



# TRIS

Interreg Europe



European Union  
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## Emilia-Romagna Regional Action Plan update

**Emilia-Romagna Region, ART-ER**

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TRIS final partner meeting

24/02/2021

# Background: the starting point

## European policy

- Resource Efficient Europe Flagship Initiative – EU 2020 strategy (2010)
- A stronger EU industry for growth and economic recovery (2012)
- EU Circular Economy Action Plan (2015)
- EU Circular Economy Package Directives (2018)

## Italian national policies

- Decree “Criteria on the Identification of byproducts” (2016)
- MISE&MATTM Decree “Circular economy indicators” (2017)
- MISE&MATTM “Towards an Italian Circular Economy model” (2017)

## Emilia-Romagna regional policies

- Regional Law 5/10/2015 on Circular Economy and Waste management (2015)
- Regional Waste Management plan (2016)
- Regional Smart Specialization Strategy (2014-2018)

# The new policy framework

**Green New Deal** embedding Circular Economy Action Plan for a more competitive and cleaner Europe (2020)

**National Decrees** adopting the EU Circular Economy Package Directives (packaging, RAEE, EOL vehicles)

## Emilia-Romagna

- Circular economy is included in both political and programming strategies:
  - Regional mandate programme (2020-2025) and “Labour and climate pact” (2021)
  - RIS3 2021-2027 programming amongst the 15 cross-cutting topics

# The process towards the Action Plan



**Target Policy Instrument: Emilia-Romagna Waste Management Plan**

**Key Stakeholders  
on Industrial Symbiosis  
and Circular Economy  
in Emilia-Romagna**



**Engagement in  
5 IS Lab Workshops  
and Study Visits**



**Collection of good practices,  
insights and ideas on new  
actions to develop IS and CE**

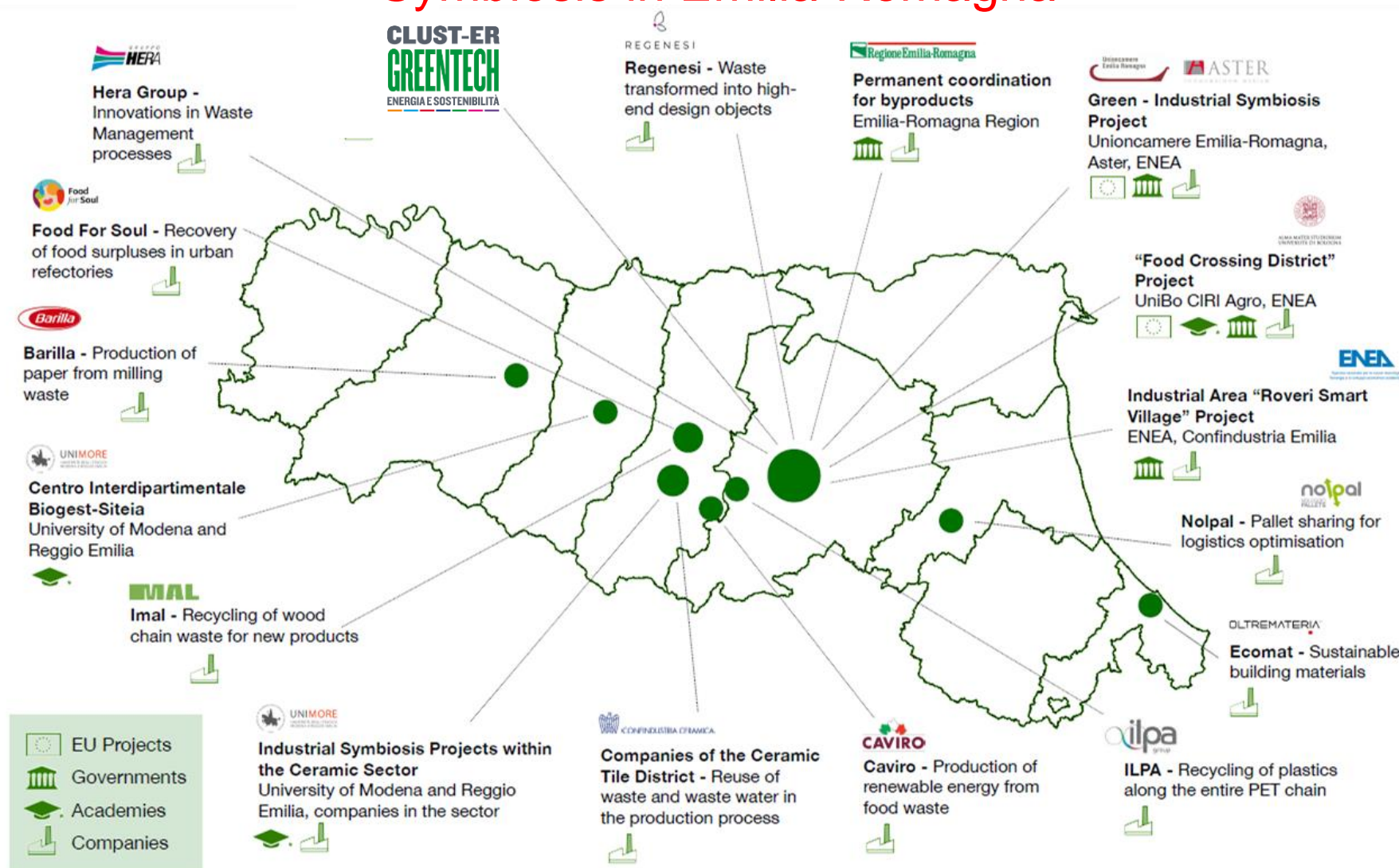


**Creation of an  
Action Plan  
on Industrial Symbiosis**



**Validated by:**  
•TRIS IS Lab stakeholders  
in Emilia-Romagna  
•TRIS partners

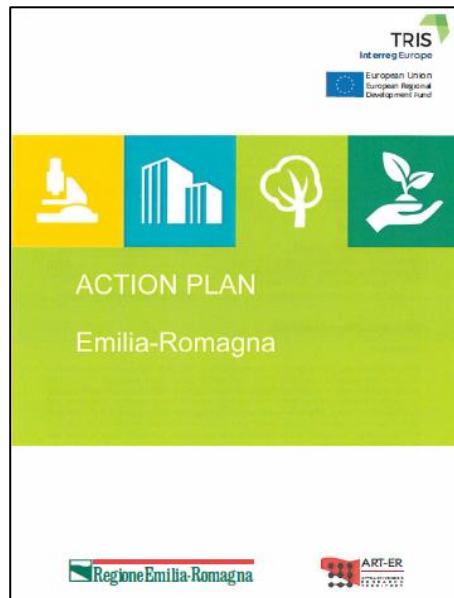
# Good practices on Circular Economy and Industrial Symbiosis in Emilia-Romagna



# TRIS Action Plan in Emilia-Romagna

## Action 1

Improving market opportunities for **plastic secondary raw materials** in Emilia-Romagna, including both the contributions from industrial residues and post consume materials.



## Action 2

Implementation of **regional industrial symbiosis (IS)/circular economy (CE) projects** involving the 5 productive sectors identified in the Emilia-Romagna Smart Specialization Strategy

## Action 3

**Awareness raising** amongst regional stakeholders on Industrial Symbiosis

## Action 4

**Influencing National policies** on Industrial Symbiosis

# Action 1. Improving secondary raw materials uptake in the plastic sector

Analysis carried out on the plastic material flows in Emilia-Romagna including both the contributions from industrial byproducts and post consume materials.

Based on this analysis, the qualitative and quantitative availability of secondary raw materials and industrial waste have been quantified to improve the secondary market for raw materials and by-products at regional level.

Collected information have been shared with business association so as to show the market opportunities for new business initiatives.

- **Players involved:** Emilia-Romagna Region (coordination), ARPAE (data provider), University of Bologna (performing the analysis)
- **Timeframe:** 2019-2021
- **Budget:** 6 k€



# Action 1. Improving secondary raw materials uptake in the plastic sector

The study analyzed the regional context, examining its characteristics and limits and helped to draw attention to the theme of sustainable management of plastics by the Region.

It has highlighted that Emilia-Romagna has **a significant plant equipment** (107 plants authorized for plastic recovery), but only a limited number of companies carry out complete recovery processes, leading to the production of new raw materials.

From the analysis of some case studies, **success factors were identified** that can be replicated in other cases:

- Constancy of waste flows and raw materials for recovery;
- Control of the supply chain through direct relationships with suppliers;
- Definition of the quality and the characteristics of the produced raw materials, depending on subsequent processing.



# Action 1. Improving secondary raw materials uptake in the plastic sector

Recycling must be accompanied by a **good prevention strategy** that promotes reuse, sharing services and returnable vacuum systems.

**Bioplastics** must also find space for application.

**The diffusion of quality labels** (e.g. EuCerPlast, Plastica Seconda Vita), is fundamental for the take-off of GPP especially in the construction sector, as they allow to define the conformity of products with the minimum environmental criteria (CAM) provided by legislation.

The **single-use legislation** will have a significant impact on the packaging industry, which represents a very important segment of the regional economy, **requiring transformations and reconversions of production processes**.

This could be an opportunity to focus on innovative and certified processes encouraging the circular economy.

# Action 1. Progress update (1)

- Between April-October 2019, several meetings were held, including meetings organized by the Emilia-Romagna Region with the main trade associations at regional level, to discuss the **"Regional Strategy for the reduction of the effects of plastics on the environment"** ("Emilia-Romagna plastic free strategy), definitively **approved by the Region on 2019, November 11.**
- Meetings were organised with "Coripet" (PET Recycling Consortium) and other important regional organisations representing the retail trade and large retailers, in order to adopt innovative PET collection systems to subject PET to recycling for use in the food sector and facilitate the achievement of the new European objectives on the subject. The action was strengthened by an **agreement approved by the Region on 22 November 2019\***.

\* Protocollo di intesa per favorire la raccolta selettiva delle bottiglie in Pet post-consumo al fine di intercettarle e di riciclarle in un'ottica di economia circolare da realizzare attraverso un progetto sperimentale" fra Regione Emilia-Romagna, ATERSIR, ANCI-ER, CORIPET e CONFSERVIZI EMILIA-ROMAGNA

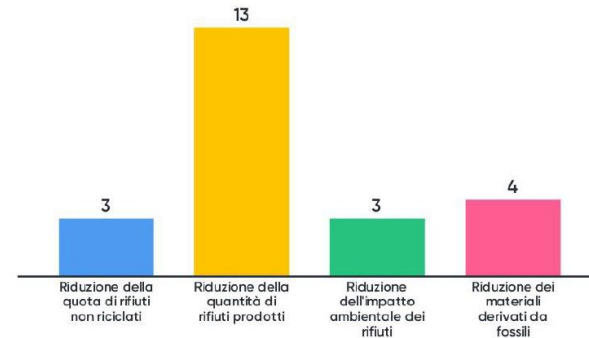
# Action 1. Progress update (2)

- RER participated to the **workshop organized by ART-ER** in collaboration with eCircular project “Prevention of plastic waste production in the Region of Emilia-Romagna”, on 09 September 2019.

## Workshop eCircular - Parte interattiva e risultati

Come definiresti la prevenzione (dello spreco) della plastica?

Mentimeter



23

- On the plastic topic, the Region held meetings with several stakeholders.

## Action 1. “Emilia-Romagna plastic free” Strategy

During the last semester of 2019, the growing attention on plastic waste following the European Directive on SUP has risen the awareness on the issue, at the core of Action 1 of TRIS Action Plan in Emilia-Romagna. RER has been proactive in developing a regional directive in November 2019 which integrates, on this specific topic, the Circular Economy Law approved in 2015.

The approach aims at **protecting the environment from plastic waste while supporting a transition to sustainable plastics** via reuse, reducing and recycling.

The strategy also introduces incentives for the Municipalities which actively engage in reducing SUP and for companies and research laboratories which promote the development and use of alternative materials or eco-compatible plastics.



In this [video](#) (in Italian), the President of the Emilia-Romagna Region presents the regional strategy #plasticFreER.

## Action 1. “Emilia-Romagna plastic free” Strategy

Between November and December 2020, some meetings of the **Steering Committee** foreseen by the **#PlasticFreER** strategy were held.

In these meetings were defined:

- the working methods and the reference conditions for the implementation of the actions identified in the approved strategy;
- the development of additional actions;

**8 technical working groups** have been set up in which the productive sectors participate through the main trade associations and the involvement of some local companies.



By spring 2021 the working groups will produce **guidance documents** on the theme of plastics for the continuation of activities.

## Action 2. Regional Industrial Symbiosis/Circular Economy projects

- This action influenced the Strategic Objectives of the revised Smart Specialization Strategy 2014-2020 of the Emilia-Romagna Region by including **Industrial Symbiosis**
- This strategy shapes the remaining ERDF funding opportunities for research and innovation (Axis 1) within the 2014-2020 programming period.
- Financial resources mobilized for IS development:

**total ERDF funding: 3,71 M€**

- **Players involved:** ART-ER, regional Clust-ERs, HTN Network
- **Timeframe:** 2018-2021
- **Budget:** 30 k€ (staff costs) + 10 k€ (direct costs)

## Action 2. Timeline

- 2018: as preparatory activity ART-ER brought Industrial Symbiosis and Circular Economy using the experiences of TRIS partners at the discussion table of the Smart Specialization Strategy of Emilia-Romagna region. As a result, **Industrial Symbiosis and Circular Economy were included amongst the topics of the new call** (Axis 1, Action 1.2.2) for strategic research projects.
- 2019: communication of the official approval of strategic research projects (march 14<sup>th</sup>) and implementation by regional research laboratories and companies.
- July 2019: the 24 months research projects were launched.
- 2019 - on: ART-ER monitored the implementation and the results.
  
- **Number of projects: 5**
- **Total projects value: 5,37 M€**
- **Total ERDF funding: 3,71 M€**



## Action 2. Emilia-Romagna RIS S3 (2014-2020)

### 4 priorities

- **2 “Vertical” (A, B)**
  - **A - Regional core production systems**
    - Agrifood
    - Building and construction
    - Mechatronics and motoring
  - **B - Production systems with high growth potential**
    - Health and well-being industries
    - Cultural and creative industries
- **2 “Horizontal” (C, D)**
  - **C - Socio-economic challenges**
    - Sustainable development
    - Healthy and active life
    - Information society
  - **D - Service innovation**

# Action 2. RIS S3 implementation

## Clust-ER's foundation

- Associations/Communities of public and private bodies, based on RIS3's four priorities (A, B, C, D).
- Key actors for the RIS3's implementation
- To enforce the Regional system of research and innovation

## RIS3 Forums

- Discussion open to the stakeholders interested by R&I policies
- Objectives: monitoring the strategy and collecting proposals to update and for a better implementation of RIS3

# Action 2. RIS3 Forum 2018

## Format:

- Open discussion platform dedicated to all stakeholders interested by R&I policies in Emilia-Romagna
- **7 vertical events dedicated to each RIS3 priority**
  - Agrifood
  - Building and construction
  - Mechatronics and motoring
  - Health and well-being industries
  - Cultural and creative industries
  - Innovation in services
  - Energy and sustainable development

## Results:

- 800 people involved
- RIS3 review and 71 new “strategic objectives”

## Action 2. From new strategic objectives to financed projects

| RIS3 Forum | Strategic objective   | Submitted projects | Financed projects | Total investment | Public support |
|------------|---|--------------------|-------------------|------------------|----------------|
| Agrifood   | 9. Valorisation of by-products and co-products of agriculture, livestock and aquaculture by developing biorefineries or innovative extractive processes for the production of compounds chemicals and materials of interest for non-food and non-feed industrial sectors. | 1                  | BIOWAFER          | 790,266 euros    | 570,944 euros  |
|            | 10. Valorisation of by-products and waste from the agriculture, livestock and aquaculture sector energy products and biomethane.  | 2                  | FLIES4VALUE       | 1,111,422 euros  | 795,981 euros  |

## Action 2. From new strategic objectives to financed projects

| RIS3 Forum                                | Strategic objective   | Submitted projects | Financed projects | Total investment | Public support |
|---|---|--------------------|-------------------|------------------|----------------|
| <b>Build</b>                              | 4. New materials and low impact building components for sustainable buildings.  | 3                  | IMPreSA           | 756,923 euros    | 547,546 euros  |
| <b>Mechatronics</b>                       | 8. Innovative materials for structural and functional components from advanced manufacturing, to strengthen the competitiveness and sustainability of the regional "advanced materials and manufacturing" supply chain. | 2                  | FIREMAT           | 1,121,429 euros  | 800,000 euros  |
| <b>Energy and Sustainable Development</b> | 6. Circular economy and sustainable development.  | 1                  | VALUE CE-IN       | 1,118,393 euros  | 797,875 euros  |

## Action 2. From new strategic objectives to financed projects

### Agrifood

**BIOWAFER:** valorization of by-products and co-products of agriculture, livestock and aquaculture by developing biorefineries or innovative extractive processes for the production of chemicals compounds and material of interest for non-food and non-feed industrial sector

### FLIES4VALUE

An economic, efficient, competitive and low-impact system to enhance wastes from regional agri-food industries by exploiting the effectiveness of bioconverting insects, soldier fly larvae, for the production of feed for laying hens and other substances with high added value for the food sector and agriculture

## Action 2. From new strategic objectives to financed projects

### Build

**IMPreSa** - Development of innovative construction materials including non-recyclable plastic particles acting as reinforcement.

### Mech

**FIREMAT** - the goal is to overcome the main technological limits arising from the application of polymeric matrix composites (PMCs), that derive from their low resistance to temperature, combined with their non-recyclability.

### Greentech

**VALUE CE-IN** - Optimize the treatment of municipal and industrial wastewater by applying circular economy principles (water resource, nutrients and sludge), increasing the system efficiency in the energy use and introducing new business models.



## Action 2. Survey on ongoing projects (1)

In 2020 an online survey on ongoing projects was carried out, in order to:

- Detect **perceptions and improvement proposals** on the evolution of the context relating to Circular Economy and Industrial Symbiosis in Emilia-Romagna
- Collect **qualitative and quantitative information on the progress** of projects and on the impacts generated in implementing the objectives of the TRIS project



Enea - Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile



LEA - Laboratorio Enea Ambiente



Università degli Studi di Modena e Reggio Emilia

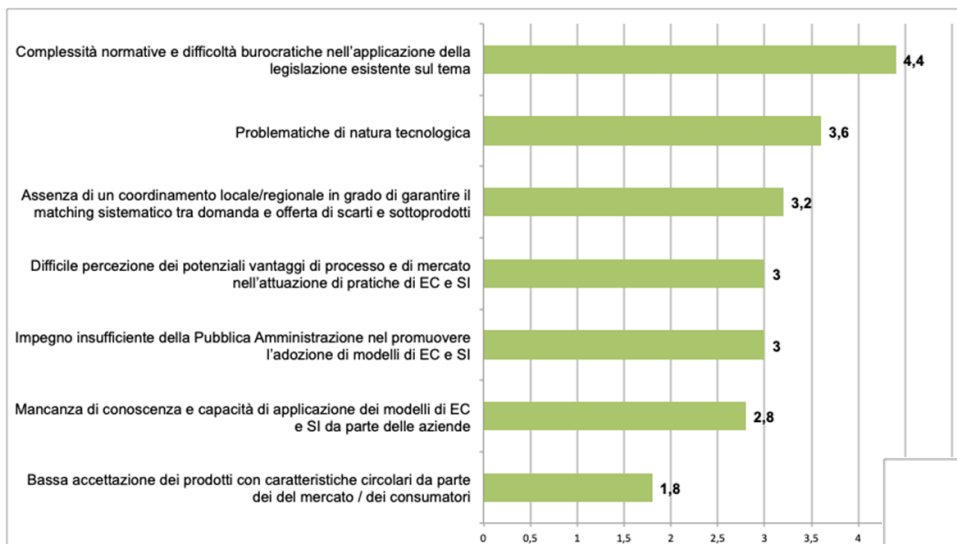


Università Cattolica del Sacro Cuore

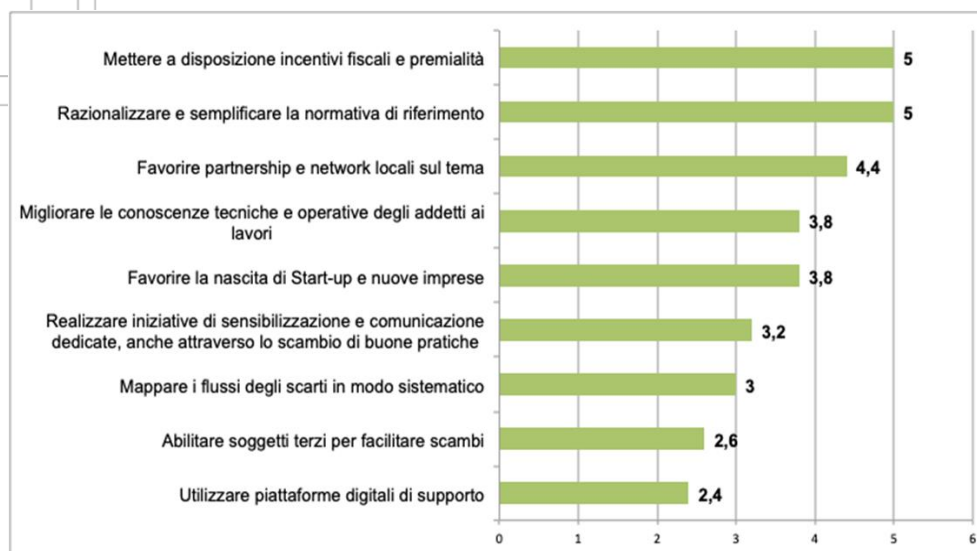


Biogest - Siteia Unimore

# Action 2. Survey on ongoing projects (2)

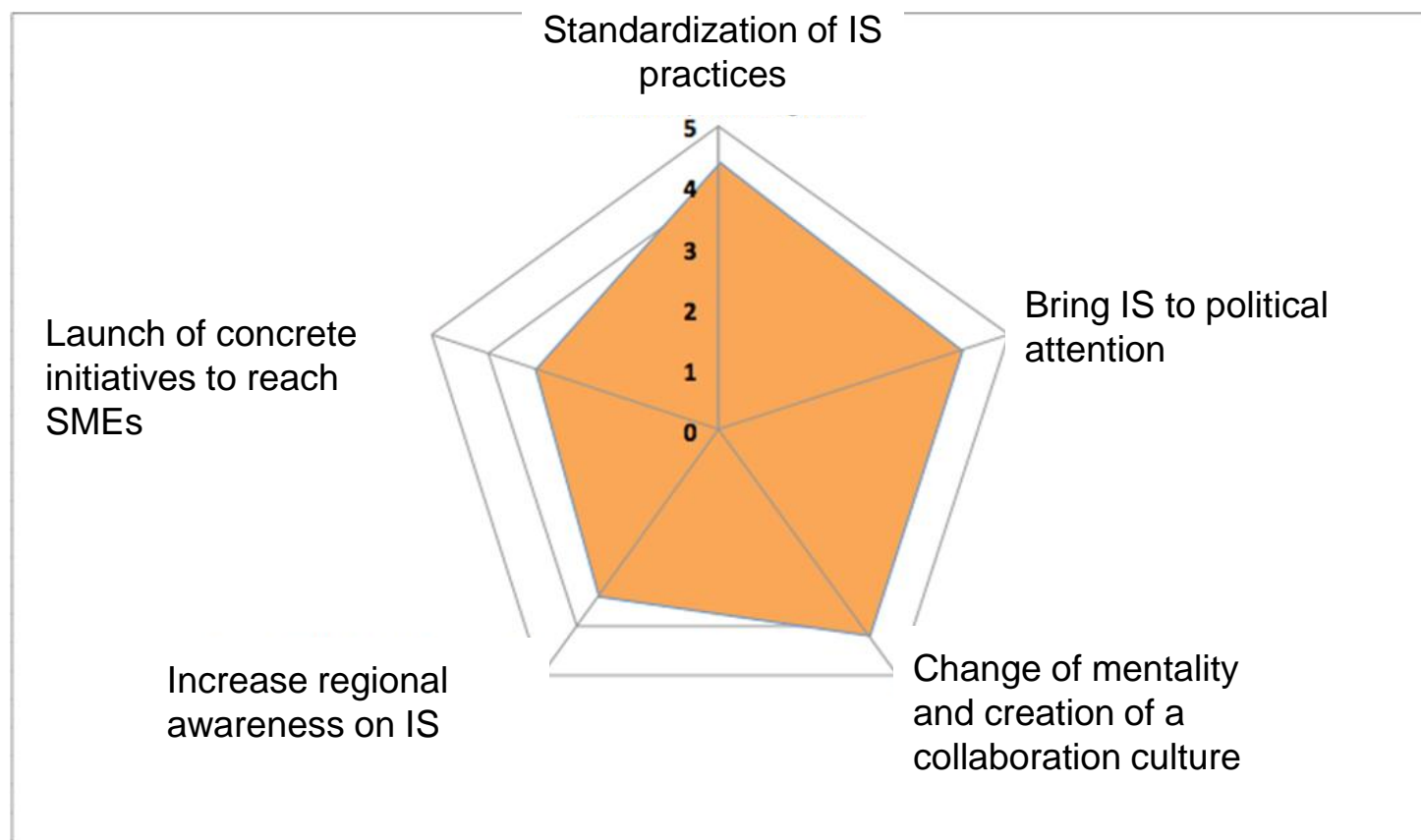


## Useful support actions



## Action 2. Survey on ongoing projects (3)

TRIS objectives to which the project contributes most



# Action 3. Awareness raising amongst regional stakeholders

- **Abstract:**

This action entailed:

- 3.1 - Promoting the tools of the regional Circular Economy Law (L.R.16/2015) supporting the activities of the “Permanent Coordination table on Byproducts”
- 3.2 - Awareness raising on IS with a dedicated event organized within “R2B - Research to Business 2019” Fair
- **Players involved:** RER, ART-ER, Regional Business Associations, Regional Sustainability Observatory
- **Timeframe:** 2019 – 2020
- **Budget:** 5 k€ (ART-ER); 2 k€ (RER)

## Action 3.1 - Regional table on by-products

- To date, there are **16 companies** that generate by-products and are **registered in the regional By-products List**, and another company is about to be admitted
- After the suspension of activities due to the Covid 19 emergency, on 18 January 2021 a new meeting was held with the main regional trade associations, ARPAE, and with the representatives of the other regional DGs.
- During the meeting, an additional chain of by-products relating to **seeds in the agro-food sector** was analyzed, which is now being approved by the Region RER
- In 2019 (latest data available) the companies registered in the regional by-products List allowed to a **reduction in industrial waste by over 38,000 tons**



# Action 3.2 - Raising awareness on IS

## R2B 2019 Event (07/06/2019) - Workshop “Circular Economy: how to promote it with innovative tools?”

Organized by ART-ER and RER, in collaboration with ENEA, the Regional Observatory on Sustainability and CICERONE project.

33 participants from research institutes, companies, local authorities.



### Quali challenge ritenete prioritarie per favorire la transizione verso l'economia circolare?

021

Aree urbane



Sistemi industriali



Territorio e mare



Catena del valore



# Action 4. Influencing National policies on Industrial Symbiosis

- **Abstract:**

- 4.1 - Participation to working groups of ICESP (mirror platform of ECESP):

- Research and ecoinnovation, awareness raising and education
    - Policy and governance tools
    - Cities and regions

- 4.2 - Coordination of “Regional actions and policies for industrial symbiosis” working group of SUN (Italian Symbiosis Users Network)

- **Players involved:** ENEA (coordinator of ICESP and SUN), RER (funding member of ICESP), ART-ER (member of ICESP and SUN)
- **Timeframe:** 2019-2021
- **Budget:** 3 k€ (RER) 1 k€ (ART-ER)



# Action 4.1 - Results

## ▪ 2019:

- The Emilia-Romagna Region participated in the **"End of Waste" group of the ICESP Platform**, held on April 4, 2019. RER worked in order to collect data on key issues concerning the authorizations related to the cessation of waste qualification and to lobby the national legislator for the adoption of specific regulatory actions on the subject. In this regard, the Action is influenced by issues related to the national political level, within which the "End of Waste" issue is not a priority.
- On November 7, 2019 in Rimini at the ECOMONDO fair, the event **"Good practices of circular economy : panel of the circular economy stakeholders platform (ICESP)"** was held. The panel presented success stories and best practices of Circular economy with the purpose to encourage their integration, to foster the dialogue and the identification of possible synergies. The conference also hosted representatives of the mirror platforms of **Romania and Austria** in order to share experiences and encourage the systemic approach for the transition to the circular economy.

## ▪ 2020:

- a meeting between RER, ART-ER, ENEA, National Agrifood Cluster (CLAN) and FICO Foundation was held (15/01/2020). The objective was to reflect about the launch of a **national working group on food waste**, with the organization of an inaugural event and the definition of a position paper.

## Action 4.2 - results

- ART-ER coordinates the activities of the “**Regional actions and policies for industrial symbiosis**” Working Group within the SUN Network. In the context of this activity, it has organised several conference calls with group members, and contacts with ICESP and SUN community stakeholders have been strengthened.
- The activities carried out in 2019 - 2020 concerned the **mapping of Industrial Symbiosis actions** within the regional policy documents, with a particular focus on RIS3.

### Sintesi dei risultati della mappatura

| Regione               | Prima versione S3 | Aggiornamento |
|-----------------------|-------------------|---------------|
| Basilicata            | ++ (2016)         | +++ (ipotesi) |
| Emilia-Romagna        | +++ (2014)        | +++ (2018)    |
| Friuli-Venezia Giulia | + (2014)          | ++ (2017)     |
| Lazio                 | +++ (2016)        | +++ (ipotesi) |
| Marche                | - (2014)          | -             |
| Molise                | - (2016)          | ++ (ipotesi)  |
| Puglia                | + (2016)          | +++ (ipotesi) |
| Umbria                | + (2014)          | + (2018)      |

# Update on Action 4.2 progress

- The first results of this mapping activity were presented during the SUN Conference, “Good practices of Industrial Symbiosis in Italy and the contribution of regional policies as strategic lever” organized on November 7, 2019 at "Ecomondo", the Green Technology Expo held in Rimini.
- **100 participants** from research institutes, companies, local authorities.
- **In 2020 the mapping was updated** and a specific action, dedicated to the **identification of regional high-level technical stakeholders** on IS / CE, was started.



# Lessons learnt

Promoting a systemic uptake of Industrial Symbiosis requires:

- learning new approaches from cross-regional exchange key
- the active involvement of stakeholders and the quadruple helix
- the alignment of different policy instruments since IS challenges are cross-sectoral
- the project should be well anchored within the partners core business and their priorities
- the alignment of the political and the technical level, as both need to be on board

# Future outlook

- COVID-19 emergency largely impacted the waste production and symbiosis processes Action 1 of the RAP Emilia-Romagna concerns a sector which is deeply impacted by on waste production and single use products is relevant
- As follow up of TRIS, the awareness on circular economy and related tools like industrial symbiosis has increased within the Regional administration DG Economic Development, we expect more cross-cutting opportunities for the development of IS



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# Thank you!

# More information on financed projects

- **BIOWAFER** - Biorefining Waste of the Agro Food Chain in Emilia Romagna
- **FLIES4VALUE** - Insects for the bioconversion of agrofood byproducts into feed and high added value substances
- **VALUE CE IN** - Valorization of waste water and sludge with a circular economy and industrial symbiosis perspective
- **IMPRESA** - Using recycled plastics for construction industry applications (light mortar and concrete)
- **FIREMAT** - FIRE resistant MATerials & composites