



Thanks for joining!  
The session will start in a few minutes





# Welcome!

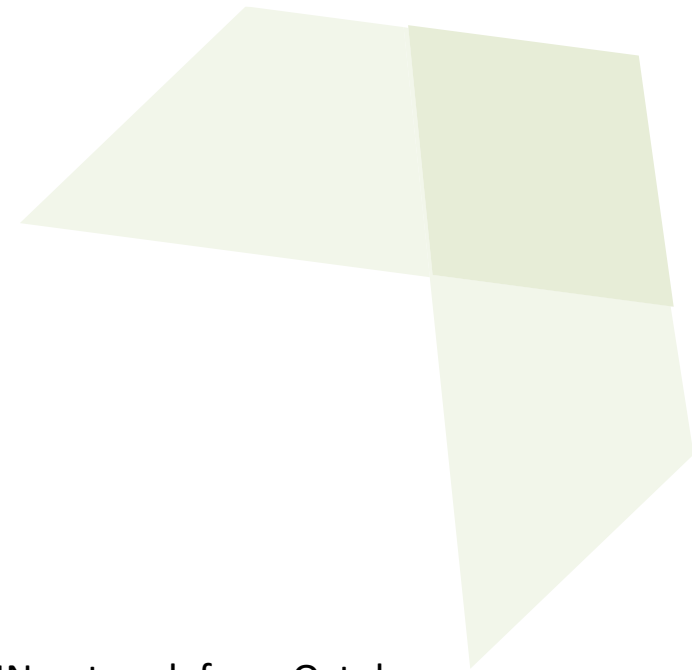




## Richard Tuffs

Richard Tuffs was director of the ERRIN network from October 2010 to August 2017. He then acted as senior advisor until December 2018. In December 2019 Richard was a founder member of the Friends of Smart Specialisation – an informal independent think tank dedicated to promoting regional smart specialisation strategies.

Richard has participated in and evaluated numerous EU research and innovation projects and was the rapporteur for the European Commission expert group on the Capital of Innovation prize launched in 2013 and has also served on many advisory boards focusing on education, research and innovation and smart specialisation topics. He is often invited to moderate, present and act as rapporteur at conferences and now webinars.





# Agenda

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**14:00** Welcome

**14:10** Interregional Cooperation

**14:20** SYMBI project Review

**14:30** Industrial Symbiosis regional policies: from Learning to Actions

*Questions and Answer*

**15:20** What is happening on Industrial Symbiosis around Europe?

*Questions and Answer*

**16:20** Conclusions

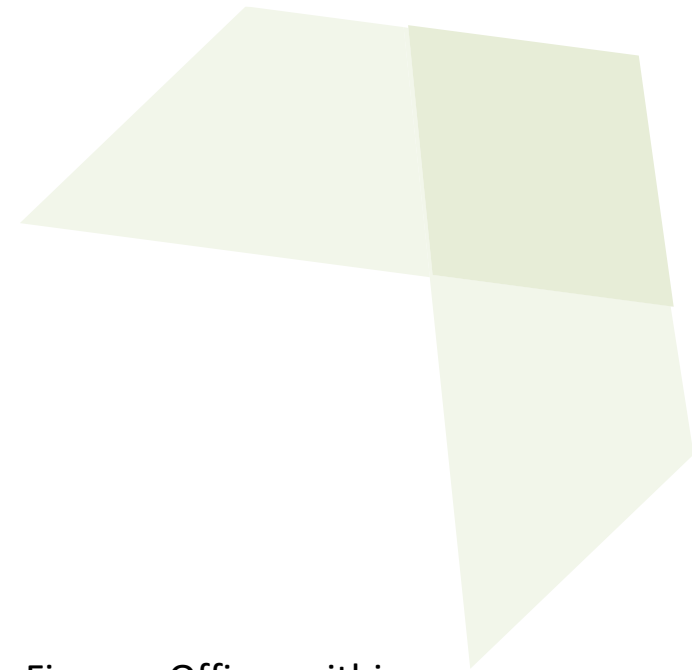






## Alexia Bellemin

Alexia Bellemin has been working as a Finance Officer within the Interreg Europe Secretariat based in Lille for over three years now. Prior to joining the world of the European territorial cooperation, she worked for two and half years in the UK, as a European project assistant on an EaSI project and then as European adviser for London boroughs. She has a MA in European Politics and Public Affairs from Sciences-Po Strasbourg and did an Erasmus exchange during her undergraduate years at the University of Leeds. She is French and comes from Lyon.



**Interreg  
Europe**



European Union | European Regional Development Fund

# Interreg Europe: state of play

**Alexia Bellemin**

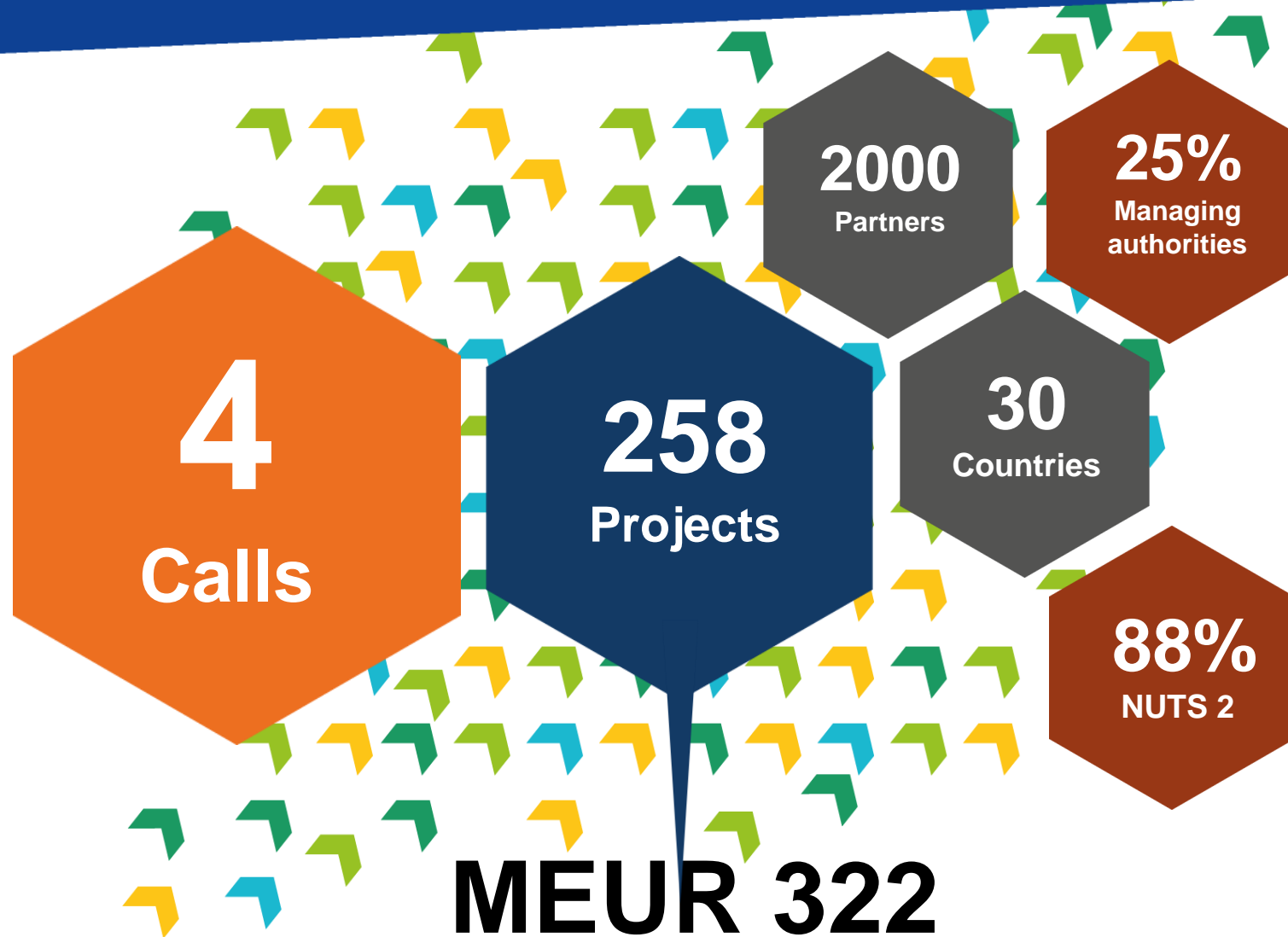
Finance officer | Interreg Europe Secretariat

**10 December 2020**

**SYMBI Final dissemination event**



# Interregional cooperation projects





# Outputs achieved (as of 1<sup>st</sup> December 2020)

**3,330**  
Good practices  
identified

**1,996**  
Good practices  
PLP

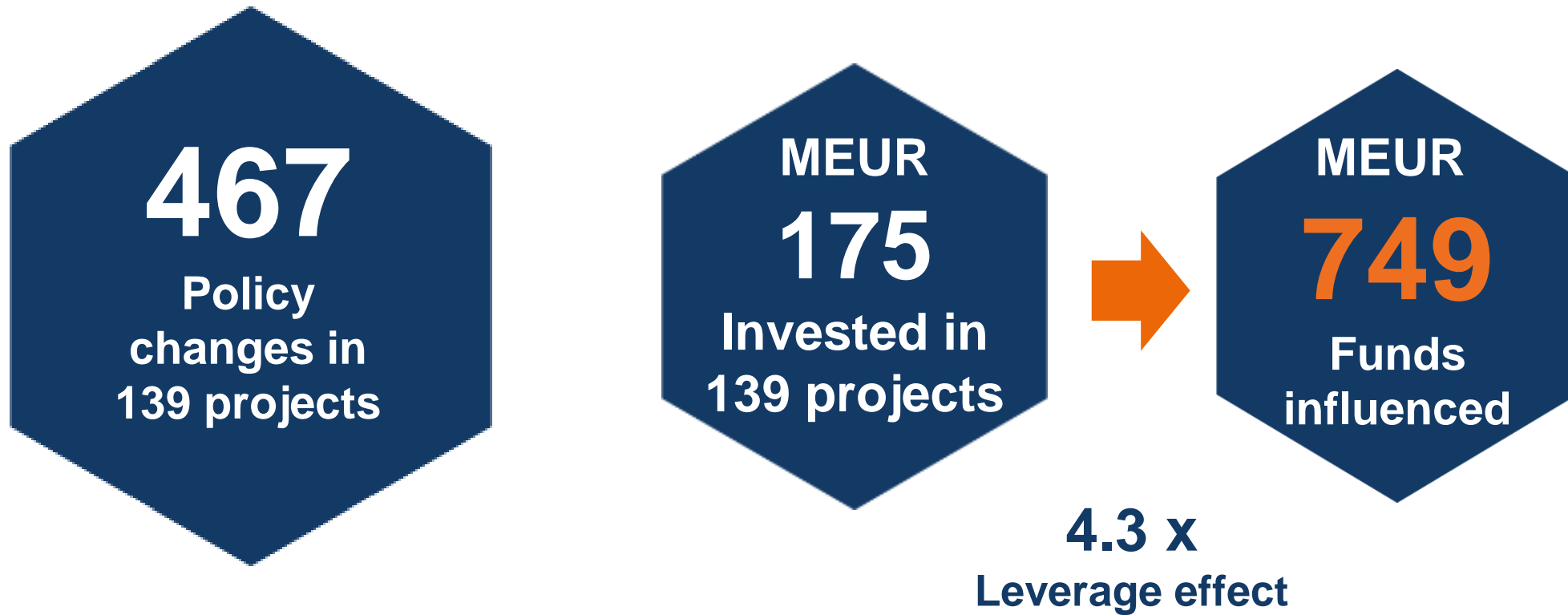
**12,303**  
Staff with  
increased capacity

**895**  
Action plans

**100 %**                      **97 %**  
\_\_\_\_\_ % of target in the CP reached \_\_\_\_\_

**158 projects have finished phase 1**

# Policies improved (as of 1<sup>st</sup> December 2020)



# Policy Learning Platform

**Community of peers**  
**+ 18,000 members**



**Good practice database**  
**+ 1900 good practices**



**Expert policy support**  
**peer reviews, helpdesk**

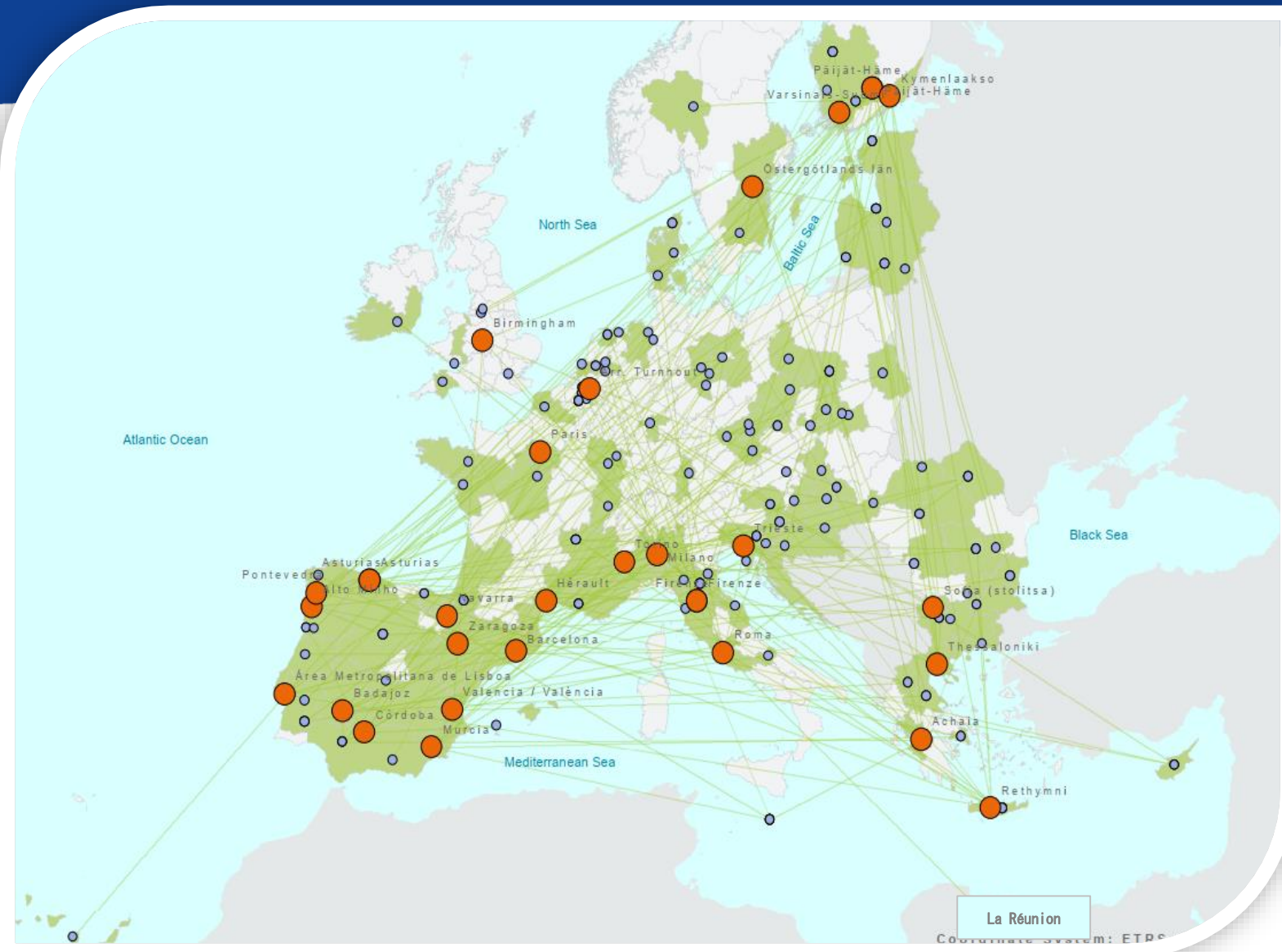


**Knowledge hub**  
**Policy briefs & news**





# Cooperation on resource efficiency



31

projects total

11 on circular economy  
2 on industrial symbiosis

Call	Acronym	Sub-topic
1	CESME	Circular economy
1	RETRACE	Circular economy
1	<b>TRIS</b>	<b>Industrial symbiosis</b>
2	BIOREGIO	Circular economy
2	CircE	Circular economy
3	CircPro	Procurement
4	REDUCES	Business models
4	COLOR CIRCLE	Circular economy
4	REPLACE	Circular economy
4	CECI	Citizens engagement

# Results already achieved

**1. Regional Operational Programme for Małopolskie Voivodeship 2014-2020**

*Malopolska Region (PL)*

**2. Strategic Programme 2018-2023 of Slovene Enterprise Fund**

*Slovene Enterprise Fund (SI)*

**3. Häme Programme – Regional development plan**

**4. Sustainable Growth and Jobs Finland 2014-2020**

*Regional Council of Häme (FI)*



**4 policy changes reported so far!**

# Congratulations!

# Interreg Europe's response to COVID-19

Check the new **COVID-19** section on our website in order to:

- Discover **good practices** from all across Europe that can help you mitigate the pandemic's effects;
- Join our **online thematic activities** that will inspire you and help you find solutions to common challenges;
- Request **tailored support** from our Policy Learning Platform experts;
- Find out related **news and events** published by us, our projects and other institutions.

COVID-19  
keyword!



# Interreg Europe's future

- May 2018: Interreg Europe not present in the EC draft regulations
- May 2019: EP and Council asked for Interreg Europe to be back
- December 2019: first Programming Committee meeting  
<https://www.interregeurope.eu/about-us/2021-2027>
- To be continued.... (finalisation of regulation, budget decision)



# No revolution... but evolution

## Key features remain:

1. Pan-European
2. Similar overall objective
  - Regional development policy makers as core target groups
3. Similar means to achieve the objective
  - Main focus on capacity building

## Proposals:

1. Focus on Structural Funds lightened
2. Learning by doing: pilot actions
3. Only one single priority in the programme
  - Better reflect the core nature of the programme (capacity building)

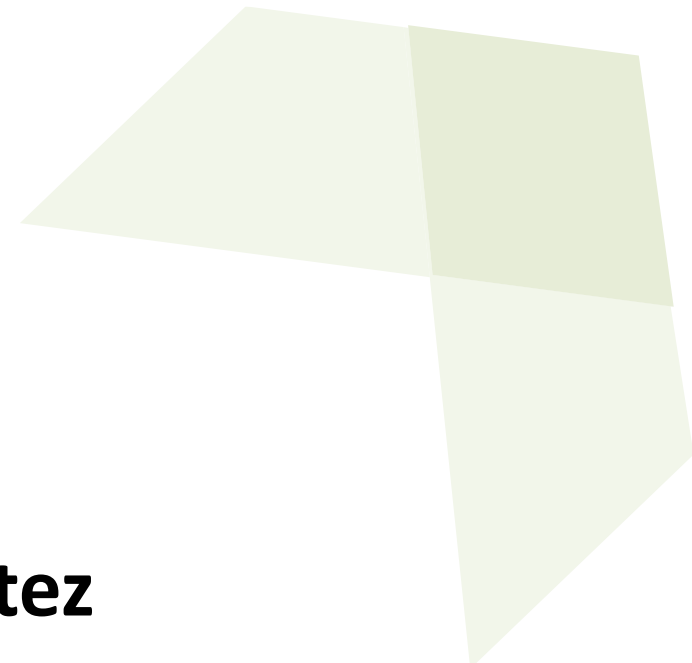
# Thank you!

[www.interregeurope.eu](http://www.interregeurope.eu)



interregeurope





## **María Gracia Benítez**

María Gracia Benítez is Project Manager at Foundation FUNDECYT PCTEX, where she has been working since 2002 implementing and developing national and European projects related to innovation.

She has been coordinating the Interreg Europe SYMBI project since 2016, project aimed to promote the implementation of regional development policies and programs related to the promotion and dissemination of Industrial Symbiosis and Circular Economy from 7 participating countries faced to policies alignment with the Circular Economy strategy of the European Commission



# SYMBI Project

*A five year journey*

María Gracia Benítez




**SYMBI FINAL CONFERENCE**

Meet european regional strategies for sustainable development through **industrial symbiosis**







SYMBI project has facilitated participating regions to design policies aimed at:

- improving capacities,
- design new funding schemes and
- supporting tools

...that will help them in the development of Industrial Symbiosis.



# The partnership

## 10 partners from 7 countries

- FUNDECYT -PCTEX (ES)
- Malopolska Region (PL)
- Environment Regional Ministry of Andalusia (ES)
- Chamber of Commerce of Molise Region (IT)
- Slovenian Government (SI)
- Municipality of Kozani – (GR)
- Pannon Novum West-Transdanubia (HU)
- Hämeen liitto (FI)
- Hämeen ammattikorkeakoulu (FI)
- Regional development Agency of the Ljubljana Urban Region (SI)





# IS Regional Context

- Industrial Symbiosis involves **territorial synergies** to manage waste and share services, utilities, and by-product resources.
- **Opportunity for regions** in the transition towards circular economy.





# Activities

## Interregional Learning

Regional  
State of the  
Art of  
Policies

Identification  
and Analysis  
of Good  
Practices

Interregional  
Workshops

Study Visits

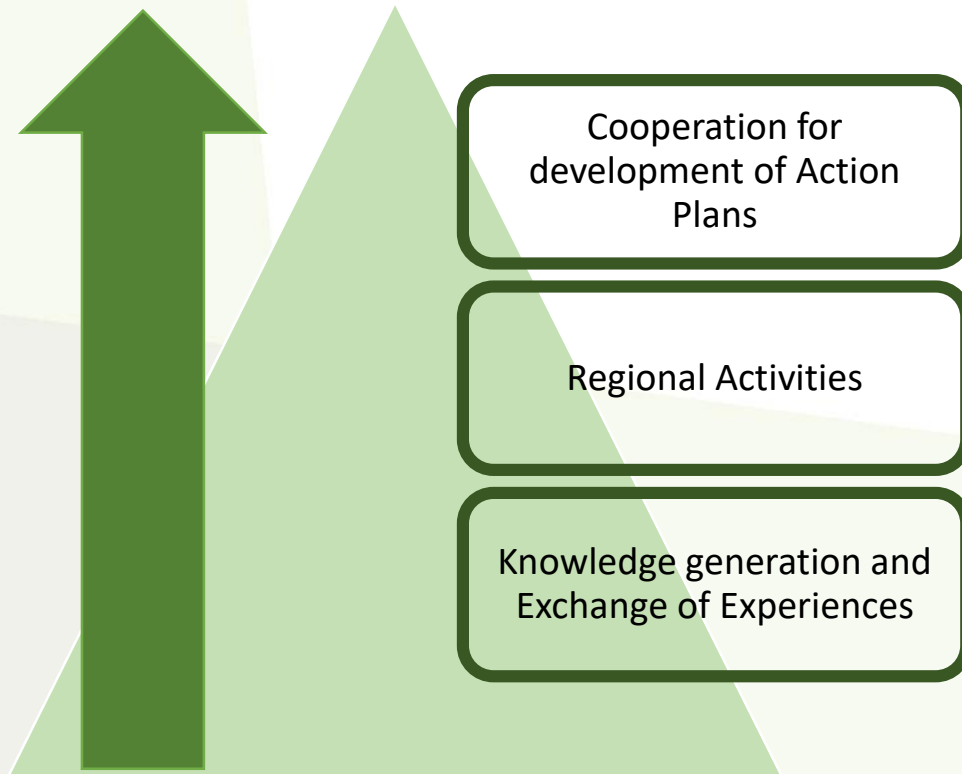
ACTION PLANS

Exchange of Experiences

Public Dialogue



# Stakeholders participation



# Results

## 8 ACTION PLANS

### - IMPROVING CAPACITIES

- Awareness and Training Campaigns to boost CE & IS
- Training on GPP

### - FUNDING SCHEMES

- Financial incentives to promote the secondary raw material markets
- Support to SMEs/Start-ups

### - SUPPORTING TOOLS

- Platform for by-product Exchange



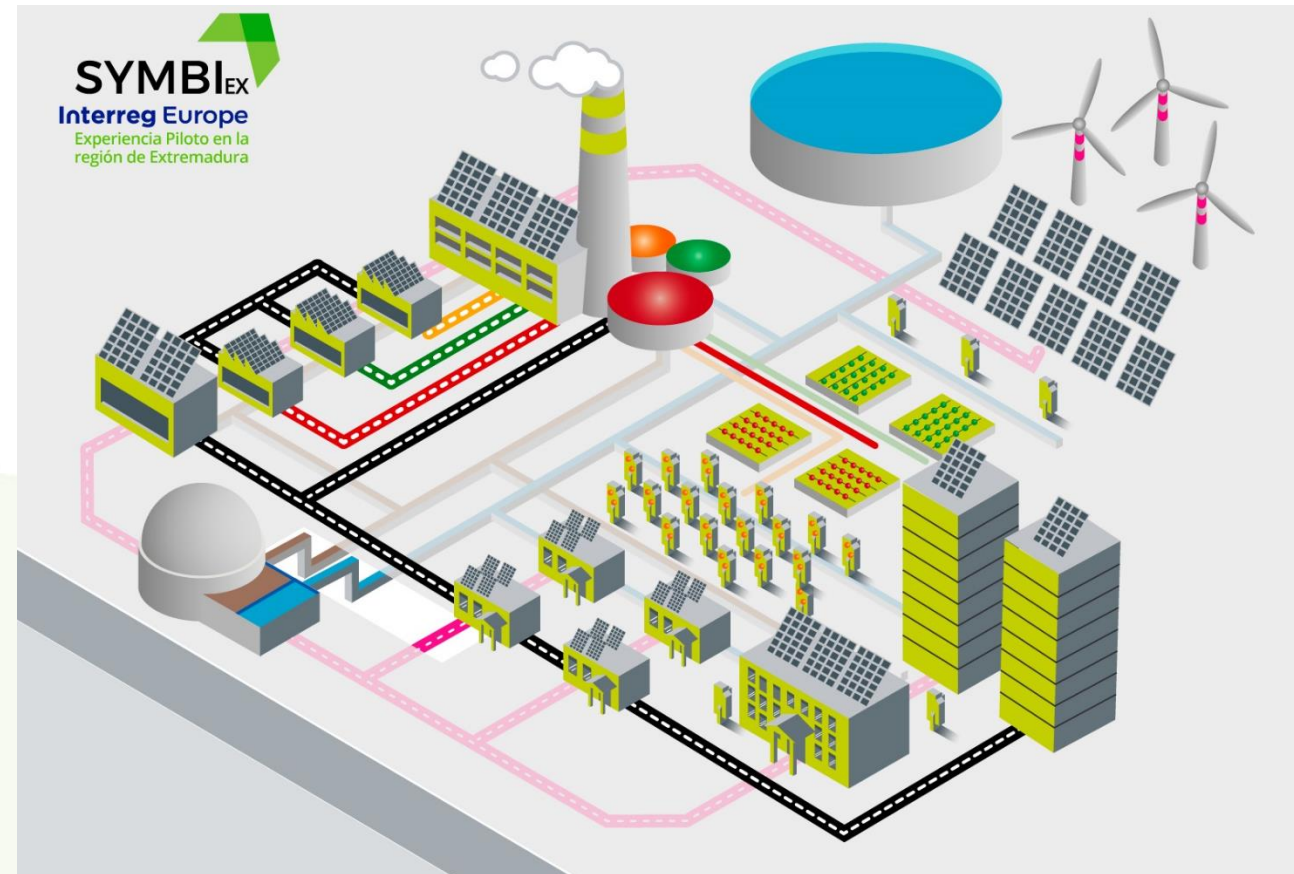


# Pilot Actions

2 Pilot Actions

Eslovenia +  
Extremadura

**AIM:** test a new policy  
regional approach as a result  
of the learning process.





# Industrial Symbiosis regional policies: from Learning to Actions



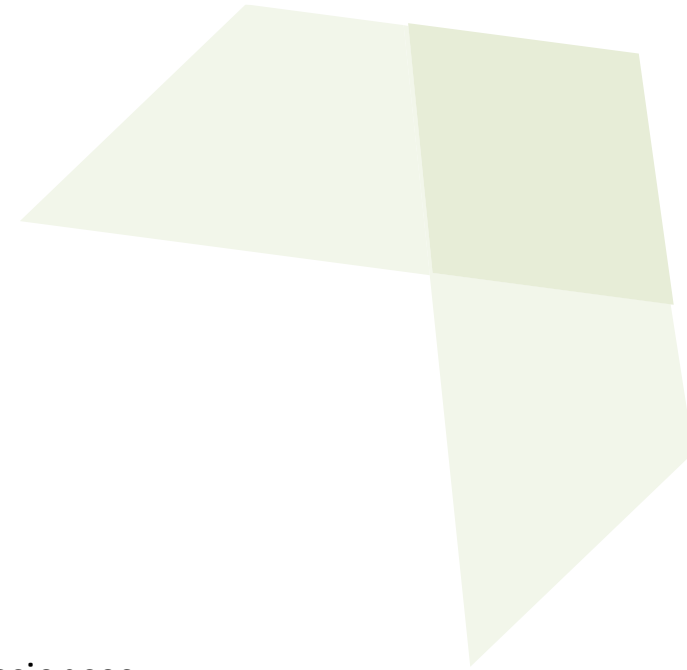


## **Raúl Vega Otero**

Raúl Vega has a degree in geological sciences

He has worked for more than 10 years in the private sector in areas such as groundwater, mineral deposits or civil engineering.

Since 2007 he has been working as a civil servant and is currently Head of the Contaminated Soils Department within the Ministry of Agriculture, Livestock, Fisheries and Sustainable Development





# IMPACT of SYMBI Activities in Andalusia (Spain)



**Junta de Andalucía**  
Consejería de Agricultura, Ganadería,  
Pesca y Desarrollo Sostenible

Raúl Emilio Vega Otero



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Meet european regional strategies for sustainable development through **industrial symbiosis**



# ACTION PLAN:

ACTION 1: IS in the Integral Plan of waste of Andalusia

ACTION 2.1. Website about IS in Andalusia

ACTION 2.2 Pilot event about IS and CE

ACTION 3. Waste and By-products mapping



And suddenly, a long-term impact...

The last week was published the preliminary draft of The Circular Economy Law of Andalusia

**BOJA**

Boletín Oficial de la Junta de Andalucía

Número 235 - Viernes, 4 de diciembre de 2020

página 170

3. Otras disposiciones

CONSEJERÍA DE AGRICULTURA, GANADERÍA, PESCA  
Y DESARROLLO SOSTENIBLE

**NEWS!!!**

*Resolución de 1 de diciembre de 2020, de la Dirección General de Calidad Ambiental y Cambio Climático, por la que se somete a los trámites de audiencia e información pública el Anteproyecto de Ley de Economía Circular de Andalucía.*



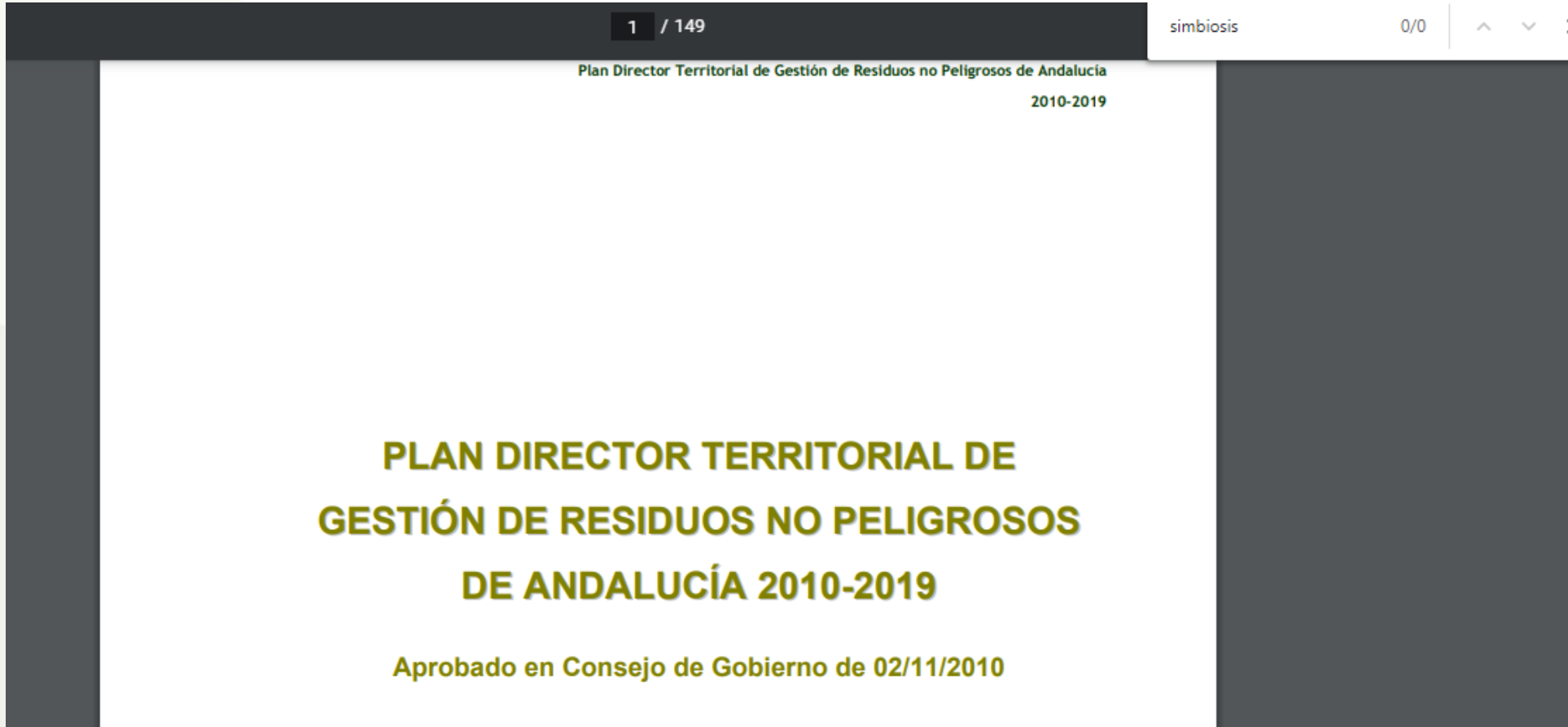
So....We have two changes in environmental policy:

- .The Integral Plan of waste of Andalusia
- .The Circular Economy law of Andalusia

But.....Are They a real deep impact?



In the old Plan of waste, Symbiosis appears 0 times





After Symbi Project...

**BOJA**

**Boletín Oficial de la Junta de Andalucía**

Número 57 - Lunes, 25 de marzo de 2019

página 10

## 1. Disposiciones generales

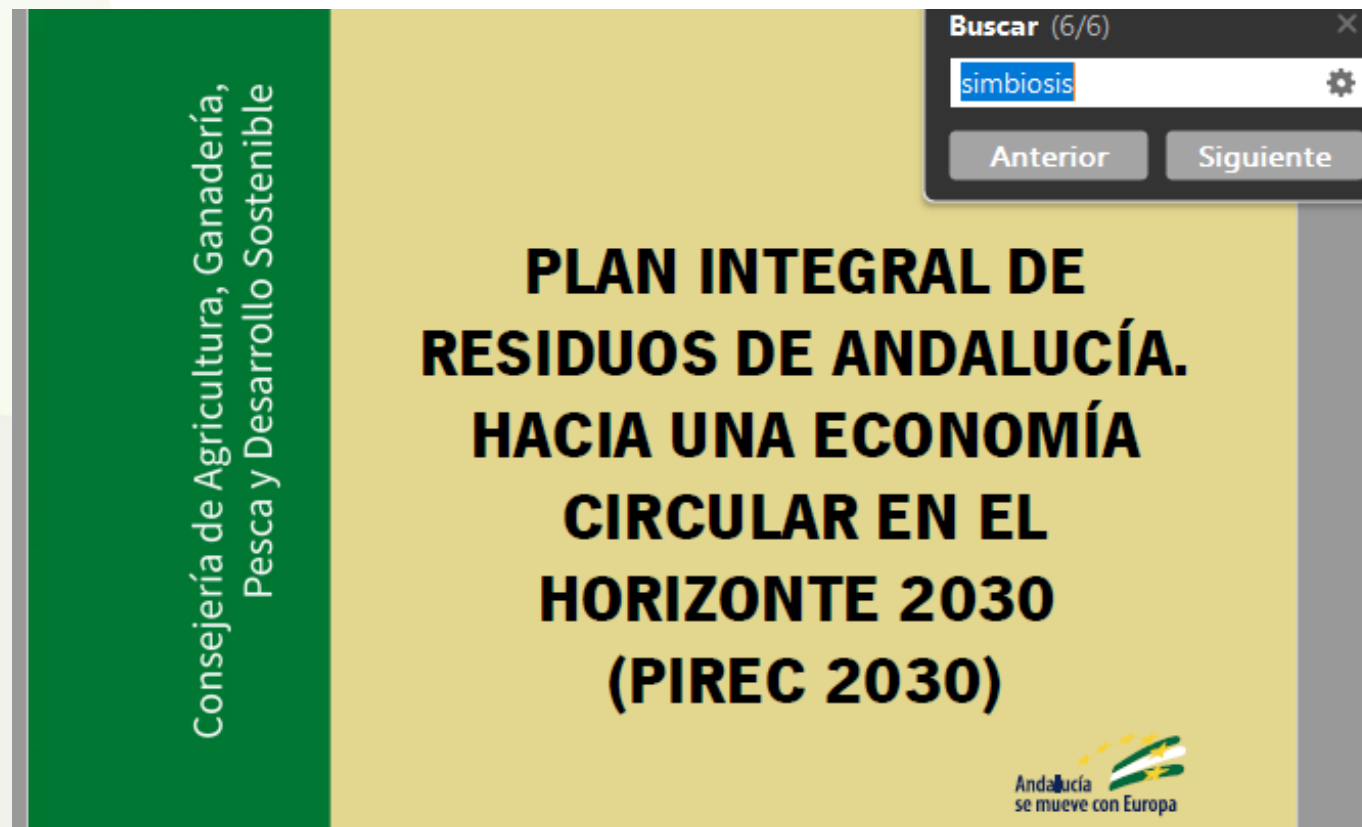
**CONSEJERÍA DE AGRICULTURA, GANADERÍA, PESCA  
Y DESARROLLO SOSTENIBLE**

*Acuerdo de 19 de marzo de 2019, del Consejo de Gobierno, por el que se aprueba la formulación del Plan Integral de Residuos de Andalucía. Hacia una Economía Circular en el Horizonte 2030 (PIRec 2030).*





In the new Plan of waste: Symbiosis appears 6 times



# BOJA

## Boletín Oficial de la Junta de Andalucía

Número 235 - Viernes, 4 de diciembre de 2020

página 170

### 3. Otras disposiciones

**CONSEJERÍA DE AGRICULTURA, GANADERÍA, PESCA  
Y DESARROLLO SOSTENIBLE**

*Resolución de 1 de diciembre de 2020, de la Dirección General de Calidad Ambiental y Cambio Climático, por la que se somete a los trámites de audiencia e información pública el Anteproyecto de Ley de Economía Circular de Andalucía.*



In the preliminary draft law, symbiosis appears 25 times!!

Consejería de AGRICULTURA, GANADERÍA, PESCA Y DESARROLLO SOSTENIBLE

Nº y año del expediente	1233_2
Referencia	

Buscar (1/25)

Anterior    Siguiente

DENOMINACIÓN:

ANTEPROYECTO LEY DE ECONOMÍA CIRCULAR DE ANDALUCÍA



What do they say about SI?

The **third main objective** of The Integral Plan of waste of Andalusia:

*“To promote industrial symbiosis so that the by-products generated in some activities are become the raw materials of others. Encourage the use, by companies, of secondary raw materials to make the most of the material and energy resources contained in the waste and reduce, as far as possible, the consumption of natural resources.”*



With the aim of reducing the generation of industrial waste, it is planned to support the implementation

N.º Objetivo	Objetivo	Indicador Impacto	N.º Medida	Medida	Indicador Ejecución
18	Reducir la generación de residuos industriales en Andalucía	IP18	33	Fomentar la I+D+i y la implantación de las mejores técnicas disponibles relativas a la prevención de residuos en cada sector industrial, en particular para los sectores que generen residuos peligrosos.	EP33
			34	Apoyo a la puesta en marcha de proyectos de <b>Simbiosis Industrial</b> en Andalucía.	EP34



What do they say about SI?

The preliminary draft of The Circular Economy Law of Andalusia

Article 3: Definitions

*“Industrial Symbiosis: The use that a company or sector makes of the by-products (among which include energy, water, logistics and materials) from others.”*



Ley de  
**ECONOMÍA CIRCULAR  
DE ANDALUCÍA**





What do they say about SI?

The preliminary draft of The Circular Economy Law of Andalusia

Article 5: Objectives

*“d) To contribute to optimize the productive cycles and the industrial symbiosis, facilitating the use of all the flows of their production and consumption cycles, so that these can be reincorporated into the economic system.”*



Ley de  
**ECONOMÍA CIRCULAR  
DE ANDALUCÍA**



What do they say about SI?

The preliminary draft of The Circular Economy Law of Andalusia

Article 8: Andalusian Office of Circular Economy

*One of its functions is: “To promote actions in the field of industrial symbiosis.”*



Ley de  
**ECONOMÍA CIRCULAR  
DE ANDALUCÍA**



What do they say about SI?

The preliminary draft of The Circular Economy Law of Andalusia

Article 9: Andalusian Strategy for the Circular Economy

*One of its goals is: “Creation and definition of an industrial symbiosis platform for knowledge transfer, needs and processes among small and medium enterprises, public and private institutions of knowledge and research centers.*



Ley de  
**ECONOMÍA CIRCULAR  
DE ANDALUCÍA**



What do they say about SI?

The preliminary draft of The Circular Economy Law of Andalusia

Article 37: Industrial symbiosis relationships in key product value chains

1. The Administration of the Junta de Andalucía shall establish the regulatory and administrative mechanisms suitable for the establishment of industrial symbiosis relationships, facilitating industrial connections and promoting intersectoral meetings with the participation of waste managers.

2. Likewise, it will promote the creation of companies and entities of diverse nature, which establish or promote relationships of industrial symbiosis.



There is no doubt that the project has had a profound impact on Andalusian environmental policy



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Meet european regional strategies for sustainable development through **industrial symbiosis**





Thank you!



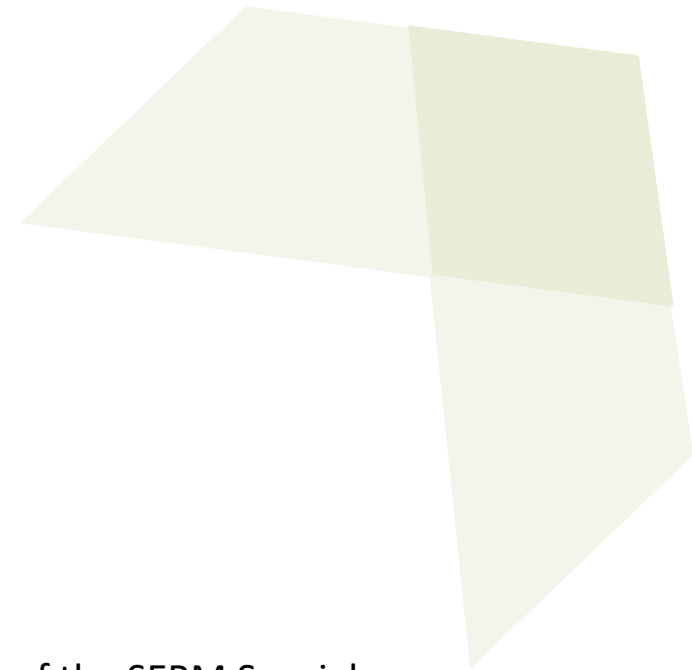


## Francesca Cuna

For more than 20 years at the service of the SERM Special Agency of the Molise Chamber of Commerce.

She is in charge with the European Cooperation Area and the Internationalization Area through the management of projects in favor of local companies aimed at increasing their competence and competitiveness and at accelerating their innovation process even beyond the national territory.

Areas of particular interest: environment and digitalization.





CAMERA DI COMMERCIO  
DEL MOLISE

**SYMBI**  
InterregEurope

# IMPACT OF SYMBI IN MOLISE REGION POLICIES

**Francesca Cuna**  
Special Agency SERM  
Chamber of Commerce of Molise

**SYMBI FINAL CONFERENCE**

Meet european regional strategies for sustainable  
development through **industrial symbiosis**

10.12.2020







## **ACTIONS IN THE PLAN**

- 1. Regional Law on Circular Economy.**
- 2. Sensitization - Dissemination - Training on GPP.**
- 3. Sensitization and dissemination on the recovery of pruning waste.**
- 4. "Ecoforum" Event - II<sup>a</sup> edition: reward for virtuous Municipalities and Enterprises.**
- 5. Financial incentives for enterprises in the Complex Crisis Area.**
- 6. Molise Region participation in ICESP - Italian Circular Economy Stakeholder Platform promoted by Enea.**





## POLICY INSTRUMENTS

- REGIONAL OPERATIONAL PROGRAMME ERDF- ESF 2014-2020
  - RURAL DEVELOPMENT PLAN
- PACT FOR THE DEVELOPMENT OF MOLISE- Development and Cohesion Fund 2014- 2020







## ROP RDF- ESF 2014-2020

### OPERATIONAL PROGRAM UNDER THE OBJECTIVE "INVESTMENTS IN FAVOR OF GROWTH AND EMPLOYMENT"

- A SPECIFIC REFERENCE TO THE CIRCULAR ECONOMY AND INDUSTRIAL SYMBIOSIS IS MISSING
- In the section "SUSTAINABLE GROWTH - ENVIRONMENT AND CULTURE, ENERGY, TRANSPORT, COMPETITIVENESS" T.O. 6 foresees to  
➔ Preserve and protect the environment and promote the efficient use of resources
- SMART SPECIALIZATION STRATEGY - S3 2014, in connection with ROP - AXIS I "Research, technological development and innovation", Action 6.1.1: *Active policy measures with particular attention to sectors that offer greater growth prospects* ➔ create a fertile ecosistema for green research and innovation (VISION)
- It identifies the "Innovation poles for regional growth" ➔ clusters (geographic concentrations of companies, often SMEs, which interact with each other and with customers / suppliers, often sharing pools of advanced services specialists)
- **Environment** ➔ main driver (intended as a trajectory of sustainable development) and **Life sciences** ➔ main thematic area in which the environment and sustainable development are central
- Secondary raw Materials mentioned in the REGIONAL WASTE PLAN, approved by the Regional Council with Resolution n. 100 of 1.3.2016, ➔ "source separation + separate collection + recycling" chain ➔ indispensable basis for the entire system of waste management in Molise.





## POLICY CHANGE IN ROP RDF- ESF 2014-2020

**LESSON LEARNT:** a strong regulatory and strategic framework is the main prerequisite to create the right environment for the development of Circular Economy and make possible a cultural change that leads to the awareness of the importance of industrial symbiosis as the main declination of the C.E.

**Source of inspiration:** Activity A1.1 “Comparative policies analysis”; Activity A3.2- Interregional Workshop on “How to Stimulate Secondary Raw Material Markets” held in Campobasso (Italy) on 20th and 21st March 2018

### Proposal Regional Law on C.E (ACTION 1)

*Provisions in support of the circular economy, the reduction of the production of urban and special waste, the reuse of goods at the end of their life, separate collection and revision of the Regional Waste Plan approved with Resolution no. 100 of 1 March 2016*

- PARADIGM TO BE DEVELOPED: REUSE- REDUCE-RECYCLE
- AFFECTS THE ROP IN A TRANSVERSAL MANNER
- FOCUS ON:
  - Education and communication strategies
  - Incentive mechanisms
  - Integration and connection with the Regional Waste Plan (revision every 3 years: revision in 2019 not carried out)

#### TEAM AT WORK

Chamber of Commerce of Molise (SYMBI)  
University of Molise (Department of Economics)  
Legambiente Molise





## POLICY CHANGE IN RURAL DEVELOPMENT PLAN IN MOLISE REGION

PRIORITY N. 5: to encourage the efficient use of resources and the transition to a low-carbon and climate resilient economy  
in the agri-food and forestry sectors

**LESSON LEARNT:** Support the recovery and the valorisation of both agricultural and not agricultural residues in order to move towards an efficient use of resources according to the Circular Economy principles.

**Source of inspiration:** Activity A.1.3 "Good Practices"

### ACTIVITY PLACED WITHIN THE LOCAL DEVELOPMENT PLAN OF THE GAL MOLISE RURALE – LOCAL ACTION GROUP (ACTION 3):

- Information campaign to improve the use of pruning waste by agricultural and non-agricultural entrepreneurs through the **leaflet "Good Agricultural Practices"**, containing guidelines for the correct allocation of pruning and the production of biomass resources (RDP Submeasure 19.4.B)
- On 20th December 2019 the LAG Board of Directors "acknowledges and unanimously resolves to undertake the commitment of expenditure equal to € 2,000.00 out of the Submeasure 19.4 for animation and promotion of the territory"





# POLICY CHANGE IN PACT FOR THE DEVELOPMENT OF MOLISE

DEVELOPMENT AND COHESION FUND 2014- 2020

Thematic Area Economic and productive development

**LESSONS LEARNT:** how Regional Authority can create an enabling and coherent policy environment for private sector investments. Funding and incentives related to innovative systems which respect the principles of the Circular Economy are necessary.

**Source of inspiration:** A3.1 “Interregional workshop on how to plan and unlock public and private investment, 15<sup>th</sup> – 17<sup>th</sup> November 2016. Győr city (Hungary)

## INCENTIVES TO MSMEs OPERATING ACCORDING TO THE PRINCIPLES OF C.E. (ACTION 5)

- PUBLIC NOTICE:

- Line of intervention - Complex Industrial Crisis Area Ministerial Decree of 7.8.2015
- Action: Aid to MSMEs for the productive relaunch of the complex crisis area
- Target: Companies in the FASHION and DIARY sector
- Objective: *to improve the productivity and innovation of processes and products for the realization of new investments aimed at ..... operating according to the principles of the C.E and to optimize waste management by fostering the closure of the cycle of materials according to C.E*
- Submission: from August to September 2019
- Amount funding each sector: € 5.000.000,00





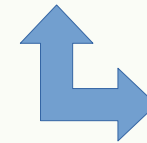
## TERRITORIAL IMPACT OF SYMBI

SYMBY marked a good change in the Molise Region, both in the public and private spheres, also thanks to an intense **dissemination activity** related to Circular Economy and Industrial Symbiosis throughout the life of the project up to the following activity:

### ECOFORUM (ACTION 4)

- Event promoted by Legambiente Molise, University of Molise, Chamber of Commerce of Molise
- AIM: to promote Circular Economy and Industrial Symbiosis culture and to present, in the award session, Municipalities and Companies best practices

- **NEXT EDITION: FEBRUARY 2021**







CAMERA DI COMMERCIO  
DEL MOLISE

**SYMBI**  
InterregEurope



# Thank you!

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[symbi@molise.camcom.it](mailto:symbi@molise.camcom.it)

WEB SITE: [www.molise.camcom.gov.it](http://www.molise.camcom.gov.it)



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10.12.2020

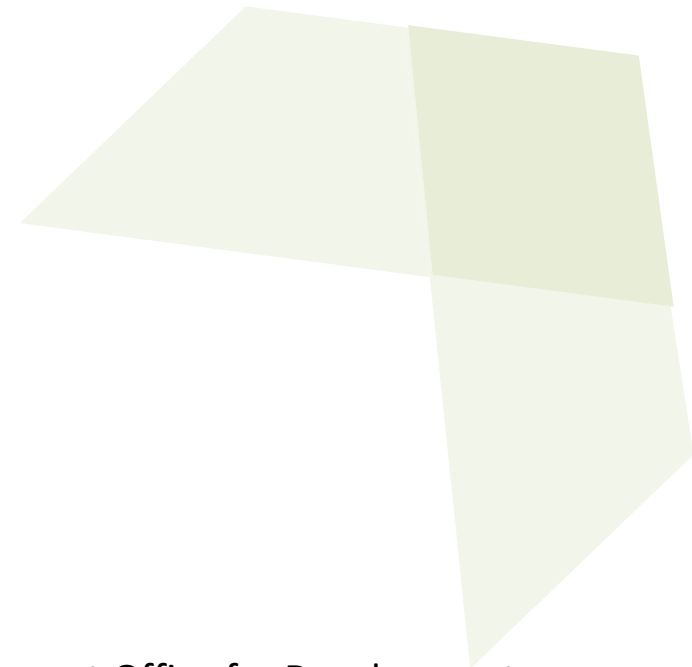




## Marjana\_Dermelj

Marjana Dermelj works in the Government Office for Development and European Cohesion Policy, Development and International Cooperation Division, where she covers environmental issues, last years focussing on circular economy. Prior to her work as a civil servant, Marjana worked in the non-governmental sector (Umanotera, The Slovenian Foundation for Sustainable Development), where she also managed the first fair trade shop in Slovenija.

She holds a bachelor degree in Chemistry and she also successfully accomplished two post-graduate studies related to environmental policy and management.



# SYMBI as an enabler of Industrial Symbiosis in Slovenia

Marjana Dermelj

10. December 2020





# SYMBI Slovenia Pilot Action

- Addressing several barriers identified:
    - Lack of systemic approach in supporting industrial symbiosis / circular economy.
    - Absence of secondary raw material market.
    - Lack of appropriate financial incentives and price signals for transition.
    - No appropriate connection between spatial planning and industrial symbiosis.
  - Actions from the AP → reflect the barriers identified:
    - Setting up a systemic approach at supporting the industrial symbiosis process
    - Support at setting up the secondary raw material market
    - Setting up appropriate financial incentives when introducing the industrial symbiosis
    - Industrial symbiosis as a mechanism for better spatial planning
- Action plan to support the Action 1





# SYMBI – Pilot Action results

- Aiming to increase the capacity in the business support environment:

<i>No. of regional actors in the training</i>	15-18/per training
<i>No. of educational modules on the industrial symbiosis implemented</i>	3
<i>No. of educational modules on the circular economy implemented</i>	1
<i>No. of companies involved</i>	4
<i>No. of diagnoses/visits</i>	5



# SYMBI – Action 4

- Improving the spatial planning/management of business zones →
- Methodology for stocktaking of business zones and subjects of innovative environment in Slovenia (Urban planning Institute of the RS):
  - Among the systemic measures is also one related to transition to circular economy
    - Objectives:
      - Establishing functioning industrial symbioses
      - Setting up conditions for the waste products exchange among businesses
    - Industrial symbiosis indicator (collection of data on the number of the industrial symbiosis established/year)
- Action inspired through the LUMAT Project (Interreg CE Programme) that focused on sustainable land use in functional urban areas (considering land and soil as non renewable resource, improving attractiveness of the brownfield sites, etc.)



# SYMBI – contribution to policy change

- Strategic Programme 2018-2023 of the Slovene Enterprise Fund (SEF):
  - SEF is financial institution that supports micro & small and medium enterprises (SMEs)
  - With the knowledge acquired also due to SYMBI project activities → some modifications to the text of the Strategic Programme 2018-2023:
    - Beneficiaries should aim at improving material and energy efficiency of companies, products, services and business models.
    - Eco innovation scoreboard results introduced
    - Amendment recognising the need to establish the support environment for SMEs in the area of circular economy and industrial symbiosis



# Going beyond SYMBI

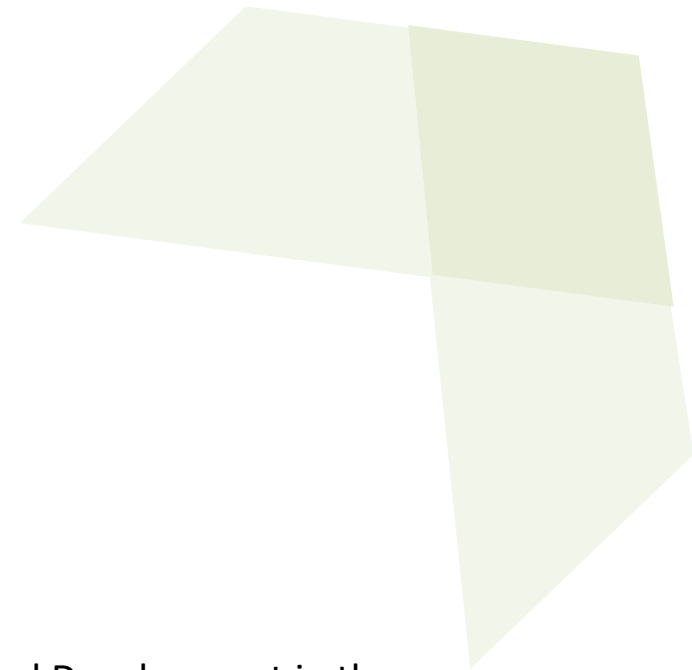
- Partnership between SI ministries and Climate KIC, EIT Raw Materials and JRC.
- A Deep Demonstration of a Circular, Regenerative and Low – Carbon Economy:
  - 3 vertical pillars, 3 horizontal pillars, altogether 17 interconnected programmes addressing (among others):
    - Improving business support environment for start-ups and SMEs
    - Assisting regions in the transition to CE
    - Helping to improve resource efficiency and decarbonisation in 5 identified value chains. Some of the actions envisaged: mapping resource flows, by products marketplace prototyping, supply chain traceability assessment, etc.





## **Arto Saarinen**

Working as a Senior Advisor in Regional Development in the Regional Council of Häme. Over 20 years of experience in regional development work including international projects, like STIMENT (Regional Framework Operation, Interreg IIIC) and CREATOR (mini-programme, Interreg IVC).







European Union  
European Regional  
Development Fund

# Impact of SYMBI activities in Häme regional policies

**Arto Saarinen, Regional Council of Häme**

**Harri Mattila / Iida Holck, Häme University of Applied Sciences (HAMK)**

SYMBI Final Conference 10.12.2020

# Two policy changes

- Häme programme – Regional Development plan (Häme programme 2018+)
  - Modification of the policy instrument itself (reported in PR 4)
- Sustainable Growth and Jobs Finland 2014 – 2020
  - Implementation of new projects (reported in PR 7)

# Häme Programme – Regional Development Plan

- Regional Development Plans updated every fourth year
- Häme Programme 2018+ was updated during year 2017 and accepted by Assembly of Regional Council of Häme in November 2017
- Häme Programme 2018+ priorities:
  - **A region that renews itself and is flexible to change**
  - Vitality from growth corridors
  - Good everyday life
- Circular economy one of the sub-themes under the first priority

# Policy change in Häme Programme 2018+

- Industrial symbiosis introduced first time as a concept
- The awareness of the importance of industrial symbiosis as one of the key segments of circular economy has risen due to the participation of Regional Council of Häme particularly in the following SYMBI project activities:
  - Mapping the investment potential in industrial symbiosis
  - The good practice from Slovenia called Shared Termal Energy (<https://www.interregeurope.eu/policylearning/good-practices/item/2004/shared-termal-energy/>)
- Project manager of SYMBI in Regional Council of Häme was also part of the working group responsible for drafting the contents of Häme Programme 2018+

# Sustainable Growth and Jobs Finland 2014 – 2020

- Sustainable growth and jobs 2014 - 2020 - Finland's structural funds programme has 5 priority axes and 13 specific objectives:
  1. Competitiveness of SMEs (ERDF)
    - Generating new business
    - Improving transport and logistic connections that are important to SMEs (only in Eastern and Northern Finland)
    - Promoting growth and internationalisation of enterprises
    - Promoting energy efficiency in SMEs
  2. Producing and using the latest information and knowledge (ERDF)
    - **Development of the centres of research, expertise and innovation on the basis of regional strengths**
    - Strengthening innovation in enterprises
    - Developing solutions based on renewable energy and energy-efficient solutions
  3. Employment and labour mobility (ESF)
    - Promotion of employment among the young and other groups that are in a weak position in the labour market
    - Improving productivity and well-being at work
    - Reducing gender segregation in education and work
  4. Education, skills and lifelong learning (ESF)
    - Improving services supporting transitional periods and equality in education
    - Improving the availability and quality of education in growth sectors and sectors affected by structural change
  5. Social inclusion and combating poverty (ESF)
    - Improving the working and functional capacity of people outside working life



# Policy change in Sustainable Growth and Jobs Finland 2014-2020



- Implementation of three new ERDF projects funded by the Regional Council of Häme in June 2019
  - LUO Net GOES International (Häme University of Applied Sciences)
  - Häme Design Factory (Häme University of Applied Sciences)
  - FRUSH (Business Development Agency of Forssa, FYKKI)
- Projects implement activities from the Häme Action Plan
  - Action 1: Awareness campaign on circular economy
  - Action 2: Promoting start-ups and SMEs working in business related to the IS
- Contents of these actions originate especially from the following SYMBI activities:
  - Mapping the investment potential in industrial symbiosis
  - Policy Awareness Event and Stakeholder Group Meetings
  - Comparative analysis of regional and national policies on industrial symbiosis and circular economy
- Häme University of Applied Sciences being already part of the processes where the lessons have been learned (PP 9 in SYMBI) has helped them to integrate some of the activities of the Häme Action Plan to the project plans of these three ERDF projects
- Estimation of the amount funding influenced by the project 457 581 € (50%, 30%, 80% shares of the project budgets)

# Actions in ERDF projects

## LUO Net Goes International

- Circular Economy Roadmap for Häme Region
- Open Bioeconomy Week
- Webinar series on the possibilities of industrial symbiosis and circular economy

## Häme Design Factory

- " As product and service design platform Design Factory brings HAMKs education facilities and equipment as well as research units' expertise to industry use. "

## FRUSH

- The event for start-ups and SMEs interested in developing their business based on circular economy
- The Brightgreen Strategy of the region into the education organizations



**Next on 25th - 27th of May, 2021  
Hämeenlinna, Finland**

[www.openbioeconomyweek.org](http://www.openbioeconomyweek.org)



**SYMBI**  
Interreg Europe



European Union  
European Regional  
Development Fund

# Thank you!

<https://interregeurope.eu/symbi>

<https://twitter.com/symbiproject>

<https://facebook.com/interregeurope.eu.symbi/>

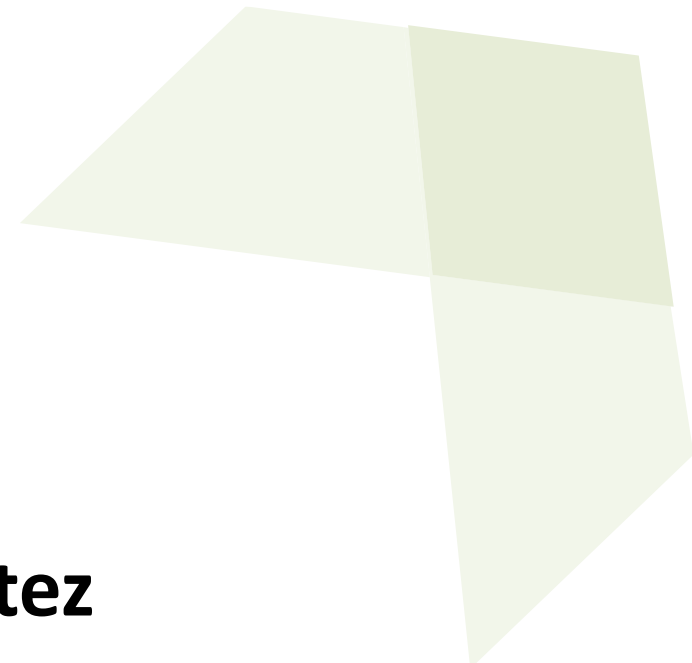
<https://www.hameenliitto.fi/elinvoima-ja-kehittaminen/yhteistyö/symbi-projekti/>

<http://hamk.fi/symbi>



*Project smedia*





## **María Gracia Benítez**

María Gracia Benítez is Project Manager at Foundation FUNDECYT PCTEX, where she has been working since 2002 implementing and developing national and European projects related to innovation.

She has been coordinating the Interreg Europe SYMBI project since 2016, project aimed to promote the implementation of regional development policies and programs related to the promotion and dissemination of Industrial Symbiosis and Circular Economy from 7 participating countries faced to policies alignment with the Circular Economy strategy of the European Commission

# Policy instrument

ERDF Operational Program for Extremadura in its Investment Priority 6.1, for initiatives specifically addressing the circular economy and the industrial symbiosis.

Priority Axis 6	Investment Priority 6.1	Specific Objective 6.1.1
To conserve and protect the environment and to promote resource efficiency	Investment in the waste sector to meet the environmental requirements of the EU and to address the needs for an investment that goes beyond these requirements.	To develop the separation, selective collection and treatment of wastes, <u>including Activities to close the cycle</u> ; contemplating both management plans and investments in infrastructure.



# FIRST IMPACT

Including **CIRCULAR ECONOMY** Concept in  
Regional Integrated Waste Management  
Plan 2016-2022

**PLAN INTEGRADO DE  
RESIDUOS  
DE EXTREMADURA (PIREX)  
2016-2022**



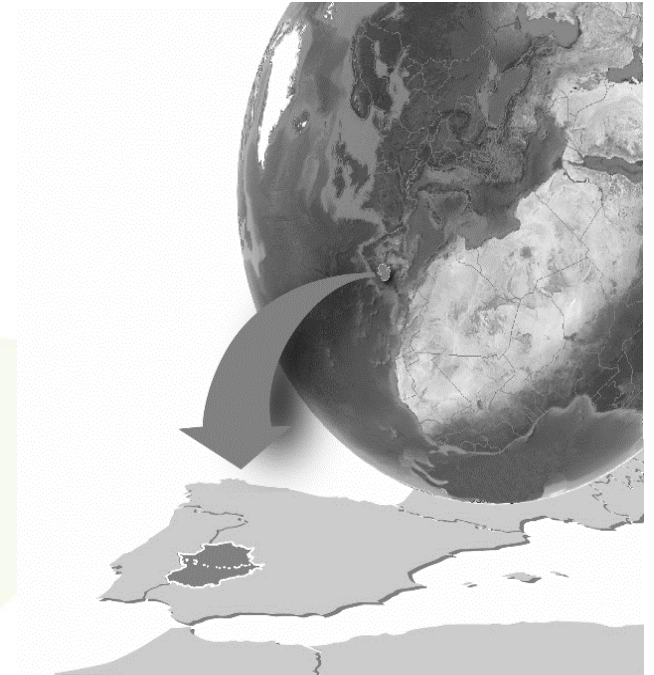
# Action Plan in Extremadura

**Action 1:** Green Procurement promotion

**Action 2:** Communication among administrations

**Action 3:** Support to the transition to Circular Economy in Extremadura → PILOT ACTION

**Action 4:** Promotion of Industrial Symbiosis in Extremadura → PILOT ACTION



# Regional Stakeholder

- Regional Government of Extremadura developed a new Strategy for a Green and Circular Economy: Extremadura 2030 (2,017)
- The strategy born aimed to align regional policies with European Commission Circular Economy Package (Dec. 2015) to generate a sustainable development model based on the green and circular economy.
- The Office in charge of Extremadura 2030 Strategy has been one of our main stakeholders.

EXTREMADURA  
**2030** 





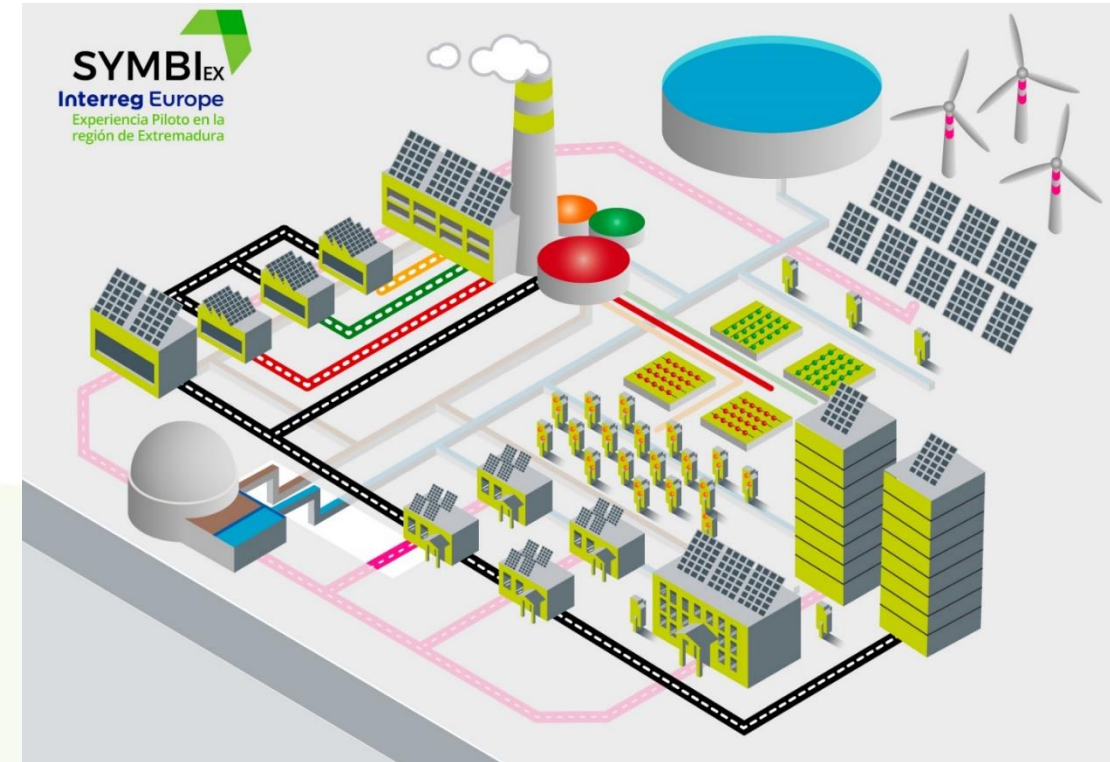
# Pilot Action

## Objective:

Development of a network that brings together regional actors, mainly companies already performing activities related to Circular Economy in a first stage to try to promote Industrial Symbiosis in practice

## Inspiration:

- Manresa en Simbiosi: creating a industrial ecosystem in the región
- FISS-Finnish Industrial Symbiosis System



# SYMBIEX 2030

## Activities

- Mapping regional companies identifying the waste produced as a result of their productive processes.
- Information from companies would be gathered in a geolocalized database (on-line map as FISS)
- Analysis of possible use of by-products or waste produced by companies in their productive processes, either based on knowledge of existing cases or researching new alternative uses.



# SYMBIEX 2030

## Tools

- Staff **training** with skills to identify potential of IS.
- Questionnaires for collecting information from companies.
- **ONLINE Map**
- Reports related to use of most common regional by-product / wastes
- Offer/Demand on-line matching system.



# SYMBIEX 2030

## RESULTS:

**12** people trained as **facilitator** in Industrial Symbiosis

**40** companies visited and **identified by-product**

**1** project establishing an effective connection between regional companies  
(from by-product to resource).



# Thank you!

[gracia.benitez@fundecyt-pctex.es](mailto:gracia.benitez@fundecyt-pctex.es)







# Q&A





# What is happening on Industrial Symbiosis around Europe?

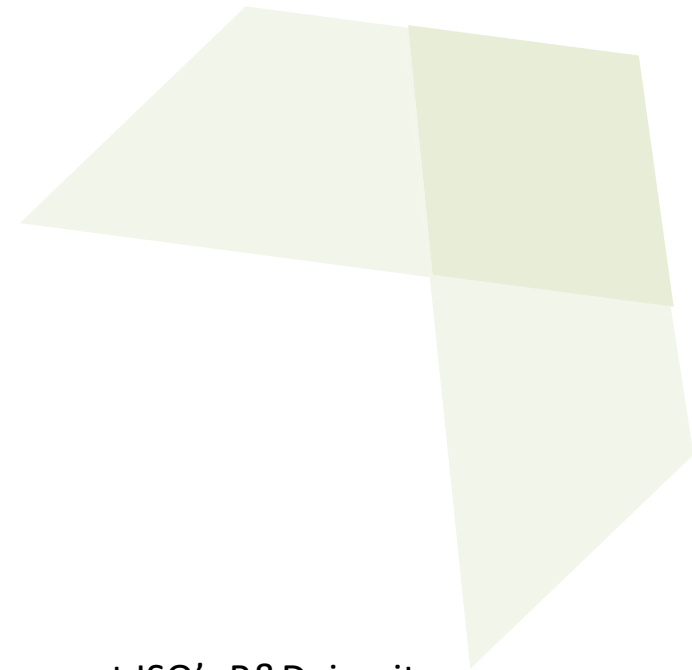






## Marco Estrela

Marco Estrela is a Senior Project Manager at ISQ's R&D+i unit, having over 21 years' work experience with research projects in the environment/sustainability areas, having coordinated several EU research projects, including SCALER. Marco holds an undergraduate and MSc degrees in Chemical Engineering, a MBA from Católica Lisbon School of Business and Economics, and a Diploma of Advanced Training in Sustainable Energy Systems (IST/ Lisbon University).





SCALER SCALing European Resources with industrial symbiosis



# SYMBI FINAL CONFERENCE

SCALER contributions for a wider implementation of Industrial Symbiosis in Europe

Marco Estrela (ISQ) | 10<sup>th</sup> December 2020



This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement no 768748

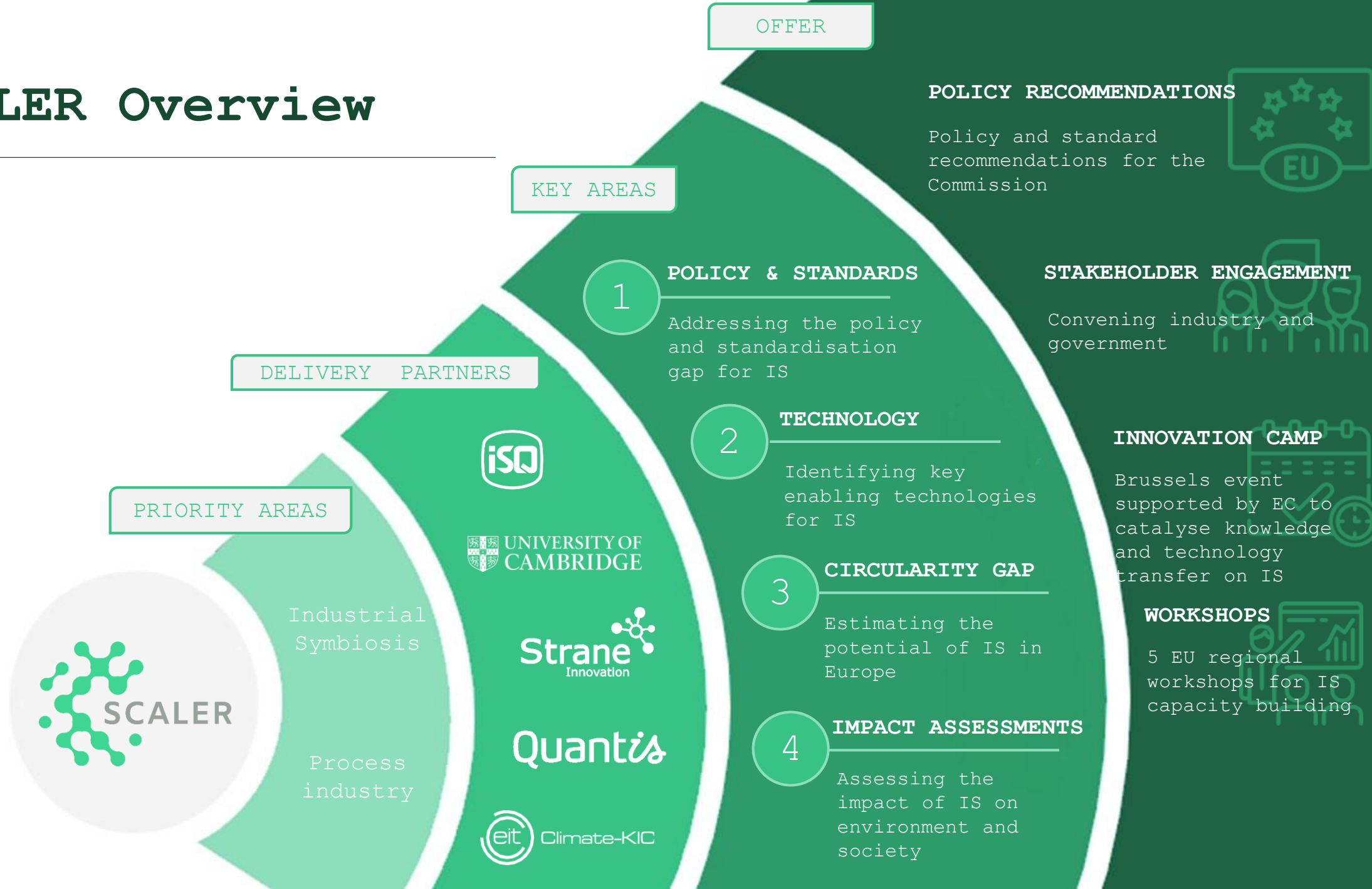
**SPIRE** Sustainable Process Industry through Resource and Energy Efficiency



- **SCALER overview**
  
- **IS Potential Assessment**
  - ✓ Synergies Identification (STRANE)
  - ✓ Technical assessment of Synergies (ISQ)
  - ✓ Environmental assessment of Synergies (Quantis)
  - ✓ Socio Economic assessment of Synergies (STRANE)
  - ✓ IS Potential assessment - Main results
  
- **SCALER main outcomes/reports**



# SCALER Overview



OFFER

## POLICY RECOMMENDATIONS

Policy and standard recommendations for the Commission



## STAKEHOLDER ENGAGEMENT

Convening industry and government



DELIVERY PARTNERS

PRIORITY AREAS



Industrial Symbiosis

Process industry



UNIVERSITY OF CAMBRIDGE

Strane  
Innovation

Quantis

eit  
Climate-KIC

1

## POLICY & STANDARDS

Addressing the policy and standardisation gap for IS

2

## TECHNOLOGY

Identifying key enabling technologies for IS

3

## CIRCULARITY GAP

Estimating the potential of IS in Europe

4

## IMPACT ASSESSMENTS

Assessing the impact of IS on environment and society

## INNOVATION CAMP

Brussels event supported by EC to catalyse knowledge and technology transfer on IS



## WORKSHOPS

5 EU regional workshops for IS capacity building

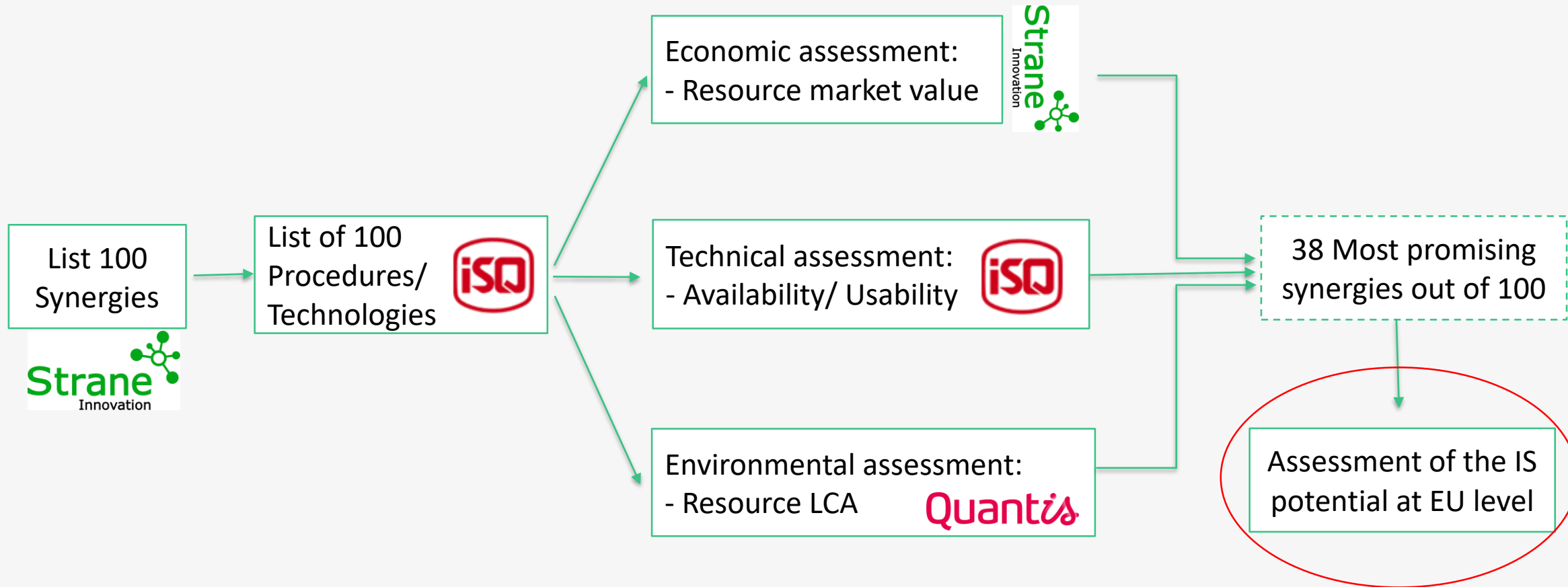




IS Potential assessment



# IS Potential assessment



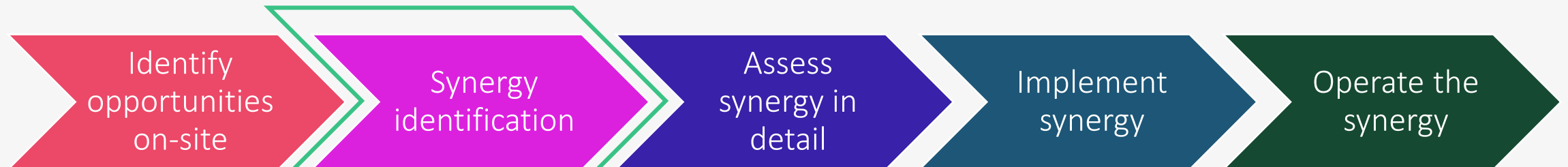


How to find a synergy?

# How to find a synergy ?



## Synergy creation process



- ✓ SWOT
- ✓ MFCA
- ✓ Value Mapping

Crucial step to start an IS project

**Tools and methods exist to support you on finding synergies**



# Step 2 - Synergy identification

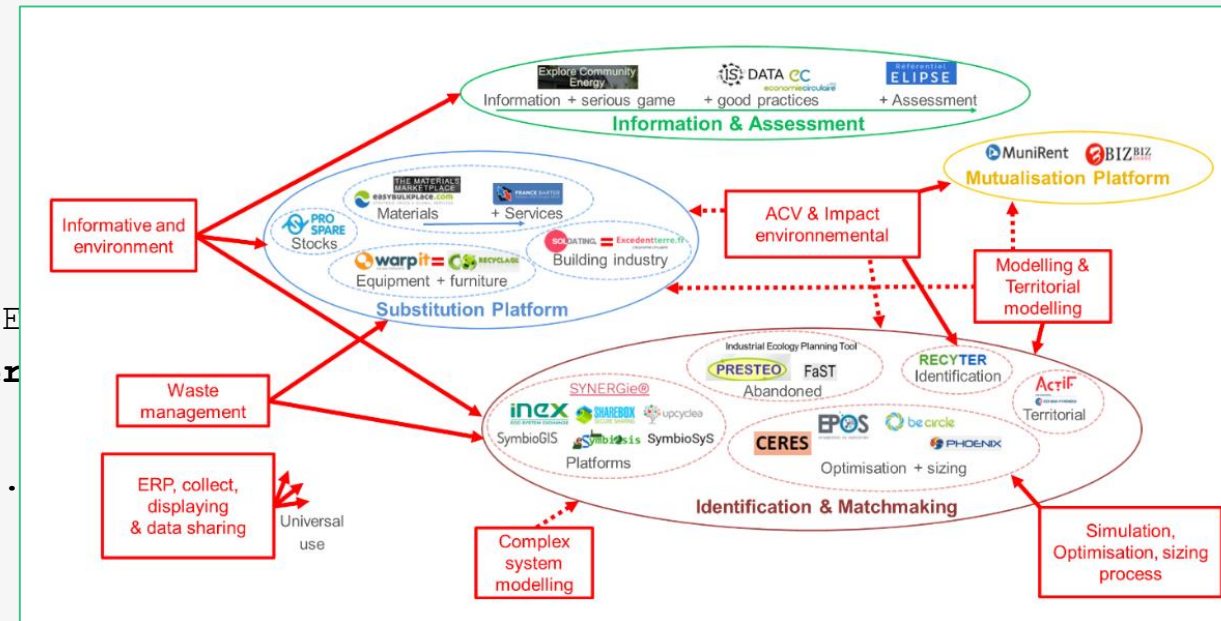


## Tools

- Identification and **matchmaking** tools
- **Mutualization** platforms
- **Substitution** platforms

## Databases & knowledge repository

- **The List of 100 synergies** identified within SCALER
- The SCALER's shortlist of **38 most impactful synergies**
- MAESTRI's library of case studies
- IS Case studies : Kalundborg, Busi, Taranto, etc.
- IS DATA Toolbox
- Academic papers



## Intermediaries

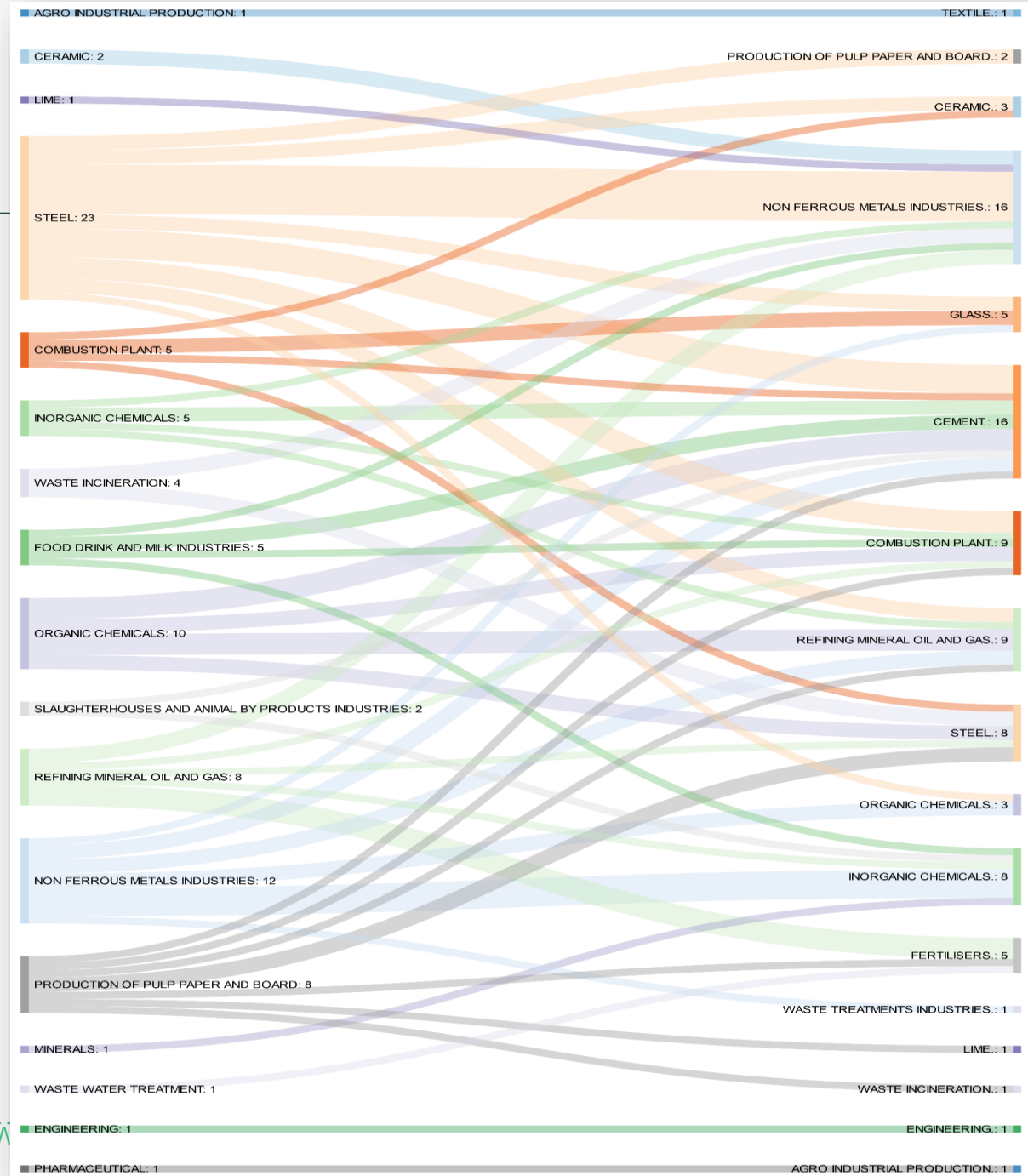
- Knowledge brokers and Coordinating bodies
- e.g. National Industrial Symbiosis Programme
- Consultancy

# IS Potential | 100 synergies

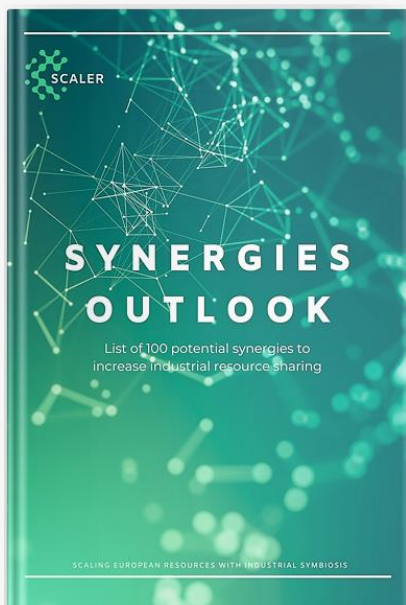
## List of 100 varied and promising synergies

- Best practices
- Industrial cases
- Existing synergies
- Innovative synergies

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# Synergies Outlook



## 39 ELEMENT OF INTEREST: SULPHURIC ACID



### EMITTING SECTOR & PROCESS

- NON FERROUS METALS INDUSTRIES
- LEAD AND TIN PRODUCTION






### RECEIVING SECTOR & PROCESS

- INORGANIC CHEMICALS
- PRECIPITATED SILICA AND SILICA GEL MANUFACTURING



Recover sulphuric acid, as a by-product of lead and tin process production in non-ferrous metals industries, and provide sulphate process in inorganic chemical industries.

<b>TECHNICAL FEASIBILITY</b> INDUSTRIAL SCALE HIGH TECHNICAL REQUIREMENTS	<b>BENEFITS</b> ENVIRONMENTAL SIGNIFICANT    SOCIO-ECONOMIC LOW
<b>VALORISATION PROCEDURE</b> H2SO4 PRODUCTION  <b>TECHNOLOGY</b> WET SULPHURIC ACID PROCESS	<b>POTENTIAL IMPACT (EU SCALE)</b> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">               -2M tonnes CO2-eq           </div> <div style="text-align: center;">               100 direct jobs           </div> <div style="text-align: center;">               9.1M € value added           </div> </div>

Download at [http://bit.ly/SCALER\\_guides-outlooks](http://bit.ly/SCALER_guides-outlooks)

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# Technical assessment of synergies



# Type of Synergies

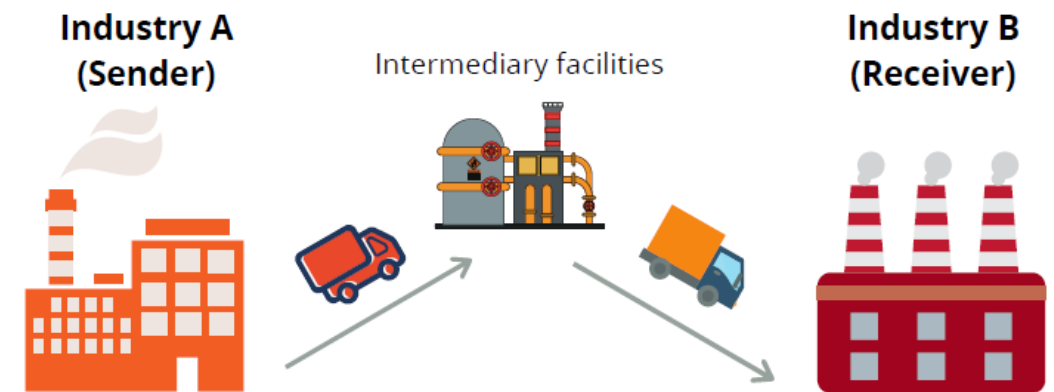


## DIRECT SYNERGY TYPE



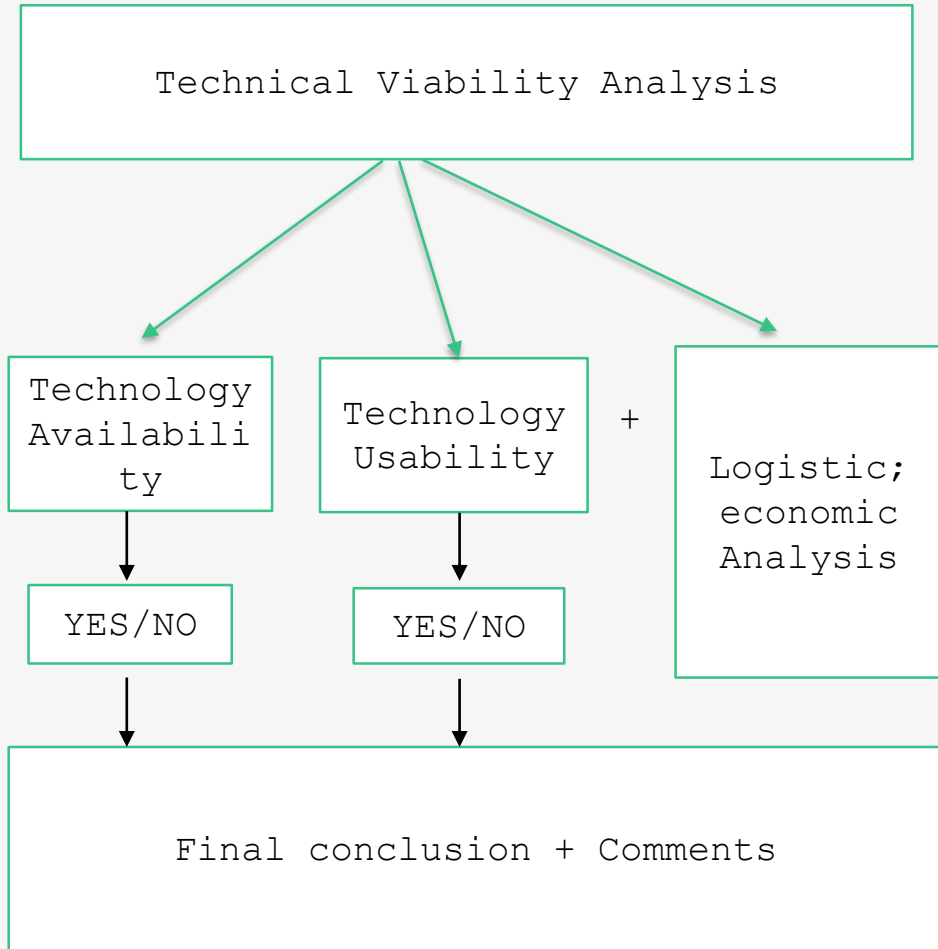
Mostly no adaptation required; **Less transformation** processes required, **less cost analysis** required.  
(48 Identified)

## INDIRECT SYNERGY TYPE



Several adaptation requirements and consequent processes associated; **More transformation** processes required, **more cost analysis** required.  
(52 identified)

# Technical assessment



Technical feasibility	Feasibility level	Description
Feasible	Low technical requirements	Lower technical complexity procedure, comprising mechanical and physical treatment or only transport (usually associated to direct synergies)
	High technical requirements	Higher technical complexity procedure and/or number of intermediary processes required (usually associated to indirect synergies)
	Limited Potential	The procedure associated to this synergy presents previous implementation records, but constraints related to technical data (waste composition, receiver quality standards, logistic and infrastructure) limits for its final accurate analysis. Further evaluation is advised.
Not Feasible	Unavailable support data	No previous implementation records or technology have been found and/or lack of support data to sustain a final positive technical decision. Further evaluation regarding technical feasibility for implementation is needed
	Underdeveloped Technology	There are no reliable technologies available in the desired scale for waste stream valorisation



# Environmental assessment

# Life Cycle Assessment | Indicators

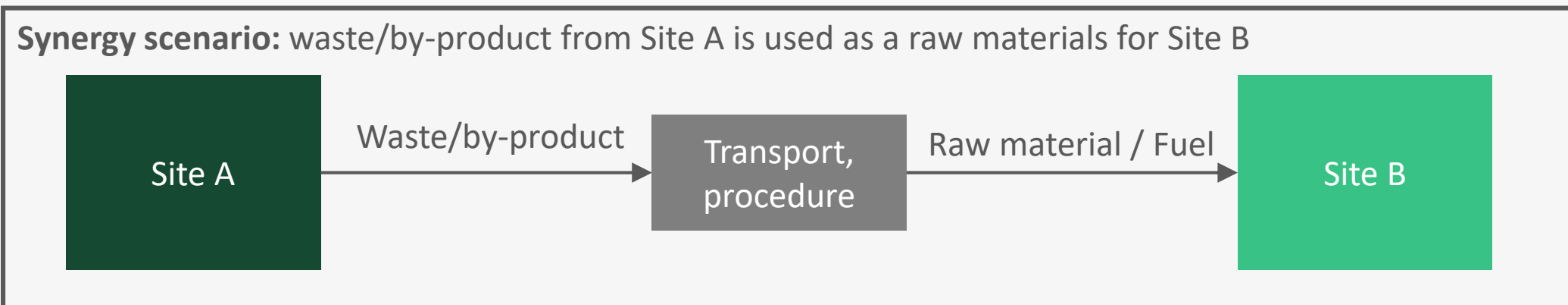
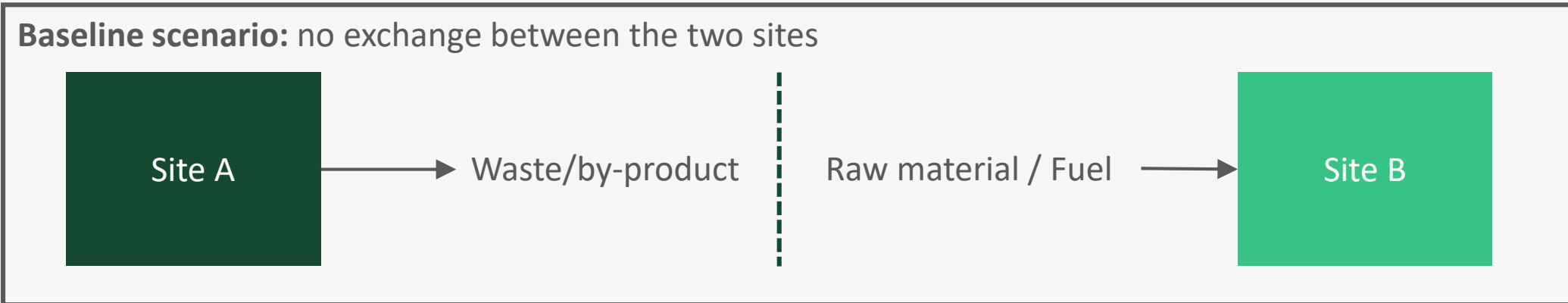
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- Climate change
- Human health
- Ecosystem quality
- Resources
- Water withdrawal

**Functional unit: waste stream to be sent to a receiving industry  
over a one year period**

# Methodology | Baseline and synergy scenarios










# Results | Summary



## Estimation of potential savings per indicator

Indicator	Potential savings (max)	Benchmark
Climate change	122 million t CO <sub>2</sub> -eq	 29 million cars not driven <sup>1</sup>
Human health	138'000 DALYs	 6.6 billion cigarettes not smoked <sup>2</sup>
Ecosystem quality	26 billion PDF.m <sup>2</sup> .y	 3.6 million ha of forest saved from conversion to concrete <sup>3</sup>
Resources	2.1x10 <sup>12</sup> MJ	 350 million barrels of oil not extracted <sup>4</sup>
Water withdrawal	2.9 billion m <sup>3</sup>	 1.1 million Olympic size swimming pools <sup>5</sup>

<sup>1</sup> Assumption one car travels 20'000 km/year

<sup>2</sup> 2.09E-05 DALY / cigarette

<sup>3</sup> 10'000 PDF.m<sup>2</sup>.y / ha forest converted to concrete

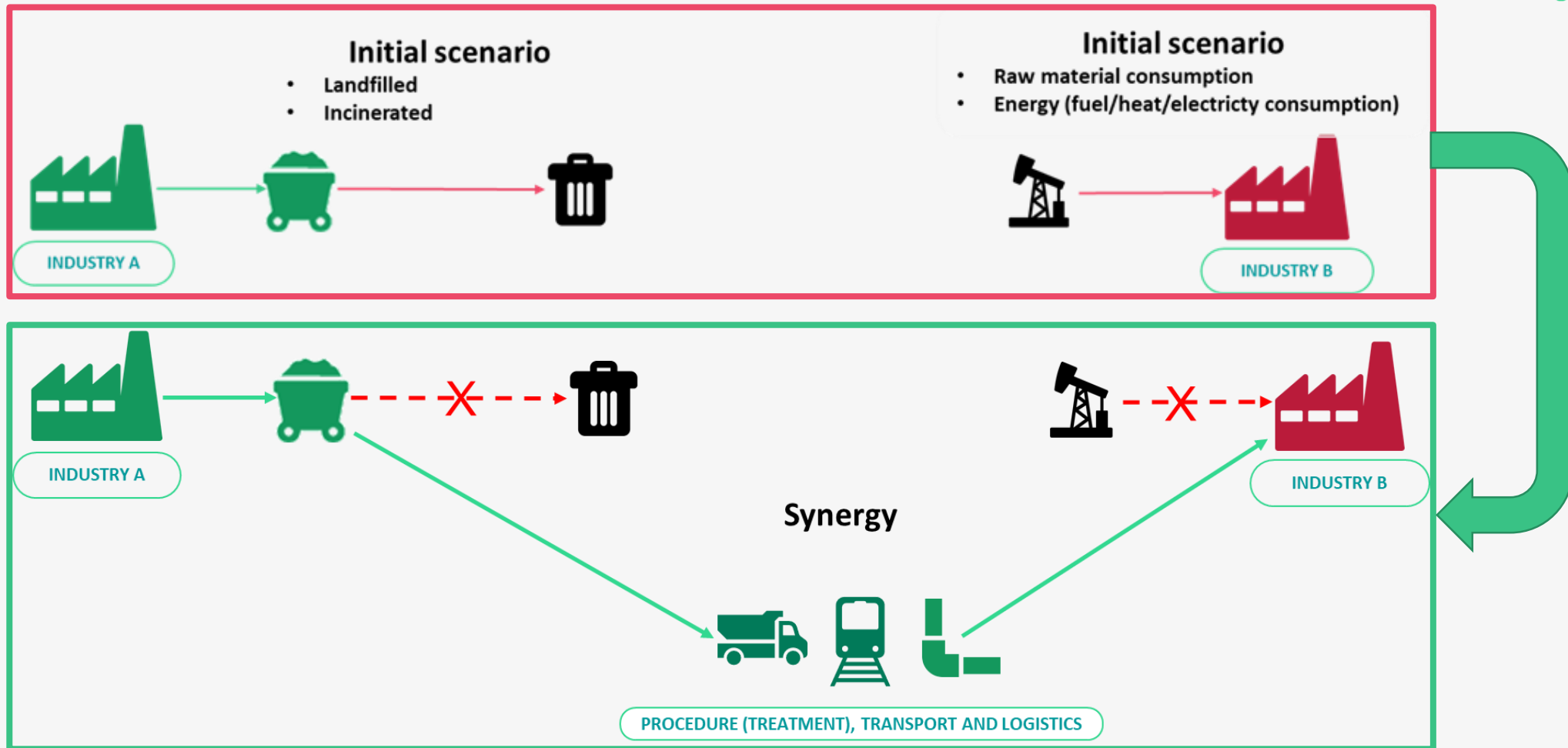
<sup>4</sup> 5'858 MJ primary energy / barrel of oil

<sup>5</sup> 2'500 m<sup>3</sup> water/Olympic size swimming pool



# Social-economic assessment

# Methodology | Baseline and synergy scenarios

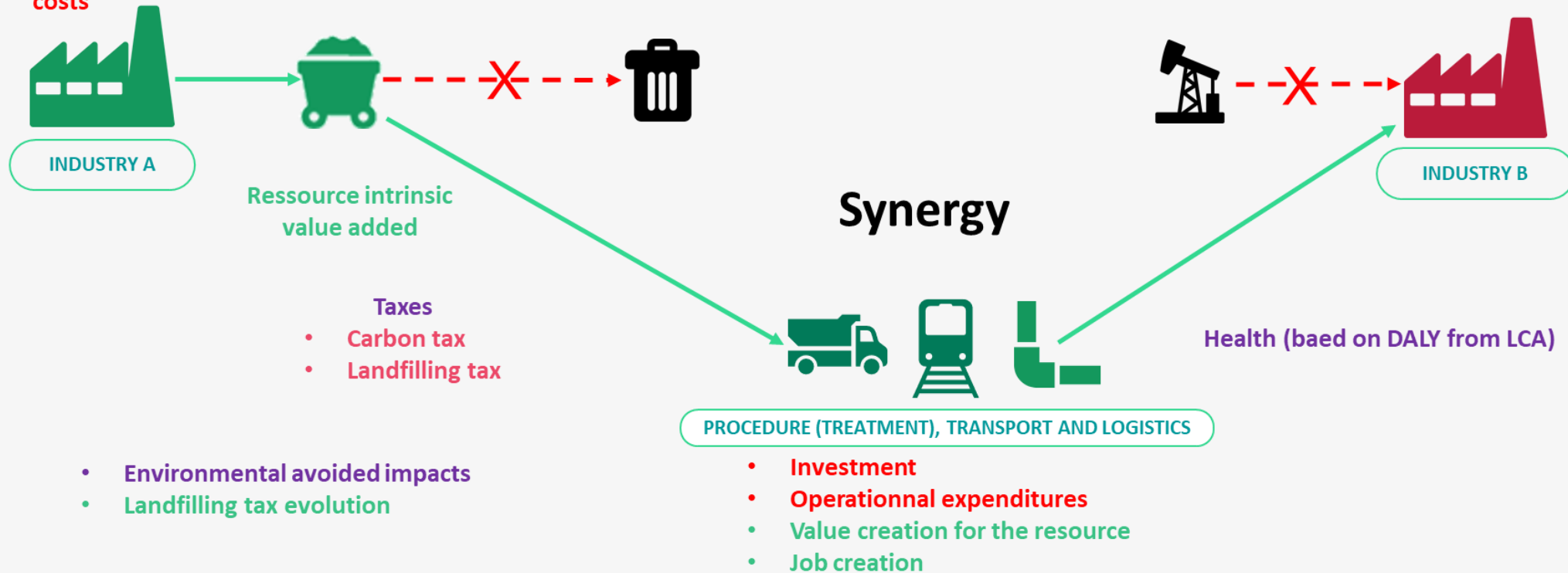


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# Methodology | Approach & values assessed



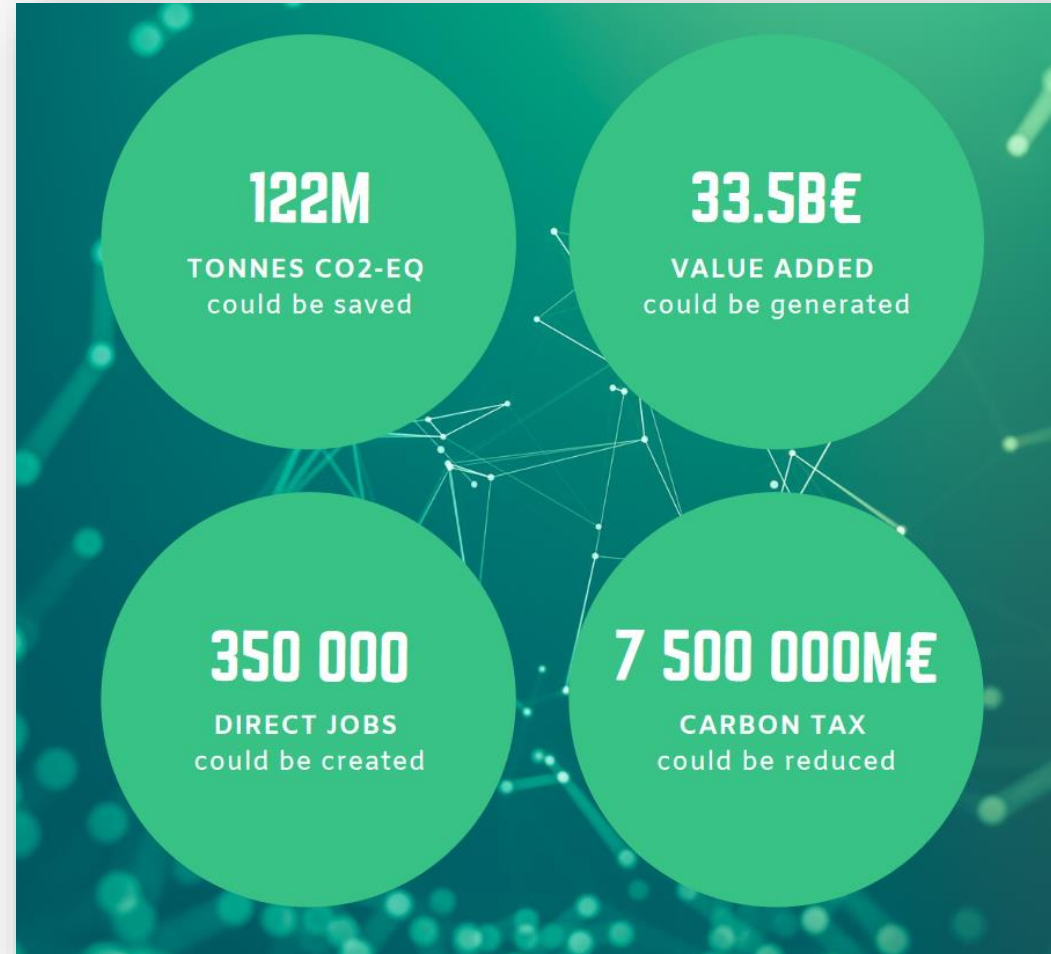
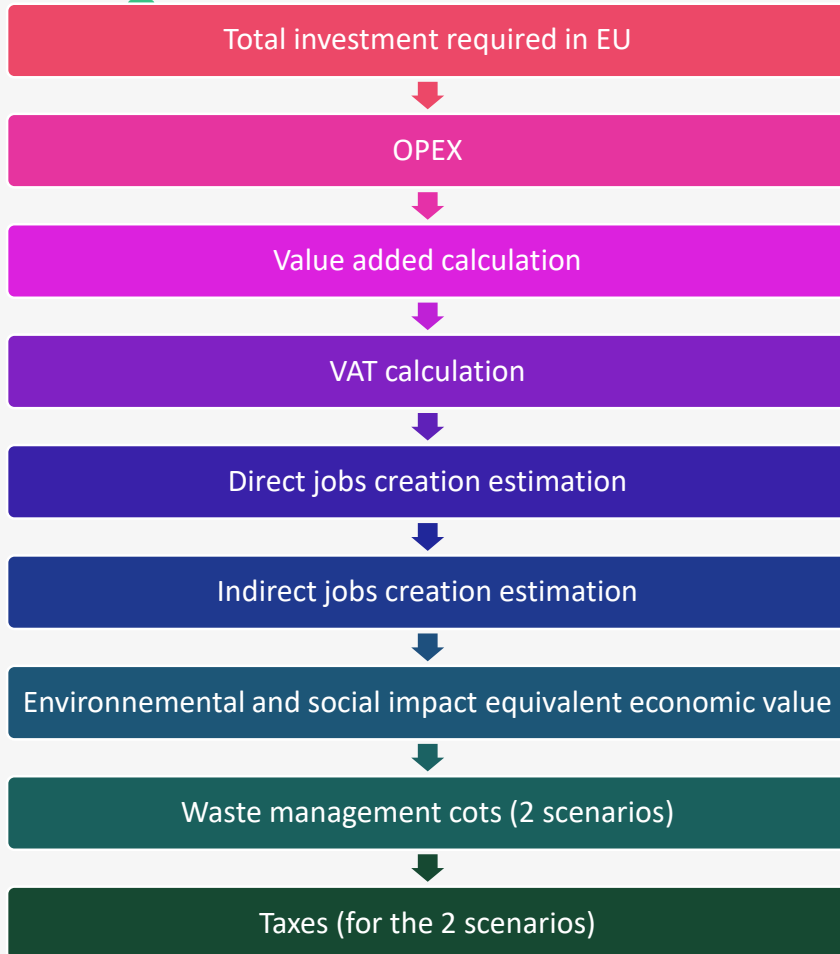
- Avoided landfilling costs
- Avoided Incineration costs
- Job creation
- **Residual waste management costs**



- Environmental avoided impacts
- Landfilling tax evolution

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# Socio-economic assessment | Impact



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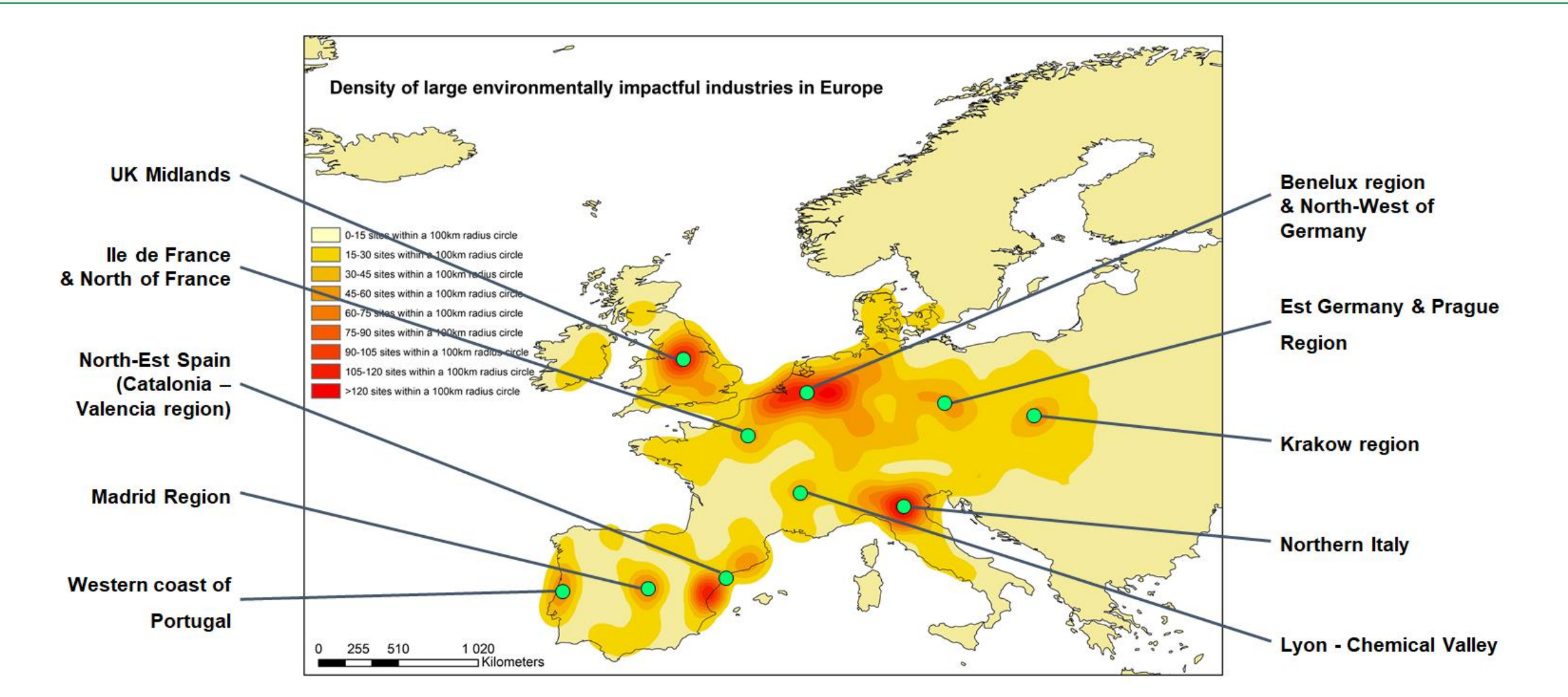


# IS Potential assessment | Main results

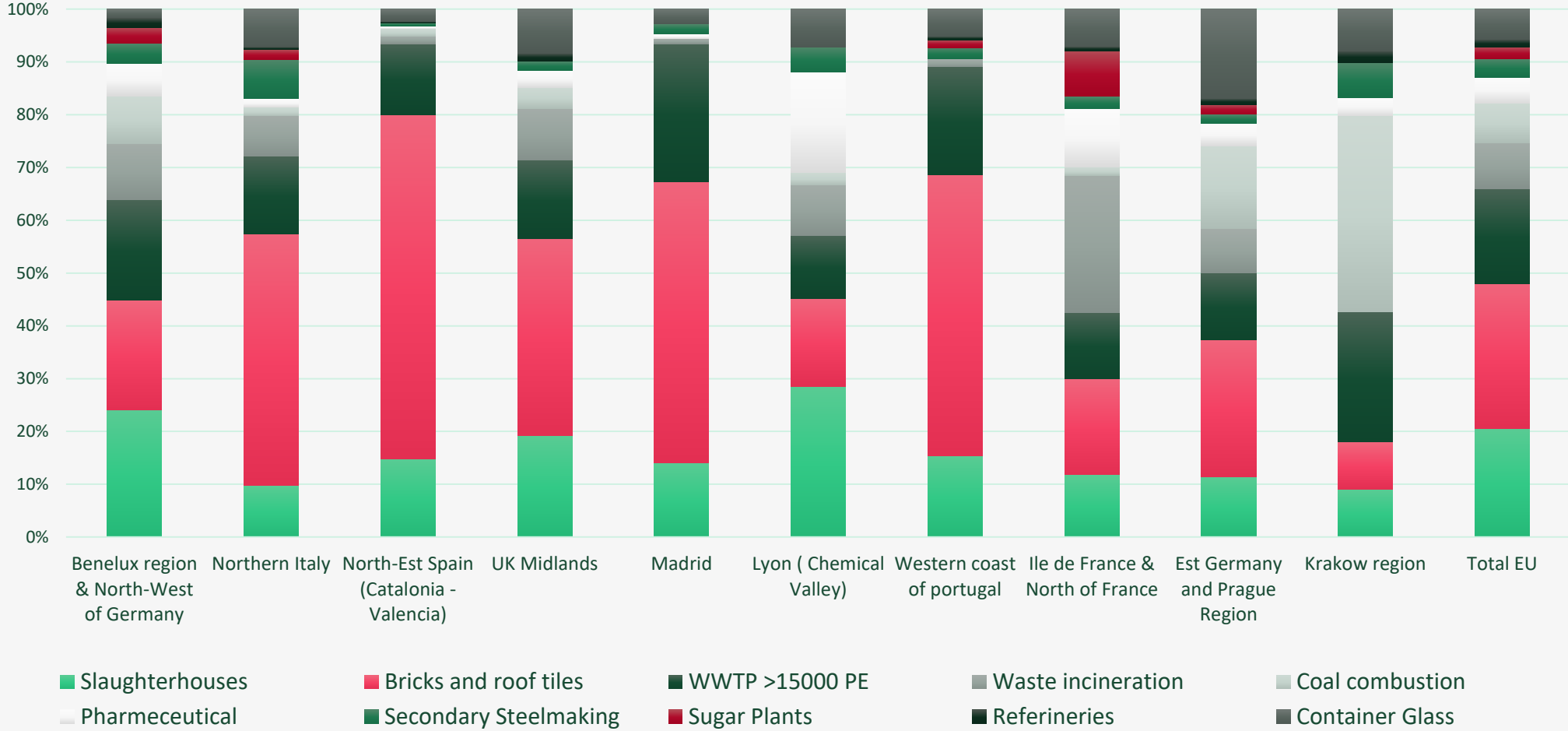
# IS Potential | Hotspot

4  
Major hotspots  
(between 105 - 120 sites)

6  
Medium hotspots  
(between 45-60 sites)



# IS Potential | Hotspots distribution



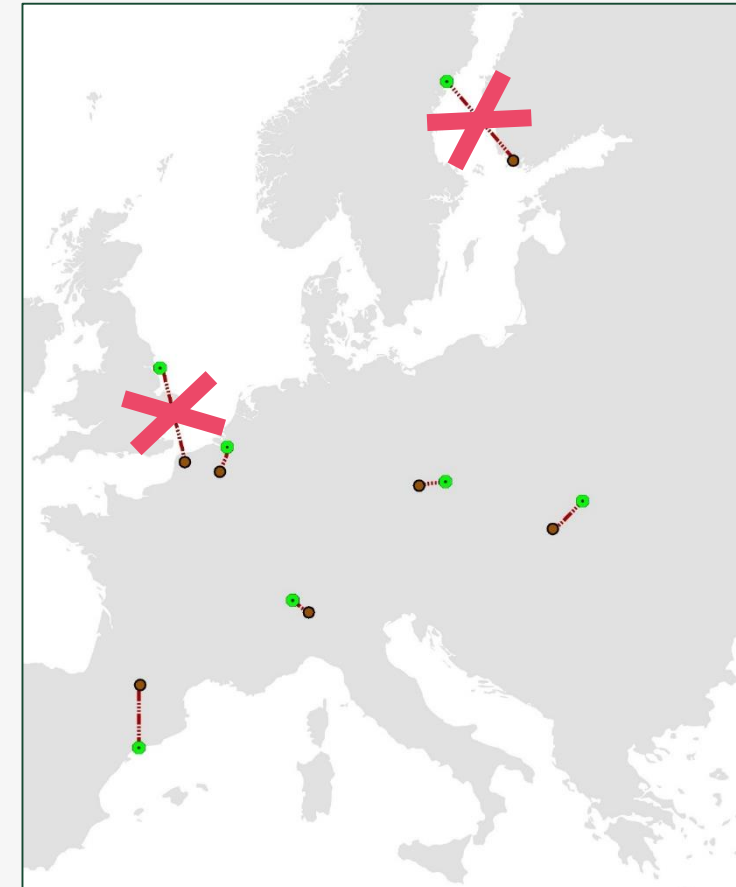
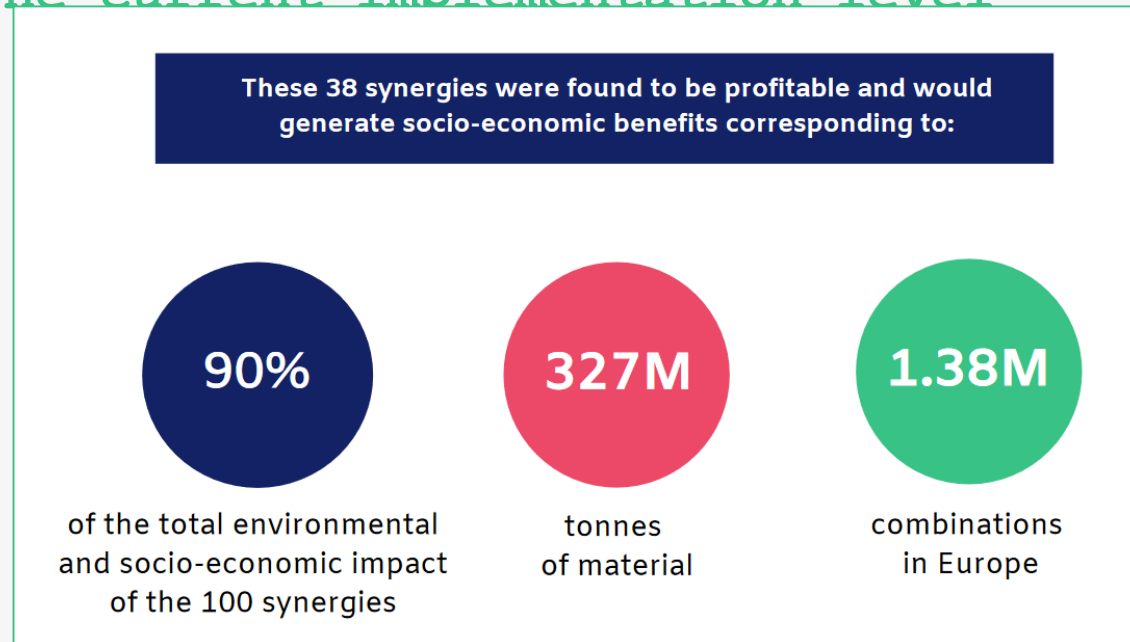
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# IS Potential | Most promising synergies



Refined assessment : short list of 38 most promising synergies considering :

1. The final fraction recovered
2. Synergies within a viable radius
3. The current implementation level



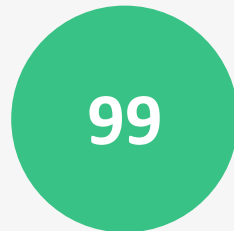
# IS Potential | Environmental assessment



Total potential if 100 % of 38 synergy types analysed were implemented at EU



MtCO2



K DALY



M barrels of oil not extracted



M ha of forest



Billon m3 of water

Actual unexploited potential impacts at EU level from 38 synergy types analysed



MtCO2



K DALY



M barrels of oil not extracted



M ha of forest



Billon m3 of water

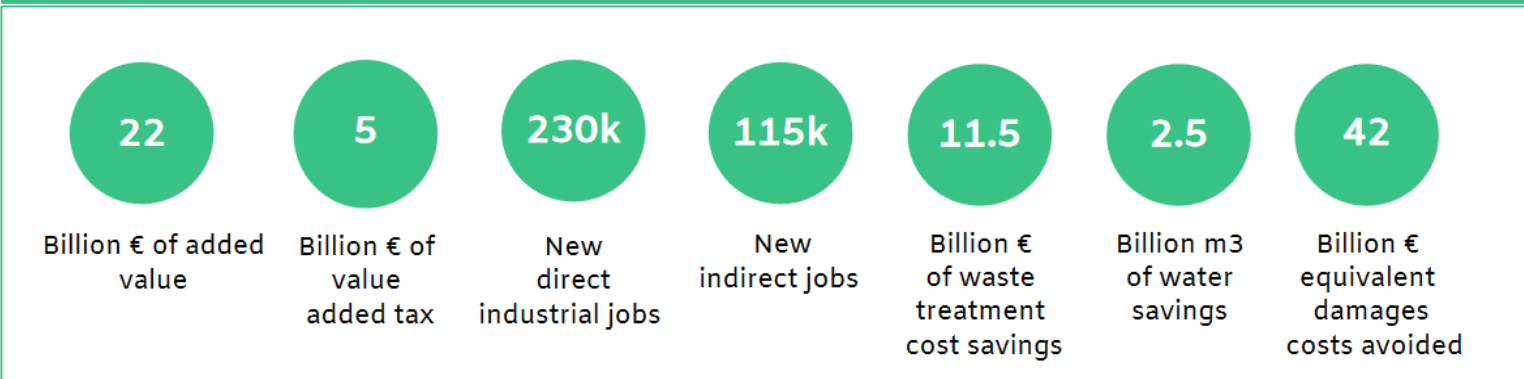
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# IS Potential | Socio-economic assessment



## Potential impacts if 100 % of 38 synergy types analysed were



## Actual unexploited potential impacts at EU level from 38 synergy

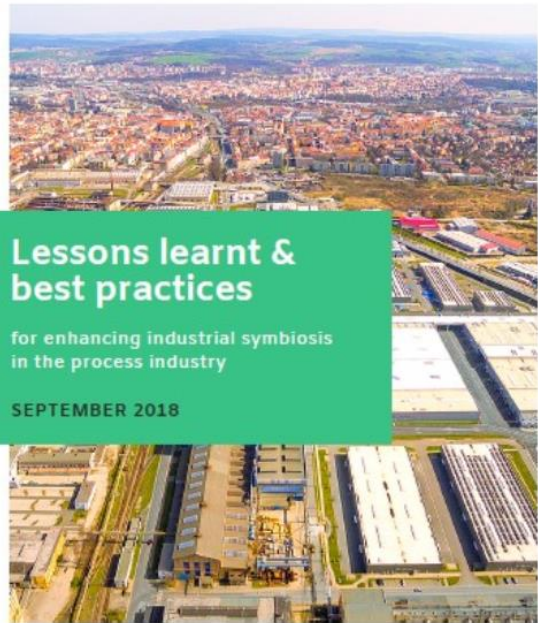




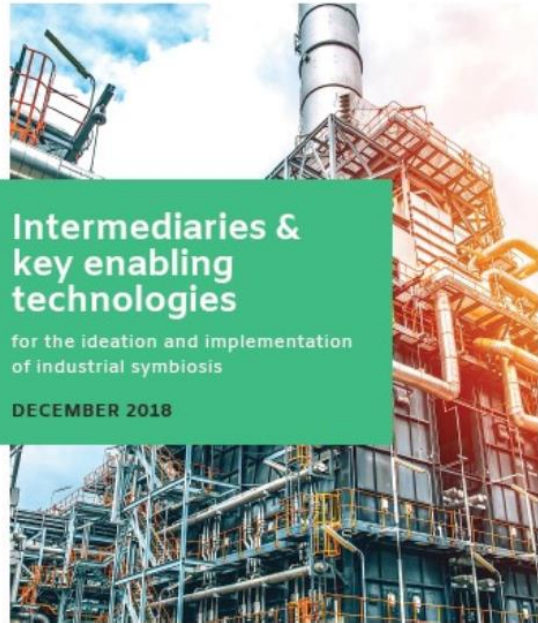
SCALER main outcomes/reports

# SCALER | Reports

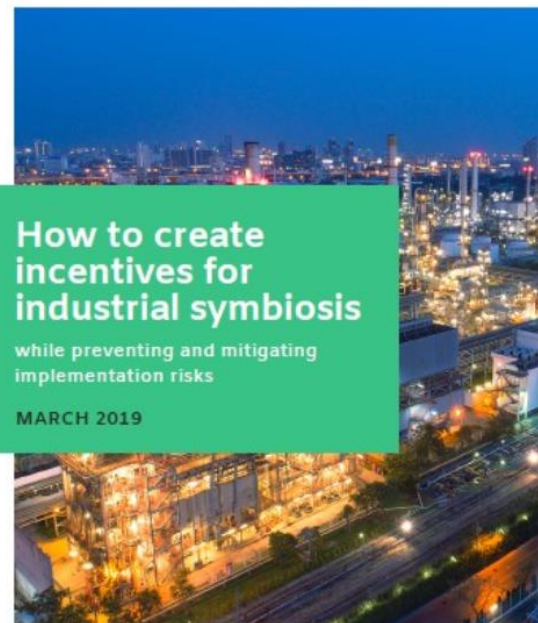
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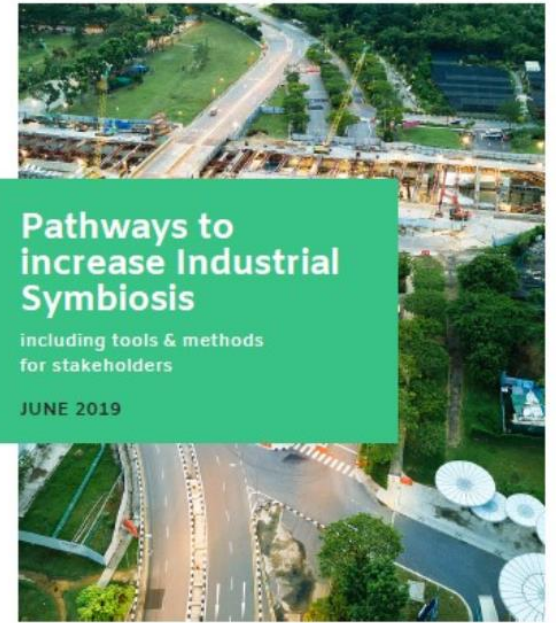
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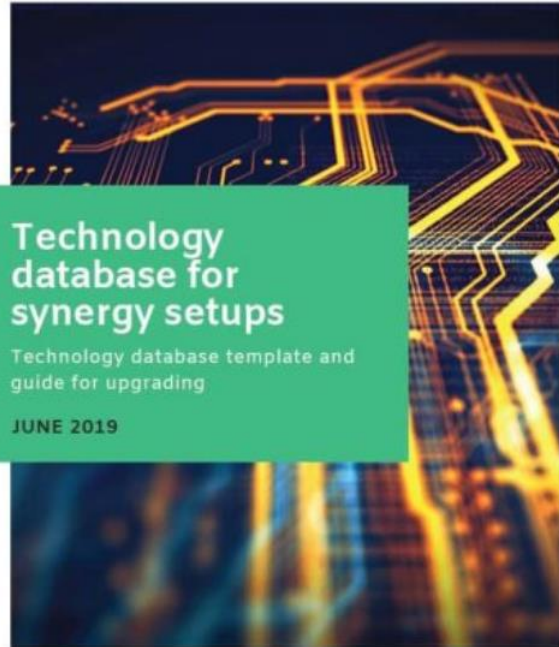
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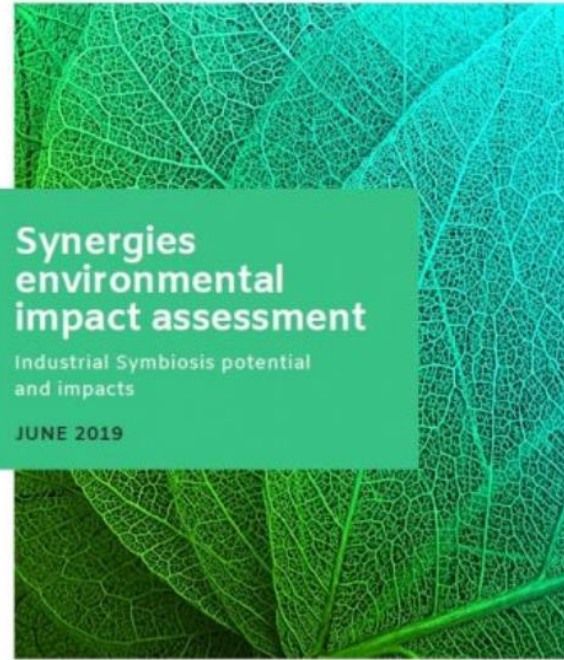
## Technology database for synergy setups

Technology database template and guide for upgrading

JUNE 2019



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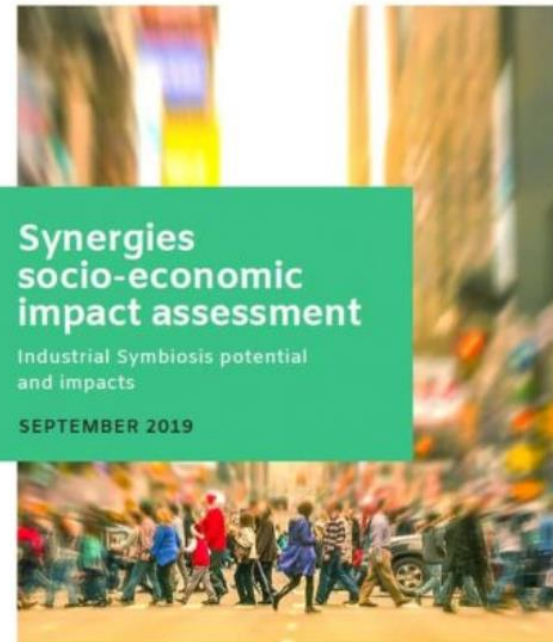
## Synergies environmental impact assessment

Industrial Symbiosis potential and impacts

JUNE 2019



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## Synergies socio-economic impact assessment

Industrial Symbiosis potential and impacts

SEPTEMBER 2019



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## Quantified potential of industrial symbiosis in Europe

MAY 2020



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SCALING EUROPEAN RESOURCES WITH INDUSTRIAL SYMBIOSIS

# SCALER | Reports

Download at [scalerproject.eu/resources/reports](https://scalerproject.eu/resources/reports)



Overall strategy and recommendations to foster a wide application of industrial symbiosis at local, regional and European level

MAY 2020

SCALER SCALING EUROPEAN RESOURCES WITH INDUSTRIAL SYMBIOSIS

@SCALERProject | [www.scalerproject.eu](http://www.scalerproject.eu) | [www.bit.ly/scalerupdates](http://www.bit.ly/scalerupdates)

The cover features a photograph of an industrial park with a tall chimney under a blue sky with white clouds. A green text box is overlaid on the left side.

Report on EU-wide industrial symbiosis regulatory measures

JUNE 2020

SCALER SCALING EUROPEAN RESOURCES WITH INDUSTRIAL SYMBIOSIS

@SCALERProject | [www.scalerproject.eu](http://www.scalerproject.eu) | [www.bit.ly/scalerupdates](http://www.bit.ly/scalerupdates)

The cover has a dark blue background with abstract white and light blue geometric shapes and icons, including a checkmark and a laptop.

Report on industrial symbiosis standardisation needs

JUNE 2020

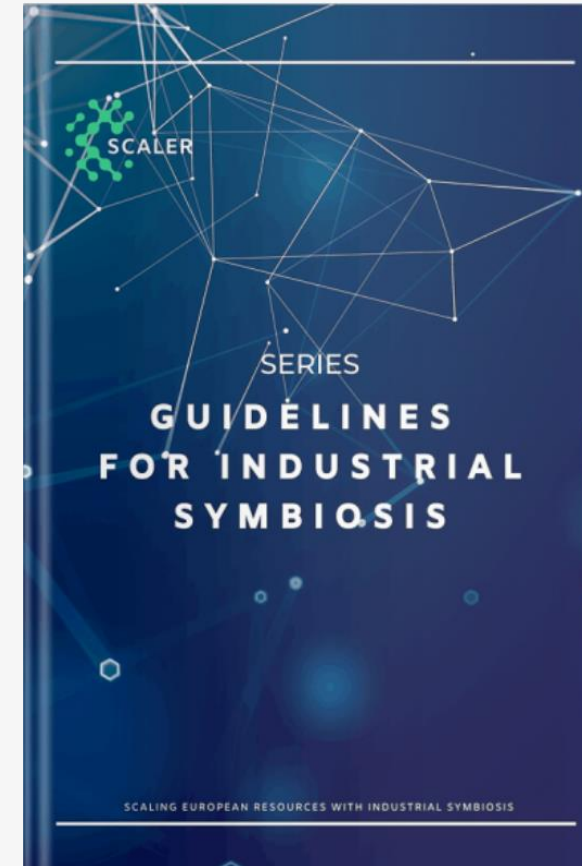
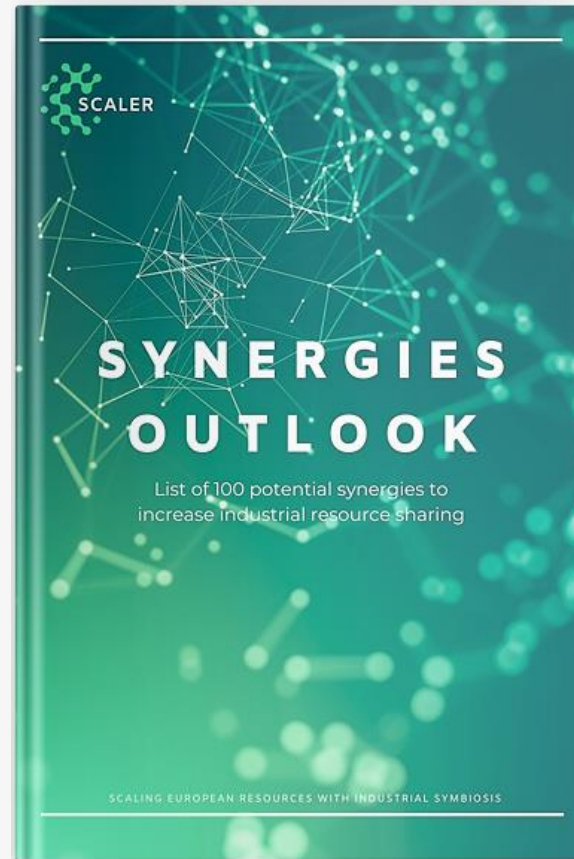
SCALER SCALING EUROPEAN RESOURCES WITH INDUSTRIAL SYMBIOSIS

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The cover features a dark blue background with a glowing, digital grid pattern and a large, stylized white and blue graphic element on the right side.



# SCALER | Guidelines for IS implementation



Download at [scalerproject.eu/resources/guides-outlooks](https://scalerproject.eu/resources/guides-outlooks)

SCALING EUROPEAN RESOURCES WITH INDUSTRIAL SYMBIOSIS



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**Thank you for your attention**

**Questions?**

# Get involved!



## Visit our website

Find out more at [www.scalerproject.eu](http://www.scalerproject.eu) and see how you can work with us.

## Join our newsletter

Keep abreast of the latest information on industrial symbiosis by joining our newsletter:

<http://bit.do/scalerproject-newsletter>

## Contact us

Need more information or want to work with us?

Contact us at

[info@scalerproject.eu](mailto:info@scalerproject.eu) to get in touch.







## Luigi-Lo Piparo

**Luigi LO PIPARO** has over 20 years of professional experience in the management of large-scale EU-funded projects and programmes, mainly focused in the areas of innovation, environment, energy efficiency, climate change, and regional and urban policy.

Luigi has worked closely with institutional and private operators at European, national, regional, and local level either to find financial solutions for investment programmes and innovative projects, or to manage, evaluate, and boost the impact of those initiatives.

Luigi is currently Principal Consultant and Project Manager at Technopolis Consulting Group (Brussels office) with special focus on Green Economy, providing consulting services for project and programme management, evaluations, strategic communications, stakeholder engagement, and knowledge management.



# The CircLean project

*Luigi Lo Piparo, Technopolis Group (Project Manager)*

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 @CircleanEu  
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# Main data of the CircLean project



**Duration:** 36 months (from November 2019 to November 2022)

**Budget:** 1,2 MEUR (EC, DG GROW)

**Partners:** Technopolis Group (lead), International Synergies Ltd, Trinomics, Arctik, with A.Spire, ACR+, EIT Raw Materials

**Keywords:** Industrial Symbiosis, Circular Economy, Stakeholder engagement



## CHALLENGES:

- Insufficiently motivating framework conditions for industrial symbiosis
- Lack of standardised evidence base, recognition, and awareness on impact/benefits

## RESPONSES:

- Elaborate and endorse a voluntary, common approach for the monitoring and reporting of industrial symbiosis transactions
- Promote the uptake of this approach by industry



Environmental, economic and social benefits



# WHY the CircLean Network for Industrial Symbiosis? (1/2)

It can help to:

- Promote **awareness** of the market potential of industrial symbiosis
- **Help EU public authorities achieve their climate targets** by supporting regional and local businesses to engage in industrial symbiosis exchanges
- **Increase competitiveness of businesses, foster green-growth, eco-innovation, and shift to circular economy models**
- **Self-Assessment of readiness level** (Map process, Quantify resources, Prioritise opportunities)
- **Match-making App** (based on an enhanced ISL's *SYNERGie*®4.0: Well-established system hosting over 100,000 resources for reuse, In use for over 10 years, Translated into 7 languages, Automated match identification through Advisor)



# WHY the CircLean Network for Industrial Symbiosis? (2/2)

It can also help to:

- **Define a common approach** for the monitoring and reporting of industrial symbiosis transactions **based on real needs and capacity**
- Showcase results of industrial symbiosis transactions (e.g. to enhance a company's **sustainability** track record)
- Improve **visibility** on the impact of a company's sustainability drive
- Strengthen the linkages with the **CSR** of a company
- Encourage businesses to investigate and learn about further opportunities for **keeping resources within the production loop for longer**

# WHO is the CircLean network for?



## Industry Actors

- Industrial symbiosis networks/clusters, large companies, SMEs

## Business Associations

- Representing interest of industrial actors, companies, SMEs

## Public Authorities

- Regional and city governments

## Research & Innovation stakeholders

- Scientific foundations, research institutions, scientists, consultancies, etc.

*Flexible Membership based on relevance, envisaged level of interest/involvement/support, readiness, etc*



# WHAT are the key features of the CircLean network for Industrial Symbiosis?

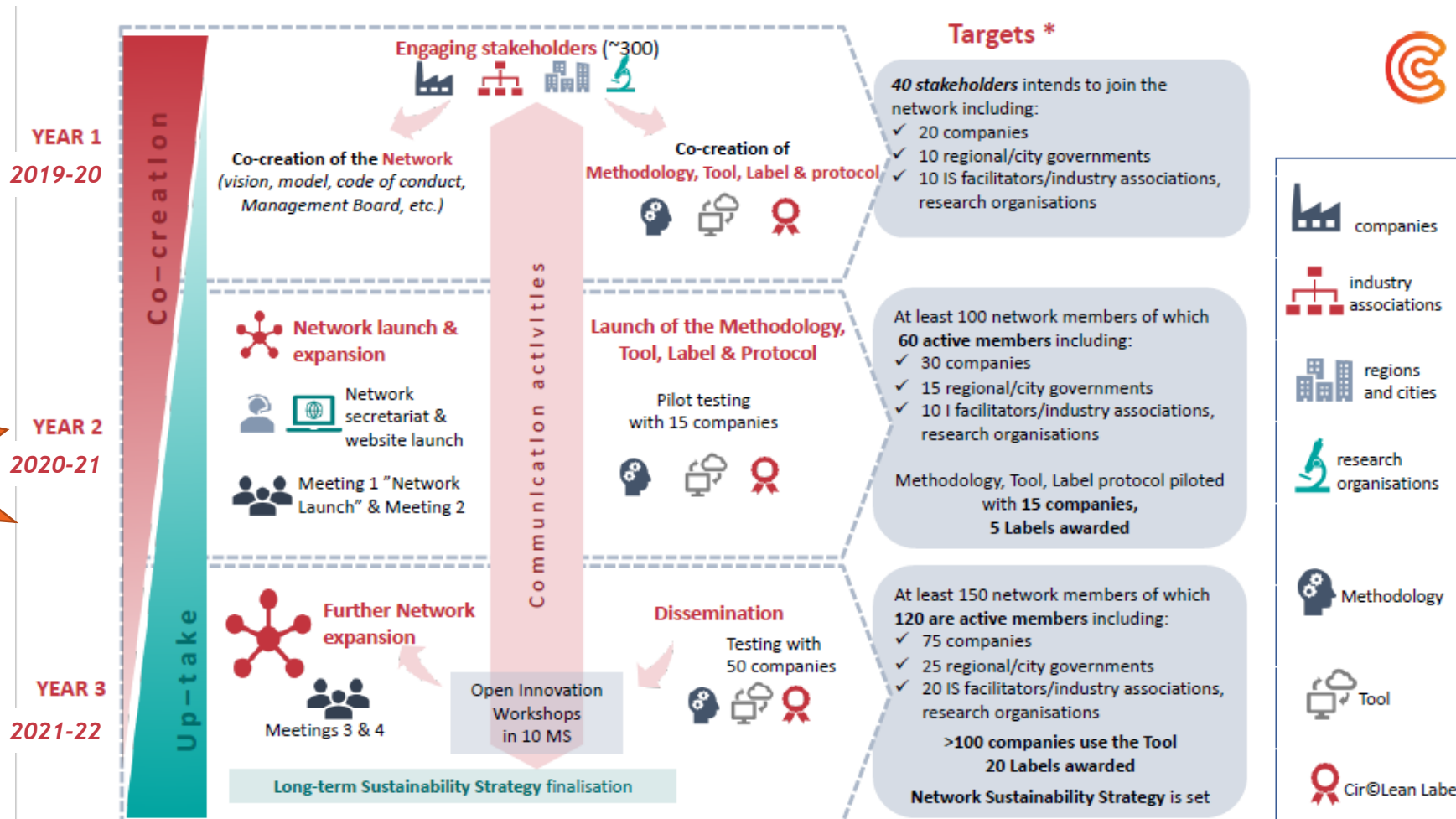


- EU-wide
- Voluntary
- Flexible
- Needs-centred
- Co-created (industry-led)
- Evolutive
- Sustainable

# WHEN is the network for Industrial Symbiosis going to become operational?



21 Jan. 2021  
Launch event



# HOW to join the CircLean network?



Contact **Secretariat** to **REQUEST APPLICATION FORM** ([circlean.project@technopolis-group.com](mailto:circlean.project@technopolis-group.com))

Fill in and **SUBMIT APPLICATION FORM**

(when validated) **SIGN CODE OF CONDUCT**  
and...

...**BECOME A MEMBER!**

# HOW to join the CircLean network?



## BASIC MEMBERSHIP:

- Register your details and resources in the Circlean tool, making yourselves availability for matchmaking, although you do not have to actively participate in the more-advanced network activities (e.g. Task forces, network meetings).

## ACTIVE MEMBERSHIP:

In addition to the 'Basic' activities:

- be involved in the Task Forces and in specific network meetings playing a more prominent role in the activities organised to co-define the Network
- establishing it as a sustainable hub for industrial symbiosis in the EU, and
- expanding its membership base, such as open innovation workshops, matchmaking, ad-hoc meetings, surveys, elaboration of documents, development and testing of the Circlean tool, methodology, protocol, and label.



THANK YOU!

[circlean.project@technopolis-group.com](mailto:circlean.project@technopolis-group.com)





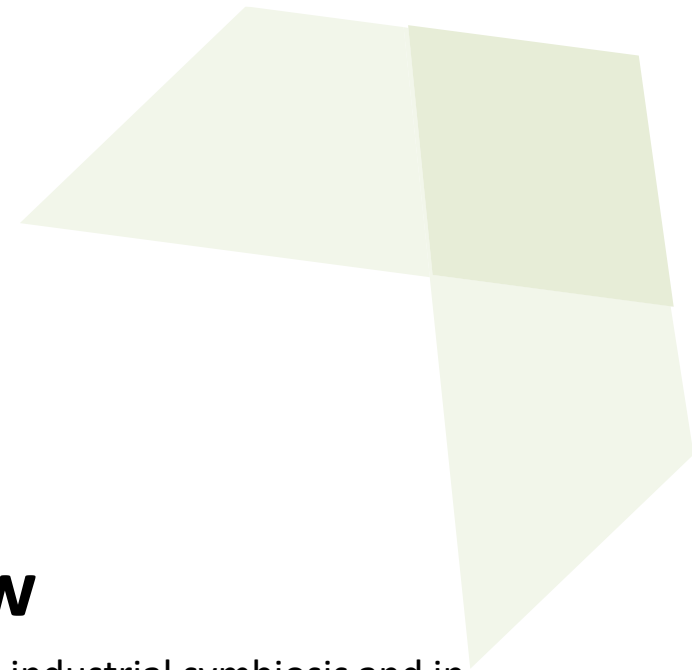


## Verónica Kuchinow

Mrs. Verónica Kuchinow: Specialist in industrial symbiosis and in resource efficiency as a business tool towards circular economy. Founder of ZICLA in 2004 Verónica is since 2014 also co-founder of SÍMBIOSY and direct responsible of the international Industrial Symbiosis projects.

Verónica is also President of the Energy&Waste Commission of the Catalan Agricultural Engineers Association and an active member of various national and European entities think tanks and forums towards circular economy development via the industrial symbiosis.

Verónica is Agricultural Engineer and Food Industry Engineer, with wide and divers training in resource efficiency and business management in Spain and in China; and in design and innovation as communication management strategic tools.





SYMBI project

An Industrial Symbiosis Incubator for Maximizing Waste Heat/Cold Valorization in Industrial Parks and Districts

## Project Overview



**INCUBIS**  
ENERGY SYMBIOSIS INCUBATOR

Presenter: Verónica Kuchinow, SÍMBIOSY

Date: 10-12-2020



This project is funded by the Horizon 2020 Framework Programme of the European Union under Grant Agreement Number **894800**



## Project Identity

# An Industrial Symbiosis Incubator for Maximizing Waste Heat/Cold Valorization in Industrial Parks and Districts

Call: EE-6-2019

Title: **Business case for industrial waste heat/cold recovery**Subtitle: *Symbiosis in industrial parks and clusters - non-technological barriers*

<b>Project details</b>	<b>Start date</b>	May 1st, 2020		
	<b>Duration</b>	36 months (April 30th, 2023)		
	<b>Budget</b>	€2.000.000	<b>Partners</b>	8 (6 SMEs)
	<b>Efforts</b>	277 Person Months	<b>Countries</b>	6 (ES, UK, CH, PO, DE, NO)



## Call requirements

**Fact:** Energy Intensive Industries have significant energy losses in the form of industrial waste heat/cold (IWHC).

**Challenge:** IWHC recovery and reuse at the process and facility level has been successful but has technical and financial limitations.

**Opportunity:** *The IWHC of one industry can be a valuable resource for other industries as well as District Heating and Cooling Operators.*

**Goal:** Improve the energy efficiency of industrial agglomerations by unlocking the market potential of energy cooperation and joint energy services.

## Main Assumptions

Energy Symbiosis: The exploitation of energy efficiency opportunities found across industries and sectors.

Barriers	Problem	Solution
High risk of energy symbiosis project development activities	Energy Symbiosis projects often get stuck and/or fail in the project development stage	An intermediary (facilitator) that can overcome barriers, manage risks, and deliver projects
Low risk tolerance for investments in waste/byproducts		
Lack of skills/capacity to properly assess and manage those risks		



## INCUBIS Concept: The Energy Symbiosis Incubator

The **Energy Symbiosis Incubator** is an entity which provides support to organizations that can act as facilitators with the aim to improve their capacity to deliver Energy Symbiosis projects.

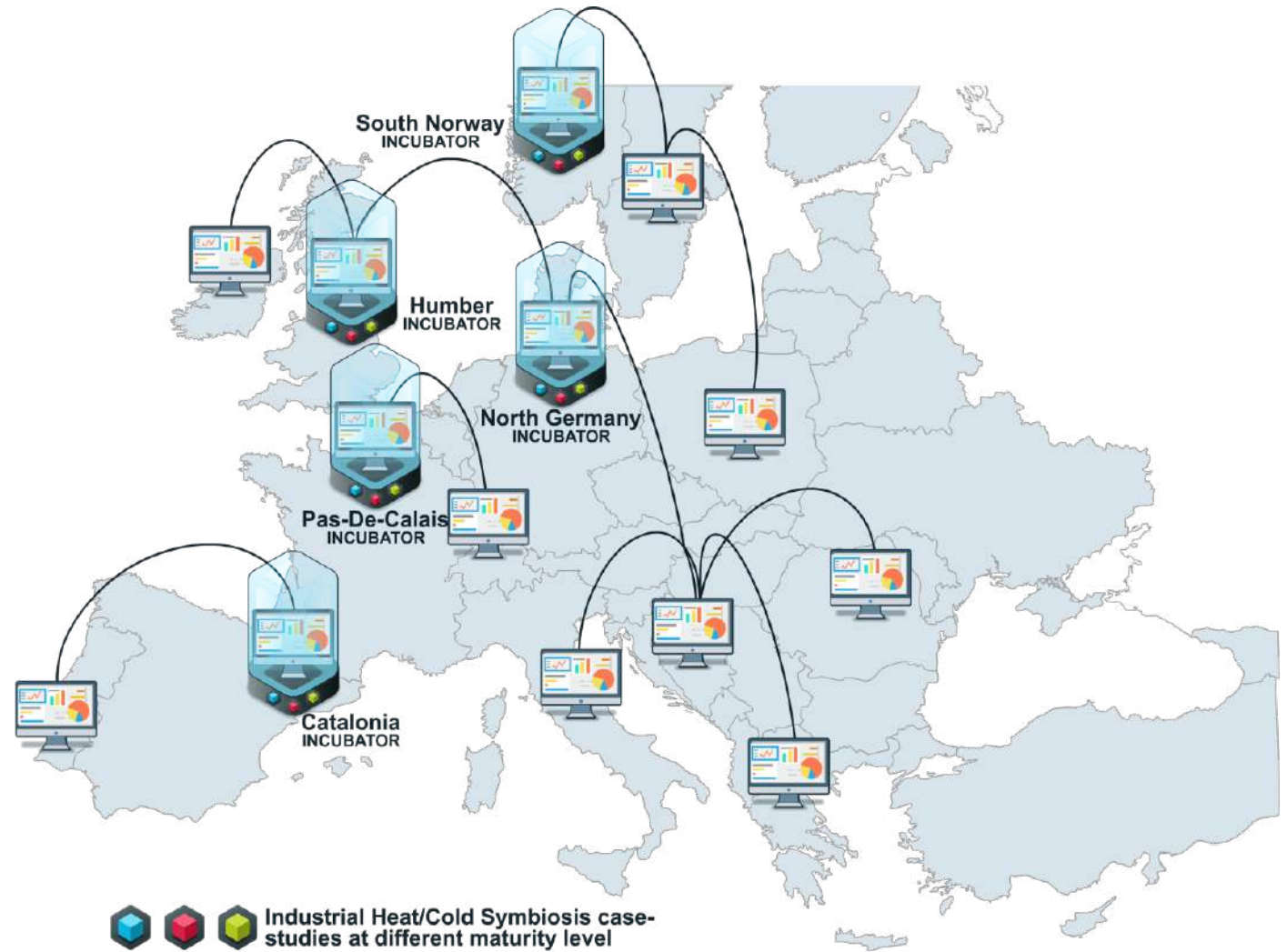
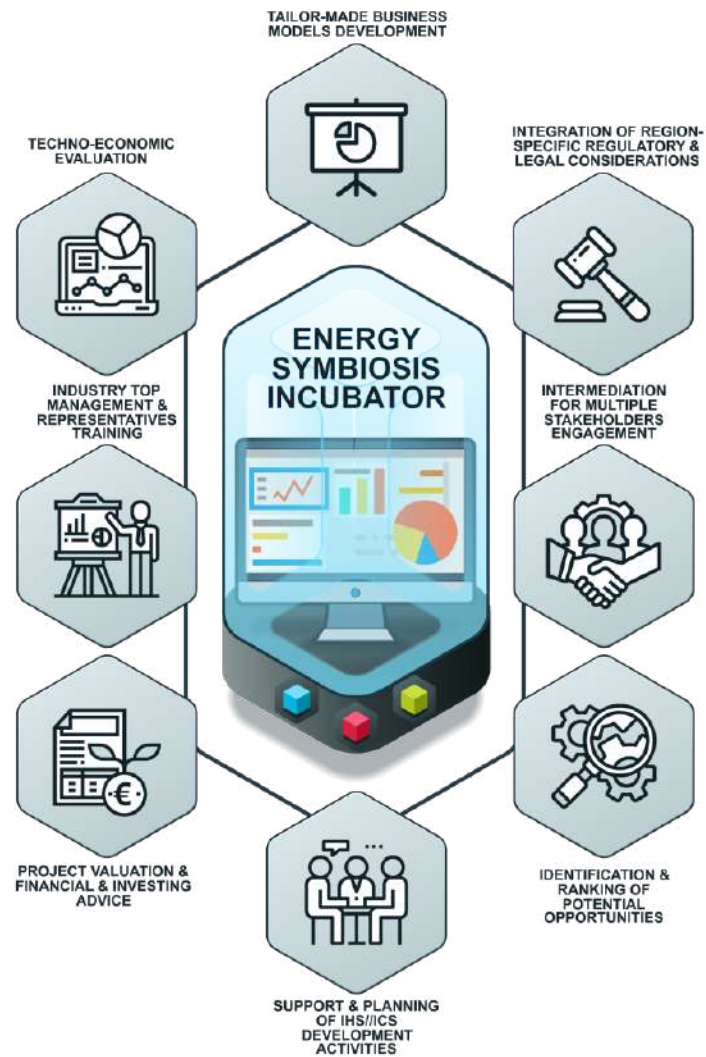
We follow the paradigm of the “Virtual Incubator” that operates mainly online and focuses on the provision of “Knowledge-Intensive Business Services” rather than the provision of physical assets.

As such, INCUBIS will deliver a range of tools, methods and services to candidate facilitators in order to:

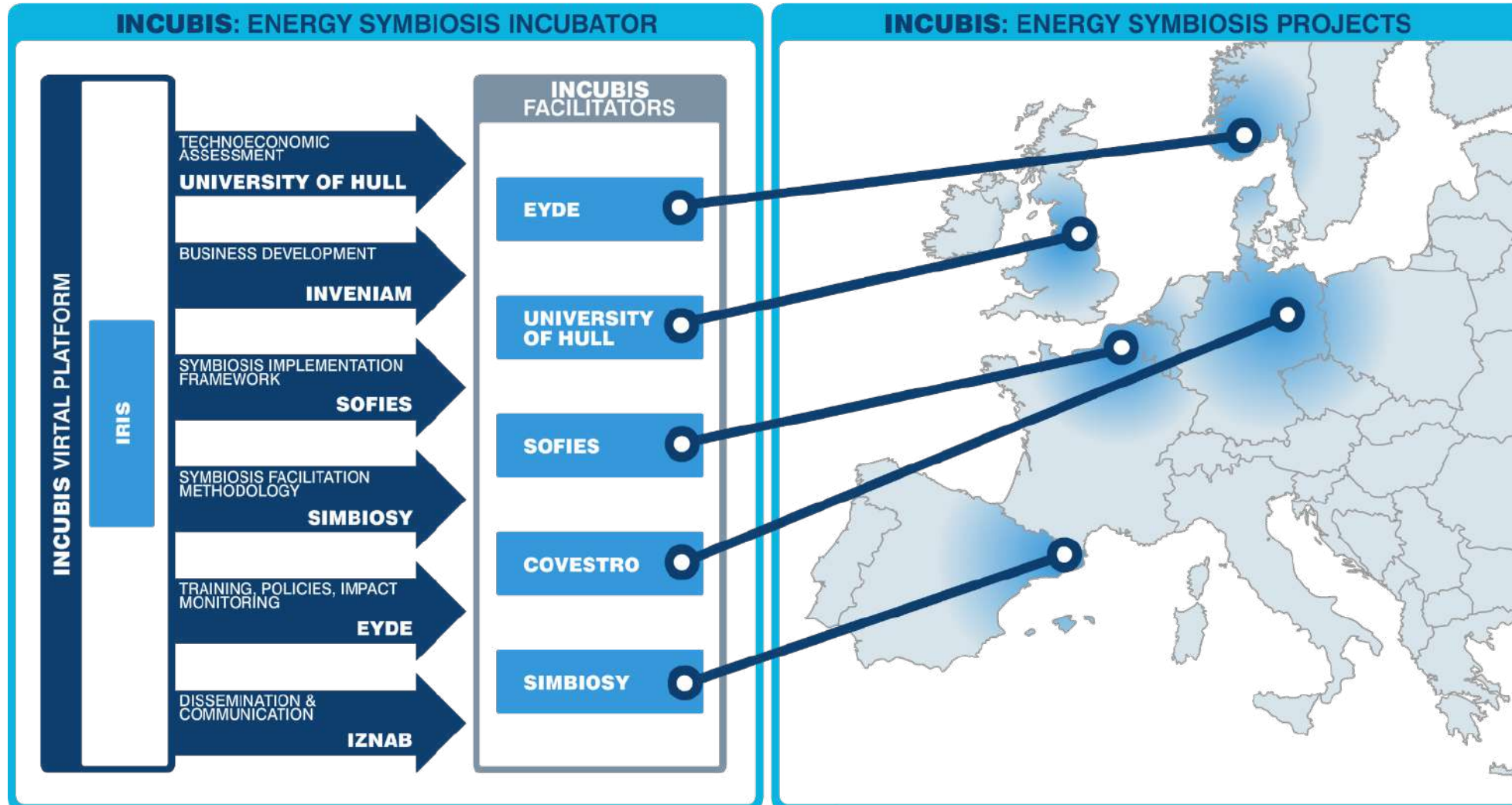
- Support them in the identification, development and delivery of energy symbiosis opportunities.
- Train them and build capacity at all levels to achieve sustainable growth of energy symbiosis uptake.



## INCUBIS Concept: The Energy Symbiosis Incubator



## INCUBIS Concept: Support throughout the Symbiosis lifecycle



D1.2 | SYM | Confidential | M8

An operational framework for the energy symbiosis incubator

D1.1 | UHULL | Confidential | M5

Gaps and needs analysis of regional industrial ecosystems

### Digital Platform and online services

**D3.1 | IRIS | Confidential | M9**  
Report on the Virtual Platform's architecture and initial backlog

**D3.2 | IRIS | Public | M18**  
INCUBIS Virtual Platform

**D3.3 | IRIS | Confidential | M24**  
Virtual platform description and user manual

**D3.4 | IRIS | Confidential | M30**  
Report on virtual incubator's performance

**D5.4 | IZNAB | Public | M36**  
Report on the accelerated education and mentoring activities

### Finance, business and funding

**D2.3 | INVEN | Public | M15**  
Guide on financing and de-risking energy symbiosis

**D5.2 | INVEN | Public | M30**  
An investor-oriented taxonomy of energy symbiosis

### Coordination and management

**D2.1 | SOFIES | Public | M12**  
A European framework for the coordination of energy symbiosis

**D4.3 | SYM | Public | M30**  
Handbook of Energy Symbiosis Implementation

**D4.4 | SYM | Confidential | M36**  
Report on Energy Symbiosis impacts and Incubator performance

### Technoeconomic Assessment

**D4.1 | SYM | Confidential | M12**  
Regional action plans and impact monitoring framework

**D2.2 | UHULL | Public | M18**  
A method for estimating energy symbiosis potential in the regions

**D4.2 | UHULL | Public | M27**  
Maps of energy symbiosis potential in the target regions

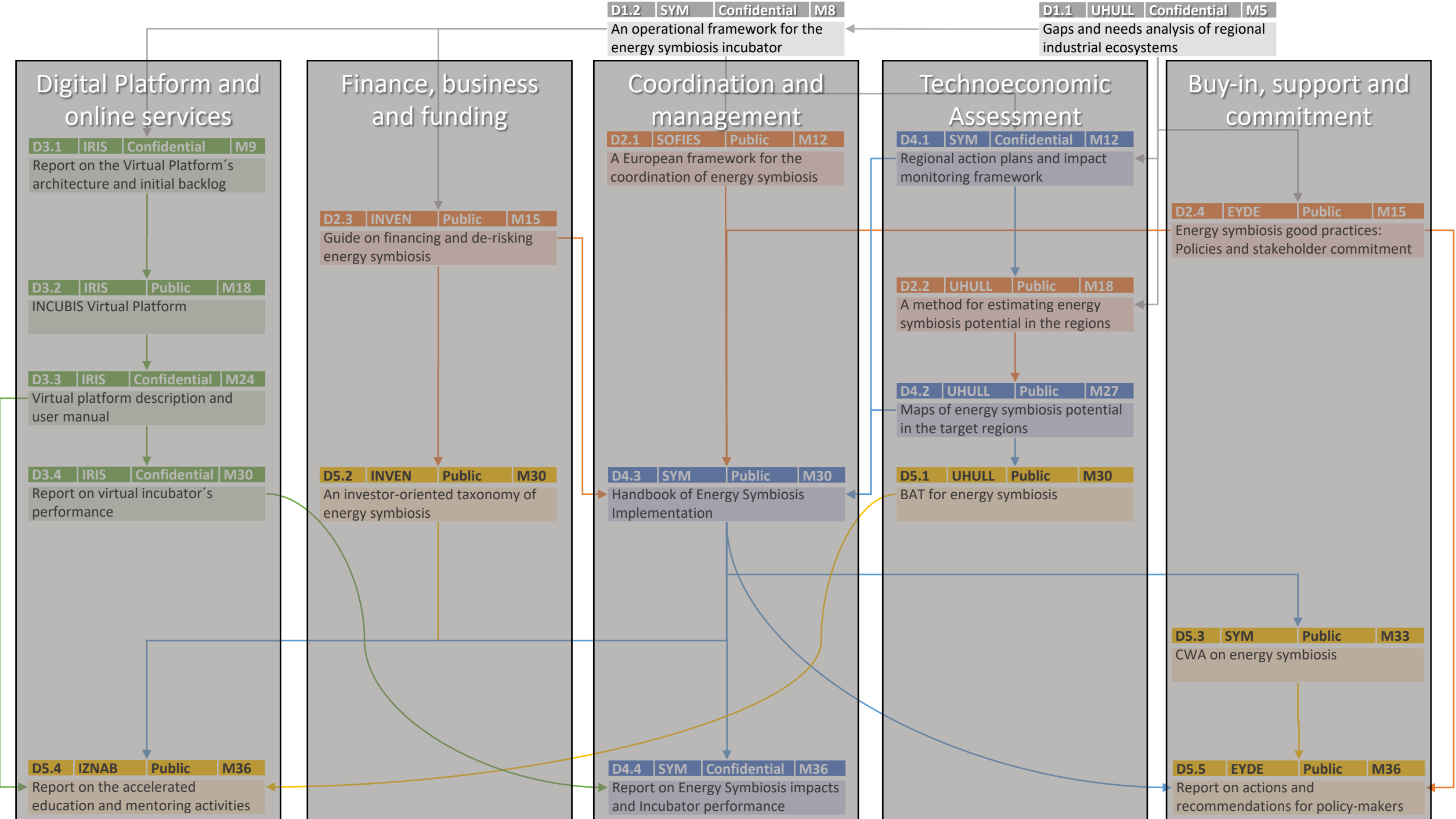
**D5.1 | UHULL | Public | M30**  
BAT for energy symbiosis

### Buy-in, support and commitment

**D2.4 | EYDE | Public | M15**  
Energy symbiosis good practices: Policies and stakeholder commitment

**D5.3 | SYM | Public | M33**  
CWA on energy symbiosis

**D5.5 | EYDE | Public | M36**  
Report on actions and recommendations for policy-makers

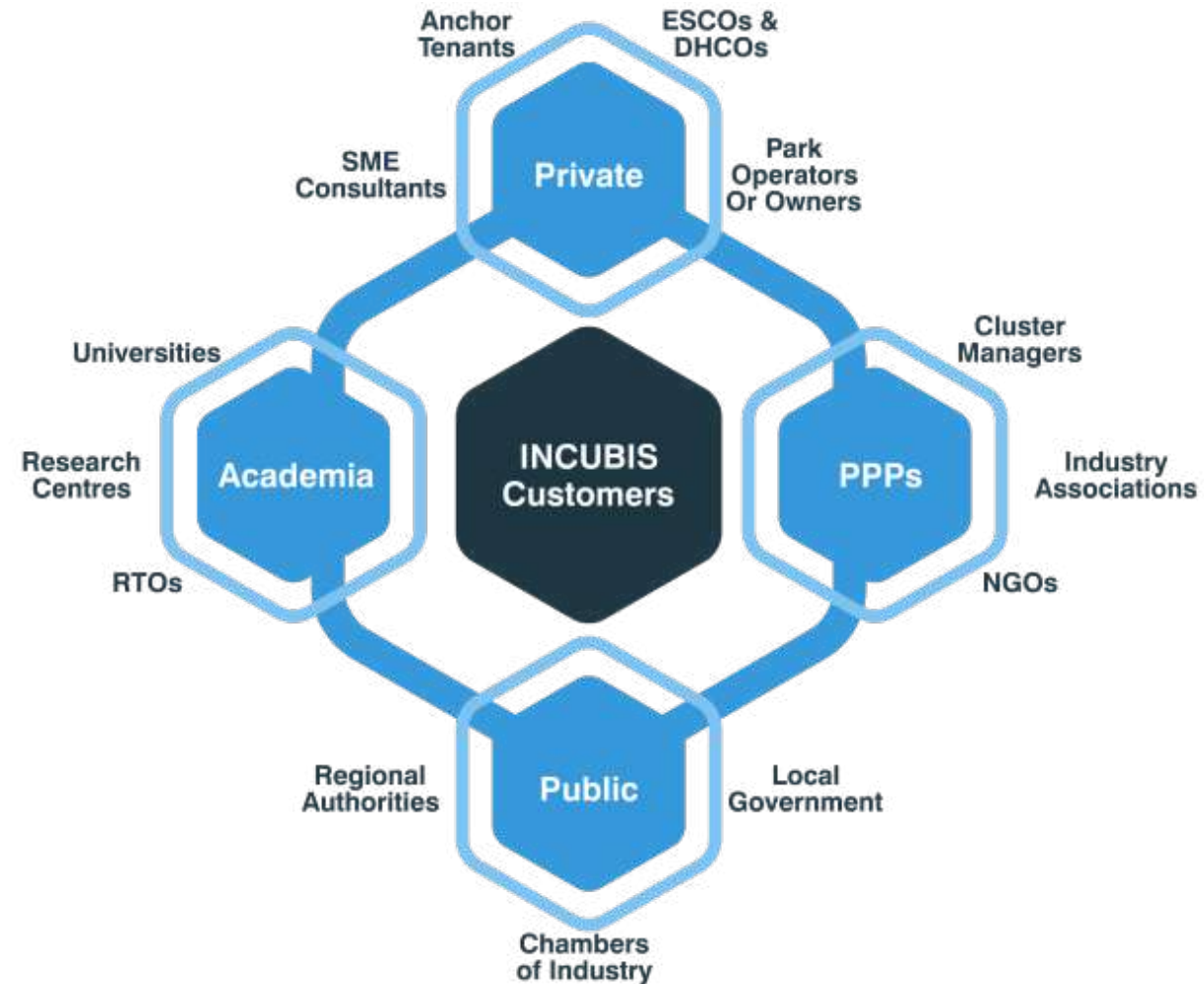




# INCUBIS Target Audience

## Motivation of the target audience for implementing Symbiosis

- Expanding service portfolio and increasing profit (e.g. ESCO and IPO)
- Minimizing vacant land rate (municipalities and IPOs)
- Improving and extending services down the synergy lifecycle (IS facilitators)
- Decreasing costs and increasing revenue (anchor tenants)
- Environmental and Social benefits (municipalities)
- CSR benefits (IPOs, Anchor Tenants, ESCOs)





## PROJECT PARTNERS



THANK YOU FOR YOUR  
ATTENTION





# Q&A







# CONCLUSIONS





# Thank you!

