

EPOS INSIGHTS #1

MARKET STUDY

Led by:



EPOS insights are publications summarising the most relevant outcomes of the EU funded EPOS project. The overall aim of the EPOS project is to enable cross-sectorial industrial symbiosis and provide a wide range of technological and organisational options for making business and operations more efficient, more cost-effective, more competitive & more sustainable across process sectors.

INTRODUCTION

This insight summarises the investigation of both the potential for industrial symbiosis in Europe, and the main requirements by local managers for implementing symbiotic initiatives.

EPOS MARKET STUDY IN NUMBERS...



240
pages

5 hotspots
in Europe 



More than

1000

ideas and synergies
examined



8 authors
involved

3 EPOS clusters
are in hotspots



28
potential
synergies

12
resources

CONTEXT

Industrial symbiosis offers a wide variety of opportunities to the process industry. More than 1 000 ideas of potential synergies have been generated via interviews with field actors working on industrial sites, and via joint brainstorming sessions with academic researchers and SME innovators.

The main potential for industrial symbiosis revealed in this study is the valorisation of physical resources. This is followed by the mutualisation of equipment, along with organisational and service related synergies.

Symbiosis potential is recognised across all EPOS sectors. Especially steel, cement and petrochemical sectors have proven to be most fertile in creating synergies and collaborations. For each spotted symbiosis a value chain based assessment has been carried out. The EPOS market study defines recommendations and measures to optimise the solutions to be proposed by the EPOS toolbox, and to identify the most promising exploitation schemes.

RESULTS

All European industrial sites in the cement, steel and chemicals sectors have been mapped. The geographical dimension of industrial symbiosis has been systematically assessed.

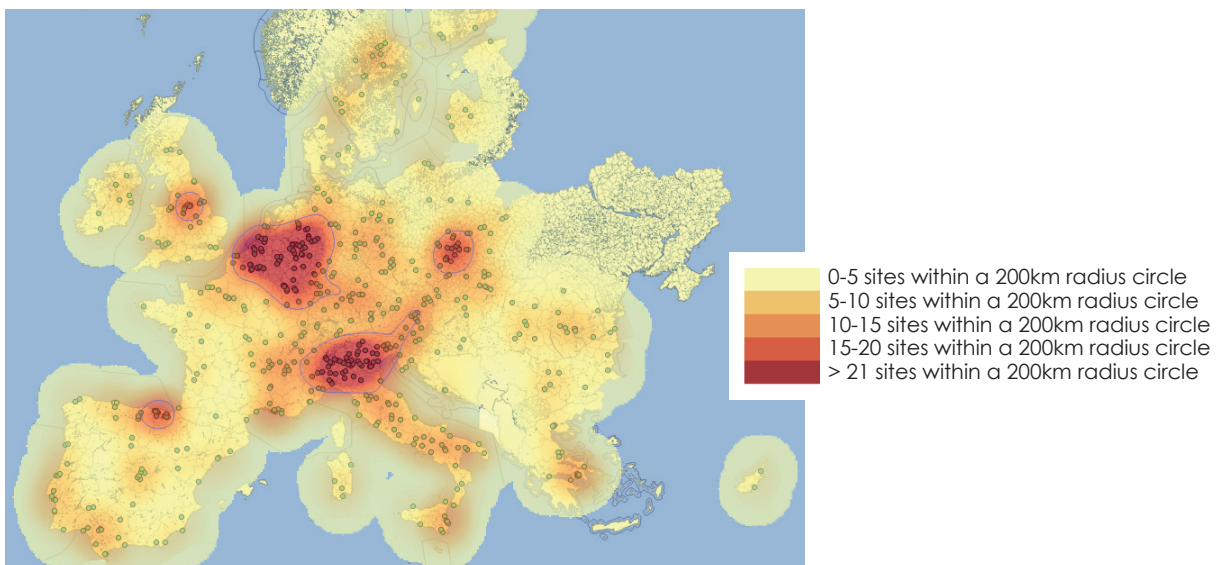
Five main hotspots are identified in Europe.

▶ The largest one covers Northern France, Belgium, the Netherlands, Luxembourg and Western Germany. It gathers 20% of the European sites, and 40% of the potential couples of sites below 200km.

▶ The second biggest hotspot is Northern Italy. Here the presence of electric arc furnaces and cement plants is predominant.

▶ Three medium hotspots are identified around Krakow in Poland, Bilbao in Spain, and the UK Midlands. In between, the density of industrial sites is lower and more stretched.

With the exception of Spain, EPOS is active in all hotspots, especially with its industrial clusters in Hull and Rudniki and its district cluster in Dunkirk.



Hotspots in term of density of industrial sites in Europe (Source: Strane)

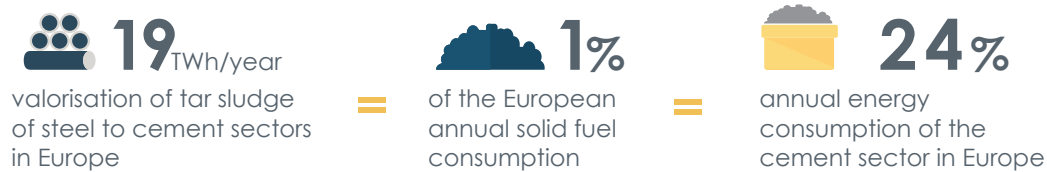
An in-depth techno-economic assessment was carried out on a selection of technically credible set of 12 resources for 28 potential synergies. Only a minor share of the synergy ideas was found to be economically credible.

The resources with higher potential for industrial symbiosis appear to be solid and liquid wastes or by-products. These are characterised by a high intrinsic value, and are produced in sufficiently large amounts both on each site and at EU level.

The profile of resources with higher potential for IS appears to be solid or liquid resources, with a high intrinsic value and produced in sufficiently large amounts both on each site and at EU level.

CONCRETE EXAMPLES OF POTENTIAL INDUSTRIAL SYMBIOSIS

Tar sludge



Dust



District heating



CONCLUSION

The Market Study presents a first step in exploring the potential for industrial symbiosis and provides a strong basis for entering the cross-sector exchanges and interactions in the EPOS clusters. It sets the starting point both for the development of generic business

cases for industrial symbiosis across sectors, and for the extracting optimal exploitation schemes that are vital to achieve the project objectives and maximise the project impact.



COLOPHON

Date	December 2016
Authors	Alexandre Bredimas, Olivier Vallet & Stéphane Ogé - Strane Innovation
EPOS coordination & editors	Greet Van Eetvelde & Giustino Piccolo - Ghent University, UGent
Design	CimArk

CONTACT

Interested in this work?

Please contact us at info@project-epos.eu

www.spire2030.eu/epos

 [@projectepos](https://twitter.com/projectepos)