SESSION 3: 10:00-10:15

ESTEP workshop

SecCarb4Steel

Recent project activities on European level following SCC usage

Creation Of new value chain Relations through novel Approaches facilitating Long-term Industrial Symbiosis

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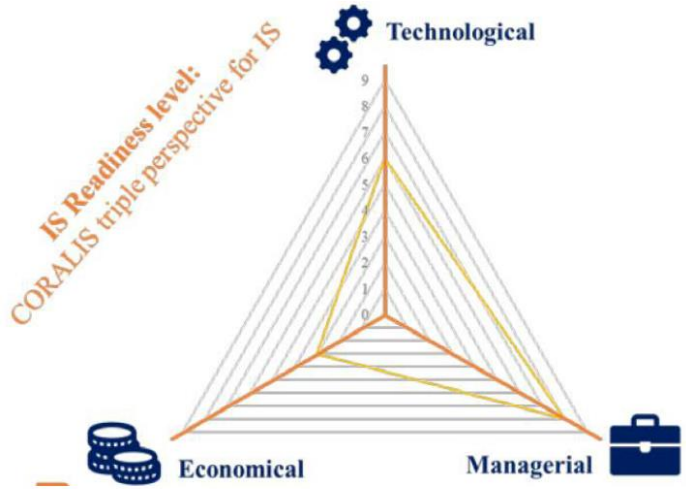
CORALIS project overview

The main objective of CORALIS is **to create pathways for the decarbonisation** of resource in energy intensive sector value chains through the implementation of viable **industrial symbiosis** approaches combining new business and management strategies with innovative technology-based enablers.

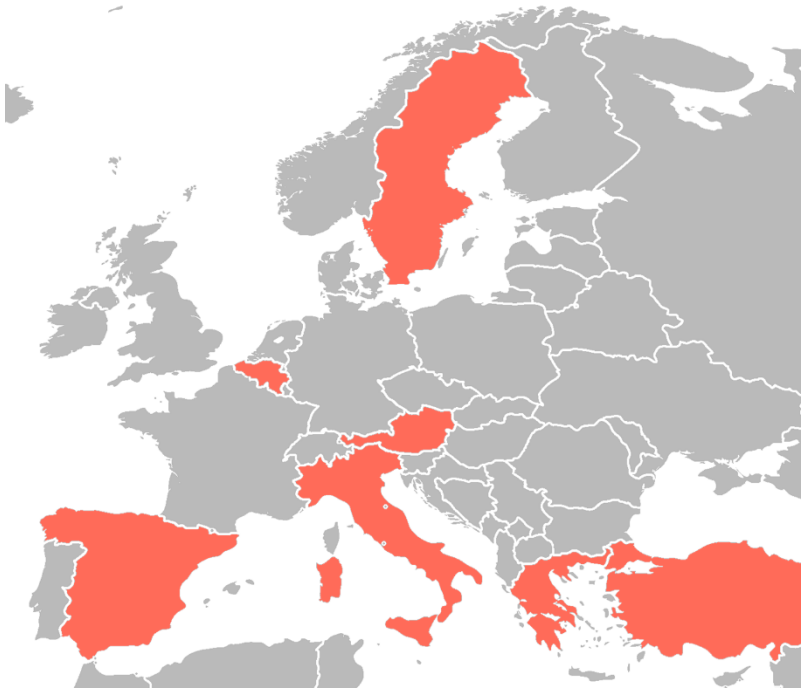
https://www.coralis-h2020.eu/

This whole approach will be **demonstrated in three real industrial areas** covering different sectors, geographical dimensions and resources, improving the knowledge basis and laying the foundations for exploiting the potential of Industrial Symbiosis in EU process industry.



CORALIS project overview

CORALIS



1 - CIRCE	16 - Sidenor
2 - FTIB	17 - EI-JKU
3 - QSr	18 - Borealis
4 - INCRO	19 - VAS
5 - Azcatec	21 - TUPRAS
6 - RISE	22 - IMMIB
7 - WA3RM	23 - ICCS
8 - LiU	24 - EEIP
9 - Hoganas	25 - RINA-C
10 - CSM	26 - SSSA
11 - AIB	
12 - ORI	
13 - Raffmetal	
14 - Torbole	
15 - Feralpi	

Lighthouse demonstrators

Escombreras Valley

Industrial Area

For the whole industrial area, to improve water management and consumption, eliminate Ca waste and reduce the overall CO2 emissions at park level

Fertiliser

Frövi

Industrial Area

For **Frövi** to increase resource efficiency and lessens environmental impact and as a niche market leader, to obtain front-runner advantage

Agrofood

Brescia

Industrial Area

For the region, to obtain a deeper understanding about the industrial waste and reduce waste landfilling in line with the objetives set by public authorities and associoations in the region

Metal industies

Followers

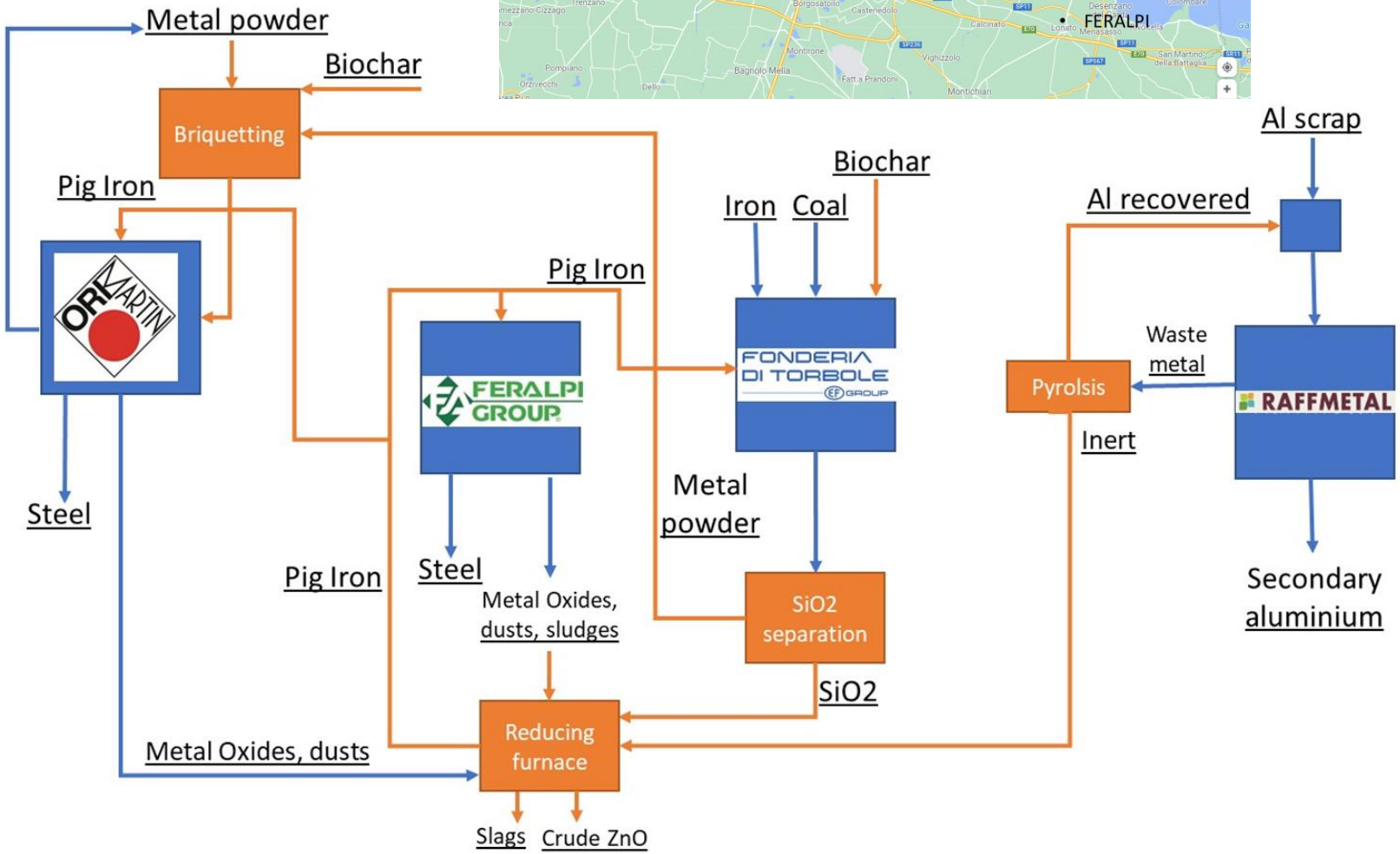
The demonstration in **Basauri** will assess the feasibility of a thermal energy storage system for waste heat recovery from an EAF to supply steam to other companies in the area

The Austrian industrial area of **Linz** will focus within CORALIS project on the interaction between Borealis Agrolinz Melamine chemical industry and voestalpine steel industry for the production and exploitation of renewable hydrogen

Izmit petroleum refinery is located in the North-West of Turkey: the main driver to join CORALIS relies on the potential costs reduction in the treatment and valorisation of waste

WP7 PERT


RAFFMETAL
ORI MARTIN
Brescia
Fonderie Torbole
FERALPI

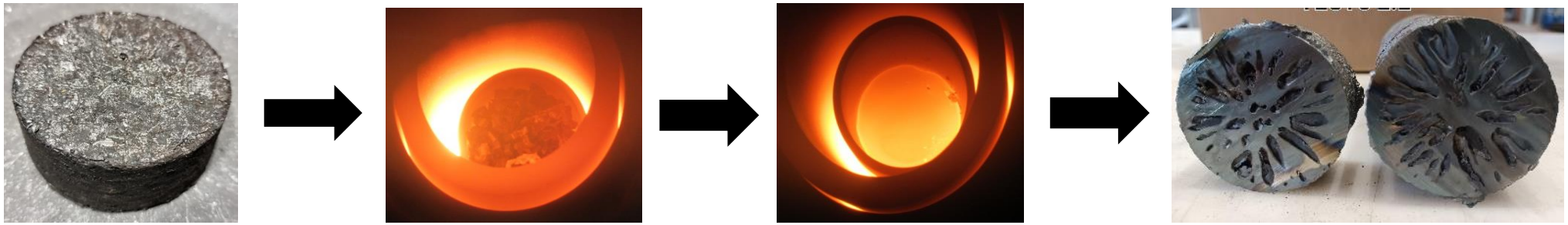

Metal powder
Biochar
Briquetting
Pig Iron
Steel
Pig Iron
Steel
Metal Oxides, dusts, sludges
Pig Iron
Iron
Coal
Biochar
Metal powder
SiO2 separation
SiO2
Metal Oxides, dusts
Reducing furnace
Slags
Crude ZnO
Al scrap
Al recovered
Waste metal
Pyrolsis
Inert
Secondary aluminium

RINA-CSM

Rina-CSM ha performed different pilot plant testing in order to analyse the behavour of briquettes (carburisation of metal bath, yield, risks,…).

Moreover, a role of facilitator has been done to help the exchange of materials and information.

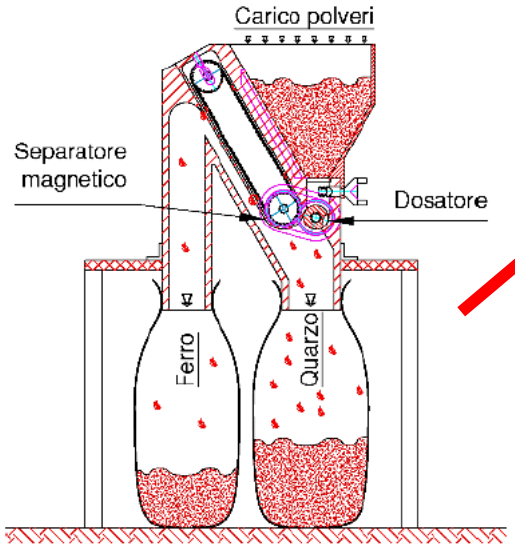
The role of Confindustria Brescia is fundamental for authorisation.



Torbole

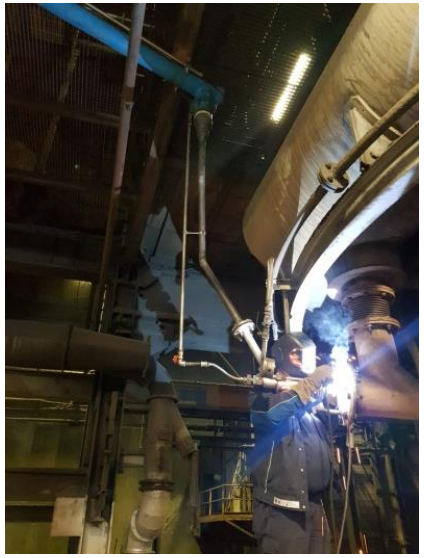
Torbole has two main tasks:

- metals recovery from sand blasting operations
- biochar use as substitute of anthracite or graphite



The metal recovery is a procedure that does not have problems of authorisation, being un internal process for the valorisation of residues.

More complex is the procedure for biochar use, due to the nature of the material



ORI Martin

Industrial testing has been performed at ORI Martin with briquettes having as main component scales.

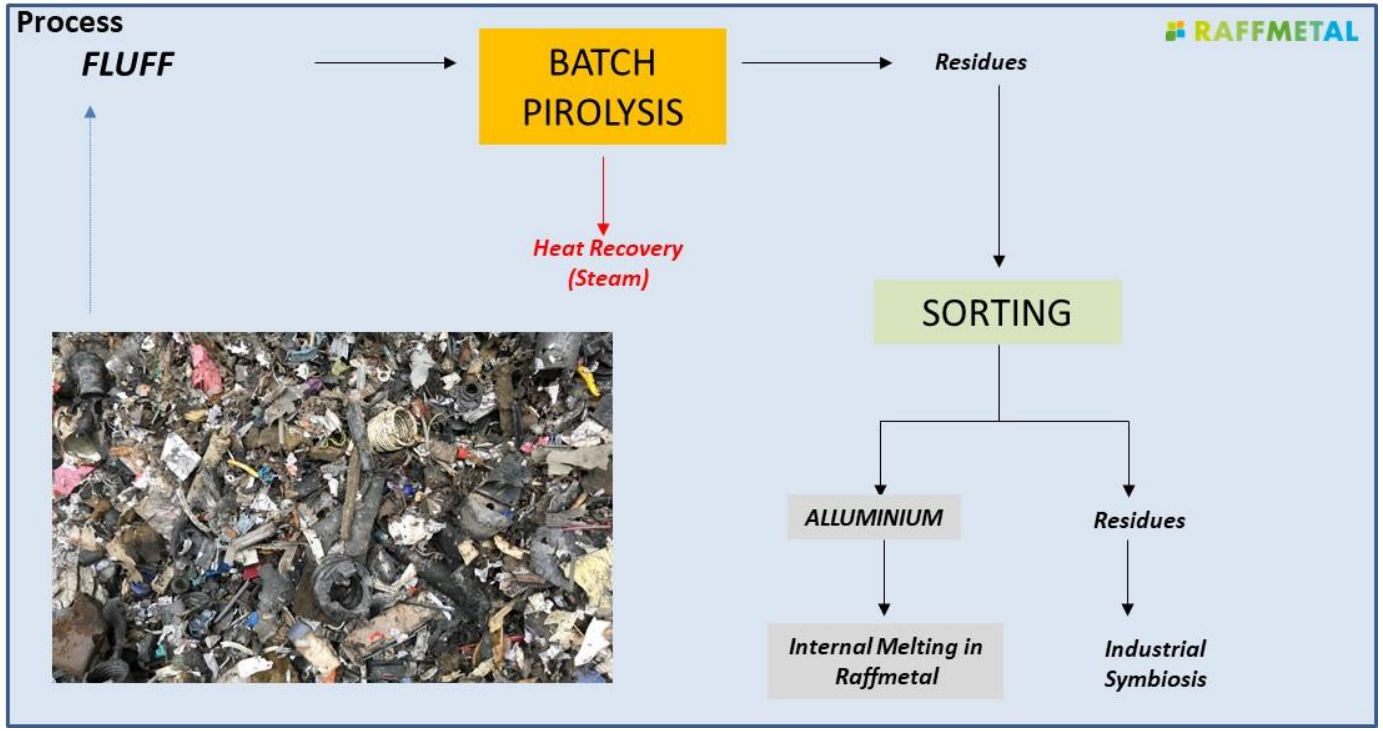
The authorisation procedure has been more long for sludge respect to the scale. It is still on going for fumes.

Raffmetal

Metal recovery and heat valorisation in secondary aluminum production

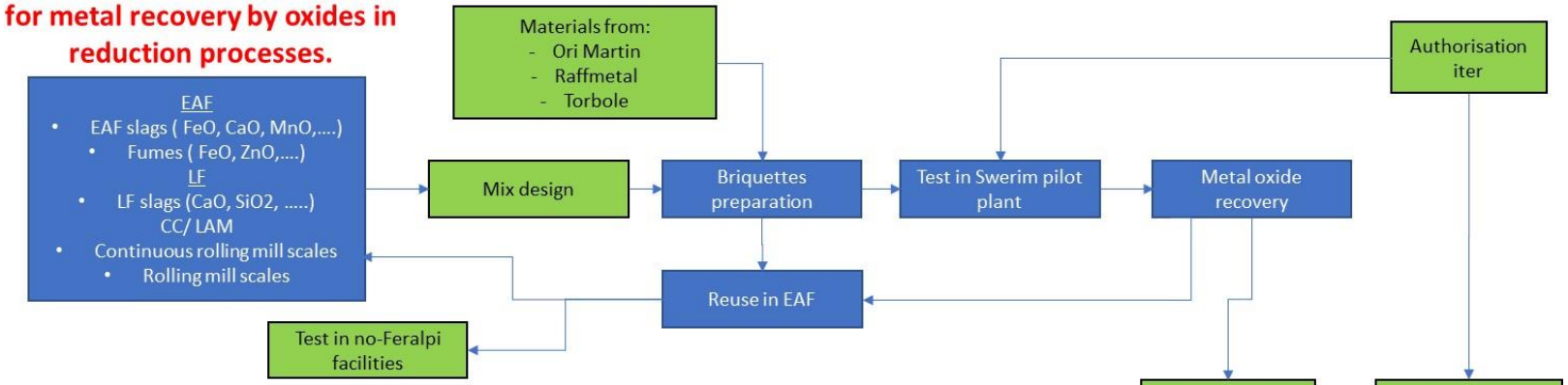
Experimentation has been done in orde to define:

- Maximum O2 in the reactor
- Eventual micropollutants generation
- Quantity of syngas and HCl generated during the process
- Energy developped in the pyrolisis

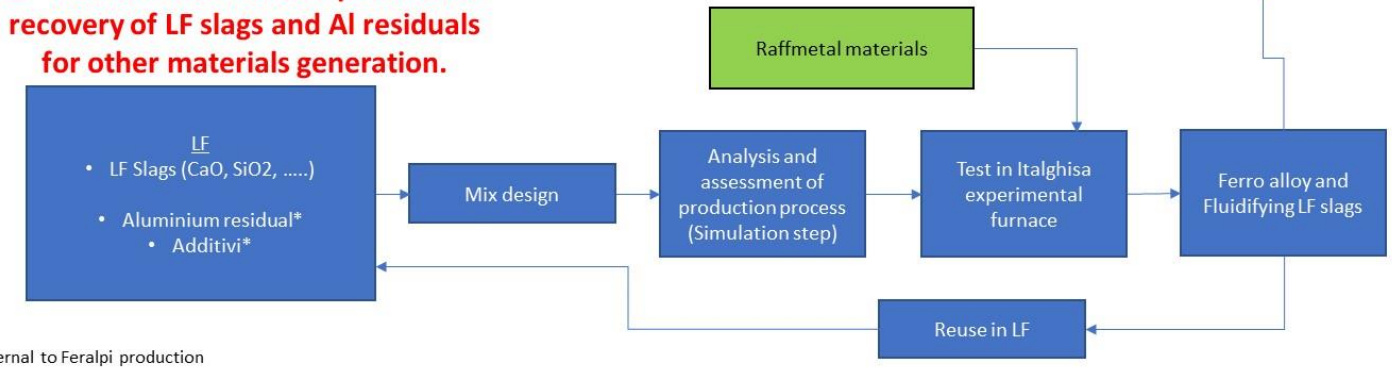


Feralpi

1 – Flux of materials and process for metal recovery by oxides in reduction processes.



2 – Flux of materials and process for recovery of LF slags and Al residuals for other materials generation.



*external to Feralpi production

Materials for reduction trials

Charging briquettes and reaction in pilot plant

Conclusions

The **reached technical targets** were:

- definition of briquettes composition suitable for industrial use (metal part or oxides recovery)
- design and realisation of a system for sand/metal separation and reuse of sand
- design of a plant for the recovery of metallic aluminium and heat

It is important to have a **homogeneity of technology** level between IS participants.

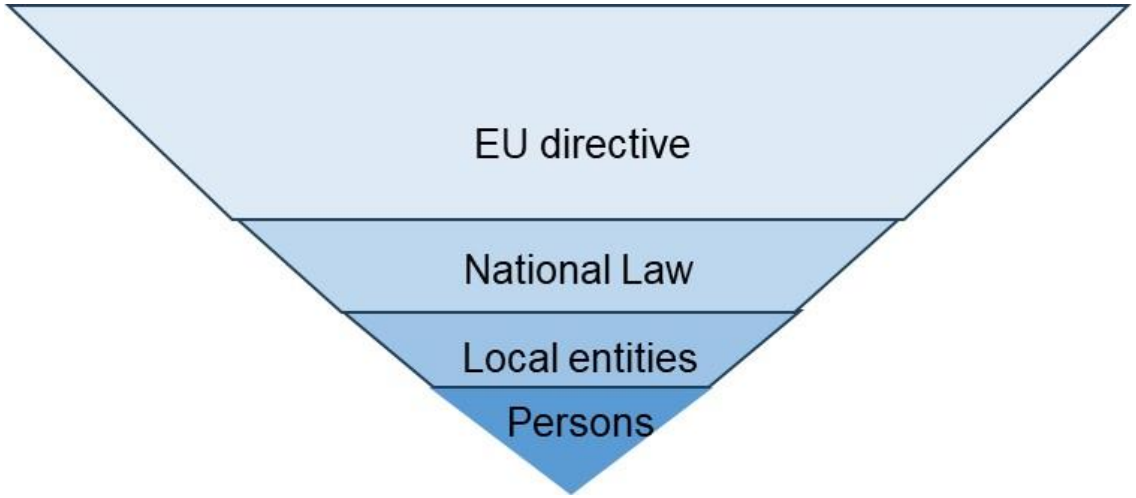
Being the creation of an IS an economical effort (lied to cost of personnel, structures, facilities, experimentation….), it is fundamental to start with a **financial support**. It is not simple for the companies to create a huge commercial structure completely alone. A financial support encourages to take new paths.

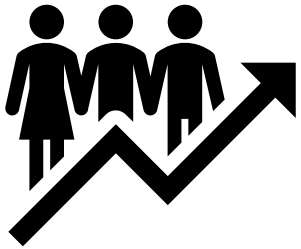
Lessons learned

The **permitting process status** is fundamental for an IS creation, anyway the time required is long and often there are some issues that need additional information or specific procedure. Often legal barriers are to be faced.

In general, **agreement between participants** to the IS case can be easy reached: this is not a bottleneck of the process.

Different companies are very open to IS creation, their awareness and will are in the collaboration sense, if anything the problem connected to the time need and the financing possibility.





THANK YOU

CORALIS

Industrial Symbiosis
in Energy Intensive Industries

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