



Demonstrating more efficient enzyme production to increase biogas yields
Grant Agreement n. 720714

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Dissemination Workshop – Biogas Convention and Trade Fair
Nurnberg (Germany), 10° December 2019



EU funded Project





Outlook

- Ciaotech/PNO at a glance
- Ciaotech/PNO as partner
- Ciaotech approach to study the Market: Market analysis and Stakeholders analysis
- Potential benefits of the project and future perspectives





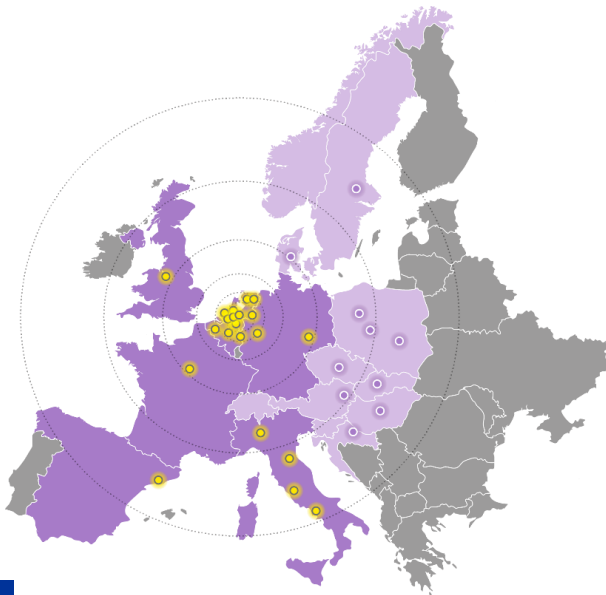
CiaoTech/PNO facts and figures



CONNECTING AMBITIONS

CiaoTech (PNO Group)

Consultancy company leader in Europe in the management of Innovation and public fundings.



-  More than 30 years of experience
-  Offices in 7 European Countries
-  More than 4.000 clients and partners
-  More than 10.000 organisations in our network
-  More than € 1 Billion of public fundings each year for research and innovation projects
-  Success rate 3 times higher than the average



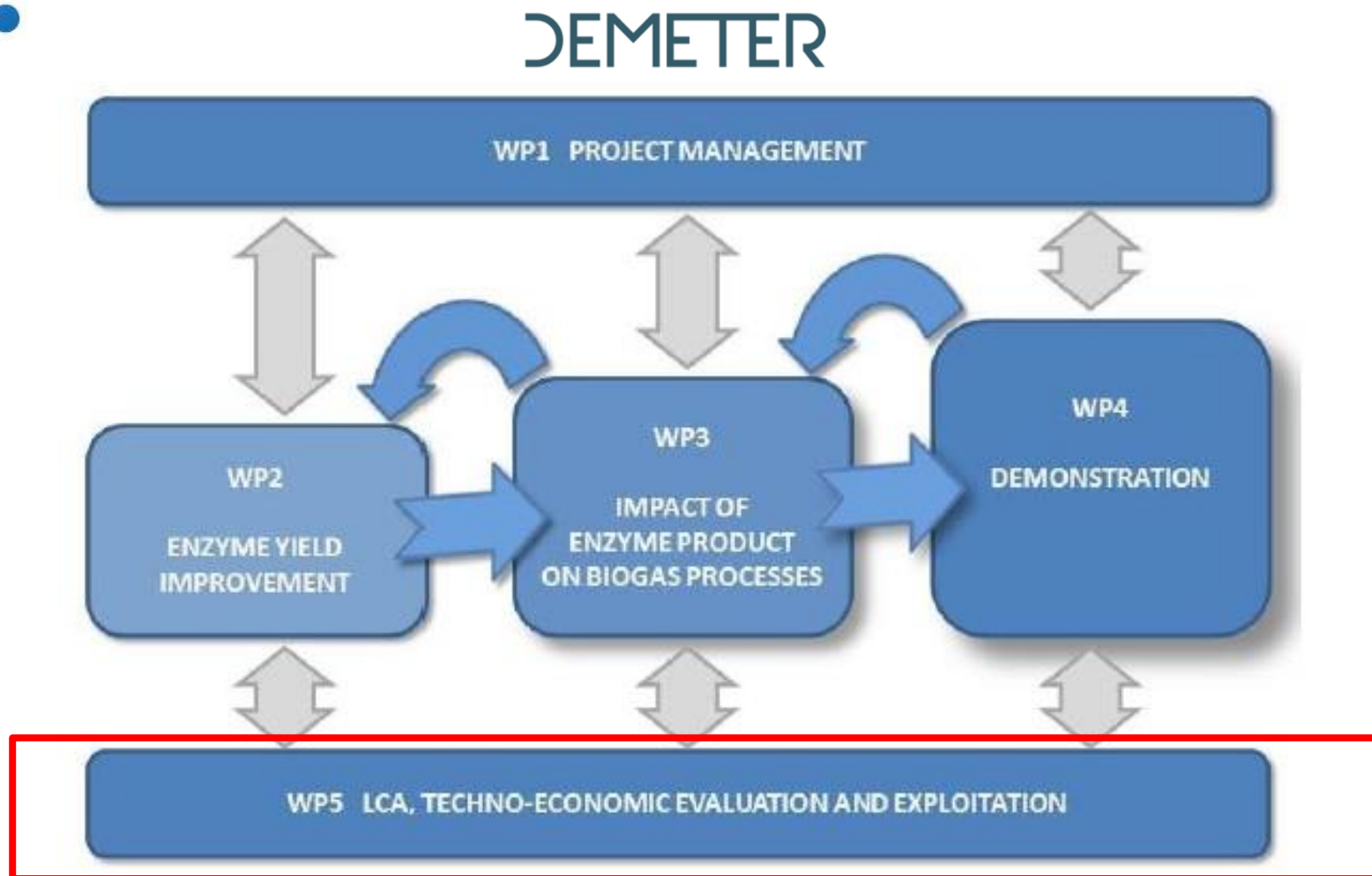
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CiaoTech: a key partner for valorising DEMETER results



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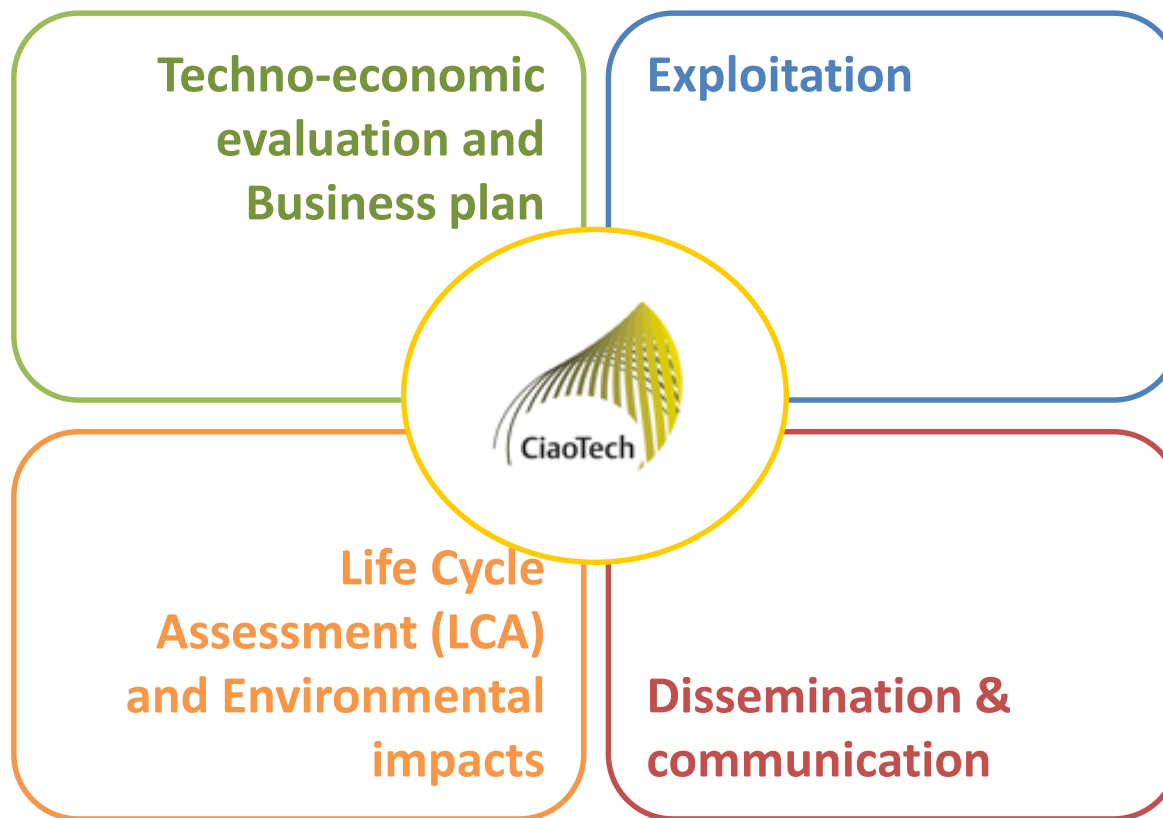


CiaoTech: a key partner for valorising DEMETER results



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In the DEMETER project **CiaoTech** is conducting the following activities:





CiaoTech: a key partner for valorising DEMETER results



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Techno-economic
evaluation and
Business plan



Here we present the
results obtained
using our Innovation
Intelligent strategy

Objective: to understand how a broad range of factors will combine to determine the future economic viability of the developed technology



1-Market potential and cost estimation of the novel enzyme technology



2-Potential economic benefits



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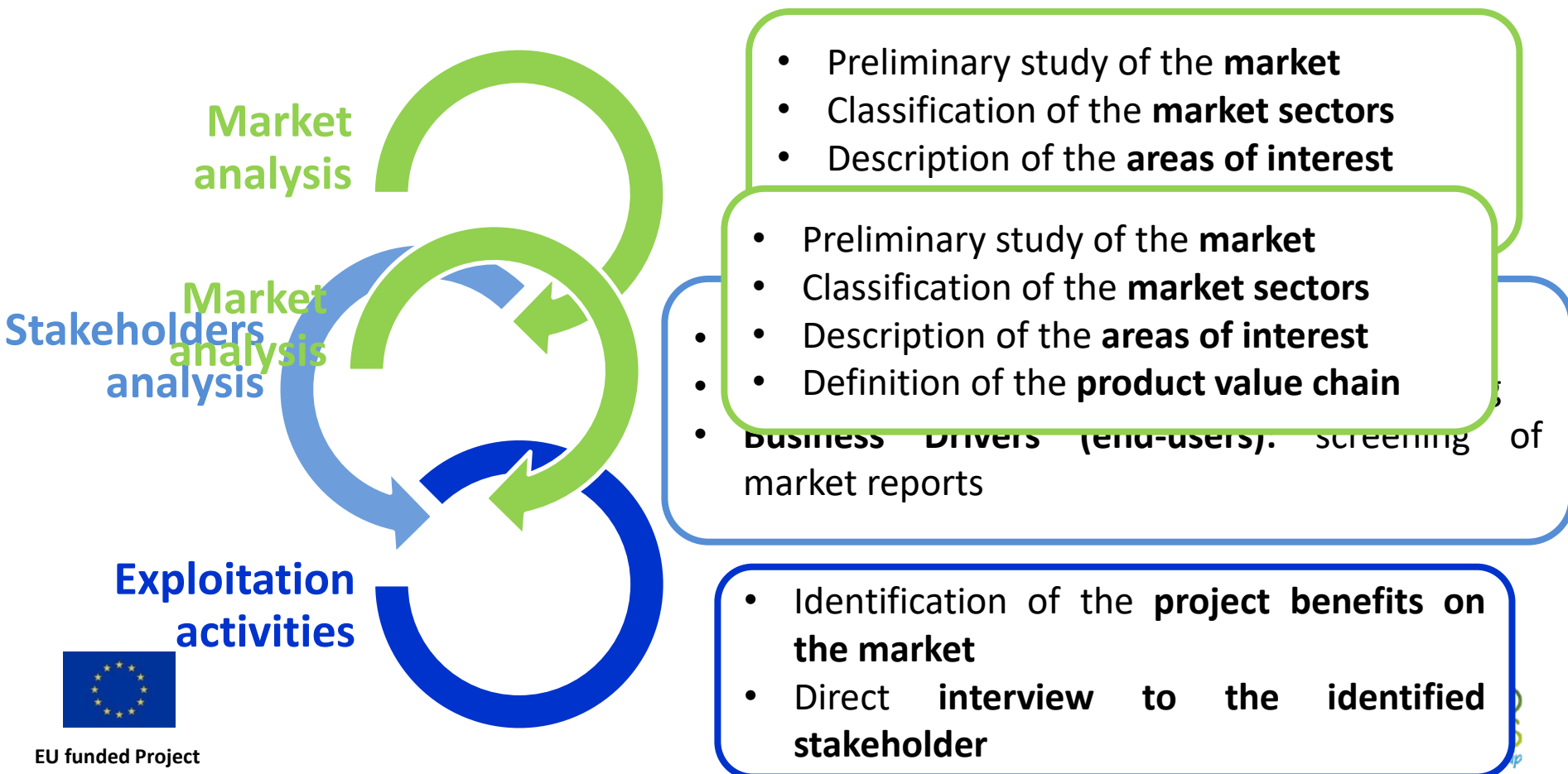
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Techno-economic evaluation and Business Plan

1-Market potential and cost estimation of the novel enzyme technology

Ciaotech Approach to study the market





Techno-economic evaluation and Business Plan



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Market analysis



Target market to study

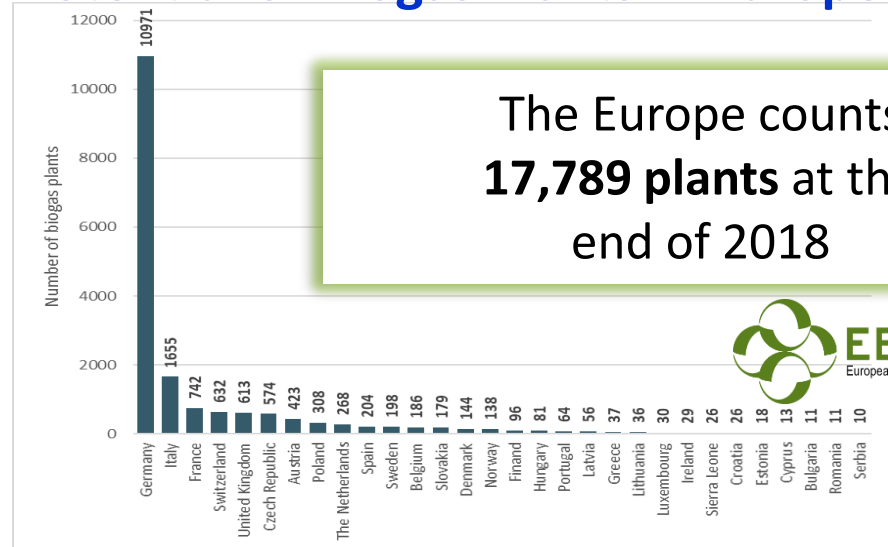
Biogas Companies

Farms and Agricultural Holdings

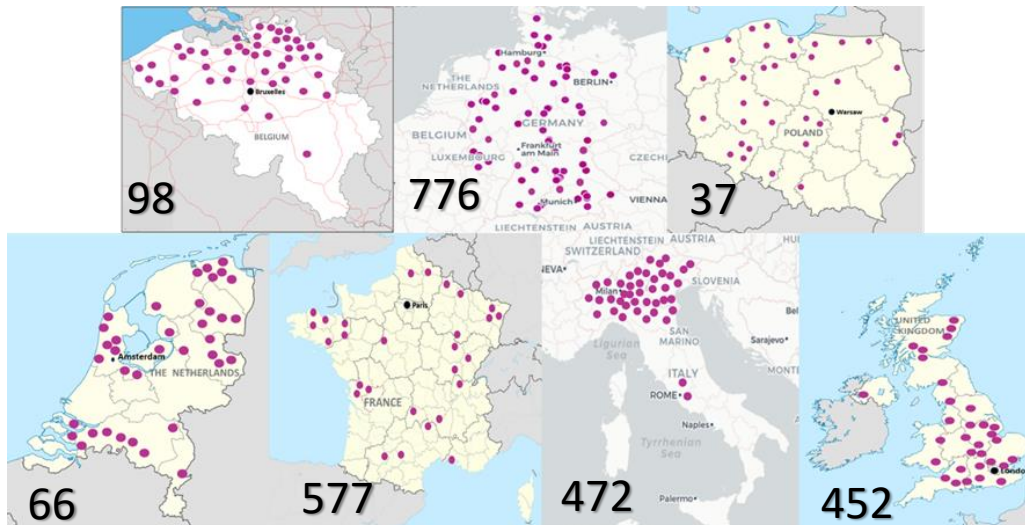
Enzymes retailers



Potential of Biogas Plants in Europe



Areas of interest: 7 European Countries



About 2400 biogas plants have been identified and mapped in the target countries up to now!

About 370 plants are already using enzyme and they are located mainly in Germany.

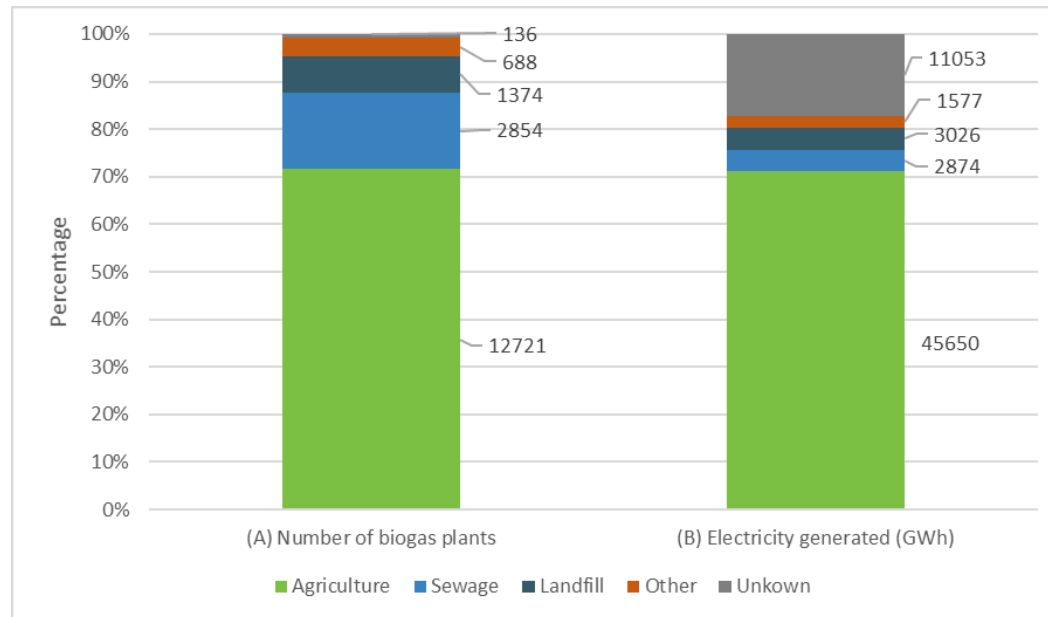
Techno-economic evaluation and Business Plan



Market analysis



Most used feedstocks in Biogas plants



- It is expected that **the use of energy crops** and their potential in the future biogas production in the EU **will be increasingly limited**.
- In contrary, **landfill feedstock** (e.g. municipal waste) and **sewage feedstock** are becoming **very common for the production of biogas** due to both the large quantities of waste produced by the urban areas and the renewable nature of these feedstocks





Techno-economic evaluation and Business Plan

Market
analysis



Market predictions

By 2025....

- Europe remains most important market for new biogas plants by 2025 Throughout the world, around **2,600 MWeI of new biogas will be constructed by 2025**
- The **number of biogas plants will increase in the years to come**, but to a significantly smaller extent than in the booming years of the early 2010s.
- The **strong biogas markets in France, The UK, Italy and Poland will at least compensate some of the considerable decrease of the German market**. Europe will remain the dominating region, despite the slump on the German market
- It is predicted that the **European biogas market will grow from a total market value of approximately \$2 billion at the end of 2018 to more than \$6 billion by 2025**
- **RE subsidization schemes** being the most important **market driver**.





Techno-economic evaluation and Business Plan

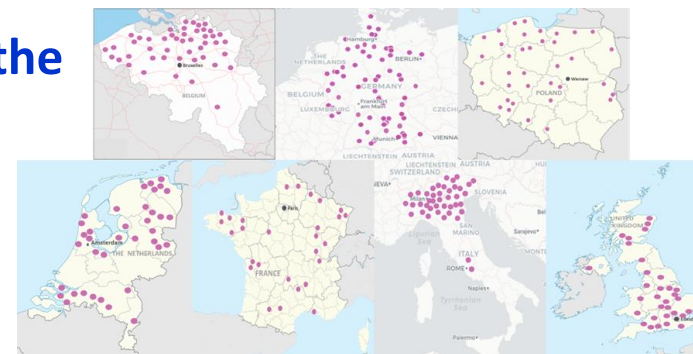


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Market analysis



Support schemes boosting the Biogas field in the 7 EU countries



EU legislation (Directives, Regulations, Decisions)

Directive 1999/31/EC
Directive 2008/98/EC
Directive 2009/28/EC
Directive 2009/73/EC

Directive 2010/75/EU
Directive 2012/27/EC
Directive 2018/2001

Commission Regulation No. 92/2005
Commission Regulation No. 208/2006
Commission Regulation No. 185/2007
Commission Regulation No. 142/2011
Commission Decision 2000/532/EC



Competitors

Competitive solution	
Owner / Stakeholder	
Website	
Contact	
Main features	Stakeholder description

DSM Biogas- Axiase™ 100
Schaumann BioEnergy GmbH – BC.ZYM
Novozymes - BG Max™ 3000

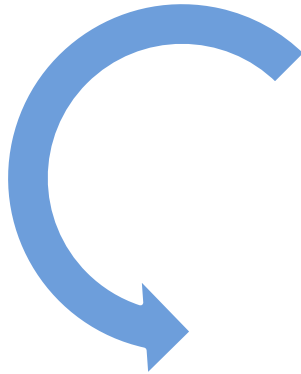


Techno-economic evaluation and Business Plan



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Stakeholders
analysis



- **Innovators:** EU funded projects scanning
- **Patent owners and investors:** patents scanning
- **Business Drivers (end-users):** screening of market reports

www.wheesbee.eu

Wheesbee is a powerful, innovative, web-based platform aimed at making R&I processes easier and faster



ICT tool

Screening of the **Cordis database**

Screening of several **patent databases** such as WIPO, Espacenet, etc.

Screening of **scientific literature**



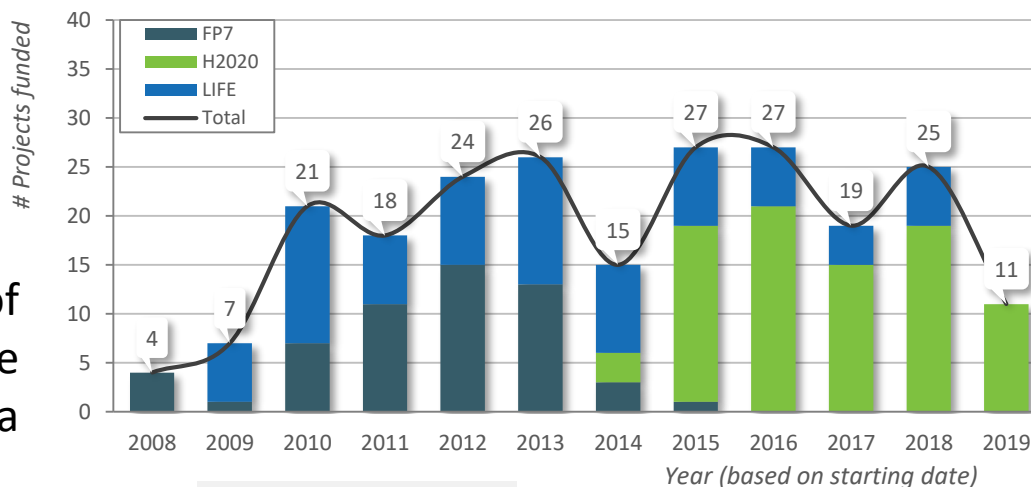
EU funded Project

DEMETER Stakeholder Analysis: The Innovators

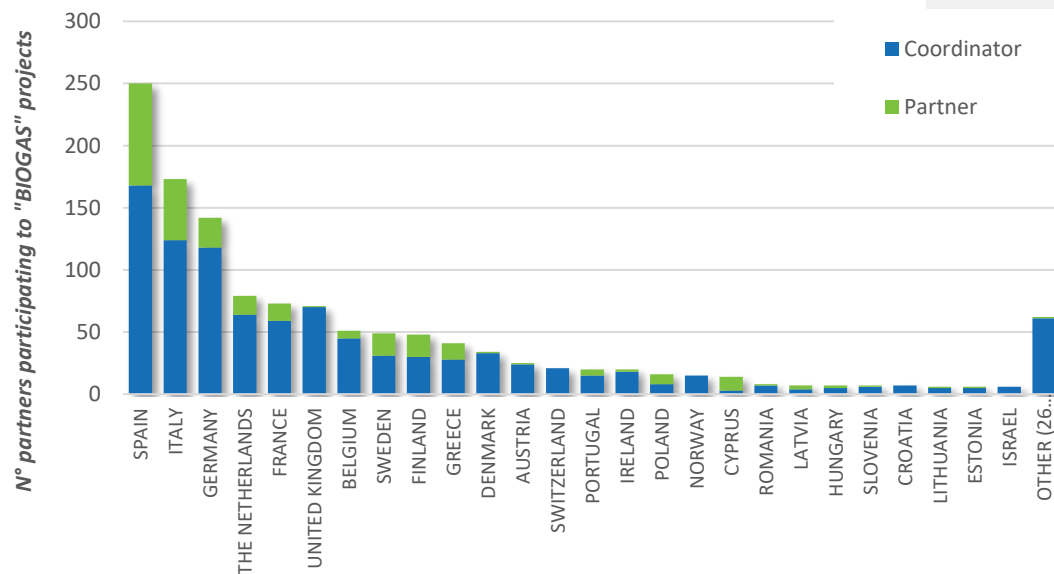
Innovators are identified by the analysis of the **EU funded projects**

The research revealed a decrease of the EU funded projects in 2014; since 2015 the trend is almost stable with a small decrease in 2017

European Commission Funded Projects by Program, 2008-2019



wheesbee



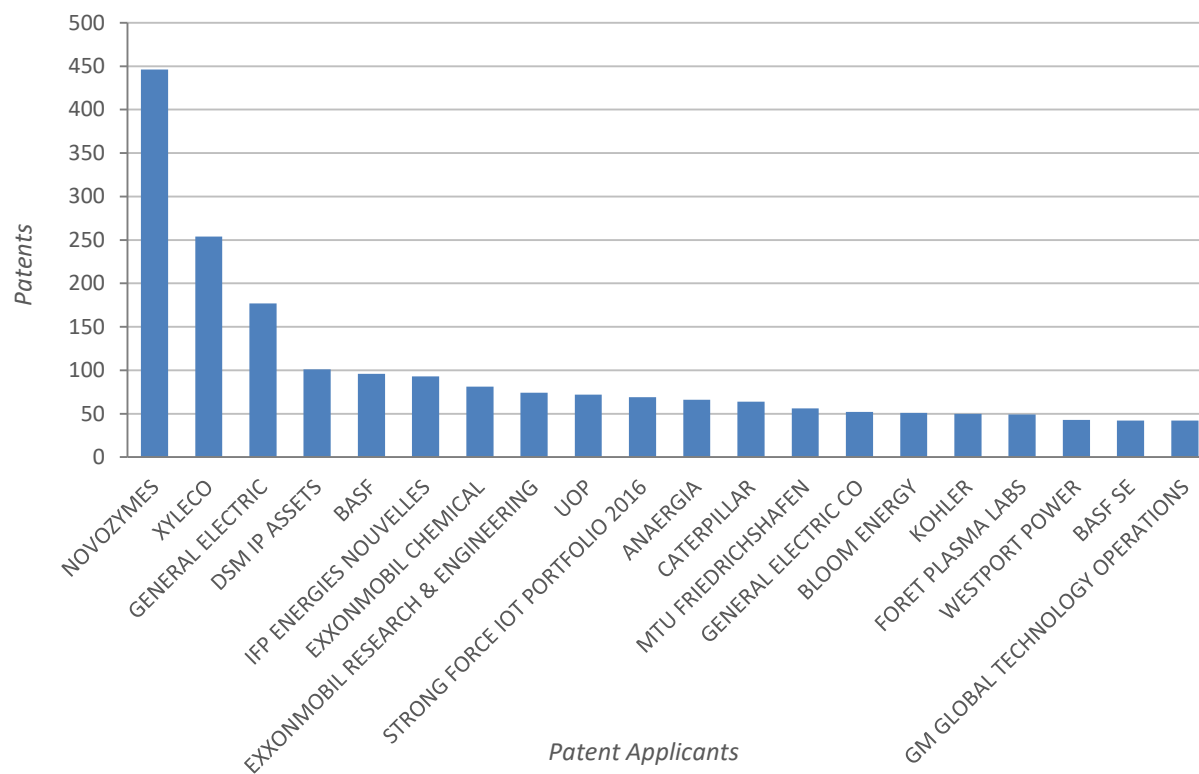
Spain is the most active partner in the EU projects related to Biogas, followed by **Italy**, **Germany** and **The Netherlands**.



DEMETER: Patent owners and potential investors



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PATENT OWNERS and POTENTIAL INVESTORS are identified by the analysis of the **patents**

From 2010 to date **10,422 patents** have been identified in the biogas sector

This analysis reported the potential **major actors** in the field of **biogas technology innovation**





Techno-economic evaluation and Business Plan



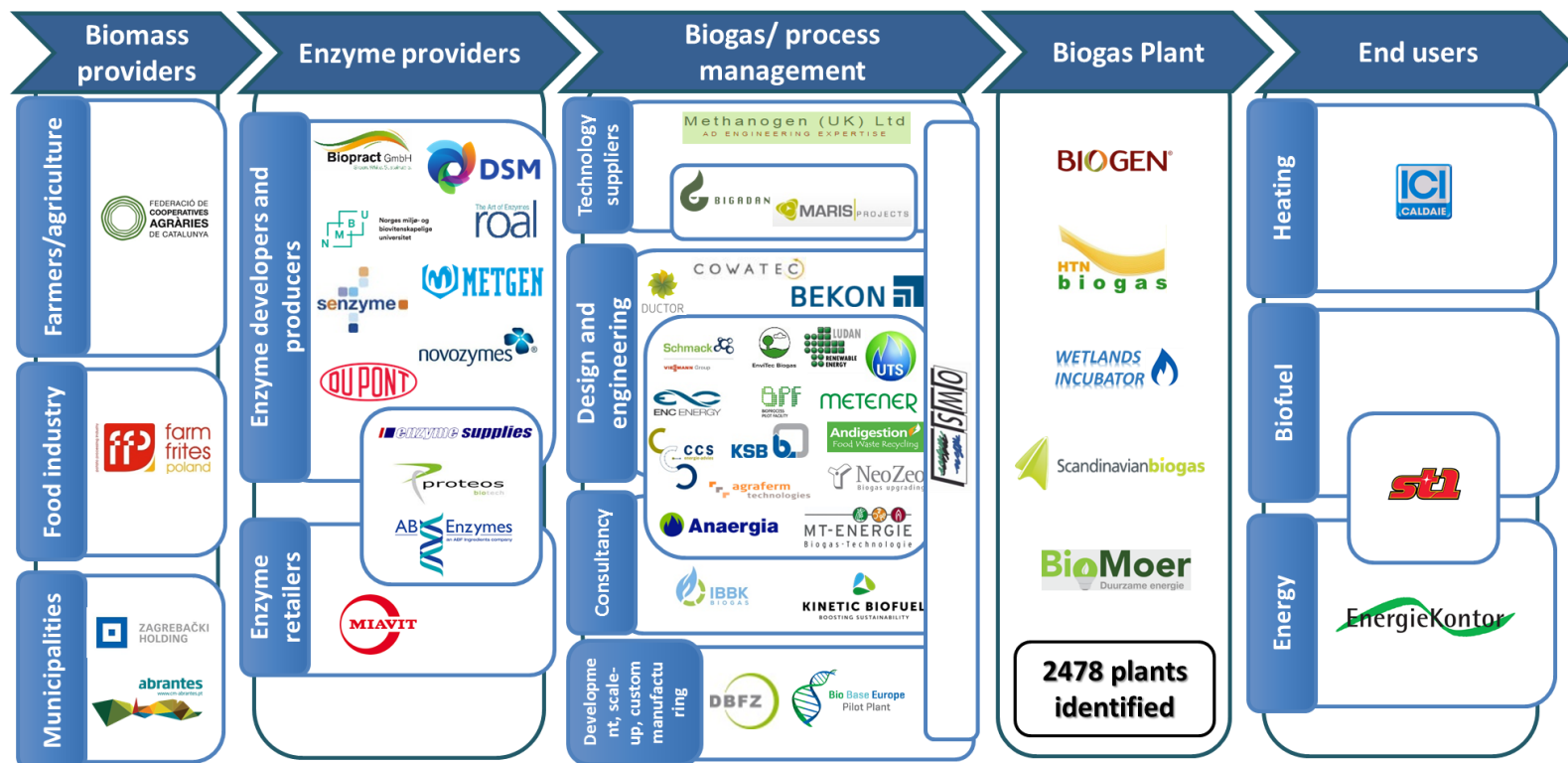
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Stakeholders analysis



DEMETER value chain

More than **80 stakeholders** (linked to the use of enzymes in the biogas plants)



Horizontal



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Techno-economic evaluation and Business Plan

The stakeholder analysis conducted in DEMETER project offers several opportunities:

- ✓ Finding potential **partners** for future **business collaborations**
- ✓ Identifying potentially **interesting innovations** to integrate in products 
- ✓ Spotting **innovation trends, incumbent or dis-investing players and competitors** 



- ✓ Increasing the **exploitation potentials**



Techno-economic evaluation and Business Plan

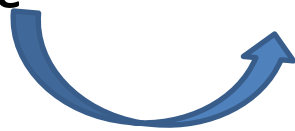
2-Potential economic benefits

Exploitation



C1-enzyme

Market



Biogas companies will benefit from the DEMETER project through the **increased efficiency of methane production from organic material streams** that the enzyme preparation with C1-enzyme will bring.



The DEMETER project will provide **farms and agricultural holdings** with an added stream of income. The C1-enzyme will allow them to **turn the presence of agricultural residues and waste into a source of income.**



Selling C1-enzyme to biogas plants will be a profitable new business opportunity for **enzyme retailers** and it will promote the **growth of this undeveloped market segment.**





Ciaotech/PNO Team



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Techno-economical
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LCA



Valentina Cinti

*Dissemination
activities*





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Demonstrating more efficient enzyme production to increase biogas yields

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Questions?



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