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REPLACE LOCAL ANALYSIS

Lazio Region



REGIONE
LAZIO

Lazio Region was the coordinator of the Horizon 2020 SCREEN project (www.screen-lab.eu) that paved the way for the cross-regional cooperation Interreg Europe REPLACE project (www.interregeurope.eu/replace): in fact, the latter capitalizes on the outputs and the experiences of SCREEN.

The present Local Analysis report builds up and updates the work previously done employing SCREEN methodology and tools, using the same structure to display information regarding the following four important areas of interest for the transition toward a circular economy from a regional perspective:

1. RIS 3 Strategic Areas and SWOT Analysis
2. Focus Sectors - Companies
3. Capabilities view – R&D - Education
4. Emerging Ideas

S3 and focus sector

Lazio region indicates six areas of specialisation for the RIS3 Regional Smart Specialization Strategy,

(https://s3platform.jrc.ec.europa.eu/map?p_p_id=captargmap_WAR_CapTargMapportlet&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1)

with specific sub-categories describing the field of application of circular economy related activities:

- **Aerospace and security:**
 - Space: technologies for land observation;
 - Aeronautics: ecological production, new and clear engines, efficient air transport operations;
 - Security: climate change applications, and disaster resilience as a consequence of the ongoing climate change process;

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- **Life sciences:**
 - Pharmaceutical: biomaterials, nutrition and nutraceuticals;
 - Medical devices: advances sensors and biosensors for diagnostic;
- **Cultural heritage and related technologies:** models for dispersion of air pollutants and deposition patterns of pollutants;
 - Digital creative industries: technologies for smart green and integrated transport, product design for the use of innovation materials or reuse;
- **Agri-food:** sustainable agriculture and natural resources management and use, food health and safety, sustainable and competitive bio-based industries;
- **Green economy:**
 - Green and smart building: construction, heating and cooling, decarbonisation;
 - Renewable energy and smart grids: enhanced storage technologies, modernised grid technologies, electricity from renewable sources for heating and cooling;
 - Ecosystem services and regulation: integrated approaches for security, low-carbon energy, sustainable water management;
 - Efficient use of resources, treatment and processing of waste: sustainable use of agricultural waste, co-products and by-products, eco-innovative processes for waste reuse;
 - Industrial symbiosis: systemic approach for reduction, recycling, and reuse of food waste.

Lazio is one of the most developed region in Italy and its RIS3 includes different sectors, showcasing the opportunities for cross-industrial and inter-sectorial development with possibilities to transfer and apply both technologies and capabilities across industries and fields.

The **airspace and security** is an innovation-and-research-intensive sector characterised by the presence of large companies cooperating with big international groups, particularly active on technology innovation.

The **life science** area of specialisation is a complex domain characterised by high-added-value businesses endowed with strong innovation potentials. The life science sector is composed of different but synergic industries, such as: chemical, zoo-technics, pharmaceuticals, agri-food, and environmental sciences.

This field represents an area of excellence in Lazio, especially the pharmaceutical industry.

The specialisation of **cultural heritage** is particularly significant in Lazio region since it hosts an important technological cluster, created in 2008 with the objective of strengthening the competitiveness and the innovation capabilities to enable the generation of growth and economic development in the heritage-rich region. The sector encompasses also the cultural, creative and digital industries, including ICT and audio-visual.





The **agri-food** area of specialization of Lazio region shows a highly differentiated landscape: there are supply chains of national and international relevance (such as nuts and kiwi production), important agricultural productions of different types of vegetables, as well as the cultivation of flowers. This field plays a significant role in the regional production and shows positive trends both in the level of specialisation achieved and in the quantities produced.

From the preliminary analysis of the areas endowed with the highest innovation capabilities, Lazio region identifies **three main focus sectors of interest for the transition toward a circular economy**:

- ① **Manufacturing**: crossing the domains of pharmaceuticals, food and agri-food and transport equipment
- ② **Creative and Digital Industries**
- ③ **Cultural heritage and cultural-related technologies**

Lazio region possesses several assets for the transition and the development of a circular economy as the levels of public spending and investments in R&D remains high.

The territory can exploit the capabilities, knowledge and skills available within the high-tech companies active in the region, it can benefit from the well-established research infrastructures as well as from the numerous technological providers.

Lazio foresees both large potentials and major gains from the circular economy transition, resulting in an increased economic and human development that enhances the sustainability of the industry and of the society, while generating growth in the agri-food, manufacturing, construction and advanced services industries.

On the other hand, **Lazio region needs to attentively contrast the negative tendencies that might compromise and hamper the potential achievement of benefits deriving from the transition toward a circular economy**: the process of application of the present Local Analysis tool has helped in the identification of unfavourable factors. For instance, a progressive decline of private investments, as well as a negative trend of excessive fragmentation of public resources have been registered, with the need for the definition of corrective measures. Another hypothetical barrier can arise from the insufficient level of cooperation among private companies and with the public research institutions, notably in the field of green technologies. The lack of consciousness and sensibility about the circular economy and its advantageous impacts among the civil society has been also observed, highlighting the necessity for awareness-raising and dissemination actions.





Regional capabilities and prospected innovation

Lazio region has significant capabilities to exploit for fostering the transition toward a circular economy. The **companies** identified and listed within the present Local Analysis cover all the positions in the circular value chain, with main focuses on Use/Service and Production. Unfortunately, some of the application domains of the circular economy activities are currently missing: although maintenance, refurbish, and repair activities are lacking, **the state of the art of circular economy in Lazio region demonstrates the focus on closing the loops on biochemical feedstock recovery and on recycling** (closed loop).

The assessment showcases how diverse companies are able to offer different enabling technologies in the crucial fields of design, production and testing, as well as noteworthy capabilities in the research and innovation of both products and processes. The firms are able to provide processing capacities for the secondary-raw-materials (specifically on hydrometallurgical processes, cardboard packaging, and ceramic production), as well as IT solutions to support the recycling and the monitoring of natural resources.

Lazio region reports also key **Research and Development abilities**, with projects aiming at implementing and applying sustainability in numerous areas.

The use of bio-materials for the production of polymers, bio-polymers, and bio-fuels is being investigated in different projects. Other projects are instead focusing on waste processing, reuse of wastewater, energy savings, and renewable energy exploitation.

The most important R&D capabilities are expressed by three main universities and the inter-university consortia, as well as the research centre.

Noteworthy research areas are in the domains of: bio-chemistry, green and industrial chemistry, pharmaceutical industry, cosmeceutical industry, green energy, sustainability and environmental management, physics, earth science and industry 4.0.

The **education capabilities** cover all the three levels of the tertiary education, namely bachelor, master and doctoral (PhD) degrees.

Eight different universities offer training paths in the domains of: agri-food, agronomy and forestry, biology, chemistry, engineering, management, and sustainability.

The **innovation potential** in the region is best described by eight emerging ideas targeting waste management, waste water management, energy, pharmaceuticals, and specialised construction industry.



The above-mentioned prospects focus on recycling and reuse of polymers, rubber and plastics, with the aims of reducing the impact of urban waste, finding energy-creation opportunities, improving energy-saving or energy-efficiency of specific production processes.

Among the **emerging ideas**, the region reports innovation potentials in: reuse of exhausted car tyres, water treatment, biomass production and recycling of agri-food waste.

In general, **Lazio region reports difficulties at the regulation level**: the coordination among the different regulatory bodies in charge of policy-making dealing with circular economy needs to be improved.

In the matters of its competence, Lazio is directly committed in promoting circular and green public procurement and it complements the EU funding, following the additionality criterion

Stakeholder engagement

Stakeholders have been continuously involved, employing the bottom-up and participatory approach developed within the SCREEN project.

Regarding REPLACE project, stakeholder engagement have been implemented, taking into account all the limitations deriving from the current COVID-19 pandemic, the project has been officially presented and promoted to the stakeholders during the Regional Focus Group on the circular economy in August 2020 (online event). Unfortunately, a dissemination event was planned in Rome for March 2020, but it was cancelled due to the risks associated with the virus.



REPLACE LOCAL ANALYSIS

CCDRC



Description

The Centro local analysis report focuses on the transition to a Circular Economy and results from the interpretation of statistical data that was gathered from publicly available sources, such as INE (the National Institute of Statistics), as well as from other relevant inputs that were gathered from relevant regional stakeholders. For the sectorial analysis, CCDRC followed the method underlying the fulfilment of the SCREEN Tool (developed within the H2020 project SCREEN of which CCDRC was a partner) and took into consideration the inputs received from different sectoral meetings that were conducted within the framework of the SCREEN project and the development of the Regional Agenda for the Circular Economy. This document was developed during the year of 2020, in the context of the REPLACE project.

Stakeholder engagement

The involvement of stakeholders was assured through the scheduling of sectoral meetings to discuss specific bottlenecks and emerging ideas in strategic regional economic domains, as well as through the continuous participation in different dynamic processes of joint strategic development for the Centro region, namely: the Regional Smart Specialisation Strategy (RIS3) process and the development of the Regional Agenda for the Circular Economy. As Circular Economy will remain a strategic area for Centro region, this project will continue to benefit from the different networks that mobilise the participation of regional stakeholders.

Results

Centro region, both from a socioeconomic and Circular Economy standpoint, is characterised by the prominence of different manufacturing industries. Overall, stakeholders from these industries are relatively aware of the concepts and potential underlying the Circular Economy approach. Nevertheless, the already registered improvements in the transition to a Circular Economy paradigm are to be continued and supported through dedicated measures that aim at: valorising waste streams not yet considered valuable; fostering the collaboration between companies and research institutions for the development of new processes and technologies; supporting industrial symbiosis approaches; promoting circular business models as well as circular procurement; and facilitating the improvement of normative frameworks that currently hinder the adoption of Circular Economy principles.

Focus Sectors

- ▶ Manufacture of paper and paper products
- ▶ Manufacture of other non-metallic mineral products (Glass; Ceramics)
- ▶ Manufacture of rubber and plastic products





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Περιφέρεια Κρήτης
Region of Crete

REPLACE LOCAL ANALYSIS

REGION OF CRETE

Description

Local Analysis was executed by subcontracted company INNOVECO, in collaboration with Region of Crete REPLACE work group. A questionnaire was prepared, based on the “guidelines for the interviewers”, as described on the Annex B, Screen project’s Deliverable D2.1. Initially, a list of Companies, Research Institutes, Universities and public Authorities was provided by the *Region of Crete which was enriched as suggested by the first row of participants or upon web research*. The communication included teleconferences, organised through telephone or web official meetings, due to pandemic disease circumstances. The interviews were carried out during part of 2nd and 3rd Semester (June-September 2020).

Stakeholder engagement

The information collected during Local Analysis procedure was used to fill in the **SCREEN Mapping Tool parts 3 « Research, Development and Innovation Capabilities» & 4 «Emerging ideas»**. An analytical report was completed named **Circular Economy in the Region of Crete: Analysis of Capabilities**. Also Region of Crete provided each stakeholder a Certificate of participation in the LOCAL ANALYSIS process in the framework of the REPLACE Interreg EU project. The list of stakeholders will be engaged to organise dedicated meetings during semesters 4-6 of Phase I. In parallel the new Region’s of Crete Strategic Plan 2020-2023 has been completed and the Circular Economy has been adopted as a horizontal principle. The initial list of stakeholders will be used as a start in order to initiate a dialogue with all relevant parties and come up with a CE principles implementation action plan in the Region of Crete.

Results

The most important results are described below:

- 46 interviews were executed during the procedure of local analysis, with 61 emerging ideas recorded. Among them, 25% are ideas in early stage, 21% ideas that are implemented through R&D projects, 39% ideas that are implemented as good practices and 15% ideas that have been implemented and their renewal / expansion is sought.
- The majority of CE plans, are basically supported by Educational Community and Research Institutes (49%), while Business Community has a contribution of 35%. Furthermore 16% of the proposed plans were coming from Municipal Authorities.

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- The target areas with the most emerging ideas are E38 - Waste collection, treatment and disposal activities, material recovery (28%), E39 - Remediation and other waste management services (31%), A1 - Cultivation and livestock activities, hunting and related services (24%) as well as C10- Manufacture of food products (14%) and E37-Sewerage (16%).
- Research & Development projects on Circular Economy in Crete are basically supported by Educational Community and Research Institutes, while Business Community has a limited contribution on that area.

Also a CE good practice namely **Delights of Crete** which involves a cluster of private companies from the agrofood sector was reported. (<https://www.interregeurope.eu/policylearning/good-practices/item/4377/delights-of-crete-doc/>)

Focus Sectors

As a result of the Local Analysis in the Region of Crete, the most active sectors including CE fundamentals are:

- Waste collection, treatment and disposal activities
- Remediation activities and other waste management services, and
- Crop- Animal production, handling and related service activities eg manufacture of agrofood products.

That conclusion was more or less expected for the Region of Crete, where tourism and agriculture are the strongest economical piles. Moreover, the aforementioned areas of activities were proved to collect the highest level of emerging ideas as well.





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REPLACE LOCAL ANALYSIS

Province of Fryslân

provinsje fryslân
provincie fryslân 

Description

The local analysis in Fryslân focusses on circular economy in Frisian education (vocational, applied sciences and university) while using the water technology and plastics industry as parameters. Furthermore, using the SCREEN Mapping tool, value chains in those three sectors have been identified.

Stakeholder engagement

A combined method of both desk and field research has been adopted for the analytical study. Regarding the field research, stakeholders throughout the triple helix have been interviewed: business, government, education institutes and NGO's such as the Circular Friesland Association [This is the circular story of Friesland - Association Circular Friesland \(circulairfriesland.frl\)](https://www.circulairfriesland.frl)

Results

As for the parameters water technology and plastics in education, the results are promising. Many initiatives, projects and knowledge institutes are available in the region. Especially water technology, design/ construction and technical studies integrate circular economy in lectorates, projects, minors and internships. Followed by business and hospitality studies, also because there are many crossovers between water technology/ plastics and business/ hospitality.

There is a growing number of education institutes working together with regional business and government under the header of Spark the Movement. Recently, the region Fryslân has been awarded the title 'Regional Centre of Expertise on Education for Sustainable Development [Home - Be a Spark - Join the movement \(sparkthemovement.nl\)](https://www.sparkthemovement.nl)

On the business level, a growing knowledge cluster among the theme of circular plastics has been identified. The National Test Centre of Circular Plastics located in Heerenveen (Fryslân) is a research centre for improving the sorting and recycling of plastic packaging and offers new and necessary opportunities for knowledge, cooperation and innovations within the plastic chain. [National Test Centre Circular Plastics | NTCP](https://www.ntcp.nl)

A well known enabling sector for the circular economy is water technology. WaterCampus Leeuwarden is the hub of the Dutch water technology sector and fulfils a sector-crossing role within Europe. [WaterCampus](https://www.watercampus.nl)

Focus Sectors

-  Plastics
-  Water technology
-  Education

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Hamburgisches
WeltWirtschafts
Institut

REPLACE LOCAL ANALYSIS

Hamburg Institute of International Economics (HWWI)

Description

The Local Analysis for Hamburg has been formulated through a desk research regarding the circular economy activities present in the territory initiated in 2019 from the methodological standpoint and carried out in the second half of 2020. The findings have been discussed and validated with regional stakeholders in a dedicated workshop on March 2nd, 2021.

Stakeholder engagement

Stakeholders were involved in the workshop of the 02/03/2021 to collect feedback on the draft document produced through the research and analytical work implemented by HWWI. The event, held online, allowed to discuss how to advance and enhance circular economy in Hamburg: the involvement of stakeholders permitted HWWI to collect insights and to establish a fruitful dialogue that will be maintained.

Results

Overall, the circular economy landscape in Hamburg is established and widespread. Several projects are working on concrete solutions for the city and the region and have successfully introduced their requests into politics and regulation. The trend appears to be positive and the topic rising in visibility. However, the potential of the mass of circular activity in Hamburg is not fully exploited since the interconnectivity between actors, projects and institutions is rather limited.

Focus Sectors

- Circular and renewable construction
- Circular material loops, e.g. electronics or plastics

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REPLACE LOCAL ANALYSIS

Lodzkie Region, Poland



Description

The study aims to diagnose the situation in terms of identifying areas for improvement in the management, monitoring and implementation of regional policies that stimulate sustainable development. In line with the objectives of the REPLACE project, it attempts to identify processes of economic transformation towards a circular economy. The document also indicates areas which are a source of challenges. They are the domain of traditional consumption models (of the "obtain - produce - use - throw away" type). Such an approach generates problems on a regional and national scale, related to excessive harmful emissions, uncontrolled waste streams and adversely affects the climate and ecosystems. The main intention of the results of the analysis here presented is the development of solutions on a regional scale and the definition of activities focusing on identification, valuation, assessment of local potential and possibilities of project financing. Data for the study was collected from publicly available sources listed at the end of the study and through intensified contacts with stakeholders, as well as during data collection and experience sharing at stakeholder events mentioned below. These activities took about seven months.

Stakeholder engagement

Lodzkie Region cooperate with representatives of academy, enterprises, administration and NGO's, according to quadruple helix model, what allows to build societal acceptance, effectiveness and pro-environmental changes within broad-based innovation on a regional scale. Stakeholders involvement occurred within various activities, deployed in collaboration with a number of pro-environmental projects, referring to circular economy, water management, decarbonisation process, public procurement LCA methodology, co-financed by Horizon 2020 and INTERREG EUROPE Programmes.

In particular, REPLACE project's stakeholders are active in the fields of energy efficiency in construction and industry, environmental certification, eco-design, digitalisation of production processes, industry 4.0, packaging economy, advanced circular economy projects, etc. During the numerous discussions, expert panels, consultations and preparations - stakeholders demonstrate their knowledge, experience and full involvement in the circular economy and in the transition and they provided valuable inputs, assistance and data for cooperation on good practices.

Results

The results of the Local Analysis have validated the current status of selected sectors of the regional economy and their willingness and readiness to transform towards more circular and sustainable economic models, in line with the context of the Regional policies.

The data quoted can facilitate the achievement of optimal and possible circular economy standards. This will be done by identifying the strengths as well as the scale of challenges for sectors with the greatest opportunities for green transformation. These are the identified strategic industries for the Region, with significant energy and resource-intensive activities related to food production, textiles, construction and energy. This can facilitate the transition towards modern and green organisational and technological solutions. They will take into account complex local conditions but also international development aspirations (especially taking into consideration) the central location of the Region and its traditions as well as industrial, logistic, R&D and scientific potential.

Focus Sectors

Thematic sectors (Region's RIS) were considered from the point of view of, inter alia, the development of energy efficiency, rational resource management and the development of R&D and scientific, logistics and transport potential:

- Innovative Agriculture and Agro-Food Processing
- Energy (including Renewable Energy Sources)
- Construction, Advanced Building Materials
- Modern Textile and Fashion Industry (including design)

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REPLACE LOCAL ANALYSIS

North-East Regional Development Agency



Description

The regional analyses of North East - Romania is structured in five chapters that describe the geographical and economic characteristics of the area followed by the details related to the 3 most relevant sectors for our region obtained in a period of five months as result of the entrepreneurial discovery process and public consultations which sectors and niches were identified with high potential for development concerning the social impact. The last part presents the needs to be improved in the current territorial situation.

Stakeholder engagement

The Entrepreneurial Discovery Process that nurtures creative solutions, by combining existing advantages and intensive collaboration among regional actors has revealed a good potential for circular economy with a necessity of strengthening of the cooperation between academic and private sectors, that will be supported through Replace project and beyond.

Results

The most relevant finding of the analysis is that the region has good correspondence between research-development and training competencies in the specialties related to the sectors and regional development potential, numerous of active companies in the proposed subsector, their development needs and their interest in innovation. By exploiting these relation through mapping the value chains from sectors and improving the links between local actors it can be defined a list of common elements between the smart specialisation niches of each sector and the major regional challenges, looking at how they can contribute to their mitigation and to a smart, sustainable and inclusive regional development.

Focus Sectors

- AGRI-FOOD & WOOD INDUSTRY
- TEXTILE
- ENVIRONMENT

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