

CAPACITY BUILDING ASPECTS OF THE DIGITAL CIRCULAR ECONOMY FOR SUSTAINABLE DEVELOPMENT

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Abstract

The aim of the study is to find the best practices of interregional cooperation in the field of innovation to support SMEs in the process of unlocking entrepreneurial potential and transition to the circular economy in smart villages/settlements. The proposed digital innovation tools (ESRI platform) will contribute to achieving synergies between national fund programs and the Roadmaps for Moldova's integration into the European Research Area. These approaches will contribute to the identification of interregional value chains, target markets, natural resources, and relevant actors in the associated countries and in the EU. The authors propose to consider a digital e-policy platform, complemented by a set of online applications and services, able to help national and regional authorities in the EU associated countries to develop a regional „smart specialization” roadmap on circular economy priorities.

Keywords: *circular economy, green economy, ecosystem, smart specialization*

JEL Classification: *Q55, Q56, O33*

INTRODUCTION

A circular economy is a systemic approach to economic development designed to benefit businesses, society, and the environment. In contrast to the ‘take-make-waste’ linear model, a circular economy is regenerative by design and aims to gradually decouple growth from the consumption of finite resources. After defining what an economy actually is, this learning path explores the nuances of the concept of a circular economy, including the difference between biological and technical materials, the different opportunities that exist to keep materials and products in use, and the history of the idea. Finally, the benefits of shifting from a linear to a circular economy are highlighted. In the linear economy, raw natural resources are taken, transformed into products, and get disposed of. On the opposite, a circular economy model aims to close the gap between the production and the natural ecosystems’ cycles – on which humans ultimately depend upon.

"The Circular Economy is not just about waste management, but the much more ambitious search for new economic mechanisms that create social value, regenerate natural capital, and preserve the planet's living ecosystems. N. Cerantola. The circular economy is a systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution. " [1]

This means, on one hand, eliminating waste – composting biodegradable waste or, if it's a transformed and non-biodegradable waste, reusing, remanufacturing, and finally recycling it. On the other hand, it also means cutting off the use of chemical substances (a way to help regenerate natural systems) and betting on renewable energy.

PAPER BODY



Figure 1. Capacity building aspects of the digital circular economy for sustainable development

Source: <https://youmatter.world/en/definition/definitions-circular-economy-meaning-definition-benefits-barriers/> [2]

Data-driven innovation is a key building block for the implementation of the European Green Deal. Combined with digital technologies, they lay the foundation for the intended transformation of sustainable development. The EU has adopted two related policy documents: The European Green Deal in 2019 and the European Data Strategy in 2020 [3]. Data spaces are being developed in strategic sectors and areas of public interest. For the European Green Deal data space, INSPIRE [4] is a solid framework that will be adapted to new challenges in the coming years as part of the GreenData4All initiative [5].

The INSPIRE Directive aims to create a European Union spatial data infrastructure for the purposes of EU environmental policies and policies or activities which may have an impact on the environment. This European Spatial Data Infrastructure will enable the sharing of environmental spatial information among public sector organizations, facilitate public access to spatial information across Europe and assist in policy-making across boundaries. INSPIRE is based on the infrastructures for spatial information established and operated by the Member States of the European Union.

The Infrastructure for Spatial Information in the European Community (INSPIRE) is a European Union (EU) directive that came into force on May 15, 2007, committing all EU members to an Internet-based spatial data infrastructure that facilitates the standardized exchange of geographic information. INSPIRE regulates both technical and other issues, starting with standards, organizational and procedural issues and information technology policies, to the creation and maintenance of electronic service delivery systems. INSPIRE is the legal basis for the development of the Spatial Data Infrastructure across the EU to improve interoperability, i.e., the quality of information and exchange at all levels of government in all EU countries.

In the past, economic growth has often depended on the use of natural resources as if their reserves were unlimited. Recognizing this unsustainable trend, the EU is moving toward a green economy, which makes a major contribution to our overall growth and well-being without harming the environment. The green economy relies on innovative economic tools and technologies to better manage our resources, where sustainable consumption and production go hand in hand with better water and waste policies. Regional and local public agencies in developing regions should explore the potential of geospatial information and technology to further empower this transition to a green economy and the relevance of INSPIRE as a geospatial legal framework for this purpose [6].

The task of tracking and managing the circular economy takes different forms depending on the product. Products that are digitally connected to a manufacturer can be tracked throughout their

life cycle using IoT (Internet of Things). This includes an ever-expanding range of products, from farm equipment and personal vehicles to appliances, alarm systems, drones, and phones.

- Mini-S3 is being developed, including only a shortlist of the most important methodologies and tools to be used in the RIS3 design process. This roadmap includes a set of 14 applications that have been selected based on the importance of the relevant methodology as well as the feedback received by the research team from users regarding their usability. When selecting tools, the entire RIS3 strategic planning process must be covered. [8]

- EDP (entrepreneurial discovery process) is structured based on the EDP methodologies followed by the Joint Research Center and the World Bank, including three main tasks: knowledge production, stakeholder engagement, knowledge sharing, and collaborative decision-making.

- The Specialization Roadmap explains its role and usefulness in RIS3 and describes three possible approaches to analysis. A conceptual framework for specialization analysis and associated methods for conducting it are presented. In addition, it shows how specialization analysis can be conducted using the 10 applications of the Online S3 project as an example.

- The Vertical Roadmap proposes a five-step process for developing innovative investment projects for a niche industry market (healthcare). It includes activities such as: mapping industry and regional strengths, identifying participants in the sector of interest, engaging participants, collaborative project development, and monitoring and evaluation.

As an example of best practices for benchmarking, we suggest looking at the program developed by the Friuli-Venezia Giulia Autonomous Region of Italy (FVG).

At the beginning of the article, it is appropriate to review the ASEM workshop on "Closed Loop Economy" as one of the activities of the "Entrepreneurial Search Process" (EDP) within the mapping of the Smart Specialization priorities of Development Regions Center and Chisinau in the sectors of "Closed Loop Economy". The EDP is an investment prioritization based on an inclusive and evidence-based process driven by stakeholder engagement and attention to market dynamics.

During the first period of the entrepreneurial discovery process, the results of the consultations with the platforms of the local initiative groups within the EU Leader Program are used as a basis for closer attention and, in fact, to clarify the activities, services that are identified as priorities in the proposed version of the Region Center Roadmap for Closed Loop Economy Directions

In addition to a better understanding of each sector, an attempt should be made to build synergies between sectors in order to achieve greater added value from interventions. In addition, a number of new related sectors with significant potential and prospects for innovation and new opportunities must be identified.

However, entrepreneurial discovery is a dynamic and evolutionary process that is used throughout the strategy / Roadmap programming period. To this end, an appropriate mechanism has been established for a more regular, better organized, and more effective use of EDP, including through broader mobilization.

For this reason, during the second period of the entrepreneurial discovery process, it is advisable to appoint small advisory groups for each trans relation/innovation platform, composed of experts from both the industry/sector and the research community. These include representatives of dynamic enterprises in each relevant sector, researchers with extensive experience, and, more generally, individuals with a special interest and contribution to the work of the platforms.

A coordinator should be appointed for each transnational platform; he/she works either in a research organization or in a supervised research center and has a postgraduate and/or doctoral degree in the relevant field. The coordinator is responsible for the coordination, organization, and operation of the transnational platform in collaboration with the relevant Advisory Group ("Agency for Innovation of Transnistria" and the competent Directorate/Department of National Level Programming). [9]

The main task of the Advisory Groups is to submit proposals to their respective trans-regional / inter-regional platforms for biennial work projects/programs, defining the priorities of each area, its objectives, the indicators to be used, the schedule of interventions as well as the lines of action including budget and means of implementation.

After the announcement of the RTDI "Research-Create-Innovate" event, the submission of several ENI / ANCD proposals indicating increased interest from the business and research community, and the evaluation of the proposals, the third period of the entrepreneurial discovery process can begin for a possible revision of the initial priorities based on the submitted and evaluated data as well as the current technological developments.

CONCLUSIONS

The basic methodologies used in each of the RIS3 steps are as follows:

- Step 1: regional/area/population profiling including key statistical analysis and qualitative assessment, SWOT analysis, and working groups are the main methodologies used in this step, while various stakeholder consultation methods are quite common.

- Step 2: Stakeholder engagement and dissemination methods are the main approaches used. About a third of the regions/districts are also creating specific networking cluster platforms on mapped priorities to encourage/support RIS3 management. The demand from governance/public administration systems should be considered, especially to strengthen and increase the transparency (internal and external) of the RIS3 process, and to hold all regional/district stakeholders accountable for the process itself.

- Step 3: working groups and SWOT analysis are the most commonly used methods here, although this step is largely integrated with other analytical steps.

- Step 4: most regions/districts use working groups/focus groups, while collaborative discretion and co-writing and annotation opportunities may be used in some cases.

- Step 5: in addition to working groups, road mapping is also a common method used in developing a set of policies, although it is difficult to assess how complex and elaborate the regions/districts' approaches will be when using this method. Surprisingly, it is a fact of experience that intervention logic mapping is only used in less than 40% of the regions. Given this fact, there seems to be some misunderstanding of what steps are needed throughout RIS3 contextual design.

- Step 6: Regionals seem to have difficulty defining structural change and context indicators because the approaches chosen are simplistic compared to the complexity of the monitoring requirements. Nevertheless, it should be kept in mind that in many cases, the details of the monitoring system remain only at the design stage, without being able to capture the progress of RIS3 implementation.

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