

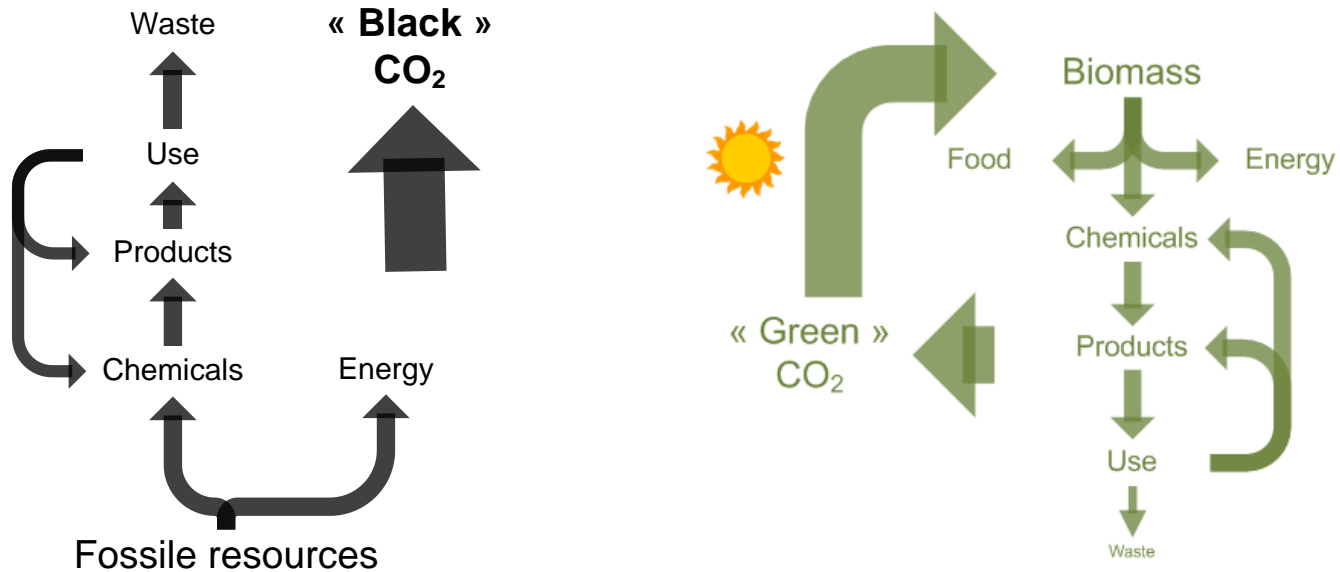
*BBEPP an open access pilot infrastructure
finding synergies between ESIF, H2020 and regional
instruments*



Brecht Vanlerberghe,
Head R&D Bio Base Europe Pilot Plant

Circular bio economy

addressing societal challenges: GHG emission,
re-industrialisation, jobs, local renewables resources



From linear fossile economoy



over circular fossile economy



towards circular bio based economy

Deployment IB & Bio economy: What's missing?



INNOVATION IS NOT DONE BY RESEARCH(ERS)!



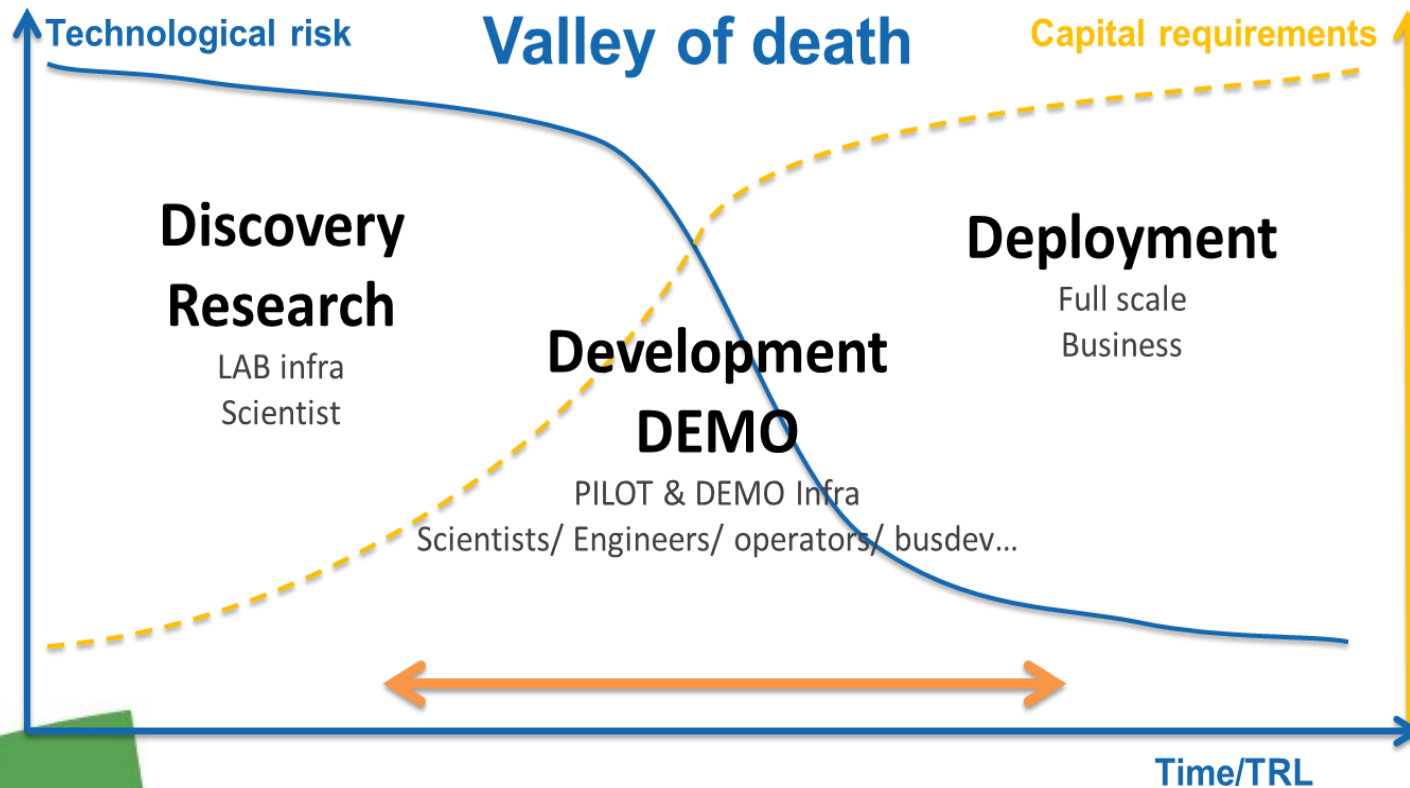
Research: turning money into knowledge

- mainly (bio)catalyst development
- typically lab environment
- Scientists
- **Output: Publications/ IP**

Innovation: turning knowledge into money requires higher TRL Infrastructure for piloting & demonstration with

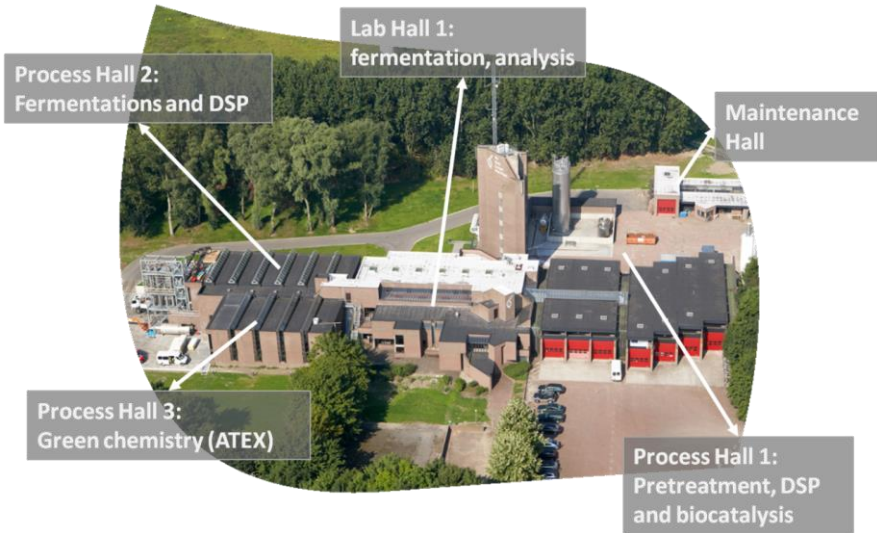
- Industry relevant, scalable equipment
- Skilled people to operate it
- **Output:**
 - Techno economical feasibility
OPEX/CAPEX, LCA
 - Prototypes for validation application & market

IB & Bio economy = DISRUPTIVE *technological, commercial, operational RISK!*



**Open acces pilot infrastructures
= reduction technological risk**

Bio Base Europe Pilot Plant:



- **Multi-purpose pilot facility** in the Port of Ghent (B)
- **Bio-Based** products & processes
- Current number of employees: 67 FTE (70 persons)
- **Independent** non-for-profit SME

Investment in infrastructure

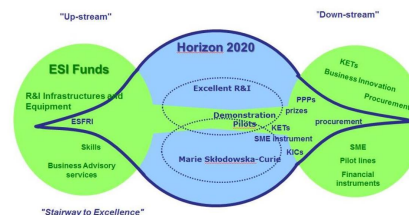
- *Interreg VL-NL 2008-2013*: 13 m€
- *Interreg NWE 2013-2015*: 1,35m€
- *ERDF 2015-2015*: 1,26m€
- *Interreg VL-NL BioHarT*: 0,2mio€
- *ERDF « impact » 2017-2020* 9,4m€
- *ERDF-SPC « BiobaseFlow 2018-2021* 3,7mio€

“Stairway to excellence”



Source: Enabling synergies between European Structural and Investment Funds, Horizon 2020 and other research, innovation and competitiveness-related Union programmes
Guidance for policy-makers and implementing bodies

In brief: Bio Base Europe Pilot Plant “Stairway to excellence”



ESIF (interreg & ERDF)	H2020 (19 ongoing and/or granted projects)	Regional project & private projects (3 ongoing/granted)
<p>Investment in infrastructure & capabilities <i>Interreg VL-NL 2008-2013: 13 m€</i> <i>ERDF 2015-2015: 1,26m€</i> <i>Interreg VL-NL BioHarT: 0,2mio€</i> <i>ERDF « impact » 2017-2020 9,4m€</i> <i>ERDF-SPC « Bio baseFlow 2018-2021 3,7mio€</i></p> <p>SME competitiveness: <i>Interreg NWE 2013-2015: Bio Base NWE 1,35m€</i> <i>Interreg NWE: BioBase4SME</i></p> <p>Policy improvement: <i>Interreg EU: 2016-2020: Smartpilots</i></p> <p>Under development: <i>Interreg FL-NL: Bioaromatics application center</i> <i>Interreg NWE: Captured carbon 2products</i></p>	<p>BBI-JU <i>RIA (Carbosurf, Afterlife, Resolve, ifermentor, Casper, Prolific)</i> <i>Demo (Pulp2value, Demeter)</i> <i>CSA (Pilots4u)</i></p> <p>Industrial leadership: <i>LEIT (Rehap, <u>Falcon</u>, Dafia, Nanopack, <u>BioConCO2</u>)</i> <i>Innovation in SME (Superbio, Kets4Cleanproduction)</i></p> <p>Excellent Science: <i>Research infra (<u>Erifore</u>)</i></p> <p>Societal challenges (<i>Marisurf, <u>2G Biopic</u></i>)</p>	<p>Private collaboration: <i>Over 200 projects</i> <i>Over 100 companies</i> <i>From 12 EU countries</i> <i>Also US, Canada, HK, JP</i></p> <p>Regional projects: <i>Vlaio-IWT (past)</i> <i>VISIONS, Biokatalysis, BIOCLUSTER, demoprobio</i></p> <p><i>Vlaio-SPC (ongoing):</i> <i>CO2PERATE, SPICY, APPLISURF</i></p>

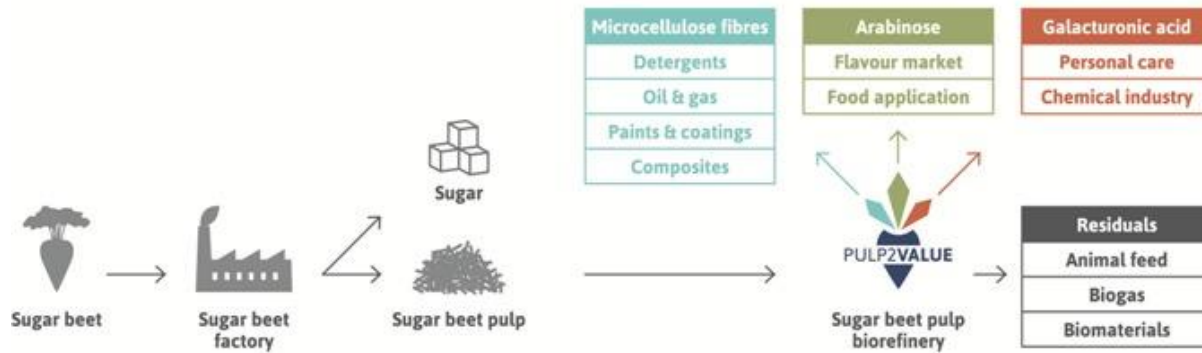


PULP2VALUE

Processing Under utilised Low value sugar beet Pulp into VALUE added products

Scope of the project

PULP2VALUE aims to extract between 20 and 50 times more value from sugar beet pulp (approx. 13 million tonnes annually in Europe). To obtain this, multiple extraction techniques were developed to isolate more valuable products from the pulp.



This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 669105.



Activities of Bio Base Europe Pilot Plant

- Identification, optimization and Integration unit operations
- Production prototypes for application development & market testing

Interreg



EUROPEAN UNION

North-West Europe

BioBase4SME

European Regional Development Fund

<http://www.nweurope.eu/projects/project-search/bio-innovation-support-for-entrepreneurs-throughout-nwe-regions/>

- We support **SMEs** and **start-ups** in the biobased sector – training & networking
- We offer **financial support** towards services that can help the company to bring their innovation to market: €100 K max, 50-100% funded

Available trainings and services

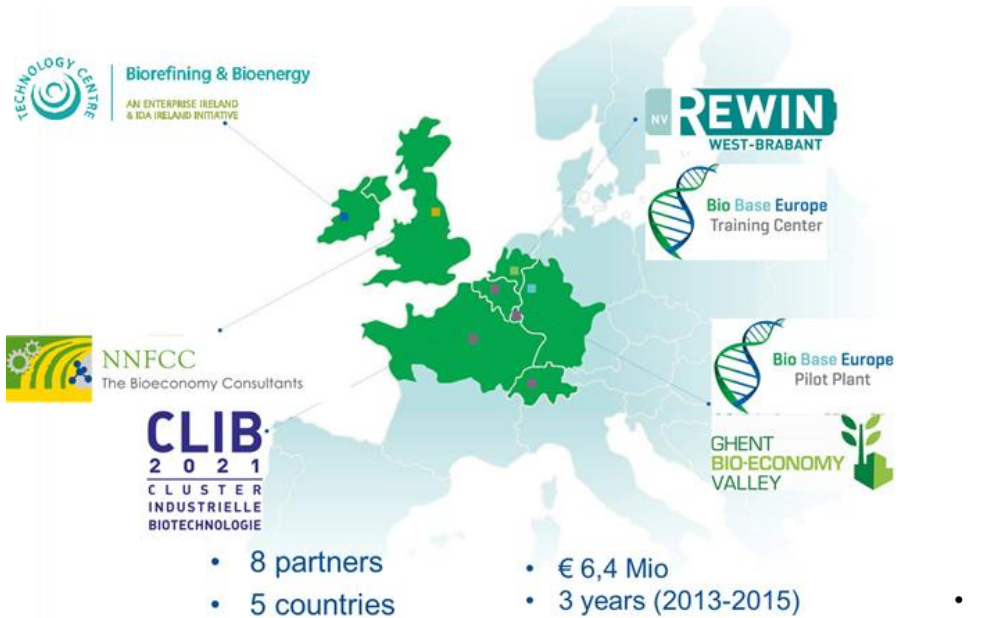
1. Technical assistance such as process development and scale-up to pilot scale
2. Life Cycle Assessment
3. Application testing
4. Market research, feedstock analysis, techno-economic evaluation
5. Social acceptance
6. Business planning and business plan support



Network of expert organisation:



Vouchers schemes?



INNOVATION COUPONS

Worth up to €30.000 to assess the feasibility of an innovative biobased idea.



- Reaching out to stakeholders in the bio-based economy
 - Bio-innovation agents
- **Innovation support** to SMEs to assess the feasibility of a **bio-based idea**
 - Access to **Bio Base NWE network** with leading **bio-based experts**
 - **Innovation coupons** for technological support
- Programs and tools for **training and education**
- Representing SMEs in the **European bio-economy strategy** roll-out

Scale up and proof-of-concept
Bio Base Europe Pilot Plant

Proof-of-concept and scale up



Innovation capture and patent filing

Innovation capture and patent filing
Gill Jennings & Every

Techno-economic evaluation
nova Institute, NNFCC

Techno-economic analysis



Market research

Market research
nova , NNFCC, BCNP

FEEDSTOCK

PRIMARY
PRODUCT

INTERMEDIATE
PRODUCT

END
PRODUCT

RETAIL

Feedstock analysis
nova Institute

Feedstock analysis



Sustainability and regulatory appraisal

Sustainability and regulatory appraisal
NNFCC

Life Cycle Assessment
(LCA)
nova Institute

Life Cycle Assessment (LCA)



Business Planning



Business Planning
BCNP, NNFCC

Access to investors
BCNP

Access to Investors



Subsidy and grant writing

Subsidy and grant strategy
Biotech Subsidy

SMEs can receive services for a maximal total value of € 60 000. 75% is funded by the project. Up to 25% needs to be cofunded by the applicant.

SuperBIO is funded by the research and innovation programme 'Horizon 2020' of the European Union under the Grant Agreement no. 691555 for the period from 01.06.2016 to 31.11.2018

Key learnings:

Open access shared pilot facilities are a good "value for money" regional infrastructure investment to speed up transfer of science and research to industrial implementation.

Difficulties encountered

- in Flanders as "new kid on the block" there was no clear status in regional policy instruments: not on positive list of recognised research organisation, not a "real" company
>> solved with Vlaio in context of spearhead clusters, but e.g. still not eligible for ESFRI
- Long term viability of open access pilot infrastructure is precarious and requires specific measures.

Key learnings:

Long term viability: “ *Building a shared pilot & demo infrastructure is challenging... Operating it even more*”

To be effective & relevant:

- **High Capex:** Infra & expensive equipment
- **Critical mass:** Is a 24/7 activity, different capabilities, expertise and skills
- **Recurring investment in new & replacement infrastructure & equipment:** State-of-the art changes & wear

To be put to use:

- **Mindset:** Business oriented mindset- right context
- **Open access is challenging:** own IP vs service model

Challenges are subject to the SmartPilots project.

Recommendations:

- Rather than investing in small, subcritical local infrastructures; to guarantee continuity and effectiveness regions should seek co-investment in critical size pilot & demo infrastructures.
- These investments should fit within regional smart specialisation strategies and should be flanked by policy instruments enabling & stimulating use of these infrastructures, also interregional.
- Governance should be such that open access is guaranteed.



European Union
European Regional
Development Fund

Improving policies in support of shared pilot facilities to increase their impact on the Key Enabling Technology Industrial Biotech and the European Bio-economy



Optimizing support mechanisms for SPF:

- Investments in hardware/infrastructure , maintenance and replacement of equipment
- Covering operational costs incl. overhead

Optimizing support for SFP users:

By promoting innovators to use SPF

- Innovations have an increased chance to make it to the market
- the long term viability of the SPF are supported

Facilitate interregional cooperation for pilot activities:

- by promoting regional innovators to use an SPF from outside the region
- by co-investment of different regions in the same SPF



SMARTPILOTS

<https://youtu.be/VKgZM2nIofY>





More information?



Bio Base Europe Pilot plant

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www.interregeurope/smartpilots