



Synergic Circular Economy Across European Regions

Prof. Marcello Colledani – AFIL, Lombardy Region cluster on Intelligent Factory

Water Technology Unlocking and Scaling Up the Circular Economy
May 30th, Committee of the Regions

Horizon 2020 Coordinating/Supporting Action - Duration:24 months, started on 01/11/2016 16 European regions from 12 different European countries, and 1 UK national body



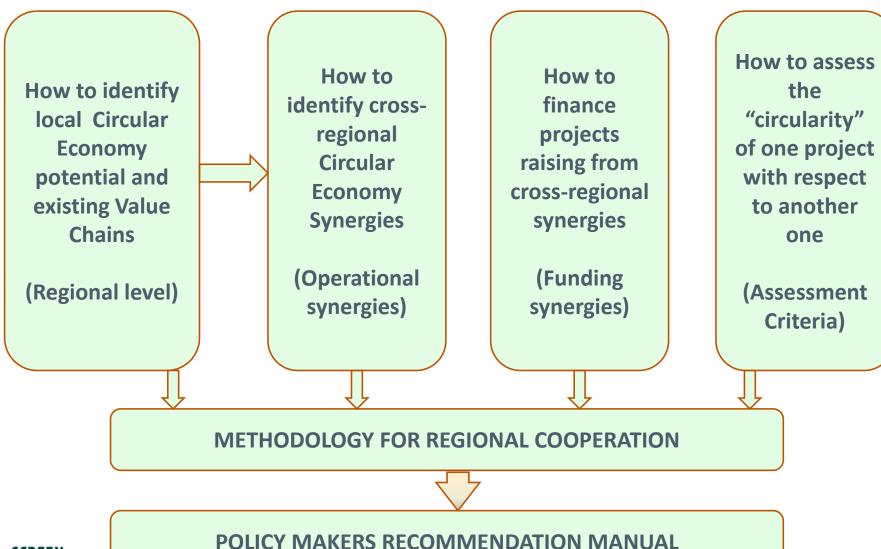
SCREEN aims at defining a **replicable and scalable approach,** to support **European Regions** in the transition to new **Circular Economy cross-regional value-chains.** This will be done through the identification and implementation of **operative synergies** between R&I investments of H2020 program and EU structural funds.

The methodology developed within the project will be replicable in all the European Union, thus creating an interregional framework for financing Circular Economy value chains.





The four steps of the SCREEN project





SCREEN Methodology: From local to cross-regional value-chains

- 1. Data Collection: A tool has been designed to collect data about existing capabilities in the Screen Regions, also considering the Smart Specialization Strategies and the key industry sectors.
- 2. Analysis: A twofold data-driven and interaction-driven approach has been followed in order to analyse the existing capabilities and identify the existence of regional hotspots and cross-regional opportunities and emerging ideas.
- 3. Synthesis: The existing cross-regional value-chains have been formalized and specific opportunities that can potentially result in actions to be implemented through cross-regional cooperation have been formalized.





Data Collection: SCREEN Mapping tool

1. RIS3, strategic areas, and SWOT Analysis

2. Focus Sectors& Companies

3. Capabilities overview:

R&D, Innovation, Education capabilities

4. Emerging ideas

5. Existing Circular Economy legislation

6. Existing funding instruments

Strategy

Mapping

Baseline Situation



Innovation

Explicit Emerging Actions

Barriers and Funding opportunities

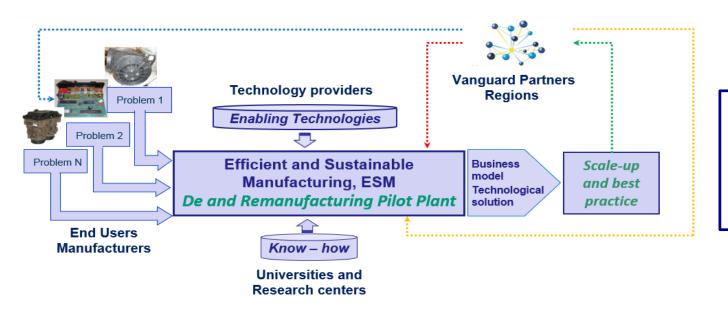


These steps have been formalized within the SCREEN tool. The Regions have compiled the tool and this has been the basis for the local and cross-regional analyses

VI ESM De-and Remanufacturing for Circular Economy



The main objective of the De-and Remanufacturing pilot network is to *integrate* a multidisciplinary set of *advanced and innovative enabling technologies and digital innovations* (TRL 7-8) and to exploit the *regional Smart Specializations* in synergic way to offer services to European end-users, mainly manufacturing companies, to solve specific *sustainability-oriented problems* related to their products.

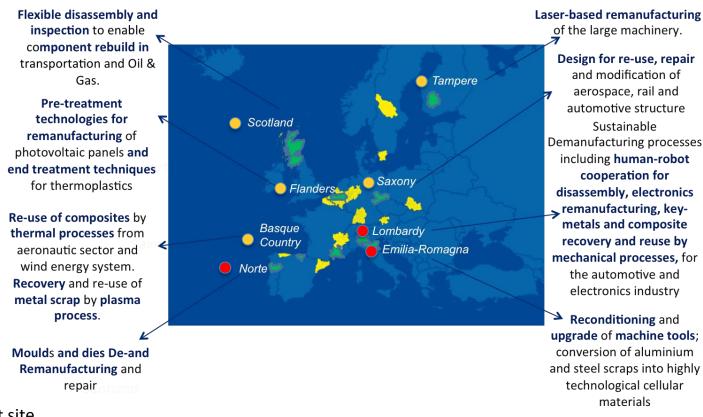


Selected within Pilot actions for "Interregional innovation projects" by the DG Regio

The pilot network nodes will act as *Innovation Hubs for Circular Economy*, being a network of competence and technology centers and supporting future producer-driven replication at industrial scale (TRL 9).

Geographic Configuration and Regional Specialization

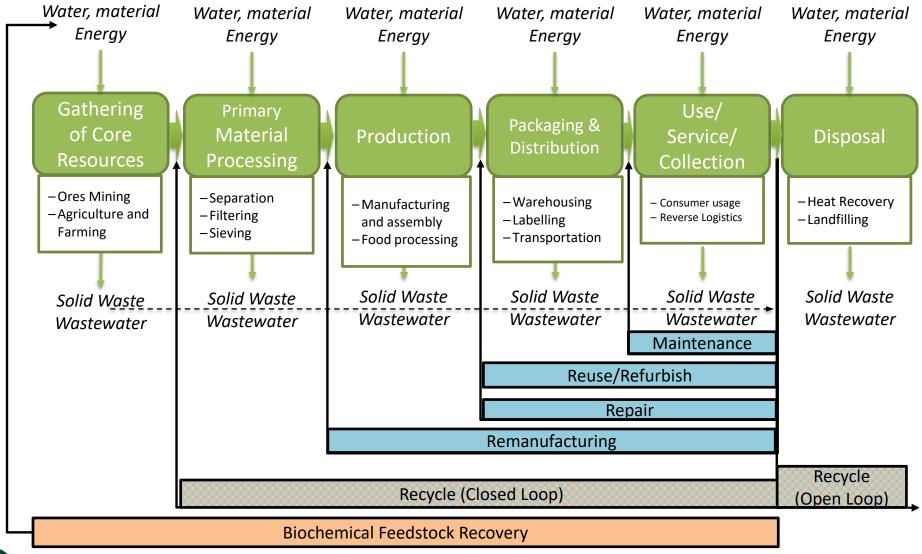




- Totally new pilot site
- Upgraded existing pilot site

<u>Key Issue:</u> integrated pilot plant solutions, needed by industry to *validate high-risk investments* in circular economy businesses before the industrial implementation.

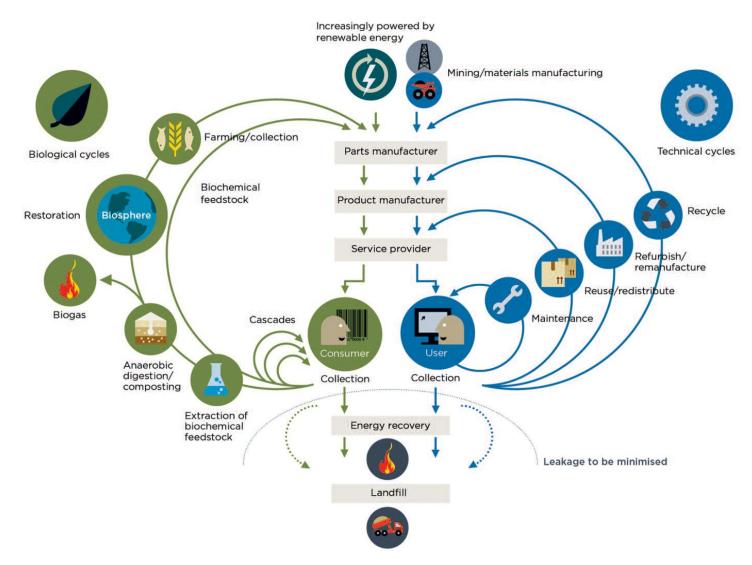
Reference Framework: Value-Chain oriented approach





Glossary: A definition for the different circular economy options has been elaborated (relation to existing standards and references).

Reference Framework: Value-Chain oriented approach

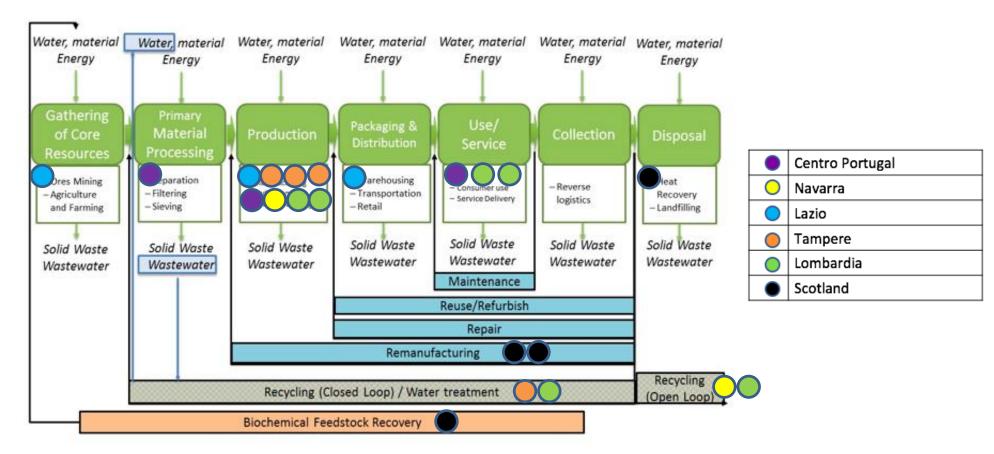




The value-chain oriented approach of SCREEN is compliant to the Ellen Mc Arthur foundation Circular Economy model.

Data Driven Analysis

Starting from the tool inputs a data-driven analysis of the potential cross-regional value-chains (sector-driven, material-driven) has been carried out.



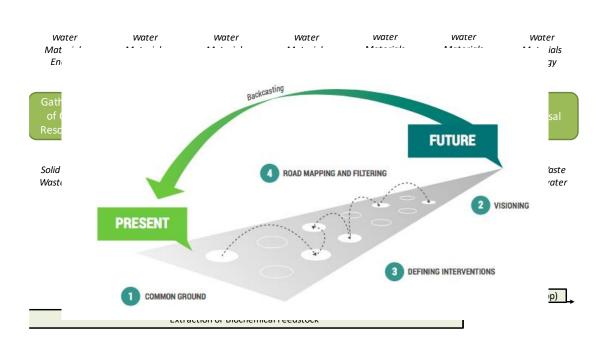


Transport and mobility value-chain.

SCREEN workshops

Starting from the tool inputs and data driven analysis, value-chains have been further analyzed through international and local workshops.

SCREEN Local workshop held in the Lombardy Region on November 2017, on the "Circular value chain for the automotive sector"

































bsd STRATEGY















LAFIL



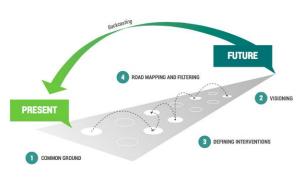


Potential synergies with other Regions have been highlighted

SCREEN Cross-regional value chains

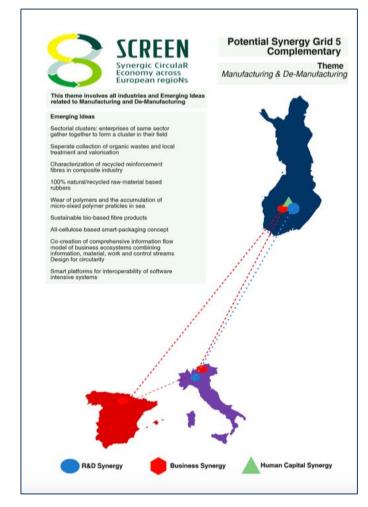
Starting from the tool inputs, local and consortium workshops, the cross-regional synergies are being identified.

Example of cross-regional value chain for the "Manufacturing and Remanufacturing" sector among Tampere (Finland), Lombardy (Italy) and Navarra (Spain)

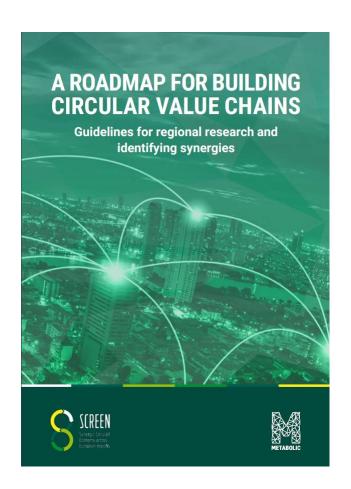








SCREEN Cross-regional value chains



Sludge recovery and utilization

LAZIO AND TAMPERE:

Lazio in Italy and Tampere in Finland face a challenge with the production of sewage sludge that contains important nutrients. Current sewage systems dilute the sludge, making it harder to valorize and there is a lack of technologies to productively extract the valuable materials.

Barriers

HOTSPOT

- 1. Lack of filtration
- 2. Lacking consumer acceptance
- 3. Absence of specific legislation

Stakeholders









FRIESLAND:

Cirtec and KNN Cellulose BV have developed a filtering technology that filters only the cellulose out of the sludge making it possible to use it for example as drainage inhibitor under roads. The extraction of the cellulose also makes the rest of the sludge easier which can lead to a cost reduction of 15-20% for aeration.





Ecophos in Friesland have developed a system that can extract almost 99% of phosphate from incinerated sludge, making it easy to add this highly effective valorization step at the end of the process.





TECHNOLOGY EXPORT

Because the innovations are so mature in this case, we would suggest a Technology Export, from Friesland to Lazio and Tampere.



EMERGING IDEAS



SCREEN Cross-regional value chains

The most relevant value-chains have been identified and analyzed:

Material-driven value-chains

- > Agriculture
- > (Smart) Packaging
- Water and wastewater
- Biobased materials & biotechnology
- Manufacturing & de-manufacturing
- (Bio)waste management
- Construction/Build Environment

Business driven sectorial value-chains

- Electrical and Electronic Equipment
- Energy
- Paper and forest-based industry
- > Textile
- Transport and mobility
- Food and beverage



Existing financial instruments

"Existing financial Instruments" have been revised including the instruments already available in the regions which are mapped to:

- 1. Further develop **the emerging ideas**, stemming from the results of the previous steps within Screen.
- Gather best practices and hints which can fuel the policy lab, created within the project.

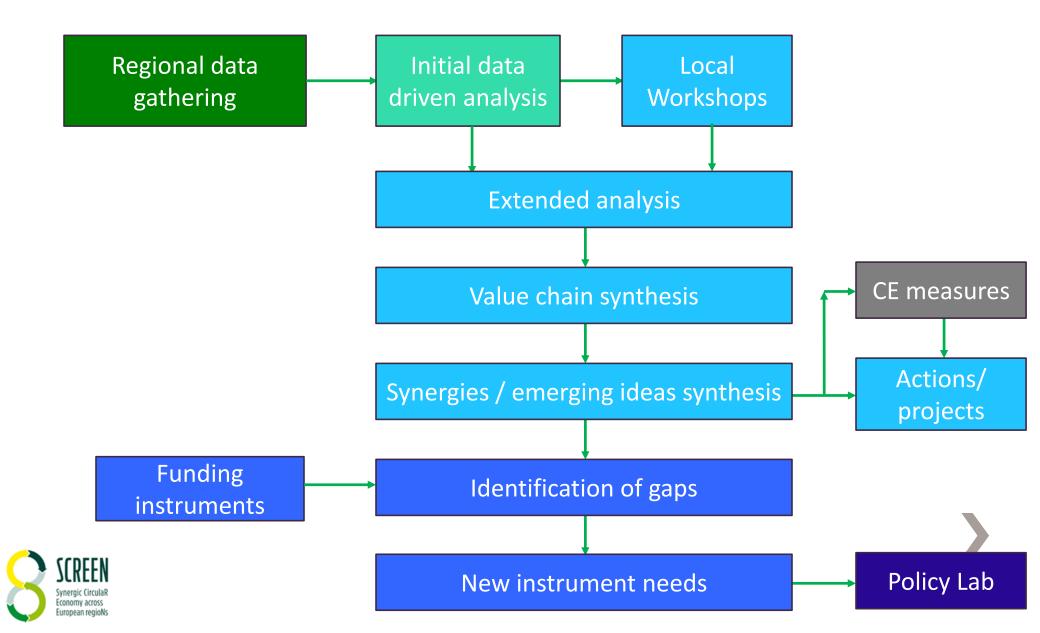
Regional R&D Support Programs Regional Innovation Support Programs

Vouchers for Industry

Start Up Programs



SCREEN Methodology: From local to cross-regional value-chains







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