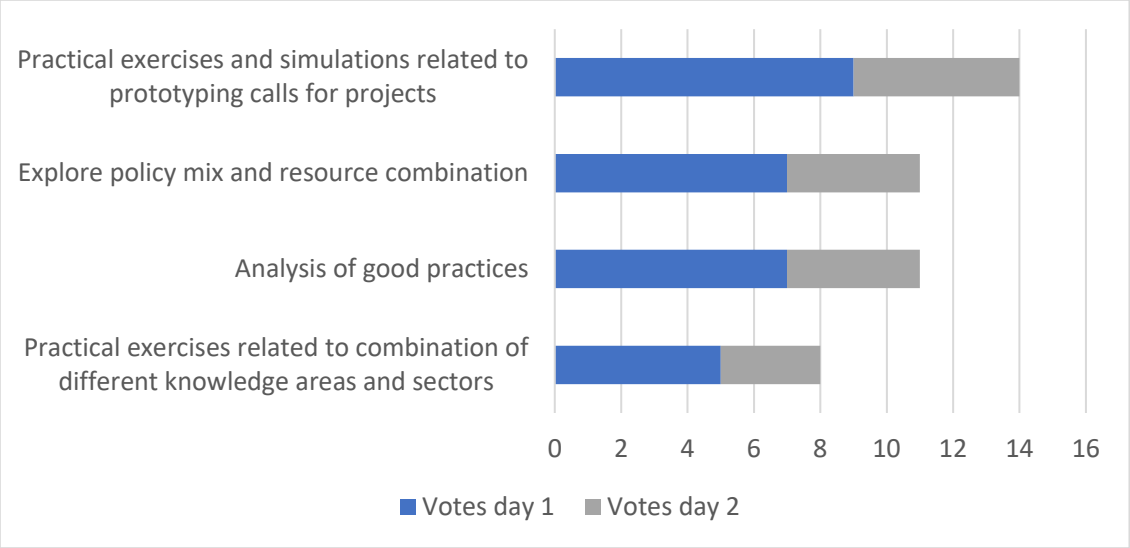
Lastly, inputs were gathered from the programme owners during the CICERONE 2020 online policy workshop organized on the 22nd and 29th of October. The workshop aimed at delivering an interactive and hands-on approach to give participants insights into the future EU Circular Cooperation Hub while providing them with the opportunity to shape its services in line with their needs and expectations. The workshop was primarily targeted to programme owners and policy makers in EU Member States and to representatives from academia, industrial sectors, SMEs, and non-governmental organisations. EIT Climate KIC's Transitions Hub contributed with its methodological and technical expertise to design and implement the workshop. Additional inputs were gathered by using the interactive tool MENTI during the policy workshop organised in October 2020. These inputs were considered for the last sensemaking session when main transversal elements where consolidated (see Figures 6 and 7 with raw inputs from the participants).

Figure 6 Missing elements in the capacity building proposal



Source: own elaboration based on –Policy workshop and gathered from MENTI platform (2020)

Figure 7 Suggested complementary tools for supporting joint programming



Source: own elaboration based on –Policy workshop and gathered from MENTI platform (2020)

Conversations facilitated during the sensemaking sessions addressed different perspectives with the purpose of consolidating a capacity building narrative. Those conversations facilitated the matching between demand (needs and gaps) and supply elements (exiting resources and new knowledge) as well as pedagogical and methodological elements to address the capacity building activities in practice.

3.1.2 Methodology limitations

The ambition of the CICIERONE project in terms of the scale and the scope of the areas covered provide a diverse context to explore systemic linkages while introducing the challenge of the coherence and consistency amongst different knowledge assets. On the other hand, a broad process of implementation of activities during the last stage of the project was driven by a shift to different mechanisms for interaction including the intense use of online tools. These aspects have revealed some limitations of the co-design process which are briefly explained below:

- **Different contexts, capacities, maturity and needs**. As in many European projects with a diverse consortium, it is sometimes hard to share the same approaches and standards in different deliverables that depend on each other. Through the sensemaking sessions, we have successfully counteracted some of the collateral effects of this situation.
- **Lack of in-person interactions.** The COVID-19 crisis has shifted the implementation of the CICERONE project to online formats only, as it has been the case for most European-funded projects. While we acknowledge that online approaches have

benefits such as a higher reaching capacity to otherwise isolated actors, it also adds a layer of complexity to create trust and clarity in the communication which is quintessential for the success of any given project. This limitation has been counteracted using interaction platforms (Teams) and visual tools (Miro). In addition, there has been challenges in having some in-depth discussions due to internal changes in the team, and the delay in the start of task 3.3.

- **Stakeholder fatigue.** In the autumn of 2020, there was an avalanche of online events that had been either cancelled or postponed during the first months of the year. To tackle this limitation, we repeated the policy workshop over two different dates to enable different stakeholders to join at a convenient time. This was a success and the key elements of the agenda, the MOOC, the policy toolkit, and the roadmap were approved or given feedback to by a diverse and rich audience.

4 THE CAPACITY DEVELOPMENT STRATEGIC FRAMEWORK

This strategic framework combines a multilevel capacity development approach and an instructional design model with the purpose of addressing sequentially different aspects of the process for design and implementation of cross-cutting R&I programmes though a learning by doing approach. The European Green Deal is the new EU's strategy to move towards climate neutrality and circular economy by following transformative policies (DG REGIO, 2020). This transformation requires the alignment of multiple stakeholders, strategies, and instruments to reinforce synergies and complementarities between EU, national and local initiatives. Identifying and designing transformative policies require to integrate new knowledge, practices, and capacities into the policy process. Policy co-design and implementation can enable and empower a broad set of actors around a policy issue to actively contribute to developing a solution for it; however, there is an increasing need to address a knowledge gap on how governments and societies can respond to dynamically changing needs to ensure sustainability (Geels et al., 2019)

To address this knowledge gap, it is important to consider the absorptive capacity and the availability of resources as well as planning further requirements and time considerations. For doing so, a tailor-made and context-based approach is needed to provide practice- based knowledge and ensure the best possible match between the needs of the programme owners and the available resources. Along this line, the approach for capacity development presented in this section is aimed to enable improvement pathways for transformative change and systems innovation by combining elements of capacity development at strategic level and instructional design at operational level. The improvement pathways will be further described in section 5.

The switch from a capacity building to a capacity development perspective enables a more horizontal process where individuals, organizations and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time. The international community defines capacity development as a learning process that aims to build, strength and enhance skills, competences and knowledge of individuals and organizations to achieve their own development goals effectively and efficiently. Capacity development should not be a list of isolated activities of training sessions, or online courses -which are just learning formats to strength or build capacities- instead, it should be a planned learning process that is aligned with specific development goals.

This strategic agenda takes core elements of the capacity development approach by aligning with recommendations of the UNDP programme (UNDP, 2015) to focus on learning by doing or on-the-job support methods to easily apply knowledge and skills to the work life of the programme owners while applying pedagogical formats to strengthen personal/organizational capacities (Clark & Lyons, 2010; Dick et al., 2005; Rothwell & Kazanas, 2011) .For doing so, the pedagogic framework follows instructional design practices aimed to facilitate learning experiences and environments which promote the acquisition of specific knowledge and skills related to practitioners needs and challenges. There are several entry points to influence a system by strengthening capacities at different levels: Personal, organization (cross-functional teams), inter-organizational and societal or community level (see Table 5).

Table 5 Multilevel capacity development

Level	Description
Personal level	Strengthening individual competences, skills, attitude, mindset, and knowledge. Individuals involve in capacity development activities according to their personal values, goals and interest depending on the professional role as well.
Organizational level	Strengthening cross-functional team collaboration skills and a common mindset according to the values, goals, and mission of an organization. It also aims to enhance or establish new formal and informal processes, mechanisms, policies, etc. that are relevant to the whole organization.
Inter-organizational level	Strengthening knowledge, collaboration and cooperation skills among different organization that could have the same or different values, interest, mission, and goals. For example, city-to-city, city-to-regional or national government, city-to-NGOs, city-to-universities, and research institutes.
Community level	Strengthening capacities and raising awareness on social, economic, political, environmental topics as well as improving citizens' participation, self-organization capacities, building sense of community, among others. These capacities should be aligned with the social values and behaviors of local community and networks.

Source: own elaboration based on UNDP (2008)

This division in levels enables the access to cooperation systems, and it facilitates the understanding of where and which capacities are weaker or most needed to enable system transformation. More specifically, each level can contribute to change a traditional system based on working in silos and leveraging the potential of professionals and organizations. By following the logic presented above, the capacity development strategic framework will be presented as follows:

- Instructional design framing elements where the overall learning approach will be described.
- Conceptual framework as an overall set of transversal learning components addressed in all the capacity development activities.
- Improvement pathways as an action plan for implementing the activities during the first two years of the EUCCH, included in section 5. This last component is directly related with the implementation plan and the SRIA's pilot programmes on joint programming.

4.1.1 Instructional design framing elements

The operational aspect of the capacity development agenda is guided by a practitioner-oriented approach based on an instructional design model (Dick et al., 2005; Rothwell & Kazanas, 2011). The model presented in Figure 9 allows a flexible and tailor-made design by combining new academic paradigms with practice-based knowledge by enabling open discussions on ongoing initiatives including specific POs challenges with different levels of maturity. Key elements of this model are described below.

A. Learning goals

The capacity development agenda has as an overall learning goal to improve the skills set of programme owners to address joint programming of R&I initiatives on circular economy. For doing so, the agenda focuses on two type of skills:

Intellectual skills including the capacity to conceptualise complex systems and to understand linkages among thematic areas related to circular economy as part of a multilevel policy framework.

Procedural skills are more focused on the practices and methods related with the joint programming activities and the work of cross functional teams.

B. Learning context

The instructional activities are embedded in a learning by doing process where the POs are the target group, but cross-functional groups are considered as part of a systemic approach in terms of sectors, interventions, and different stages of the policy process.

The learning profile of individuals who are coming from different levels, sectors and regions have the responsibility to share experiences for co-sensing, co-creation, and co-implementation for policy process and can cover a wide spectrum of skills and competences. Table 6 indicates specific skills and competencies to be considered at different stages of the policy process.

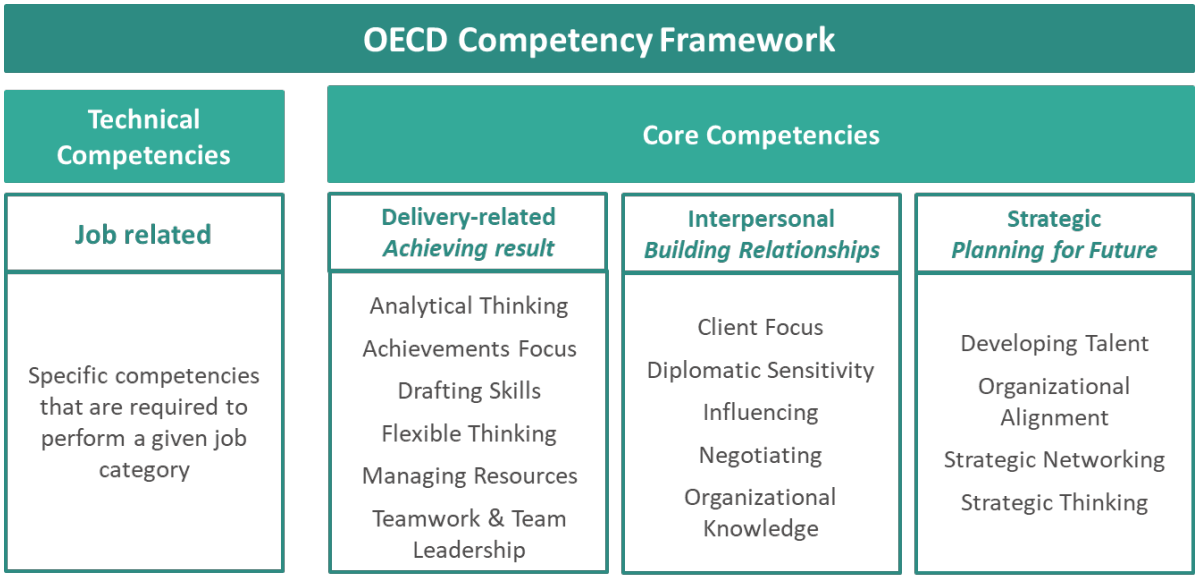
Table 6 Skills associated to different stages of the policy process.

Skills / Policy stage	Core skills	Consultation skills	Implementation skills
Consideration of policy options	Statistical analysis, survey design/implementation/analysis, interviews, data interpretation	Capacity to engage various stakeholders from public, private and third sectors	Managing a consultation process
Decision-making	Knowledge of policy instruments, capacity to choose policies adequate for local context, capacity to design complex policy initiatives	Knowledge of public sector to engage relevant departments/organizations	Capacity to design strategy that responds to regional/local context and policy guidelines
Implementation	Knowledge of public sector dynamics to ensure that all organizations are meeting goals, capacity to monitor coordination between different instruments/initiatives, project management skills	Capacity to maintain stakeholders engaged, intermediation skills to deal with different logics/timelines of private, public and third sectors	Ensuring that governance mechanisms put in place are used
Evaluation	Capacity to design a monitoring system adequate to policy and regional/local context	Capacity to ensure that all stakeholders are adequately monitoring the use of policy instruments	Capacity to collect and analyze monitoring data

Source: own elaboration based on Marques (2019)

Competence frameworks are useful tools to facilitate the matching between POs profiles and specific needs. For example, the OECD Competency framework (see Figure 8) provides a clear focus on transversal aspects that can cover multiple levels for capacity development such as organisational, interorganisational and community level. The elements covered in Table 6 and Figure 8 are already addressed in the policy toolkit and the MOOC and other aspects are suggested as part of the co-creation process within the logic of improvement pathways in section 5.

Figure 8 OECD competency framework

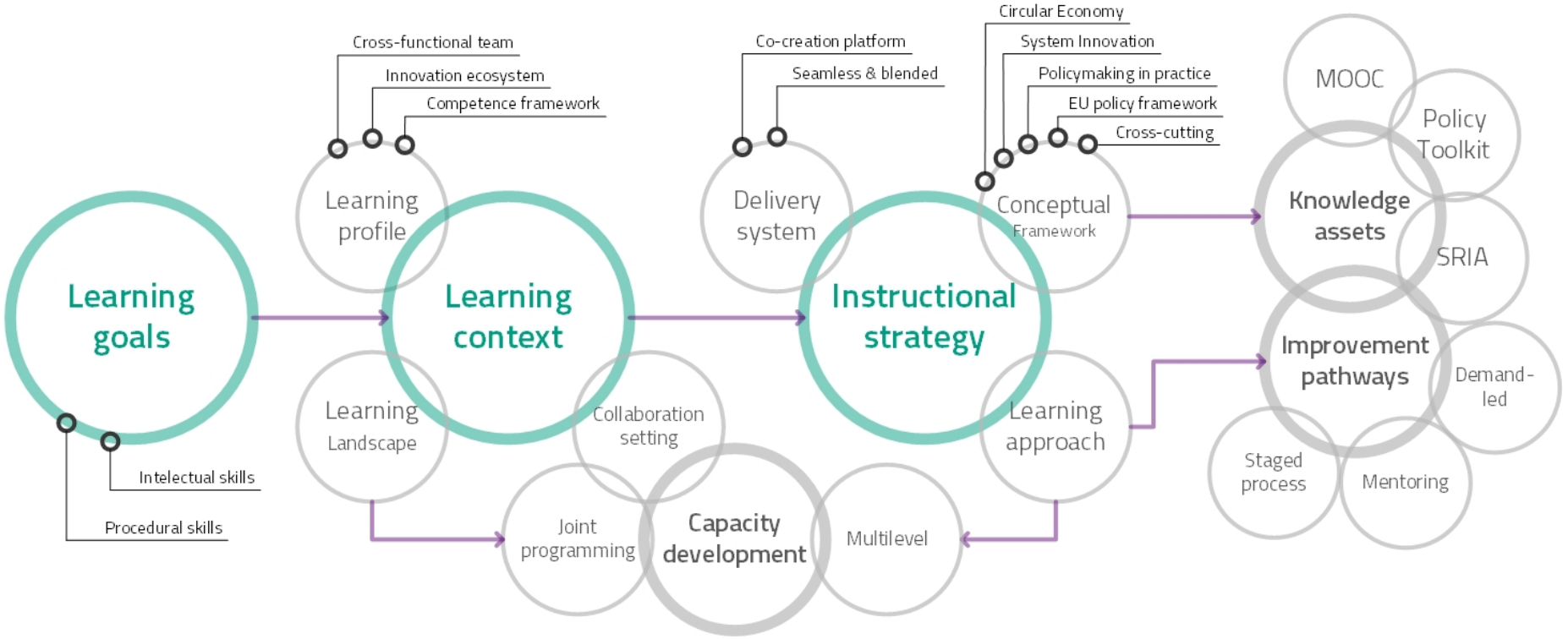


Source: MOOC based on OECD (2014)

Learning landscape. The broad learning landscape is provided by the context of collaboration activities supporting joint programming on R&I action on the circular economy. For doing so, the EU Circular Economy Cooperation Hub will work as the mechanism to facilitate a variety of capacity development activities. More specifically, the learning landscape will be blended by integrating a) flexible combination of workshop and online activities such as MOOCs and webinars and b) technical assistance actions.

Since the learning landscape is embedded in a collaboration context driven by PO needs, activities will be mapped out according to a broad set of alternatives rather than a fixed list of actions, also following a bottom-up approach to match POs´ needs and a horizontal collaboration with other relevant actors in key topics. For doing so, the role of POs, experts, and other potential members of the platform (i.e., society, industry, business, research) are redefined to increase the horizontality of the capacity development actions as well as to ensure the closeness to the specific context. The learning landscape is thus supporting a multilevel capacity development logic by which the collective capacity of the involved groups, organisations, or networks in enhanced by improving the relationships among the individuals involved, the quality of their interactions, and the clarity of the collective understanding of purpose, principles, and values.

Figure 9 Instructional design model for strategic capacity development



Source: own elaboration

C. Instructional strategy

Delivery system. The activities included in this agenda will be managed by the EU Circular Economy Hub which will be mostly operated online. Capacity development activities will be jointly designed and implemented in cooperation with the POs and other actors as part of a co-creation and co-management model where in-kind contributions are expected from the members of the platform. More information on the co-creation process is provided in section 4.3.1 and in the DEL 3.8 Implementation plan.

Learning approach. By following the logic of the EU Circular Economy Cooperation Hub, knowledge services are proposed to support capacity development activities. The aim is to design context-based and tailor-made services through the combination of tools and methods which are applied as part of a horizontal interaction with POs. The implementation of the learning approach will be guided by the notion of improvement pathways defined as iterative learning by doing processes that are sequential and based on community co-creation. The improvement pathways set the basis for the action plan for capacity development (see Section 4.3.1 and section 5). Additionally, technical assistance facilitates the matching between demand and supply elements to tackle multiple levels of capacity development through rapid exchange, expert advice, and mentoring activities. Specific elements on knowledge and innovation management facilitates the understanding of innovation systems and, by doing so, guide collaboration (joint programming) to create their own linkages with the broad system (including the policy landscape) and co-produce new knowledge while recycling what is already known.

Conceptual framework. The conceptual framework determines capacity areas, the desired type of capacities (cross-cutting skills and applicable knowledge) and entry points (individual, organizational, etc.). It provides the conceptual structure to determine the scope of capacity development plans or programs and to ensure the activities are aligned with the goal of supporting POs needs. It includes capacity areas that are relevant to diverse sectors or thematic and technical knowledge. Four broad capacity areas have been prioritized as part of the co-design process and the evaluation of PO needs.

- Circular Economy
- Systems Innovation
- Policymaking in practice
- EU Policy framework

The capacity areas are transversal to the knowledge assets presented in section 2.3. They are aligned with the overall narrative presented in the Policy toolkit and the Roadmap and they have been the basis for the MOOC structure. As part of these capacity areas, other topics have been preliminary identified during the co-design process and the policy workshop where feedback from POs was gathered. These topics refers to cross-cutting skills that enable POs to perform their daily work across

diverse areas and topics including the participation in the pilots suggested by the SRIA and the implementation plan: Circular cities, Circular Industries, Closing the Loop and Resource Efficiency on Territory and Sea.

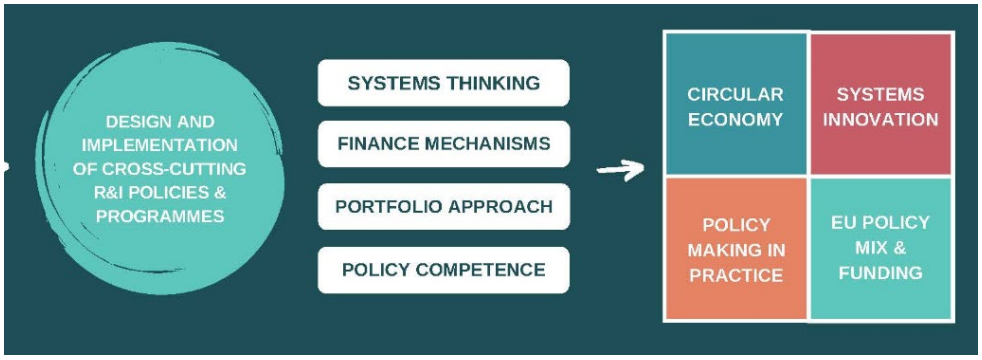
4.1.2 Conceptual framework

This sub-section presents the different conceptual elements for the capacity development agenda framework. The framework follows four guiding principles and four capacity areas supporting the broad challenge of designing and implementing cross-cutting R&I policies and programmes (see Figure 10).

Guiding principles

- *Systems thinking.* Innovation at a systems level is the way to prompt the transformation to the circular economy. Systems innovation translates into the integration and coordination of interventions on economic, political, and social systems and along whole value chains through a portfolio of deliberate and connected innovation experiments.
- A portfolio approach is designed to generate viable pathways to change through identification of options, social and behavioural inflexion points, and scaling of transformative solutions. A portfolio approach means supporting many different but connected initiatives, less on their individual potential, and more as a spread of options for exploring alternatives and connections and testing ways forward.
- Funding mechanisms that are aligned with this approach are more and more encouraged in the EU. While there are inherited challenges to use different EU funding streams, the European Green Deal incorporates elements on the level of investment needed and financing tools available and it explains how to ensure a just and inclusive transition with the European green deal investment plan which constitutes a framework to facilitate public and private investments over the next decade.
- Policy competence. The Green Deal also notes that its delivery will require the design of a deeply transformative set of policies and the consistent use of all policy levers: regulation and standardisation, investment and innovation, national reforms, dialogue with social partners and international cooperation. The public sector cannot succeed alone, and thus financial and private investments will be essential. For that, an action plan on financing sustainable growth and the development of a renewed sustainable finance strategy are foreseen by the European Commission. The recent agreement on an EU taxonomy should also help to drive private investments in the green economy. In addition, InnovFin will be part of the InvestEU umbrella for the MFF 2021-2027.

Figure 10 Conceptual framework - Principles and capacity areas



The four capacity areas together with an additional cross-cutting area defines the learning components of this capacity development strategic framework. They have been designed by considering POs needs, relevant discussions in academic and policy forums and the series of interactions during the co-design process. More specifically, these capacity areas have been used to design synergies between the MOOC, the Policy toolkit and further capacity development activities to support joint programming (see Figure 11). These capacity areas are briefly described in the next section.

Figure 11 Pattern of relation between Conceptual Framework and Knowledge assets

4.1.3 Circular Economy

European Programme owners face cultural barriers in their own governments and institutions to work towards the circular economy transition. The lack of knowledge and awareness, together with the lack of willingness for cross-sectoral collaboration are key aspects of this barrier. Module 1 of the MOOC focuses on exploring the different theoretical and conceptual approaches to circular economy and is based on a review of the literature regarding the definitions and conceptualization of the circular economy. Module 1 was co-designed together with the partners in charge of the strategic agenda. The CICERONE policy toolkit suggested the following definition that combines the most relevant definitions with the input of stakeholders: *A circular economy is an economy that is regenerative and restorative in nature and aims for greater resource productivity by reducing and reusing waste, subsequently avoiding pollution. It entails (gradually) decoupling economic activity from the consumption of finite resources building economic, natural and social capital. The value of products and materials is maintained for as long as possible; waste and resource use are minimized, and resources are kept within the economy when a product has reached the end of its life, to be used again and again to create further value. A Circular Economy policy should also incorporate an approach to mitigate negative socioeconomic and environmental impacts of raw material sourcing*.[7] The circular economy presents major drawbacks when it comes to metrics and indicators to measure circularity: scarcity, multifunctionality, material quality, socioeconomic aspects, and the translation into macro indicators, some of these drawbacks will be addressed in future capacity development actions.

4.1.4 Systems Innovation

Recent EU policy developments such as the Energy Union, the Circular Economy Action Plan, or the Farm to Fork Strategy demonstrate a shift towards systemic transformation, rather than adopting targets focused on environmental issues alone. The SDGs themselves can be an important step towards setting out a shared sense of long-term directionality for systems innovation. In the context of the circular economy, older systems need to move towards sufficiency and higher value retention options, as well as to include new targets and greater monitoring. Modules 1 and 2 of the MOOC provide elements to understand system perspectives and approaches such as system mapping which can help uncover how these systems drive environmental degradation, and how they may resist change. The EU Circular Cooperation Hub will follow a systemic approach to the circular economy transition. The implementation of the SRIA, the MOOC, together with the guidance of the policy toolkit

[7] This definition combines the definition of the Ellen MacArthur Foundation, the European Commission and stakeholder inputs.

and the roadmap will support programme owners to go from scattered to system approaches. In addition, the future platform will foster systemic thinking to tackle circular economy in collaboration with sectors and regions.

4.1.5 Policymaking in practice

Governance for transitions can be understood as a set of *institutional and policy innovations* aimed at changing the identity of a defined system including its fundamental structures, cultures, and practices. It takes on *incremental* and *radical forms* and co-exists, *interacts,* and is interlayered *with other change* and *stabilization forces* at different *levels of the system* contributing to a *transition pathway* arising from the interplaying of all system dynamics.

The **transformative innovation policy** approach provides evidence on the application of a systemic policy model for the design of Research and Innovation to support transition to the circular economy. Emphasis is put on understanding the challenge of introducing experimental aspects of policy design and implementation by which policy mixes emerge with the purpose of reinforcing synergies and complementarities between EU, national and regional innovation initiatives (Flanagan, Uyarra, & Laranja, 2011; Matti, Consoli, & Uyarra, 2017).

From a top-down perspective, communication and compliance problems can arise in the policy process. Therefore, improving communication, providing resources and incentives and effective monitoring can be key. From a bottom-up perspective, there are certain elements that can make policies to succeed or fail in the implementation phase such as the context, the scope of discretion and the actors involved. In any case, throughout the implementation there will be key decision points that will influence the outcome of the implementation. A real understanding of the context is thus key as there are different place-based priorities, different policy styles (degree of centralisation, radicalness, consultation, deliberation, or openness) and maturity of the topic in the national, regional, or local context.

Conceptual and methodological elements contribute to improve the understanding of the configuration of policy mixes and addresses their performance regarding systemic innovation towards circular economy within a multivalve governance system (Matti, Panny, Juan Agulló, Vivas Lalinde, & Spalazzi, 2019) from a system innovation perspective (Geels et al., 2019). The main elements introduced are:

- ✓ Multilevel governance approach for EU policy framework
- ✓ System innovation and sustainability transitions
- ✓ Policy co-design process and key competences for the policy process

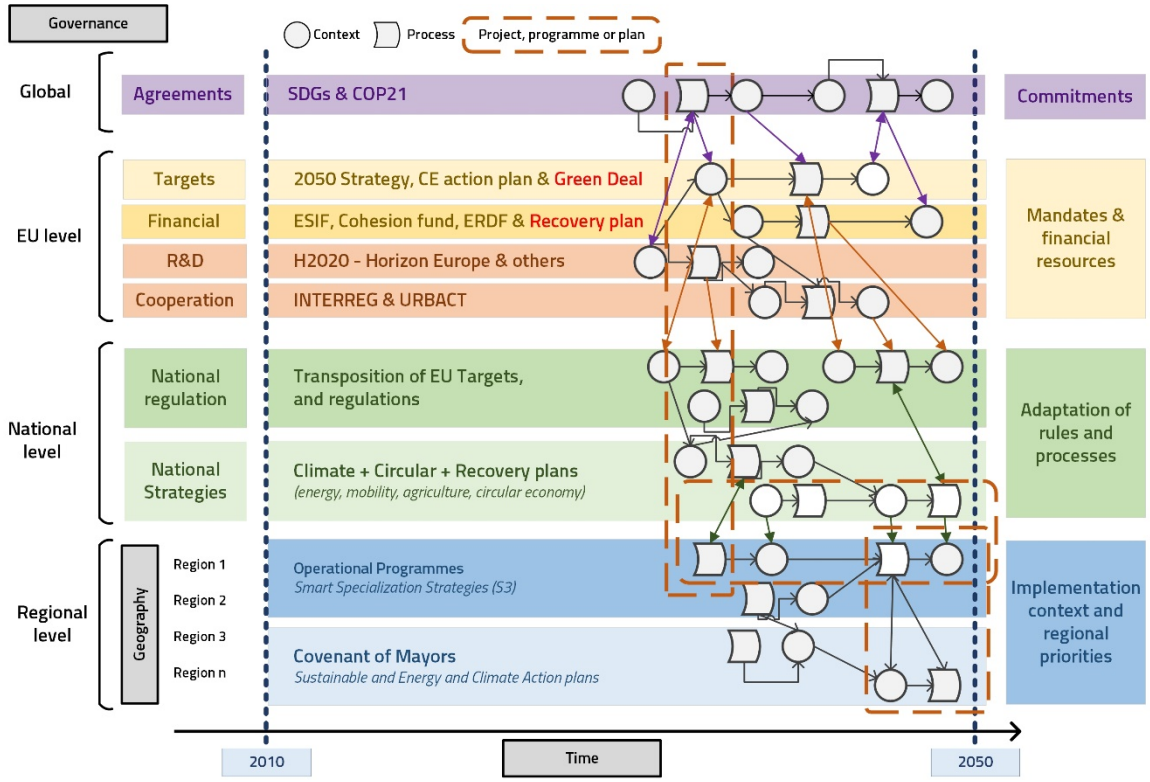
These elements were introduced as part of the overall design of the improvement pathways, starting in the sensemaking session and continued in the feedback loops between partners for the development of the MOOC and the policy toolkit. They are required to effectively support the understanding of the role and challenges of the programme owners. Module 3 of the MOOC includes a seven-step strategic process for joint programming. Together with the toolkit, they underline key enabling conditions to facilitate the success of innovation programmes and their deployment.

4.1.6 The EU policy mix

The complexity of the transition to a circular economy has contributed to highlight the importance of better understand policy mixes crossing different policy areas. The interaction between multiple policy goals, priorities, instruments, and actors can influence positively or negatively a transition to a low carbon economy. First, policymakers should identify and correct existing policy misalignments. This involves a political choice between patching of existing policy mixes and more fundamental redesign. However, aligning and coordinating policy mixes is challenging due to complex and messy policy implementation processes. Regarding low-carbon economy sectors, the regional innovation process becomes more complex in terms of the multi-level policy mixes that raise issues of coordination underpinning the policy process; these include the mix of actors, levels, policy domains and time. Coordination and integration can help promote coherent policymaking. Yet misalignments in existing policy mixes are inevitable.

The coordination challenge requires to put in place a strategy oriented towards a vision with ambitious long-term goals and targets of climate neutrality and circular economy. The European Green Deal is the EU's strategy to move into that direction by advocating on the implementation of transformative innovation policy (DG REGIO, 2020). That transformation requires the alignment of multiple stakeholders and instruments with existing regional innovation plans such as Cohesion Policy by which policy mixes emerge with the purpose of reinforcing synergies and complementarities between EU, national and regional innovation initiatives. Figure 12 illustrate the interrelations of these complementarities by considering multiple governance levels, multiples functions such as commitments, resources and priority setting as well as projects and programmes as integration mechanism across level, time, and geographies.

Figure 12 Multi-level policy mix in the EU Policy Framework



Source: own elaboration based in (Matti, Vivas Lalinde, et al., 2020)

In this complex multilevel policy mix context, the circular economy has become a policy trend at all levels. Even it is not specifically mentioned in the Paris Agreement nor in the 2030 Sustainable Agenda, it is seen as a necessary approach to today's environmental and societal challenges, the G7 Alliance for Resource Efficiency has also tackled it. The European Commission Thematic Strategy on the sustainable use of natural resources (2005) was one of the first policies introducing waste and resource efficiency in the European debate. However, the concept of the circular economy was introduced with the Roadmap to a Resource Efficient Europe (2011), six years later. A further development was the European Circular Economy Stakeholder Platform (2017), one of the spaces where cities and regions can interact and exchange practices (EIT Climate-KIC, 2019, 2020; Terry & Vivas Lalinde, 2019).

Recently, a new Circular Economy Action Plan was published (March 2020). This plan provides a 'future-oriented agenda for achieving a cleaner and more competitive Europe' in co-creation with all relevant actors and stakeholders. The circular economy potential is seen as very high when it comes to deliver the objectives of the European Green Deal and the climate-neutrality target for 2050 now enshrined in the Climate Law, creating a new 'regenerative growth strategy' for Europe while reducing EU material footprint coming from resource extraction and processing. This new framework follows a

previous Circular Economy Action Plan launched in 2015 which put forward new policy measures related to waste, water reuse or eco-design for instance as well as building strong foundation on which investments and innovation can thrive. This new action plan is strongly connected to the new industrial policy strategy. The new Circular Economy Action presents 35 measures to:

- Make sustainable products the norm in the EU;
- Empower consumers and public buyers;
- Focus on the sectors that use most resources and where the potential for circularity is high such as: electronics and ICT; batteries and vehicles; packaging; plastics; textiles; construction and buildings; food; water and nutrients;
- Minimising waste;
- Make circularity work for people, regions and cities,
- Lead global efforts on circular economy.

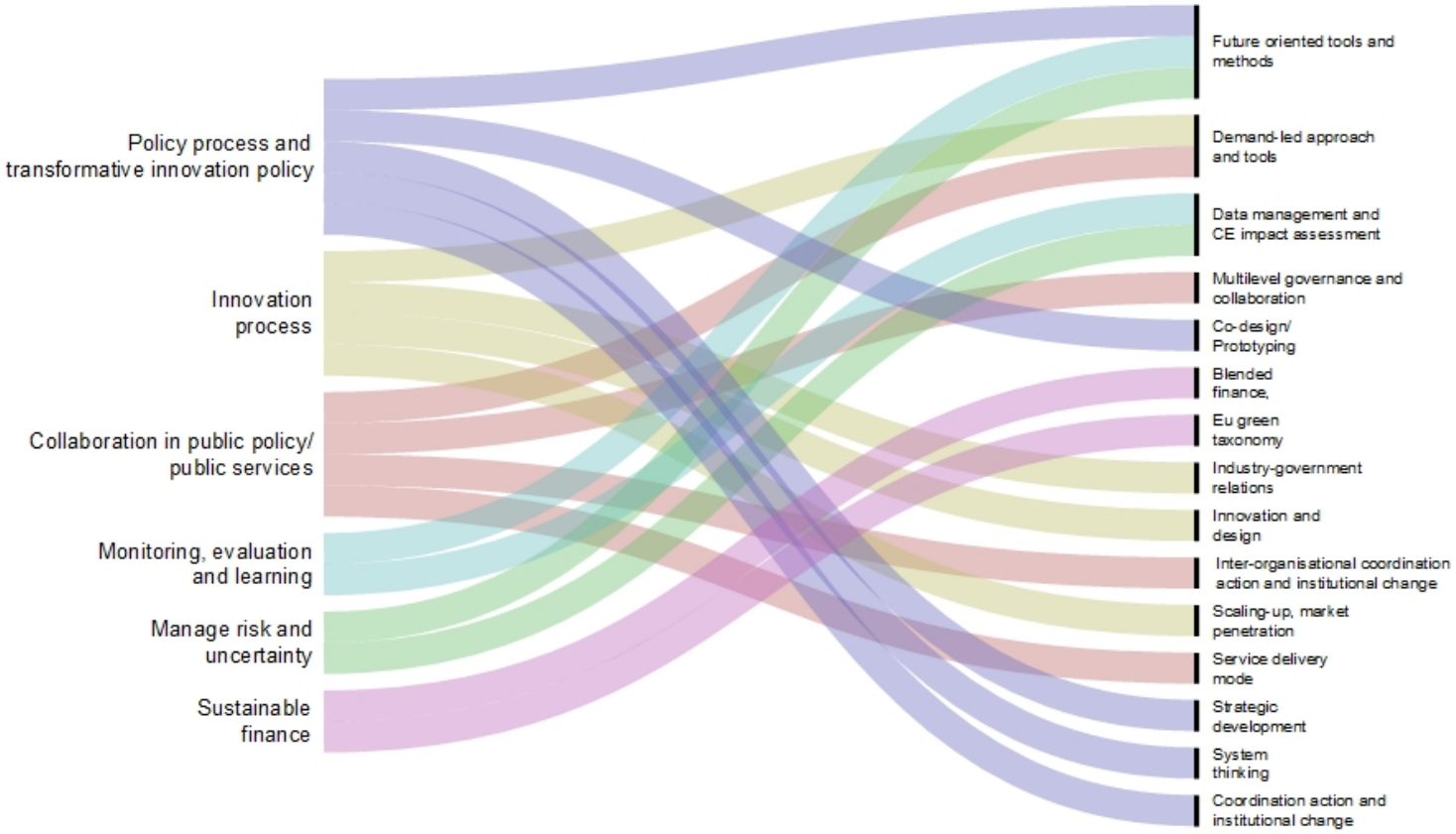
More importantly, the action plan aims to foster business creation and entrepreneurship by encouraging new business models based on product-as-service, sharing and collaborative models and powered by digital technologies – this aligns with CICERONE's approach supporting a value chain approach and dematerialisation of demand. A collection of elements regarding the EU Policy framework are presented in the MOOC as well as in the Policy Toolkit and the Roadmap. They are essential to understand the current context and envisioning the changes ahead regarding the experimental nature of policy mixes where joint programming play an essential role.

4.1.7 Cross-cutting areas

Transversal elements related to the mission and the role of programme owners has been identified during the co-design process and the policy workshops (see Figures 6 and 7). Elements related to a set of skills and competences are included in different sections of the MOOC and the policy toolkit as part of an overall narrative regarding policy process and, more specifically, on the challenges concerning joint programming.

Figure 13 presents these elements by following a classification of 6 main topics and 15 learning components. These elements will take part of an evolving set of capacity development activities to be implemented by the EU Circular Economy Cooperation Hub. They are key inputs to design supporting instructional activities by following a learning by doing logic embedded in the different pilot programmes proposed by the SRIA. The following section will present briefly how these elements will be integrated in the planned activities on capacity development.

Figure 13 Cross-cutting areas for skills development

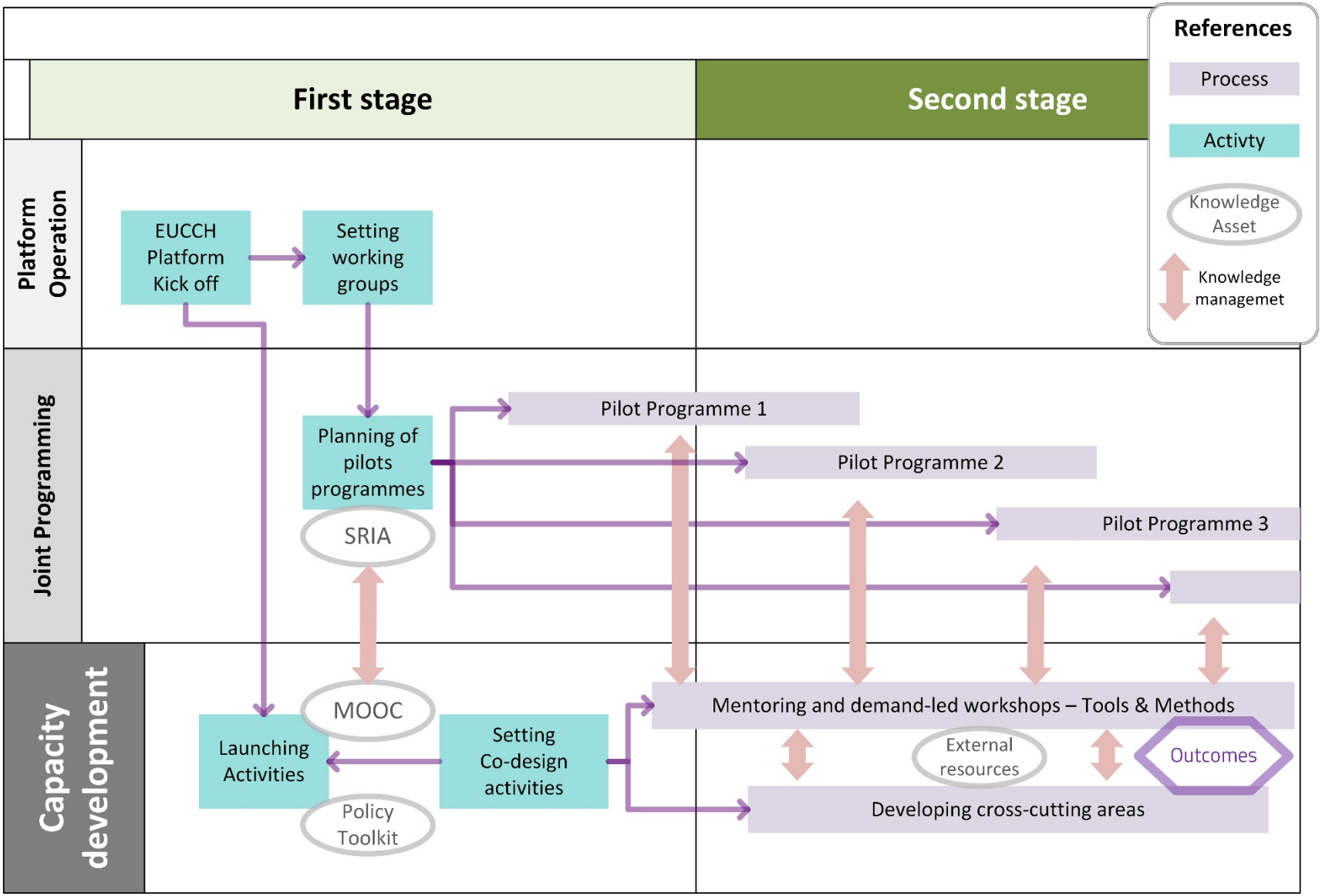


5 IMPROVEMENT PATHWAYS

This section presents the action plan for the capacity development agenda as part of the overall narrative of improvement pathways where a staged process will facilitate the integration of capacity development activities with the set of services provided by the EUCCH. More specifically, this action plan is designed to strategically support joint programming activities.

Figure 14 presents the relation of activities for the operation of the platform, joint programming, and capacity development. It includes some simple elements (e.g. process, activities, knowledge assets and outputs from the implementation plan (DEL 3.8) to indicate a staged process of two years which will start with operational milestones such as the kick-off of the EUCCH platform, the set-up of the working groups and the planning of the activities related to the pilot programmes. A brief explanation of the concrete actions for capacity development are explained below:

Figure 14 Action Plan - Improvement pathways for capacity development



5.1.1 Action Plan as a staged process

The two-year action plan consists of two main stages. It follows an improvement pathway logic where gaps and opportunities are addressed through a multilevel capacity development model where individuals will be addressed at first and other levels will be covered sequentially as part of the evolving activities.

- First stage. Launching activities on capacity development. The main goal of this stage is to inform, motivate, and generate awareness on the fundamental elements for the design and implementation of cross-cutting R&I programmes. For doing so, the activities will focus on the POs at individual level by putting emphasis on a broad set of elements, tools, and resources available to address their challenges. An instructional design approach is used as a pillar to adapt activities to a learning by doing format and, by doing so, contributing to transfer procedural (policy process) and problem-solving (joint programming) skills. Three main activities are considered for this stage:
    - Launching the MOOC in the EIT Climate KIC Learning platform.
    - Introducing the Policy Toolkit through the MOOC and/or a series of webinars.
    - Implementing interactive exercises to match POs needs with tools and methods with the purpose of designing the working groups for the second stage. This action will be part of the overall design of working groups addressing operational issues.
- Second stage. Co-design activities. These activities are aimed at supporting the pilot programmes by combining capacity development actions with technical assistance and knowledge management. The approach introduces specific elements on knowledge and innovation management and facilitates the understanding of innovation systems (Topp et al., 2018; Wilson, 2007; Yazejian et al., 2019). By doing so, it will guide organizations to create their own linkages with the innovation process by producing new knowledge as part of a learning process while “recycling what is already known” (Dasgupta & Gupta, 2009). In doing so, a capacity development process is facilitated where individuals, organizations and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time.

The following sub-section provides details on the improvement pathway logic by presenting the main activities to be developed during the second stage.

5.1.2 Setting co-design activities

Co-design activities are an important mechanism to support systemic transitions since they facilitate adaptive processes by looking at collaborative arenas that can be multi-programme, multi-sector, and multi-stakeholder. They also facilitate the alignment of problems, solutions, interests, and broad innovation resources such as knowledge assets (MOOC and Policy Toolkit), finance as well as relational assets (community) by considering multilevel governance relations. In practice, interfaces are addressed by designing operational and cross-functional teams as the task force responsible for bringing solutions in the form of new practices and coordination mechanisms. The development of these teams will be based on the Working Groups set at platform level by focusing on the implementation of joint programming activities and other related platform services as knowledge sharing. These practices may include:

- Facilitating processes for the design and operationalization of cross-functional teams by focusing on POs needs related to the capacity development areas (See Section 4.2.5).
- Co-designing mechanisms that facilitate community building and collaborative arenas for joint programming.
- Providing technical support for setting up and activating executive cross-functional teams involved in new pilots and experiments as part of existing and new programmes.

The cross-functional teams will facilitate interfaces in two work streams:

1. **Mentoring, Workshops and training – Tools & Methods.** This stream will support the implementation of the pilot programmes.

2. **Developing cross-cutting areas.** Interfaces created through cross-functional teams go beyond the pilot programme initiatives to further explore the development of capacity areas. This includes interactions at the ecosystem level with actors across the value chain and local communities, as well as with the broader context of EU organisations and international actors.

In practice, the first work stream will support the creation and operation of cross-functional teams while the second work stream will work on concrete actions to introduce new technical knowledge and practices to address specific needs of POs (e.g., preferences indicated in the policy workshop, Figure 6 & 7). Additionally, both work streams will simultaneously explore the use of existing resources for establishing strategic relations within circular economy forums and platforms to foster strategic

investments that can support the renewal and continuation of the capacity development actions. Both work streams are presented below.

5.1.2.1 Mentoring & demand-led workshops

This work stream aims to activate a process that develops transversal elements to support the co-design of joint programmes in the EUCCH platform while introducing innovative frameworks for changes in policymaking through technical assistance. In doing so, this stream faces the challenge of providing the practices, resources, and mechanisms to enable POs to work together in different programmes and across value chains. The co-design process will focus on the R&I policy instruments and programme levels while considering a portfolio approach. This stream thus seeks to enable and empower a broad set of actors around a policy issue to actively contribute to develop a solution for it. It can work at any stage of the policy process; however, its application in early stages helps understanding where a policy needs to focus.

It will be implemented through a series of actions as part of the portfolio of pilot programmes run in the EUCCH: 1) Circular Cities, 2) Circular Industries, 3) Closing the loop and 4) Resource Efficiency in Territory and Se. More details of these pilots are included in the SRIA (DEL 2.1). In a first phase, emphasis will be put on Circular Cities and Closing the loop in terms of strategic aliments with the overall EU policy developments and PO needs. More details about these priority areas are included in the Implementation plan (DEL 3.8).

A co-design process will be also applied to actions related to national programmes and strategies as well as EU programmes such as the European Cohesion Policy Operational Programme, Sustainable Smart Specialization Strategies -S4- and the Circular Economy Action Plan. Examples for new practices are related to public service delivery concerning environmental services regarding circular economy processes, natural resource management as well as monitoring and data management of ecosystem indicators. New practices will be introduced as part of mentoring sessions and demand led workshops by combining technical assistance and technical cooperation (peer to peer models) to promote the PO community development. By following the needs identified in the capacity assessment and the results of the policy workshop, two main components will be initially covered:

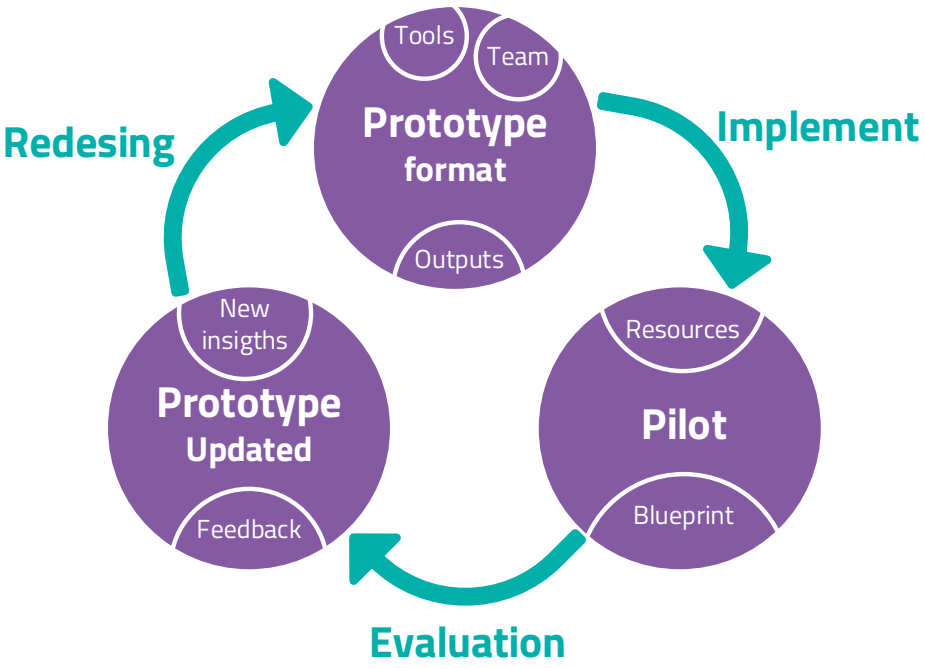
1) **Operationalizing the science-policy-practice interface.** A collection of actions will aim to equip the cross-functional teams with the tools, methods, and practices to enable innovative practices and approaches as part of the design of new programmes. This is directly related with de demand of POs regarding practical tools and methods (see Figure 6 & 7). Preliminary areas of development are:

- Participatory foresight & governance assessment
- Industrial roadmaps and life cycle assessment
- Scenario analysis for policy portfolios, among others.

The introduction of new tools, methods and practices will follow a *"managing as learning"* approach so they will be embedded in other activities and actions. The adaptation and the translation of specific knowledge and applications will be implemented in collaboration with the Joint Research Centre and other specialised knowledge organisations. These technical assistance actions will include an open call for contributions on practitioners -oriented tools and methods for the participation of the broad scientific and innovation community.

2) **Prototyping for policy experimentation.** This component aims to provide specific methods and principles for improving idea generation and experimentation to stimulate innovation within the public sector. It is based on the concrete demands of POs gathered in the policy workshop (see Figure 6 & 7). For doing so, prototyping processes will be introduced as a quick, low-cost mechanism to test an idea (or an aspect of it) by creating an early sample or model and enabling rapid feedback. This immediate feedback from existing or potential use allows to refine or discard the idea as part of a dynamic portfolio of policy instruments envisioned for implementation.

Figure *15* Prototyping and experimentation cycle



Source: Challenge-led system mapping (Matti, Martin Corvillo, et al., 2020)

Prototypes facilitate the space for bringing different systemic elements together. They can be put into practice with cross-functional teams by involving different types of participants (citizens, end users, stakeholders, professionals, and experts) along the design process to guarantee meeting the needs of the society and the government.

Moving to a detailed process designed for running a pilot requires a full-scale recreation including fewer variables, team responsibilities, clear outcomes, and detailed timeline. For doing so, a blueprint such as a protocol needs to be developed to frame and integrate different steps by making explicit the interrelations between framing elements, activities, and resources. It serves as a guide to convey all the critical information (specifications) of the project and to assess interventions at stages with problems, if any.

5.1.2.2 Developing cross-cutting areas

This section addresses the development of institutional capacity on policy processes for government officials and other technical officers working in executive bodies. The capacity areas included (already listed in Section 4.2.5) are briefly described below:

1. **Systems thinking and change management.** It includes the set of competences on system analysis, problem definition as well as introducing change and provide strategic direction for coordinated actions.
2. **Foresight and strategic planning** integrate more technical approaches on scenario planning and future oriented methods with appraisal methods for dealing with uncertainty risk and ambiguity.
3. **Monitoring, evaluation and learning** competences compile the capacity to design a monitoring system adequate to the policy and the local context. Also, to collect and analyse monitoring data as well as to ensure that all stakeholders are adequately monitoring the use of policy instruments.
4. **Knowledge management and analysis.** This broad category includes the systematic management of knowledge assets as well as analytical competences regarding the use of indicators and data science for policy.

The overall approach for competence development will be based on the variety of policy-driven competence formats:

Table 7 Policy-driven Competence development format

Format	Description	Participants type
Community of programme owners (national and regional)	This type of capacity building format is oriented to facilitate new skills, methods but also relational assets to policymakers and researchers working on transformative innovation policies and instruments. Using participatory methods and peer to peer deep learning will help to mobilise new co-created knowledge and put it into practice through enabling processes for prototyping programmes and instruments and further experimentation. This activity will cover skills associated to different stages of the policy process (See Section 4.1)	Civil servants and public managers from different levels.
Executive programme	Tailor-made short training formats are oriented to improve the leadership and strategic perspective. This practice-oriented format is led by senior experts in the field and enriched by the quality of participation of international senior policy officers and executives. The format will be co-developed with leading knowledge organisations in collaboration with other executive programmes and implemented locally as well as in international locations. This type of activity will cover competences related to the OECD competence framework (See Section 4.1).	Mid-level programme owners/managers and directors from public sector and corporates.
Science-based training	It is focuses on specific technical areas where some knowledge base is required and participants are introduced in new techniques, procedures, and methods to work in specific science-based areas as monitoring and evaluation as well as data science, policy analysis and foresight. This activity will cover tools and methods requested by POs during the policy workshop and presented in Figure 6 & 7.	Civil servants from different levels working in technical and research areas
Multi-stakeholder setting	Learning by doing formats such as the Innovator Catalyst (e.g., Fostering professional skills for Circular Economy Transitions, RIS programme, 2017[8]) facilitate the set of skills and competences needed to manage innovation programmes by focusing on soft skills related to community engagement, participatory processes, and system mapping. This activity is proposed for a more mature stage of the platform where other actors are invited to actively participate in the activities. In early stages this multi-stakeholder setting can be implemented as part of an annual community engagement event.	Multi-stakeholder setting including public and private organisations

[8] See Innovator Catalyst Briefing video here: 2017 edition and 2016 edition

5.1.2.3 Outcomes and activated processes

Monitoring and evaluation activities will be based on storytelling of capacity development interventions. For doing so, concrete outcomes on new activated process will be identified.

Mentoring & demand-led workshops. The entire process of co-design brings will facilitates:

- Social learning within the experiment as part of the reflexive exercise of alternative mechanisms for policymaking.
- Institutionalize new innovative practices and processes as common approaches to design and implement cross-cutting R&I policies and programmes.

Developing cross-cutting areas. The development of competences by reviewing the current skill set and incorporating new skills oriented to system change will eventually contribute to:

- Creating a broader network of specialised actors involved in transformative policy processes.
- Getting new innovative practices and processes embedded and institutionalized as common approaches for policymaking.

6 ANNEX 1

6.1.1 References

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6.1.2 Key framing questions for the co-design process

Framing questions	Relation with other resources and knowledge assets		
	Existing/planned **CICERONE resources**	*Related* **MOOC modules**	*Related* **Policy Toolkit & roadmap**
1) What do POs need to understand about the broad policy landscape addressing the challenge of the circular economy? a) Multi-level, EU Landscape b) Multi domain, Industry, Mining, Environment, Urban, c) Multi actor, Government, Research, Industry d) CE and Transformative policy, system innovation	SRIA	Module 1	EU Policy
2) How does the specific context and challenge of POs look like? a) How is the context for the different type of tasks (joint programming, resources assessment, implementation…)? b) What are the main role and responsibilities of different actors? i) Multilevel governance, research, industry/business ii) What are the key PO´s competences needed for delivering? c) Who can support POs on their mission? i) How does a delivery team look like? d) What are practices, and resources for each different task? i) Programme design vs. implementation ii) The value of collaboration	Survey Interviews Workshop data	Module 2	Policy design and implementation
3) How does the process of joint programming look like? a) Co-design. Collaboration in practice b) The challenge of accessing resources c) Learning by doing i) Adaptive implementation ii) Monitoring, evaluation and learning aspects d) Advocacy, coalitions and the coordination challenge	Services description Evidence on existing platforms JPI ECESP	Modulo 3	Joint Programming practices and existing platform
4) How can POs better use the existing resources and supporting processes/services to do their work? a) How can they integrate new sources of data? b) Which are other platforms and stakeholders' forums that can facilitate their work? c) Which are the services currently available?	Platform value proposition SRIA other resources available ECH - ESCEP	Module 4	EU Policy and funding