

Flanders' bioeconomy

An unfolding story of sustainable growth



Flanders
State of
the Art



DEPARTMENT OF
ECONOMY
SCIENCE &
INNOVATION

ewi-vlaanderen.be/bioeconomy

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Exceptional
knowledge
and talent

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Dear reader,

Flanders has a strong tradition in biobased activities. Thanks to this rich history, a number of top universities and research institutes are located in our region. At the same time, Flanders is home to three large industrial sectors that provide the essential foundation for future biobased developments: a large integrated chemistry cluster, a world-class innovative biotech sector and a strong agri-food sector.

Given the absence of large caches of natural resources, Flanders has gained expertise in the smart use of raw materials and in optimising approaches to the circular economy and bioeconomy. **Flanders was one of the first European regions to focus on a regional bioeconomy.** As early as 2013, Flanders adopted its first regional bioeconomy strategy, which collected the priorities from a broad range of stakeholders and was accompanied by a detailed action plan from the government of Flanders.

As the Minister for Economy, Innovation, Work, Social economy and Agriculture, I combine several policy domains that provide important opportunities to reinforce our bioeconomy policy in Flanders, and to increase the synergies between innovation, work and agriculture. We are seizing this opportunity in order to support future innovative developments, new start-ups and enterprises, and sustainable partnerships between industry and agriculture.

This brochure shows the wide diversity of actors and initiatives in Flanders. It is clear that together with our researchers and industrial partners, we are committed to the ambition of transforming our region into a strong knowledge-based biobased industrial centre. Most of all, it shows that the potential for future development of biobased activities looks very promising.

HILDE CREVITS,

Vice-Minister-President of
the Government of Flanders
Flemish Minister for Economy,
Innovation, Work, Social economy
and Agriculture



An unfolding story of sustainable growth

Flanders has been blazing trails in the bioeconomy for generations, with new opportunities arising every day. The driving force: 4 complementary assets that allow both local and international players to achieve sustainable growth. Here's an overview of the most important catalysts in Flanders' bioeconomy.

THE NETHERLANDS

NORTH SEA

Generous support for innovation and collaboration

FLANDERS

Spearhead clusters

CATALISTI
Chemicals & plastics

FF
FLANDERS' FOOD
Agri-food

BLAUWE CLUSTER
Marine & maritime

SIM
Materials

EMPOWERING LOGISTICS
Logistics

flux50
ENERGING THE FUTURE
Energy

Government support for finance and entrepreneurship

Flanders Investment & Trade (FIT) helps entrepreneurs establish or expand their businesses in Flanders as the government's one-stop shop for foreign investors.

Flanders Innovation & Entrepreneurship (VLAIO) is the contact point for regional subsidies and business advice.

PMV is Flanders' investment company, which provides funding for promising start-ups, scale-ups and international firms in every stage of the business lifecycle.

FRANCE

Federations

FEVIA
Food

ESSENCIA
Chemistry and life sciences

FLANDERS.BIO
Life sciences

FLANDERS BIOBASED VALLEY
Biobased economy

State-of-the-art pilot infrastructure

3 pilot facilities

- **BIO BASE EUROPE PILOT PLANT**
top 5 in the world
- **FOOD PILOT**
500+ pilot projects a year
- **LIGNOVALUE PILOT**
pioneering with lignin/wood

Exceptional knowledge and talent

5 universities

- GHENT UNIVERSITY
- HASSELT UNIVERSITY
- KU LEUVEN
- UNIVERSITY OF ANTWERP
- VRIJE UNIVERSITEIT BRUSSEL

4 research organisations

- VIB
Biotechnology
- ILVO
Agriculture, fisheries and food
- VITO
Technological research
- VLIZ
Flanders Marine Institute

KEY FACTS & FIGURES

Flanders ...

- ... is part of the most globalised economy in the world.
- ... easily outscores its neighbouring regions in terms of R&D incentives.
- ... has the world's 3rd-most innovative economy.
- ... ranks 8 in the world for English among non-native speakers.
- ... is home to one of the most productive and talented workforces in the world.

And boasts a thriving bioeconomy, characterised by ...

- ... **3 rock-solid pillars**: an innovative biotech and pharmaceutical sector, Europe's most integrated chemistry cluster and a leading agri-food sector. Together, these sectors represent over half of Flanders' industry with a total added value of EUR 24 billion.
- ... **highly specialised R&D** that accounts for a significant portion of global patent applications in food chemistry (2.51%), biotechnology (1.74%), pharmaceuticals (1.59%), organic fine chemistry (1.37%) and the analysis of biological materials (1.43%).
- ... **an easily accessible ecosystem**, with exceptional public-private cooperation and countless joint projects between innovative SMEs, knowledge institutions and/or larger firms, making Flanders 2nd in the EU for innovation linkages.

Strong logistics and world-class ports

4 maritime logistics hubs

- PORT OF ANTWERP – #2 port in Europe for cargo
- NORTH SEA PORT – a hotspot for bioeconomy
 - PORT OF ZEEBRUGGE
- PORT OF OOSTENDE – blue economy and circular industry

1.

Generous support for innovation and collaboration

The long-term approach to various strategic areas for Flanders is powered by spearhead clusters. These industry-driven organisations stimulate innovation through cooperation and allocate resources to companies. Both local and international companies can also count on public resources for financial support.

Three spearhead clusters lead the way

1 Catalisti Chemicals and plastics

Catalisti accelerates the translation of innovation into business by catalysing **cooperation and successful synergies between companies**, universities and knowledge institutes. The result is a welcoming ecosystem, tailored to the needs of both the many SMEs active within the bioeconomy and bigger players.

These open innovation programmes are at the core of Catalisti's mission:

- side stream valorisation
- process intensification
- advanced sustainable products
- renewable chemicals

By focusing on these 4 programmes, Catalisti supports, among other goals, the shift from finite fossil feedstocks towards biobased building blocks, which offer a whole new palette of business possibilities, from brand-new applications and functionalities to entirely new value chains. Moreover, they contribute to making the chemical and plastics sector more sustainable and competitive. In this way, Catalisti boosts innovation for all businesses in the biobased economy, from global players to local SMEs and start-ups.

CATALISTI
WE MEAN BUSINESS

Research budget (2019)

EUR 16.5 million

Projects (2017-2019)

23

Members (2019)

117


FLANDERS INDUSTRY INNOVATION
MOONSHOT

Moonshot programme

Moonshot, hosted by Catalisti and supported by VLAIO, is a multi-trajectory innovation programme with a big ambition: to help Flanders' companies become carbon circular and low in CO2 emission by 2050. Within Moonshot, local universities and knowledge institutes pursue industry-driven strategic basic research at low TRL to test disruptive ideas, develop breakthrough technologies and create new climate-friendly products and processes, including in biobased chemistry.

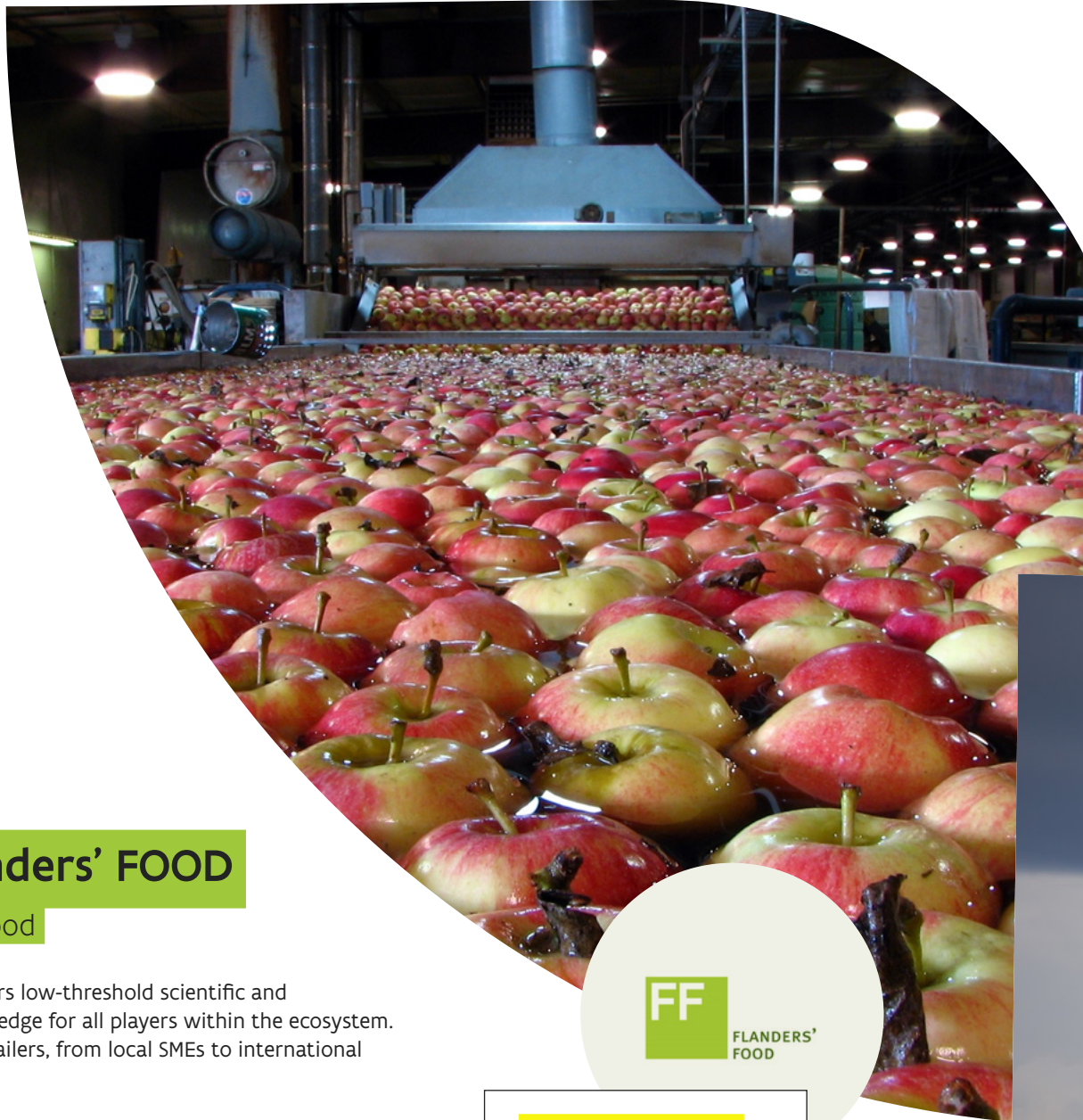
MORE INFO AT
www.moonshotflanders.be



SUCCESS STORY

Encaps2Control project showcases fruitful interaction between key players

As a neutral partner, Catalisti always sets up its projects in line with the triple helix model of innovation. In Encaps2Control, for example, the spearhead cluster teams up with the universities of Antwerp and Ghent, large companies (DCM and Kemin) and local SMEs (ChemStream and Circular Organics) to develop a new, sustainable encapsulation technology for the controlled release of active ingredients in animal feed and organic fertilisers. This technology is based on biopolymers from renewable resources.



2 Flanders' FOOD

Agri-food

Flanders' FOOD offers low-threshold scientific and technological knowledge for all players within the ecosystem. From farmers to retailers, from local SMEs to international market leaders.

The 4 focus points – always with the consumer in mind – are:

- Building a resilient and sustainable agri-food system;
- Facilitating world-class food production in factories of the future;
- Creating personalised foods and supporting healthy diets;
- Exploring new and alternative materials and ingredients.

How does Flanders' FOOD put this into practice?

- It assists with both newly acquired fundamental and application-oriented research.
- It opens doors to projects with large consortia, but also offers one-on-one support.
- It lets companies test and analyse new concepts, products and processes in a pilot plant.
- It connects with knowledge centres, research institutes, innovation partners and universities.
- It informs through study days, training courses, workshops, newsletters, publications and more.



Research budget (2019)

EUR 40 million

Projects (2017-2019)

53

Members (2019)

291

3 Blue Cluster

Marine and maritime

The Blue Cluster supports companies in achieving sustainable growth through collaboration, innovation and strategy development in these areas:

- renewable energy & freshwater production
- blue tourism
- ocean health & waste solutions
- coastal protection & mineral resources
- seafood & marine biotechnology
- maritime connection

By adopting a quadruple helix approach, the Blue Cluster efficiently tackles societal challenges such as water scarcity, energy shortage, food security and climate resilience.

Business opportunities in the (marine) bioeconomy at a glance:

1. Bioprospection for bioactive compounds in marine organisms and their valorisation in high-end products.
2. Offshore cultivation of low-trophic species such as seaweeds for the supply of marine feedstock.
3. Biorefinery of marine biomass or waste for the extraction of valuable compounds.
4. Biotechnology for the conversion of marine biomass into end products.
5. Development of biobased materials.



**Research budget
2019)**

EUR 24.4 million

Projects (2019)

14

Members (2019)

182



Financial stimulus

By 2030, Flanders aims to be one of the top bioeconomic regions in Europe. The regional government recognises that the bioeconomy is a unique gateway to numerous benefits, from resource efficiency to job creation. Equally important, the government of Flanders puts its money where its mouth is. It strongly supports the sector through grants and subsidies, while the R&D-friendly tax system allows companies to recover parts of their investments.

Big R&D spender

2.89%

of Flanders' GDP is spent on R&D investments, well above the EU average of 2%.

Government support for finance and entrepreneurship:

1 Innovation support

These unique and attractive support measures are all about efficiency: no calls, straightforward applications, a transparent process and fast payments after approval.

Research projects

GOAL

To fund knowledge-building projects that can drive long-term change on a strategic level.

SUPPORT

An amount between 25 and 60% of the project's budget, with a minimum of EUR 100,000.

TERM

Subsidies granted for up to 3 years.

Development projects

GOAL

To develop new/enhanced products, processes and services that change or strengthen your business in the short term.

SUPPORT

An amount between 25 and 50% of the project's estimated budget, with a minimum of EUR 25,000.

TERM

Subsidies granted for up to 2 years.

2 Strategic transformation projects

Planning a commercial investment or training effort for strategic purposes? As an SME or large enterprise, you can receive up to EUR 1 million (max. 10% for investments, max. 25% for training).

3 Ecological investments

In Flanders, going green is duly compensated. Investments in eco-friendly projects are eligible for financial support through two programmes:

- **Ecology Premium-Plus (EP-Plus)**
For projects targeting environmental technologies, energy technologies and renewable energy.
- **Strategic Ecology Support (STRES)**
Intended for projects that contribute to global environmental or energy solutions, focus on closed circuits or feature process-integrated solutions.

4 Doctoral scholarships

For a period of 4 years, companies can take on one or more PhD students. The research project they'll be working on needs to have clear economic objectives and should offer added value to the company involved in the project. The funding is meant to cover salary costs, operational costs, equipment and fixed costs.

5 Tax incentives

These government benefits include:

- **Innovation income deduction**
85% exemption of net innovation revenue that can be attributed to certain types of IP-protected technology.
- **R&D payroll tax incentive**
80% of the taxes on researchers' income are exempt, resulting in immediate cash savings of up to 20% of remuneration costs.
- **R&D investment deduction / tax credit**
- **Special tax status for foreign executives**

6 PMV financing

Do-and-dare company PMV offers financing solutions throughout a company's development cycle, from its birth to its internationalisation.

7 European programmes

Flanders is one of the key players in the broader European context, guiding companies toward beneficial R&D and cluster programmes, incentives and investment funds. Some interesting examples are COSME, Horizon 2020, EUREKA, INTERREG and the Vanguard Initiative.

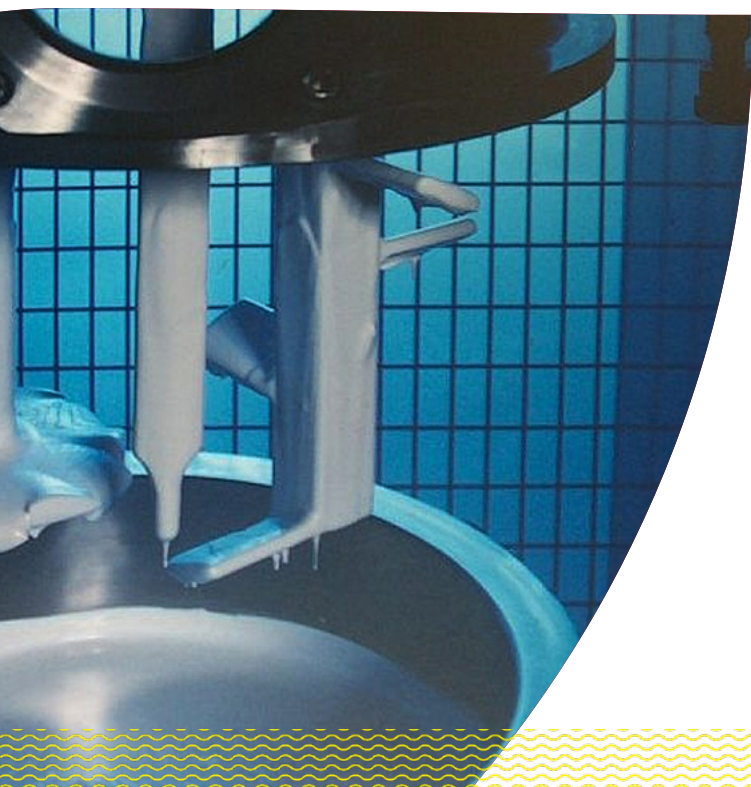
SUCCESS STORY

Kaneka and Flanders co-invest EUR 2.5 million in groundbreaking research project

Using lignin – one of the world's most abundant organic materials – in high-end applications: this is the mission of Kaneka's recent project in Flanders. To achieve its goal, the tech-driven chemical company from Japan joined forces with strategic research centre VITO. Kaneka brings its polymer technology to the table, while VITO adds its lignin technology. Through that unique synergy, they investigate the possibilities of biobased polymers: from sustainable plastics to new adhesives for construction.

Earmarked envelope

The price tag of this R&D project amounts to EUR 2.5 million, with Kaneka and the government of Flanders each assuming 50% of the costs. The funding was granted by Flanders Innovation & Entrepreneurship through its programme for strategic transformation projects. Kaneka's contribution to a sustainable, innovative and competitive future, and the related need for extra research and production capacity, led to the approval of the funding request.



“ This financial support allows us to work with top-notch partners like strategic research centre VITO, and to acquire expertise that would have otherwise taken several more years to gather.”

Luc Peeters, R&D manager at Kaneka
Belgium's MS Polymer Division

2.

State-of-the-art pilot infrastructure

KEY FACTS & FIGURES

60

TONNES

anticipated capacity of bioaromatic oil a year

6,000

M²

surface area of the greenfield facility

36

AND COUNTING

international letters of intent from companies covering the overall value chain

Going from research and lab-scale testing to feasible commercial or industrial innovations is a big leap – too big a leap for most companies. That's because infrastructure for large-scale pilot testing is not always available. Well, in Flanders, that's one less thing to worry about. With 3 state-of-the-art pilot facilities, each with its own expertise, the region stimulates tangible innovation output for the bioeconomy.

LignoValue

Flanders' first pilot line for bioaromatics from lignin wood

Many technologies that convert lignin and wood into the fractions of biobased aromatics have already proven useful on a lab scale. Now, it's time to take it to the next level. The LignoValue Pilot facility – operational by the end of 2021 – will offer companies the opportunity to apply technologies on an industrial scale.

It will deliver the necessary technological proofs of concept for the further scale-up towards a demo and commercial factory. In addition, the pilot facility will supply companies with sufficient amounts of bioaromatic oil, including relatively pure chemical building blocks and mixtures, for the development of innovative products, while at the same time reducing their dependency on fossil fuels.

“The pilot line on bioaromatics that research organisation VITO and its partners are constructing will greatly benefit the production of sustainable chemicals. Bringing innovations to higher technology readiness levels is of the utmost importance for the chemical industry to bridge the gap between development and implementation.”

Jan Van Havenbergh, managing director at spearhead cluster Catalisti



© SFOOD PILOT

Food Pilot

from field to fork

Food Pilot, an initiative by research institute ILVO and spearhead cluster Flanders' FOOD, enables stakeholders to carry out food analyses and test new concepts, products or processes on a semi-industrial scale. For example, innovative ingredients or recipes can easily be assessed on the organisation's flexible production lines. The main focus: optimal use of primary biomass and alternative uses of existing biomass.

Processes particularly interesting for the bioeconomy are those related to biorefinery. Starting from raw materials, a series of processing steps are applied to produce a range of high-value products, while avoiding waste fractions (zero-waste approach). Techniques such as pressing, drying, emulsifying, sterilising and extrusion are all available at Food Pilot.

“The Food Pilot infrastructure and our expertise greatly benefit research targeting optimal valorisation of locally produced biomass.”

Bart Van Droogenbroeck,
senior researcher at ILVO

And there's more ...

Besides the Food Pilot, ILVO's living lab has plenty of additional pilot projects to simulate real-life setups: experimental fields (200 hectares), greenhouses (15,000 m²), stables (20,000 m²) and a workshop for prototype machine construction.

50+

food processing pilot
equipment in
a 2,000 m² space

500+

pilot tests a year
for local and
international stakeholders

40

accredited labs for product
analysis, employing techniques
such as (mass) spectroscopy
and chromatography

Bio Base Europe Pilot Plant

Flanders' flagship pilot facility for the bioeconomy

“The fossil-fuel based economy is under heavy fire, while the biobased economy is rapidly gaining momentum. Pilot plants play a crucial role in making this switch by translating new research into concrete industrial applications. We're proud to say that the Bio Base Europe Pilot Plant is one of the world's top 5 pilot facilities. Every year, we grow 30% because of increasing international interest. Companies from all corners of the world come to Flanders to turn their bioeconomic ambitions into practice. It's all happening right here.”

Wim Soetaert,
CEO of the Bio Base Europe Pilot Plant



ID

WHERE?

Ghent (North Sea Port).

WHAT?

A fully independent, open innovation pilot and demonstration facility for process development, scale-up and the custom manufacture of biobased products and processes.

WHO?

A 93-person team of mainly well-trained and experienced engineers and bioprocess technicians.

WHY?

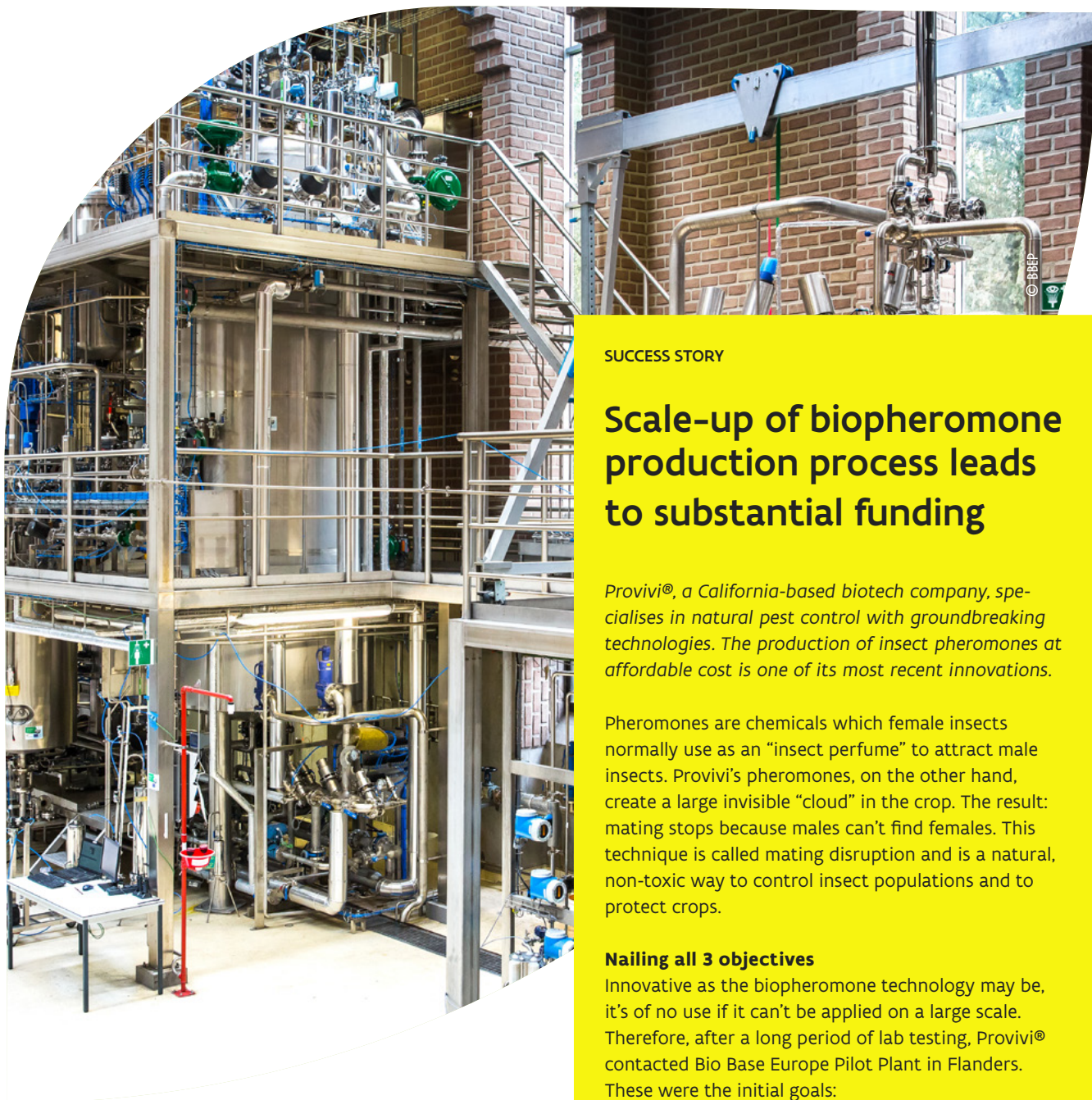
A wide and flexible spectrum of modular unit operations combined with broad expertise in biomass pre-treatment, biocatalysis, (gas) fermentation, green chemistry, and product recovery and purification.

PROJECTS

325+ bilateral projects for more than 125 companies worldwide, 50+ public projects with another 300+ partners.

3 UNIQUE ASSETS

- #1 One-stop shop:**
from biomass to end products under one roof.
- #2 Flexible and multipurpose:**
build up process lines to suit customer needs, operational 24/7, wide range of technologies, several generic alternatives for each process step.
- #3 Scaling power:**
fast and efficiently from grams to tonnes, shallow learning curves, shorter times to market.



“ Thanks to Bio Base Europe Pilot Plant, we didn't have to invest time and money in scaling up equipment and expertise. It's the perfect springboard for both small and larger companies.”

Peter Meinhold,
co-founder and CTO of Provivi®

SUCCESS STORY

Scale-up of biophermone production process leads to substantial funding

Provivi®, a California-based biotech company, specialises in natural pest control with groundbreaking technologies. The production of insect pheromones at affordable cost is one of its most recent innovations.

Pheromones are chemicals which female insects normally use as an “insect perfume” to attract male insects. Provivi's pheromones, on the other hand, create a large invisible “cloud” in the crop. The result: mating stops because males can't find females. This technique is called mating disruption and is a natural, non-toxic way to control insect populations and to protect crops.

Nailing all 3 objectives

Innovative as the biophermone technology may be, it's of no use if it can't be applied on a large scale. Therefore, after a long period of lab testing, Provivi® contacted Bio Base Europe Pilot Plant in Flanders. These were the initial goals:

- to scale-up the fermentation technology to produce pheromone precursors from 10 to 15,000L;
- to develop a technology transfer pack to allow production in a commercial scale facility;
- to produce hundreds of kilograms of pheromone precursor for internal testing.

The collaboration ran smoothly and all of the objectives were met. Even more, two months after announcing the successful scale-up, Provivi® completed a EUR 85 million C funding round for the commercial launch in 2020.

3.

Exceptional knowledge & talent

Research as the backbone of a longstanding knowledge culture

SUCCESS STORY

Eureka moment for asthma researchers

In 2019, VIB researchers unravelled one of the great mysteries in asthma research. They discovered how Charcot-Leyden crystals – made up of the protein Gal-10 – induce key symptoms of the disease. More importantly, they also found that the protein Gal-10 is harmless when dissolved. This opened the door to first-in-class therapeutic options.

Strategic collaboration to treat asthma

VIB teamed up with multinational biotech company argenx to develop antibodies that can dissolve Charcot-Leyden crystals, with the aim of reducing key asthma symptoms. The project is still in the pre-clinical phase, but looks very promising. Asthmatics and sufferers of other chronic inflammatory airway diseases anxiously wait for good news from Flanders.

To stay at the forefront of tomorrow's economy, companies need to invest in R&D and innovation. Research organisations can help achieve that ambition. They combine all-round expertise within their fields with a strong industrial focus. For companies active in Flanders, the gamut of research organisations within the bioeconomy is particularly interesting.



Flanders' strategic research centre for life sciences and biotechnology

VIB gathers over 1,700 scientists from 76 countries. Together, they conduct front-line biomolecular research in diverse areas, from microbiology to neuroscience to plant biology. VIB then translates this acquired knowledge into useful applications for medical or agricultural uses and disseminates its findings and developments to all stakeholders.

ILVO

Flanders' research centre for agriculture, fisheries and food

This independent scientific research institute promotes sustainable agriculture, fisheries and agri-food in Flanders and beyond. It works for the actors in the agri-food chain and the broader rural environment by studying new and existing processes for optimisation and sustainability.

Within the bioeconomy, **ILVO** focuses on:

- Primary biomass
- Underutilised biomass fractions
- Renewable raw materials
- Technical biomaterials
- Green chemicals
- Biopolymers (e.g. rubber)





© INE DEHANDSCHUTTER



Flanders Marine Institute

VLIZ promotes knowledge creation and interdisciplinary research concerning the ocean, seas, coastlines and tidal estuaries by closely collaborating with other (marine) research groups, citizens, policy makers and industrial partners in Flanders and beyond. Its activities in bioeconomy range from prospecting the potential of local organisms to identifying value chain gaps and needs. VLIZ also hosts and coordinates the use of research infrastructure to develop and test bioeconomy innovations.



Flanders' strategic research centre for technological research

With over 950 employees of 45 nationalities, **VITO** is a key player in cleantech. It accelerates the transition towards a sustainable biobased economy by de-risking innovation for businesses with interdisciplinary research and large-scale pilot installations. To accomplish this, VITO focuses on building value chains from alternative resources and has unique up and downstream processing and purification capabilities. It creates value from lignin/wood through the synthesis of advanced biopolymers and chemicals. Developing efficient CO₂ capture and utilisation technologies results in sustainable energy carriers and building materials. Strategic alliances with different academic partners and private companies (Capture for CO₂, Biorizon for bioaromatics) speed up technology development and go-to-market time.

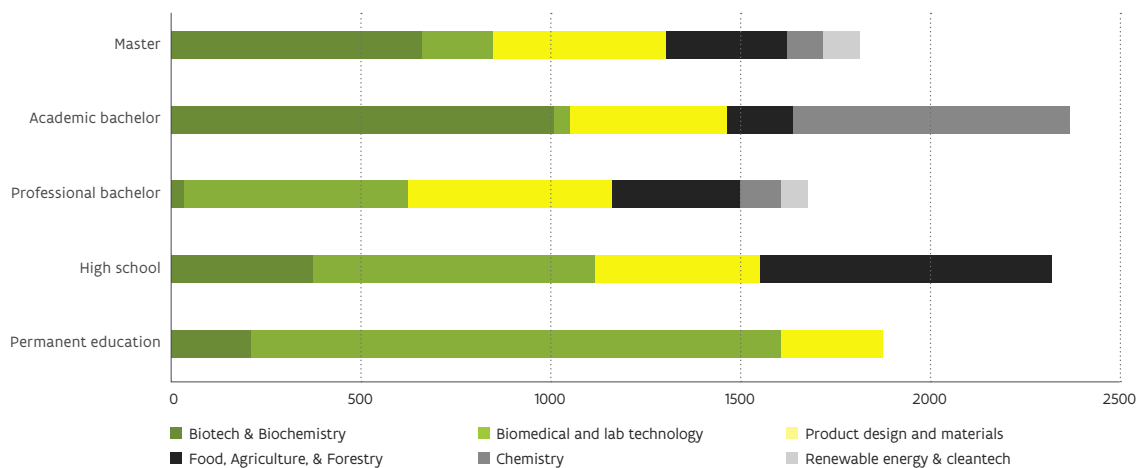
Core research areas:
sustainable chemistry, materials, energy, health and land use.

Flanders, where bio meets brio

Flanders has a top-notch educational system that easily outperforms the ones in neighbouring countries. The result: multilingual and multitalented professionals. The bioeconomy greatly benefits from this compelling benefit with over 10,000 students graduating each year in related fields. Long story short, if you're looking for talent to match your ambitions, Flanders should be your first stop.

Number of last-year's students in bioeconomy relevant programs

Over 10,000 graduating students in hundreds of educational programmes at renowned institutions, ranging from high schools and permanent education institutions to universities and universities of applied sciences.



5 universities

Students come from all across the globe to study in Flanders.

The 5 world-class universities generate almost 90% of all of the non-private scientific output of the region.

Ghent University

- ✓ Strives for excellence in niche research areas
- ✓ Ranks #51 in the world for life sciences (THE)
- ✓ Among the top 10% of the world's universities (THE)

Hasselt University

- ✓ Top 65 world's best young universities (THE)
- ✓ Known for its strong focus on sciences

KU Leuven

- ✓ The country's oldest and largest university
- ✓ Ranks #52 in the world for life sciences (THE)
- ✓ Europe's most innovative university (Reuters Ranking)
- ✓ Among the world's top 45 universities (THE)

University of Antwerp

- ✓ Among the world's top 3 young universities (THE)
- ✓ Has a strong reputation in competitive research

VUB

- ✓ Among the world's top 200 universities (QS Ranking)
- ✓ Praised for the quality of its scientific publications



© THOMAS MORE

10 universities of applied sciences

The universities of applied sciences are integrated into the university system and award bachelor's degrees. They focus on applied education and advanced vocational training.

- ARTESIS PLANTIJN HOGESCHOOL ANTWERPEN
- ERASMUS HOGESCHOOL BRUSSEL
- HOGESCHOOL GENT
- HOGESCHOOL PXL
- HOGESCHOOL WEST-VLAANDEREN
- KAREL DE GROTE HOGESCHOOL
- ODISEE
- THOMAS MORE
- UC LEUVEN-LIMBURG
- VIVES

Figures

72 professional bachelor programmes in bioeconomic areas.

58 academic bachelor and

98 master programmes in bioeconomic areas.

SUCCESS STORY

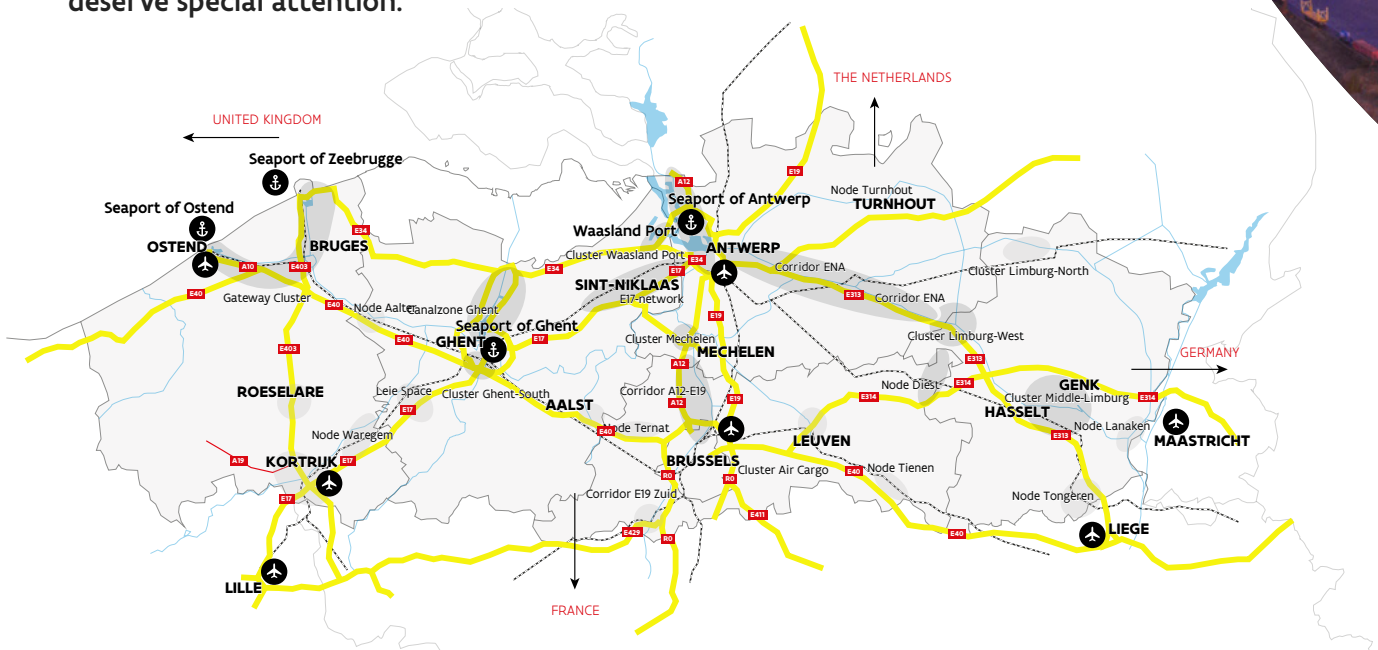
Thomas More implements the latest bioeconomy developments in its education and research programs

University of applied sciences Thomas More actively propels new bioeconomy trends forward by, for example, exploring the potential of insects and algae as alternative sources of biomass. Why? The proteins, fat, chitin and other components they contain are valuable for food, feed, chemical and pharmaceutical applications. The Thomas More research group RADIUS is involved in different (inter)national state-of-the-art projects that enhance and disseminate new knowledge, and allow for the expansion of its infrastructure to incorporate the latest technology. Together with KU Leuven and VITO, RADIUS presents the 'Insect Pilot Plant' (EFRO project) for the culture, harvest and processing of insects, such as mealworms, crickets, grasshoppers and black soldier flies. Moreover, RADIUS and VITO also cooperate in the project 'Sunbuilt' (EFRO project), which will result in a pilot installation for the cultivation of micro-algae. These new developments are implemented in the curricula Agro- and Biotechnology, Chemistry and Biomedical Laboratory Technology, while students participate in the research through project work and internships. This unique formula motivates students to further invest themselves in this field.

4.

Strong logistics and world-class ports

Flanders boasts various international seaports and airport, the world's densest road network, well-connected railways, innovative pipelines and numerous inland waterways. Most major European markets are quite literally just a few hours away and companies have plenty of options to get there. For the bioeconomy, 3 ports deserve special attention.



Port of Zeebrugge

Port of Zeebrugge, the seaport of Bruges, is one of the world's foremost roll-on/roll-off ports. Its offering of both intra-European and intercontinental services is what makes this coastal port such an important logistics hub in Europe. Moreover, its exceptional nautical accessibility has resulted in the growth of deep-sea container services in recent years. Last but not least, the absence of heavy industry in the port means the Port of Zeebrugge is an ideal location for the transport and handling of food.



© PORT OF ZEEBRUGGE





© SIGNIFY

SUCCESS STORY

Kebony and Port of Antwerp: a sustainable match

Norwegian company Kebony is revamping the wood industry with a sustainable alternative to endangered tropical hardwood. Due to this international success, Kebony recently opened its first foreign production facility at the Port of Antwerp – a well-considered choice.

At the core of Kebony's expansion lies a patented technology that impregnates sustainably-sourced wood with a liquid mixture based on furfuryl alcohol, produced from agricultural crop waste. The result: non-durable wood species are given characteristics similar to those of the best-performing hardwoods, without the need for toxic treatments.

Strategic, sustainable and welcoming location

To keep up with international demand, Kebony built a new production facility at the Port of Antwerp. First, the port is a premium gateway to the United States, Kebony's primary market. Second, the waste-to-energy project Ecluse provides Kebony with a vast steam network for its energy use. Last but not least, Kebony was welcomed with open arms. The company has already worked with a number of local players and Flanders' do-and-dare company PMV has invested EUR 14 million in the new facility.

Port of Antwerp

The ambitious mission of Europe's second-largest port leaves no room for confusion. Port of Antwerp wants to be 'a home port vital for a sustainable future'. Within that context, it actively promotes the transition towards a circular economy, with increased focus on renewable energy sources and feedstock processes. To that end, specific land is reserved at the 'NextGen District', a 88-hectare area centrally located in the port and adjacent to Europe's largest integrated (petro) chemical cluster. In this district, where innovative, circular and biobased investments can flourish in a plug-and-play environment, there will be a 2-hectare terrain for pilot tests of biobased and other innovative technologies.

Facts & figures

235 million tonnes in international maritime freight is handled each year.

60% of Europe's purchasing power is located within 500 km of Antwerp.

80 km inland making it the furthest-inland maritime port in Europe.

2 hectares for industrial pilot tests of biobased and other technologies.

300 line services to over 800 destinations worldwide.

“Our outstanding industrial competence, long heritage in chemistry and excellent infrastructure turns Port of Antwerp into a unique platform on which biobased activities can be successfully developed.”

Anne-Frédérique Demaerel,
program manager in Sustainable Industry
at Port of Antwerp



North Sea Port

North Sea Port, the cross-border port area that stretches from Vlissingen (the Netherlands) to Ghent (Flanders), is among the top 10 biggest ports in Europe. The port is accessible to worldwide shipping via the North Sea with a draught of up to 17 metres and handles cargo for various segments in specialised terminals. Its strategic location in the logistical heart of Europe and its strong multimodal connections with the European hinterland are just some of its many assets.

Facts & figures

525 local and international companies are based at North Sea Port.

EUR 14.5 billion in added value, making it the 3rd-most productive in Europe.

No. 8 among European seaports for volume of goods handled.

60 km the total length of the port area.

“North Sea Port is a key producer of biofuels in Europe. Combined, several firms produce 1 million tonnes of biodiesel and ethanol, with new projects being launched every year.”

Sandra De Mey,
commercial manager at North Sea Port



“As a renowned biotech hub, North Sea Port is an ideal place to invest in green technology.”

Manfred Van Vlierberghe,
CEO of ArcelorMittal Belgium

SUCCESS STORY

ArcelorMittal: fuelling a sustainable future

ArcelorMittal, the world's largest steel producer, is on a quest to become a carbon-neutral company by 2050. With the construction of its groundbreaking Steelanol and Torero facilities at North Sea Port, it aims to capture industrial carbon and turn it into ready-to-use bioethanol.

“The idea is simple”, says Manfred Van Vlierberghe, CEO at ArcelorMittal Belgium. “We transform waste wood into innovative biocoal, and we capture carbon-rich industrial waste gases from our blast furnaces and then apply a novel gas fermentation technology. The result: advanced bioethanol for use in the transport sector or the production of synthetic materials. Initially, we will transform about 10% of our gases at the Steelanol site, which will yield an annual CO2 savings equivalent to exchanging 100,000 combustion engine cars with the same number of 100% carbon-neutral cars.”

Pioneering in the heart of Europe

Steelanol and Torero will be the first industrial installations of their kind in Europe. The innovative project in waste wood conversion, carbon capture, storage and utilisation has a price tag of EUR 195 million. The EU funding programme Horizon 2020 contributes EUR 21.8 million, while the government of Flanders also committed strategic ecological support (EUR 4 million) via Flanders Innovation & Entrepreneurship (VLAIO). Extra funding: EUR 4.5 million from Interreg2Seas and EUR 5 million from the Belgian federal government via the Energy Transition Funds. “This financial support proves that we've made the right choice by rolling out this bioeconomic project at North Sea Port”, concludes Manfred Van Vlierberghe.

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essencia www.essencia.be
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flanders.bio www.flanders.bio
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North Sea Port www.northseaport.com
PMV www.pmv.eu
Port of Zeebrugge www.portofzeebrugge.be
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