



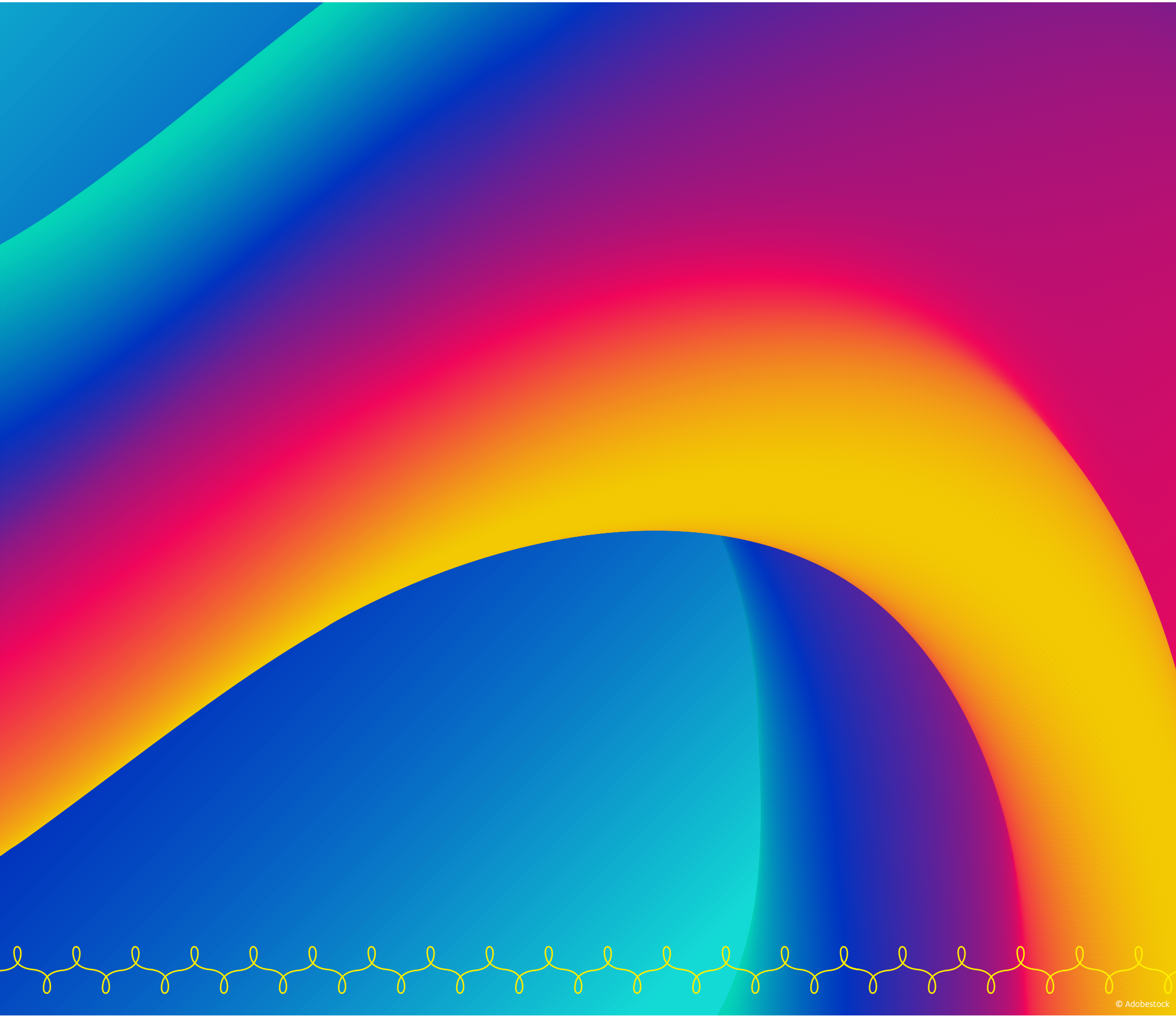
Flanders
State of the Art

STI IN FLANDERS

SCIENCE, TECHNOLOGY & INNOVATION

DEPARTMENT OF
WORK, ECONOMY
SCIENCE, INNOVATION &
SOCIAL ECONOMY

**POLICY &
KEY FIGURES**
2026



STI in Flanders

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POLICY & KEY FIGURES 2026

DEPARTMENT OF
**WORK, ECONOMY
SCIENCE, INNOVATION &
SOCIAL ECONOMY**

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In memoriam Niko Geerts (†2021) – Initiator and co-author of the first
editions of STI in Flanders. This 2026 edition continues to build on his
foundational work.

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The future is not something we wait for – it is something we create through knowledge, innovation and bold ambition.

“In Flanders, we don’t just innovate – we shape what comes next.”

In Flanders, we invest with ambition and a clear vision for the future. We build on what we do best: research and development. It is here that our region already stands out—and where we choose to lead.

Our government has set a bold objective: to position Flanders among the top five most innovative knowledge regions in Europe. To make this ambition a reality, we are increasing our combined investments in research and development to 5% of GDP, while continuing to strengthen public investment up to 1%. Step by step, we are reinforcing our position as a leading innovation region in Europe, as recognised in the European Regional Innovation Scoreboard (RIS).

We invest not only for today, but for tomorrow. The benefits of research and innovation often take time, but its impact is profound. It drives productivity, strengthens competitiveness, and secures long-term prosperity for our society.

One of the key priorities guiding my policy is to further increase investment in research, development and innovation, while at the same time strengthening their economic valorisation. By better connecting knowledge with application, we ensure that innovation delivers real impact—both for our economy and for society at large.

We focus on excellence and make deliberate choices in areas where we can truly make a difference. While Flanders may be small in size, we are determined to be among the very best in carefully selected domains.

Society expects research and innovation to create value that is widely shared—scientifically, economically and socially. It also expects that the investments we make today will benefit future generations. We fully embrace that responsibility.

By strengthening collaboration between government, knowledge institutions, businesses and citizens, we are building a resilient and forward-looking region. Together, we are shaping a prosperous future for Flanders.



MATTHIAS DIEPENDAELE

Minister-President of the Government of Flanders,
Flemish Minister for Economy, Innovation
and Industry, Foreign Affairs, Digitalisation
and Facility Management



JOHAN HANSSENS

Secretary-General

Department of
Work, Economy, Science,
Innovation & Social Economy

Foreword

The Department of Work, Economy, Science, Innovation and Social Economy (WEWIS) of the Flemish Government is pleased to present its **eighth edition of the “STI in Flanders”**. The aim is to present in-depth information about Science, Technology and Innovation policy in Flanders, highlight important figures and indicators, describe the research and innovation landscape, and present an overview of the main actors active in the field of R&D&I. This publication is updated every two years.

The Government of Flanders is acutely aware of **the importance of research and innovation** as a necessary condition for maintaining wealth and well-being in Flanders. As an open, export-oriented economy built on talent, technology and entrepreneurship, Flanders’ prosperity depends on its ability to create value through knowledge and innovation. Science, technology and innovation are therefore not merely supporting policies, but **central productivity drivers** – essential to competitiveness, growth and long-term welfare.

In 2025, the overall budget of the Flemish Government amounted to 67 billion euro. The total public investment in economic, science and innovation policy – including higher education funding across all policy domains – reached 5.29 billion euro, of which 4.67 billion euro was allocated to science and innovation policy in the strict sense and 2.33 billion euro specifically to R&D. In addition to this Flemish budget, research and innovation actors in Flanders annually have access to approximately 363 million euro from the EU Horizon Europe programme and around

50 million euro from ERDF/Interreg. Hence, the total public resources for R&D available to the various actors in Flanders is well above 2.5 billion euro.

Total expenditure on R&D from all public and private actors jointly (GERD) reached 13.105 billion euro in 2024. Based on the most recent calculations (2026), this represents for the Flemish Region an **R&D-intensity of 3.57%** of regional GDP (up from 3.50% in 2023), positioning Flanders among the top performers in Europe. Throughout the rest of this STI in Flanders publication, previously validated figures are maintained for consistency.

The Flemish Government has set a bold objective for the 2024–2029 legislative period: to position Flanders among the **top five most innovative knowledge regions in Europe**, as measured by the European Regional Innovation Scoreboard (EIS). To make this ambition a reality, the government is committed to increasing combined investments in research and development to **5% of GDP**, while strengthening public investment up to **1% of GDP**. Based on the Eurostat statistics, Flanders has maintained its R&D intensity well above the 3% target since 2019 and continues to grow its investments year on year.

Flanders has developed an exceptionally strong knowledge base, with internationally recognised universities, research centres and technological capabilities. Yet a key challenge remains: **turning knowledge into economic value at sufficient speed and scale**. Strengthening the full innovation chain – from research



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to industrial application, scaling and market deployment – is therefore a core priority of government policy. The ambition is clear: more focus, more impact, and greater economic return on innovation. This means fewer fragmented efforts and more decisive choices; deeper collaboration between research institutions and companies; and a policy framework that enables firms to innovate, invest and scale faster.

This challenge is sharpened by a rapidly changing geopolitical context. Trade tensions, supply chain vulnerabilities and technological competition underline the risks of excessive dependence. Flanders remains firmly committed to openness, European cooperation and global engagement. At the same time, the government is investing deliberately in strategic autonomy, focusing on technologies and sectors that underpin economic resilience, industrial strength and future growth.

The government also steps up its efforts to implement the **quadruple helix model**, in which various stakeholders from government, business organisations, STI actors in Flanders and civil society join forces to develop initiatives, set policy targets, and maintain important efforts for the long term in the field of R&D and innovation. A more **mission-oriented and transformative** policy approach is another defining feature of STI policy in this legislative period. This recognises that today’s major societal and economic challenges – climate neutrality, digital transition, demographic change and strategic autonomy – require innovation that goes beyond incremental technological



This “STI in Flanders” publication provides an overview of Science, Technology and Innovation policy and organisations in Flanders aimed at a broad public.

improvements and demands systemic thinking and cross-sector co-creation.

STI policy in Flanders is explicitly embedded in a broader **productivity and competitiveness agenda**. Innovation is regarded as a key engine of productivity growth, but one that must interact with complementary factors such as skills development, entrepreneurship, digitalisation, infrastructure, efficient regulation and access to markets. This systemic insight is central to the Flemish Productivity and Competitiveness Agenda (‘Vlaamse Versnelling’), launched in February 2025, which coordinates action across economy, science, innovation, industry, foreign trade and digitalisation. Since 1 January 2025, the policy domain WEWIS – bringing together Work, Economy, Science, Innovation, Agriculture and Social Economy within a unified framework – provides the integrated governance architecture to deliver on these ambitions.

This “STI in Flanders” publication provides an **overview of Science, Technology and Innovation policy and organisations in Flanders** aimed at a broad public. It bundles various types of information on policy, institutes, as well as different statistical data of the broad Flemish R&D&I landscape. After a first general chapter on the political and economic context of Flanders, you are guided through the landscape according to the quadruple helix model.

I wish you a pleasant reading of this eighth edition of “STI in Flanders”!

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Building Marie-Elisabeth Belpaire, Flemish Government
© Jaspers-Eyers Architects - SIN4E - LAUC - photography Philippe Van Gelooven

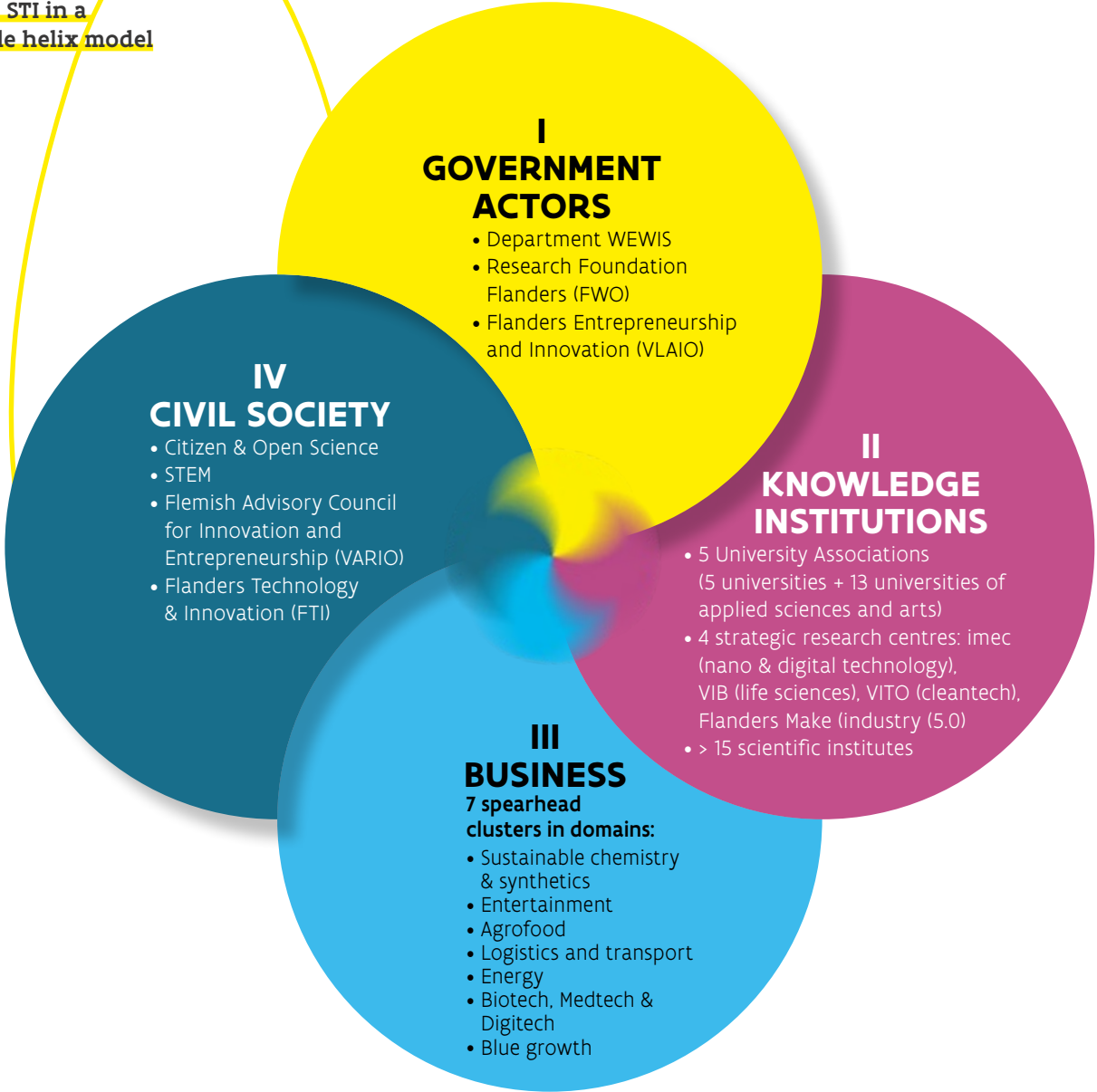
Executive summary

This publication “Science, Technology and Innovation in Flanders” (or “STI in Flanders” in short) aims to give you an in-depth overview of the Flemish landscape resulting from Flanders’ STI-policy. In contrast to previous editions, this edition has been built up along the lines of the quadruple helix model. An

introductory chapter on the various contexts in which one has to situate Flanders is followed by chapters on government, research organisations, enterprises and citizens. The annexes provide you with overviews and more in-depth information.

Flanders’ STI in a quadruple helix model

Figure 1



CHAPTER 1 explains how Flanders is the largest region in Belgium. As such it is a central region in Europe and part of a prosperous economic area referred to as the Blue Banana. The tertiary sector continues to account for the vast majority of economic value added in the region, hovering steadily around 73% to 74% of Flanders’ total GDP. Flanders continues to perform in the first tier as an Innovation Leader. The region is ranked 31st out of 241 EU sub-regions, driven primarily by strong business R&D expenditures and inter-company collaborations (EIS/RIS, 2025).

Flanders, as a political entity, is a combination of a “region” and a “community” each adding their own competencies. in terms of legislation and budget, scientific research is mainly a community competence, whereas innovation is almost completely a regional competence. As a consequence of the strongly devolved Belgian state structure, it is not possible to speak about one Belgian research and innovation system, but rather multiple R&I-systems.

The chapter concludes with an overview of economic and combined technological-economical specialisation profiles based on relative specialisations patterns.

CHAPTER 2 brings the spotlight on government actors in Flanders and focuses in particular, but not exclusively, on the Flemish policy area Work, Economy, Science, Innovation, Agriculture and Social Economy (WEWILS), in charge of scientific research and innovation. It consists of a department that prepares, monitors, evaluates and reports on public policy in the field of enterprise (economic support and entrepreneurship), science and innovation; a council for policy advice (VARIO); and a number of agencies that are charged with the implementation of the policy decisions. These include the Research Foundation Flanders (FWO), Flanders Innovation & Entrepreneurship (VLAIO), Participation Company Flanders (PMV) and Limburg Reconversion Company (LRM).



Flanders in the middle of the Blue Banana

This chapter also sheds light on the general orientations of the Flemish STI policy. The Flemish Government committed itself in its 2024-2029 government coalition agreement to aspire the 5% target of R&D intensity. This commitment was translated into 495 million euro investments in R&D during this period. The government will also focus on the continued implementation of the quadruple helix model and gear towards a more mission oriented policy. In 2025 alone the annual budget for R&D&I was 2.3 billion euro. This chapter highlights initiatives that were financed with this budget.

CHAPTER 3 highlights the research organisations, commencing with the five university associations and their universities (Antwerp, Brussels, Ghent, Leuven, Hasselt). It also provides more information on their funding sources. Moreover, all information relating to on-going research conducted at the Flemish universities can be consulted via the Flanders Research Information Space research portal (FRIS) by browsing through the database using several search options (by research projects, organisations or persons) at www.researchportal.be.

A second group of key research actors are the strategic research centres, of which Flanders has four. Imec (Interuniversity Microelectronics Centre) is a world-leading research and innovation hub in nanoelectronics and digital technologies, employing over 6,500 brilliant and curious minds from over



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100 nationalities. It creates disruptive innovation in application domains such as healthcare, smart cities and mobility, logistics and manufacturing, energy and education. The Flemish Institute for Biotechnology (VIB) is an independent research institute where more than 2,000 top scientists from Belgium and abroad conduct pioneering basic research in domains such as brain & disease research, cancer biology, microbiology, molecular neurology or inflammation research. The Flemish Institute for Technological Research VITO is an independent research centre in the area of cleantech and sustainable development. Lastly, Flanders Make is the Flemish strategic research centre that aims at stimulating product and production innovation in the Flemish manufacturing industry, thus supporting the further digital transition towards Industry 5.0 and (consequently) further strengthening the international competitiveness of the Flemish manufacturing industry.

This chapter further gives information on the main research infrastructures, an overview of collective research centres supporting different economic sectors, information on cooperation amongst research organisations and with businesses (technology transfer), the international activities from STI-actors and how this is supported by the government. The chapter concludes with the performance of institutions in a selection of well-known international rankings.

CHAPTER 4 focuses on enterprises. They are of major importance within the STI system in Flanders. 77% of R&D in Flanders was funded by the business enterprise sector in 2023 (BERD of 2.50%). However, even though a group of high-technology SMEs has arisen in recent years and continues to grow steadily, innovation efforts are still largely concentrated in certain industrial sectors and large companies.

The competitiveness of the Flemish economy is strengthened amongst other by stimulating cooperation between companies and between companies and knowledge centres. One very important instrument in this regard is the cluster policy. Flanders has seven large-scale spearhead clusters: Catalisti, Flux50, Flanders' FOOD, Biovia, ENT.A, the Blue Cluster and the Logistics cluster. Apart from support for the spearhead clusters, several instruments are in place to support research-business links, such as mandates allowing researchers to perform business-oriented research in close relation with enterprises, initiatives on collective research, knowledge diffusion and living labs.

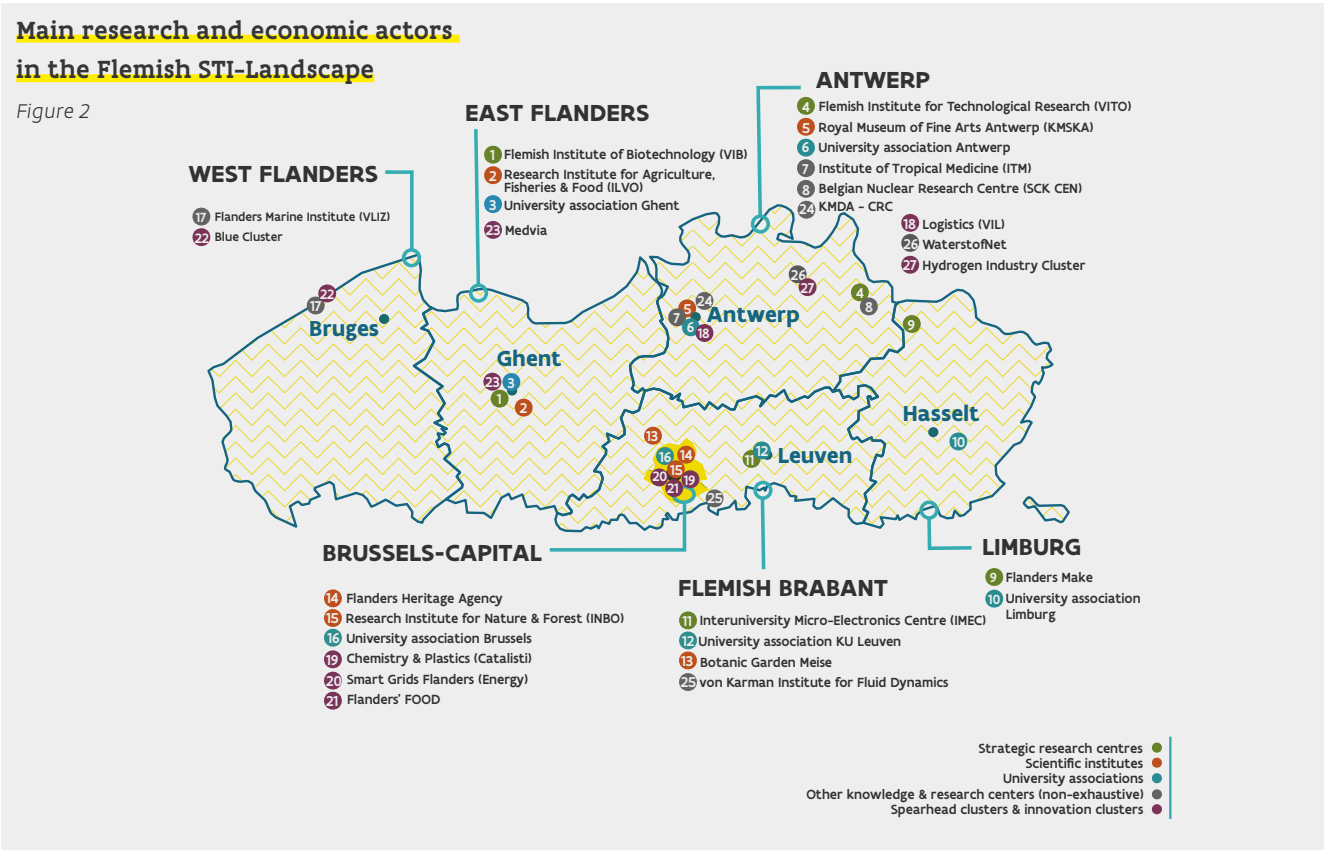
CHAPTER 5 relays information on initiatives towards the fourth helix, citizens. Important efforts are made as regards science communication, through science information actors (e.g. Technopolis), media actors and science festivals. Since 2018 calls for Citizen Science project proposals are launched regularly in collaboration with Scivil, the knowledge centre for Citizen Science. Scientific projects rely on the active participation of citizens for data gathering and data processing.

Attracting more people towards STEM-careers remains a challenge for Flanders. To stimulate youngsters to choose for STEM-study paths and STEM-careers, the STEM Action Plan 2012-2020 was implemented by the Flemish government. In 2021, a new action plan was implemented, called the STEM-Agenda 2030. The STEM Agenda 2030 is focusing on attracting more people towards STEM courses and careers, on STEM specialists and on the general strengthening of STEM competences in society at large (STEM literacy).

Finally, **CHAPTER 6** takes a look at the internationalisation aspects of the Flemish STI-landscape. As an entity competent for both domestic as international affairs regarding its competences, Flanders has built a strong track record on the European and international level.

Main research and economic actors in the Flemish STI-Landscape

Figure 2



CHAPTER 1

FLANDERS: INNOVATION HUB IN THE HEART OF EUROPE

1

Geographical context

Flanders is situated on the European continent. Centrally located within the European Union, it is the northern region of Belgium.

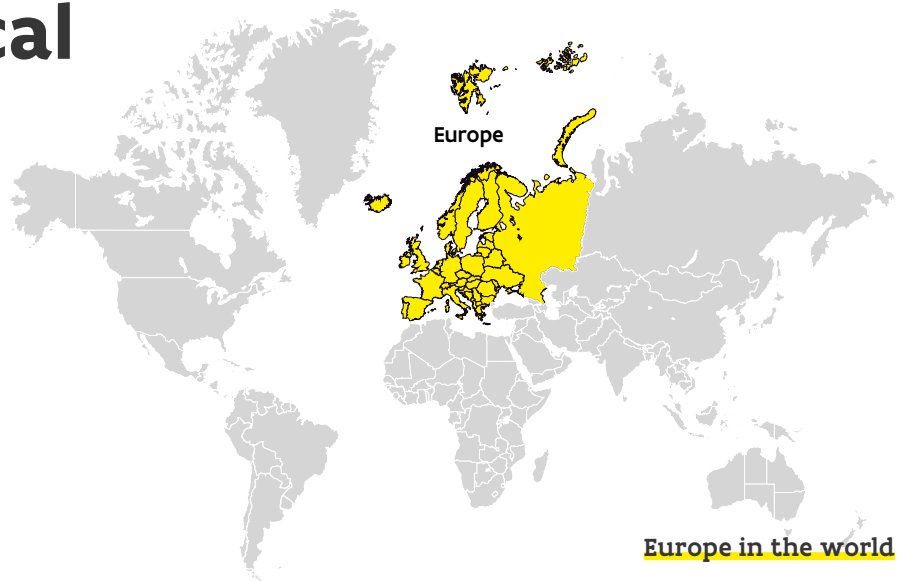


Figure 3

2

Institutional context: division of R&D&I competencies in the Belgian federation

While certain policy areas remain exclusively federal (e.g., defence policy, monetary policy, nuclear power research), other domains have largely or even completely been transferred to either the Communities or the Regions. The latter is the case for the Science, Technology and Innovation (STI) domain: **in terms of legislation and budget, scientific research is mainly a community competence, whereas innovation is almost completely a regional competence.** In Belgium, almost 80% of the total public R&D&I support is managed by the Communities and Regions. Flanders counts for 58% of all Belgian public R&D support (2024). The overall policy budget of Flanders now adds up to 65 billion euro of which 4.672 billion euro aimed at scientific research and innovation (2023i).

addition, framework conditions such as IPR, normalisation, standardisation, tax credits and scientific visas for researchers also are exclusively managed by the federal authority. Tax credits aimed at R&D have become very substantial in Belgium in recent years. There is the so-called patent box (a lower tax rate on profits from a company's own innovation), a fiscal exemption of salaries' social contribution for R&D employees at research/scientific institutes and companies in Belgium, a tax credit for investments in patents and R&D-assets, and a tax exemption for regional subsidies.

As a consequence of this state structure, it is not possible to speak about one Belgian research and innovation system. Given the almost complete autonomy of the regions to set up their own system, there are rather **three R&I-systems** (two large and one small) that compete and cooperate with one another, pretty much like the different R&I-systems of the EU Member States do.

The various activities and policy instruments that Flanders deploys in the field of science, research and innovation, can be divided into the following categories:

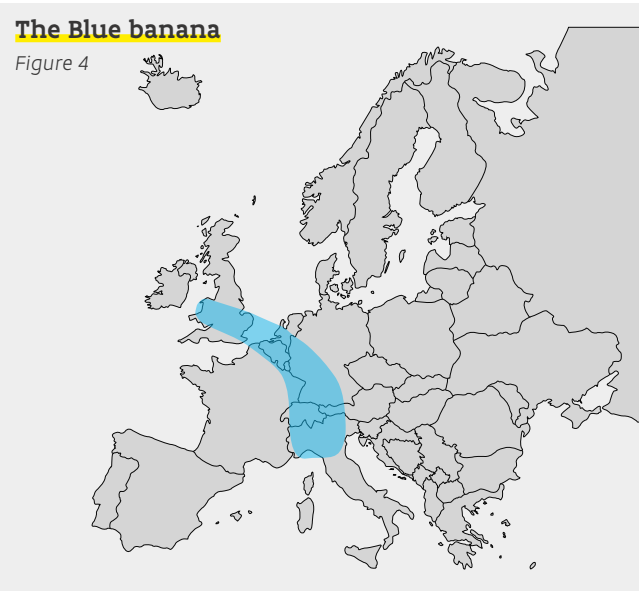
The **federal authority** remains responsible for a limited number of research programmes (notably in the field of climate and sustainable development), the support of research infrastructures of national interest, several federal scientific institutes, and a small number of exclusively attributed research themes, including the Belgian space policy, 'sustainable' nuclear energy and polar research at the Antarctic station. In



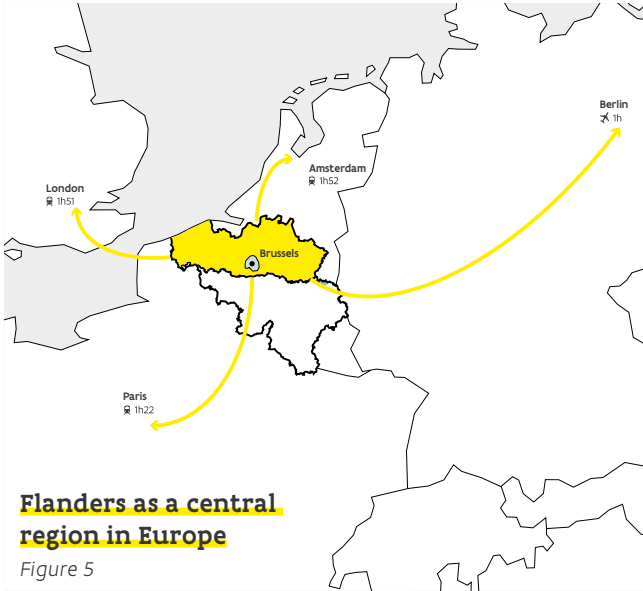
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The Blue banana

Figure 4



Flanders is part of the area that is sometimes referred to as **the Blue Banana**. This area runs from the north of Italy to the United Kingdom over (parts of) Switzerland, Austria, Germany, France, Luxembourg, Belgium and the Netherlands. It is a series of densely populated urban areas responsible for a substantial part of the economic added value within the European Union.



Flanders as a central region in Europe

Figure 5

Belgium's **neighbouring countries** are the Netherlands, Germany, Luxembourg and France. The North Sea forms a natural border with the United Kingdom.

2.1**Direct support for R&D&I in the broad sense**

This includes:

1. **subsidies** or other support channels for basic, fundamental, cutting-edge and applied research that is conducted by researchers at universities, institutes, companies, knowledge networks, etc.;
2. all **business-oriented support** (e.g., technology transfer, technology advice, technology scans, networking, dissemination of innovation, knowledge and technology, valorisation or research results, feasibility studies, knowledge vouchers, etc.);
3. various forms of **collective research** (joint industry-science research, innovative networks, clustering);
4. **promotion and popularisation of STI** (in education, society, business, science centres, etc.), mobility of researchers, etc.

2.2**Research related to the community**

This includes:

1. broad **innovation policy**, as well as scientific research policy (fundamental, applied and strategic basic research);
2. (research at) **higher education institutions** (universities of applied sciences and arts, universities);
3. (research at) **public research organisations** (PROs);
4. (research at) **scientific institutes and policy research centres** of the Flemish Community;
5. (research at) **various institutes** that generate knowledge or scientific output;
6. **infrastructure** in the field of research and innovation (small, medium-scale and large-scale research infrastructure, such as supercomputers, data collections, networks, clean rooms, etc.);
7. **science parks, technology parks, incubator sites**, etc.;
8. **policy research** for the fields for which Flanders is responsible: economic support, industrial policy, entrepreneurship, social economy, public works, employment, environment, nature conservation, forestry, agriculture, energy (except for nuclear energy), heritage, (primary, secondary and higher) education, water management, transport, vocational training, health, culture, tourism, care, health and well-being, data transmission, sports, media, youth, etc.

2.3**Access to finance**

Support for start-ups, spin-offs, participations, seed capital, risk capital, guarantees, fast-growing or technology-oriented businesses, business angels, loans, etc.

3**Socio-economic, technological and scientific context**

Flanders' population accounts for about 58% of Belgium's total population, whilst its surface area covers about 44% of the country. The major part of the companies and the active population of Belgium are in its northern region, which also has a higher employment rate.

As a result, the **economy of Flanders** represents about 59% of the Belgian economy (as measured in GDP). It is also a very open economy: According to the ESA 2010 methodology Flemish exports of goods and services accounted for 106.3% of its GDP in 2021 (partly due to the 'transition' effect and the 'gate' (harbour) effect). On the other hand, the relative wealth of Flanders - as

measured in GDP per capita - is about 20% higher than the EU-27 average. The small Brussels Capital Region causes a major "capital city" effect, with its strong presence of company headquarters and public administrations. If the wealth generated by the daily commuters from Flanders into the Brussels Capital Region were attributed to their residence in the Flemish Region, the Flemish GDP per capita would rise to 29% above the EU27 average. Total expenditure on R&D (GERD) in Flanders, which reaches almost

12.54 billion euro (3.52% of Flemish GDP), equates to over 64% of the Belgium total (2023) and the Flemish R&D intensity exceeds the national value for Belgium (for details see Annex III).



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Key figures on Flanders (Flemish Region), Belgium and EU-27

Table 1

	YEAR	UNIT	FLANDERS	BELGIUM	EU-27
SURFACE AREA		km²	13,521	30,528	4,272,773
POPULATION	1/1/2025	million	6.9	11.8	450.4
GDP IN CURRENT PRICES	2024	billion euro	367.5	620.3	18,801.8
EXPORT	2024	billion euro	418	510	2584
GERD	2023	billion euro	12,539	19,520	385,688
GDP PER CAPITA (PPS)	2024	euro	47,315	46,157	39,680
R&D INTENSITY	2023	%	3.52	3.27	2.12
ANNUAL PUBLIC BUDGET FOR R&D&I FOR FLANDERS, (OF WHICH PUBLIC BUDGET FOR R&D IN STRICT SENSE), BY FUNDING AUTHORITY:	2025	million euro	5,492 (3,106)		
FLEMISH AUTHORITY:			4,669 (2,333)		
FEDERAL AUTHORITY:			399.9 (399.9)		
EU / HORIZON 2020:			373 (373)		
EU / ERDF + INTERREG:			50 (0)		
EMPLOYMENT RATE (% OF THE 20-64 YEARS OF AGE)	2024	%	76.9	72.3	75.8

	YEAR	UNIT	FLANDERS
ANNUAL PUBLIC BUDGET FOR R&D, (IN STRICT SENSE), BY FUNDING AUTHORITY:	2025	million euro	2,732 (0.72%)
FLEMISH AUTHORITY:			2,333 (0.61%)
FEDERAL AUTHORITY:			399.9 (0.11%)

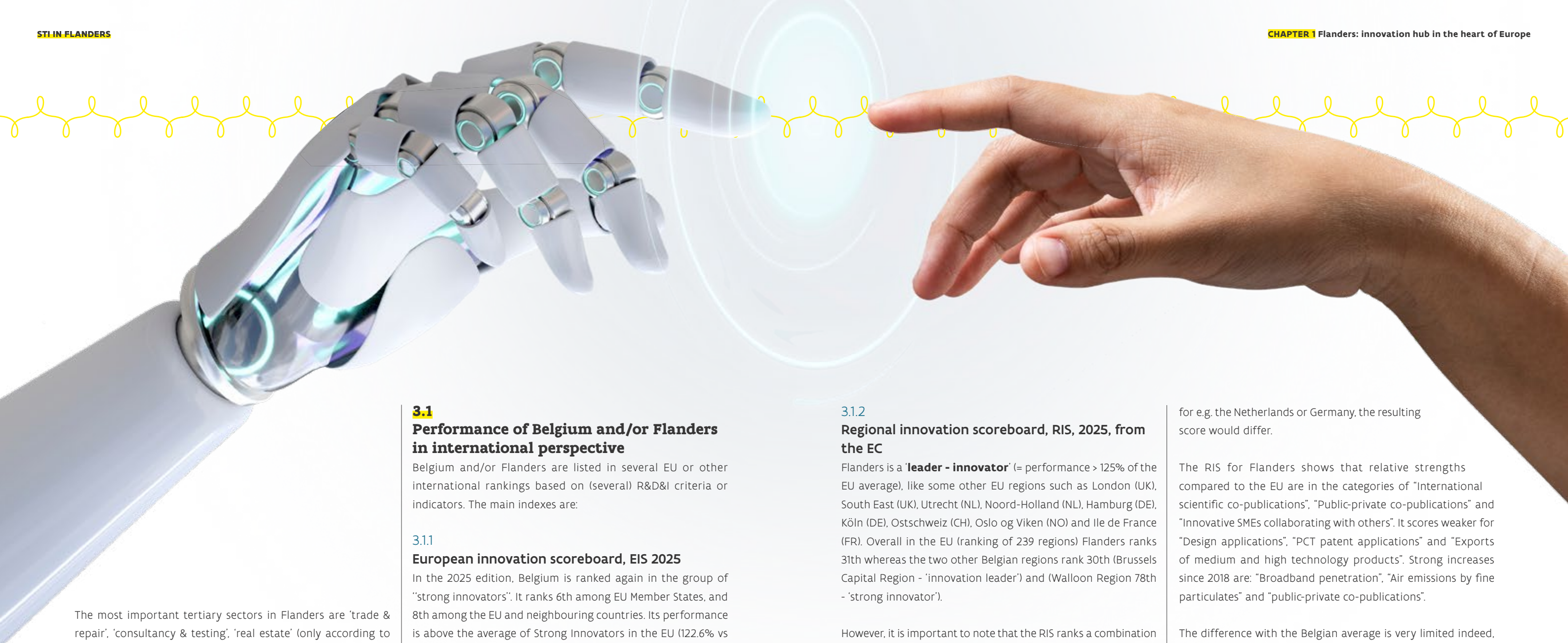
The following table provides an overview of the weight of the main branches in the economy of the EU-27 and Flanders.

Share of the main branches (and certain sub-branches) in gross value added and in employment in the EU-27 and Flanders, 2024, %

Table 2

	GROSS VA		EMPLOYMENT	
	EU-27	FLANDERS	EU-27	FLANDERS
PRIMARY SECTOR	1.8%	1.1%	4%	1.3%
SECONDARY SECTOR	25.7%	23.7%	22.0%	18.8%
INDUSTRY (WITHOUT CONSTRUCTION)	19.4%	17.5%	15.3%	12.6%
CONSTRUCTION	5.5%	6.2%	6.7%	6.2%
TERTIARY SECTOR	73.5%	75.2%	74.1%	79.9%
TRADE, TRANSPORT, ACCOMMODATION AND FOOD SERVICE ACTIVITIES	18.8%	20.4%	24.1%	20.4%
INFORMATION AND COMMUNICATION	5.5%	4.4%	3.5%	2.7%
PROFESSIONAL, SCIENTIFIC, TECHNICAL, ADMINISTRATIVE AND SUPPORT ACTIVITIES	11.9%	17.5%	12.9%	25.4%

Source: Regional Accounts (NBB), Eurostat and OECD (2026)



3.1
Performance of Belgium and/or Flanders in international perspective

Belgium and/or Flanders are listed in several EU or other international rankings based on (several) R&D&I criteria or indicators. The main indexes are:

3.1.1
European innovation scoreboard, EIS 2025

In the 2025 edition, Belgium is ranked again in the group of “strong innovators”. It ranks 6th among EU Member States, and 8th among the EU and neighbouring countries. Its performance is above the average of Strong Innovators in the EU (122.6% vs 114.1% of the EU average in 2025).

Strong increases since 2018 are: Cloud Computing, High-Speed internet access, and SMEs introducing business process innovations.

In terms of indicators, Belgium scores remarkably better than the EU-27 average (=100%) for the following indicators: R&D expenditure in the business sector (rank = 1), Employment in innovative enterprises (rank = 1), Innovation expenditures per person employed (rank = 1)

Compared to 2018, Belgium has improved its score less than the average EU-score (11.7% vs. 12.6%).

The most important tertiary sectors in Flanders are ‘trade & repair’, ‘consultancy & testing’, ‘real estate’ (only according to gross value added), ‘administrative and support services’ (mainly according to employment), ‘education’ and ‘transportation & storage’.

Flanders’ share of the secondary sector is 23.7% in gross value added and 18.8% in employment. The relatively greater importance of the secondary sector in gross value added than in employment is an indication of its overall greater labour productivity, due to a greater exposure to international competition by trade, and the higher capital investment in these sectors. The main branches, apart from ‘construction’ are ‘food & beverages’, ‘chemicals’ (mainly according to gross value added) and Pharmaceuticals.

3.1.2
Regional innovation scoreboard, RIS, 2025, from the EC

Flanders is a **‘leader - innovator’** (= performance > 125% of the EU average), like some other EU regions such as London (UK), South East (UK), Utrecht (NL), Noord-Holland (NL), Hamburg (DE), Köln (DE), Ostschweiz (CH), Oslo og Viken (NO) and Ile de France (FR). Overall in the EU (ranking of 239 regions) Flanders ranks 31th whereas the two other Belgian regions rank 30th (Brussels Capital Region - ‘innovation leader’) and (Walloon Region 78th - ‘strong innovator’).

However, it is important to note that the RIS ranks a combination of regions both at the NUTS1 and the NUTS2 level. If the Flemish provinces (NUTS2) would be considered separately, as is done

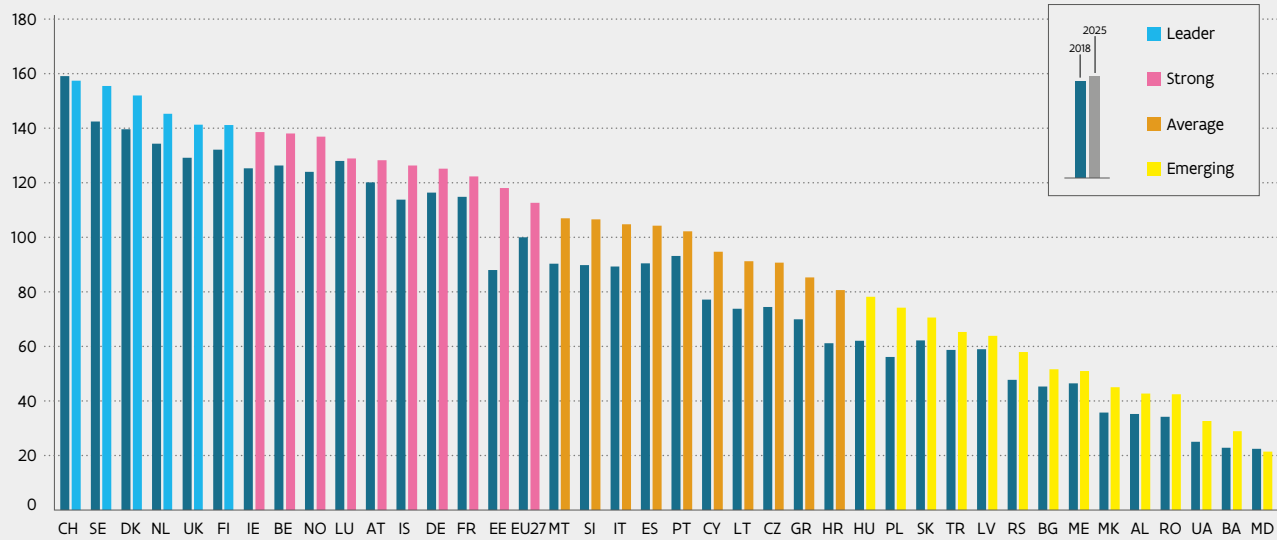
for e.g. the Netherlands or Germany, the resulting score would differ.

The RIS for Flanders shows that relative strengths compared to the EU are in the categories of “International scientific co-publications”, “Public-private co-publications” and “Innovative SMEs collaborating with others”. It scores weaker for “Design applications”, “PCT patent applications” and “Exports of medium and high technology products”. Strong increases since 2018 are: “Broadband penetration”, “Air emissions by fine particulates” and “public-private co-publications”.

The difference with the Belgian average is very limited indeed, which is evident because the Belgian figure and data consist for the largest part of the Flemish data therein.

European Innovation Scoreboard (2018 and 2025)

Figure 6



Source: European Innovation Scoreboard (EIS) 2025

CHAPTER 2

GOVERNMENT ACTORS





STI policy in Flanders is characterised by a strong integration of scientific research, innovation policy and entrepreneurship.

This chapter introduces the key government actors shaping Science, Technology and Innovation (STI) policy in Flanders. As a key government actor, **the Flemish Government** sets the overarching policy orientation and priorities for the legislative period and steers the main instruments and implementing bodies.

Science, technology and innovation are central pillars of the Flemish socio-economic model. As a highly open and export-oriented region, Flanders considers excellence in research, technological development and innovation as key drivers for long-term prosperity, societal wellbeing and international competitiveness.

This ambition is firmly rooted in the **Flemish Government Coalition Agreement 2024–2029**, which places productivity and competitiveness, the climate and digital transitions, and long term prosperity and social cohesion at the centre of the policy agenda. Within this framework, a **reinforced STI policy** is positioned as a key horizontal lever: it supports industrial modernisation and strategic autonomy and accelerates the diffusion of innovation across the economy (including SMEs), contributing to solutions for major societal and economic transitions.

STI policy in Flanders is characterised by a strong integration of scientific research, innovation policy and entrepreneurship. It combines long-term investments in world-class research with a broad range of instruments that stimulate knowledge valorisation, industrial transformation and the uptake of innovation across the economy.

The Flemish Government balances bottom up, excellence driven research funding with a stronger emphasis on **strategic and challenge driven innovation** that supports productivity growth, industrial transformation and societal impact. Throughout the framework, **international openness and cooperation**—in particular within the European research and innovation landscape—remain guiding principles.

Members of the Flemish Government 2024–2029



Members of the Flemish Government, 2024–2029, pictured left to right:

Front row

- › **Ben Weyts**, Deputy Minister-President of the Government of Flanders, Flemish Minister for Budget and Finance, Vlaamse Rand, Immovable Heritage and Animal Welfare
- › **Hilde Crevits**, Deputy Minister-President of the Government of Flanders, Flemish Minister for Home Affairs, Urban and Rural Policy, Living Together, Integration and Civic Integration, Public Governance, Social Economy and Fisheries
- › **Minister-President Matthias Diependaele**, Minister-President of the Government of Flanders, Flemish Minister for Economy, Innovation and Industry, Foreign Affairs, Digitalisation and Facility Management
- › **Melissa Depraetere**, Deputy Minister-President of the Government of Flanders, Flemish Minister for Housing, Energy and Climate, Tourism and Youth

Back row

- › **Cieltje Van Achter**, Flemish Minister for Brussels and Media
- › **Annick De Ridder**, Flemish Minister for Mobility, Public Works, Ports and Sport
- › **Caroline Gennez**, Flemish Minister for Welfare and Poverty Reduction, Culture and Equal Opportunities
- › **Zuhail Demir**, Flemish Minister for Education, Justice and Work
- › **Jo Brouns**, Flemish Minister for Environment and Agriculture

Flemish Government priorities (2024–2029)

- › Boosting **productivity, competitiveness** and sustainable economic growth
- › Accelerating the **climate and energy transition**, while safeguarding affordability and industrial strength
- › Strengthening **digitalisation** and data-driven transformation across society and the economy
- › Raising **employment** and skills, including activation and lifelong learning
- › Investing in **education** and talent development, with a focus on quality and equal opportunities
- › Ensuring **accessible care** and support for vulnerable groups, and reducing poverty
- › Increasing **affordable housing** and improving spatial planning and permitting capacity
- › Upgrading **mobility**, ports and infrastructure to strengthen connectivity and logistics
- › Strengthening **security**, resilience, integration and effective public governance

Source: Flemish Government Coalition Agreement 2024–2029 (summary of key priorities).

1

Governance and policy architecture of STI in Flanders

Science, Technology and Innovation (STI) policy in Flanders is embedded in an integrated governance framework that brings together scientific research, innovation, entrepreneurship and industrial policy. As a highly open, knowledge-intensive regional economy, Flanders considers STI a key driver for long-term competitiveness, societal wellbeing and international positioning.

At the governmental level, since 2025, the WEWILS policy domain has brought together work, economy, science, innovation, social economy and agriculture within a unified framework. Far more than a mere organisational structure, WEWILS serves as a strategic clustering for the Flemish public administration, enabling the development and implementation of policies that foster synergy across these interconnected sectors. By integrating domains such as scientific excellence, innovation capacity, economic growth, and social development, WEWILS ensures that policy-making is coherent and mutually reinforcing, positioning Flanders to address complex societal challenges and enhance competitiveness in a holistic manner.

Policy governance in Flanders is characterised by a division of roles between policy preparation and policy implementation. A central government department is responsible for policy development and coordination, while a number of specialised agencies translate policy objectives into concrete support instruments and investments.

1.1 Government department responsible for STI policy

Within the Flemish public administration, the Department WEWIS is tasked with the preparation, monitoring, evaluation and reporting of STI policy. Its mandate covers scientific research, innovation, entrepreneurship and industrial development, and it acts as the central policy coordinator within the STI system.

The department's mission in the STI field is to contribute to economic prosperity and societal wellbeing in Flanders by promoting:

- › excellence in scientific research;
- › a competitive, innovative and sustainable business environment;
- › creativity, entrepreneurship and knowledge valorisation.

In practice, **the Department WEWIS** performs a number of core functions:

- › It prepares legislative initiatives and policy documents in the field of science, research and innovation, and ensures coherence across the different STI policy instruments;
- › It stimulates close cooperation between research organisations, higher education institutions and companies;
- › It prepares multiannual management agreements with key actors in the Flemish STI landscape, including the four strategic research centres (imec, VIB, VITO and Flanders Make) and research funding bodies, such as Research Foundation Flanders (FWO), the Flanders Marine Institute (VLIZ)... ;
- › It evaluates policy instruments and organisations that receive governmental and public support;
- › It coordinates all R&D&I topics, including the programme committees under the EU Framework Programme for R&I;
- › It actively participates in meetings of the EU -mainly Council, preparative bodies, ERAC, ERA forum, high level group COMPCRO and bodies implementing the policies;
- › It actively participates in meetings of the OECD - mainly Committee for Scientific and Technological Policy (CSTP) and global steel forum and in meetings concerning execution committees;
- › It has representatives in the Flemish Representation/ Delegation to the EU (within Belgium's Permanent Representation to the EU), who participate in Council of the EU working parties;
- › It monitors the execution of policy measures and reports on policy developments in the STI domain towards the Flemish, federal and international (mainly EU and OECD) policy level;
- › It actively supports the further development of the European Research Area by taking part in many ERA Actions and coordinating stakeholder input;
- › It coordinates the information flow from the European level towards Flemish stakeholders (and vice versa) through its stakeholder management platform for European R&I policy;
- › It holds responsibility for the direct implementation of several policy (support) instruments, specific on-off initiatives, participation fees or representational positions.

1.2 Policy advice and strategic reflection

Independent policy advice forms an integral part of the STI governance model in Flanders. The Flemish Government and Parliament are advised by the **Flemish Advisory Council for Innovation and Entrepreneurship (VARIO)**, which provides recommendations on science, technology, innovation, industry and entrepreneurship policy.

VARIO operates independently from government and stakeholders, and consists of experts from academia and the business community who act in a personal capacity. The council issues advice both on its own initiative and at the request of policymakers, and publishes reports on a wide range of STI-related topics.

Complementary socio-economic advice is provided by the Social and Economic Council of Flanders (SERV), in which employer organisations and trade unions are represented. Through these advisory structures, STI policy in Flanders is supported by evidence-based analysis, strategic reflection and broad societal input.

1.3 Implementing agencies

The implementation of STI policy in Flanders is delivered through a number of specialised public agencies within the Policy Area Work, Economy, Science, Innovation, Agriculture and Social Economy (WEWILS) of the Flemish Government.

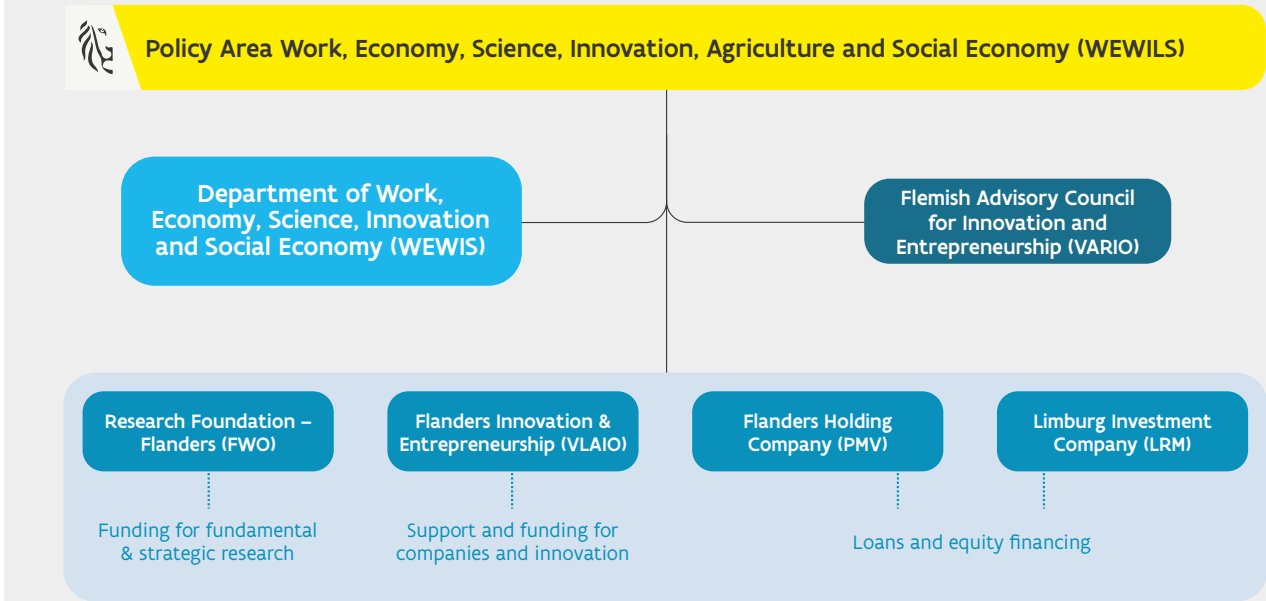
Together, these agencies operate a broad and differentiated policy toolbox covering research funding, innovation support and financial instruments for enterprises and strategic projects.

While these organisations jointly deliver the STI policy toolbox, they do so by serving **different primary target groups** (or 'clients') and operating distinct types of instruments.

- › **Department WEWIS**: policy preparation and thematic STI policy development; grants and programmes primarily targeting research and knowledge institutions (and system-level actors).
- › **FWO**: competitive grants primarily targeting individual researchers and research teams (excellence-based).
- › **VLAIO**: innovation and entrepreneurship support primarily targeting companies—individually, collaboratively, or in partnership with knowledge institutions.
- › **PMV / LRM**: public financing and investment instruments for enterprises and strategic projects; LRM has a distinct regional focus (Province of Limburg).

Policy Area Work, Economy, Science, Innovation, Agriculture and social Economy (WEWILS)

Figure 7



Source : Department WEWIS

Research Foundation Flanders (FWO)

The Research Foundation Flanders (FWO) is the funding agency that supports ground-breaking fundamental research, strategic research and clinical scientific research in Flanders. The FWO also stimulates cooperation between the research institutes and promotes equal opportunity. Its main mission is to deepen knowledge about people and their environment. The FWO funds both excellent and promising researchers, as well as research projects, following an interinstitutional competition and an evaluation by national and international experts. The only criterion is the outstanding quality of the researcher and the research proposal. Researchers can apply for support from the FWO through a broad range of funding instruments.

A system of peer review by the international scientific community is used to assess all applications and scientific activity reports. To this end, the FWO has organized several scientific committees, including top researchers from Belgium and abroad. The FWO's scientific committees, called "FWO Experts Panels", are crucial to ensuring the excellence of FWO-funded activities. There are Expert Panels that are specialised committees for a specific scientific research discipline and there are interdisciplinary committees, which cover all the scientific research disciplines of Flemish concern. Each committee consists of several experts, the majority always being affiliated to a non-Flemish university.

The main instruments of the FWO are support to fellowships (PhD students, postdoctoral researchers, etc.) and to research (via grants and projects). Furthermore, extensive means are available for medium-scale and large-scale research infrastructure, the management of large computing capacity in Flanders, promoting international cooperation and mobility, including participation in multilateral initiatives or in international research facilities, such as CERN. Finally, the FWO also awards scientific prizes to distinguished researchers, often in collaboration with private companies.

Almost all instruments of the FWO are bottom-up oriented so candidates can freely apply with their own curiosity-driven research. Only a small fraction of the FWO instruments and budget has a mission-driven character. The Research Foundation Flanders (FWO) is the primary funding agency for fundamental, strategic and clinical scientific research in Flanders. Its mission is to stimulate high-quality, curiosity-driven research and to deepen knowledge about people and their environment.

www.fwo.be

Flanders Innovation & Entrepreneurship (VLAIO)

Flanders Innovation & Entrepreneurship (VLAIO) is the government agency responsible for the implementation of innovation and enterprise policy in Flanders. It acts as a one-stop shop for companies seeking support for start-up, growth, innovation and internationalisation.

It helps companies with the start-up of their activities, the growth and continuity of their business, but also with the search for the right location, information on permits, financing, investments in innovation and ecological technologies, and other topics. VLAIO also hosts the Enterprise Europe Network (EEN) Flanders, and acts as the managing authority for the EU ERDF calls and support in the Flemish Region. In short, VLAIO manages all economic and innovation support for companies located or active within the Flemish Region.

In the field of innovation support, VLAIO assists companies, research centres and knowledge centres in realising their research and development projects, by offering funding, advice and a network of potential partners in Flanders and abroad. To achieve this, it has different types of instruments at its disposal:

- › Direct funding: supporting the innovative projects of companies, research centres, collective research initiatives, organisations and individuals through assignments set by the Flemish Government;
- › Advice and services: offering support to all Flemish SMEs and large companies and research centres by helping them with their applications or by providing technological advice during their innovative projects;
- › Co-ordination and networking: stimulating cooperation by bringing innovative companies and research centres into contact with Flemish intermediate organisations that stimulate innovation; to this end, VLAIO manages a broad network of partner organisations and works closely with 'Team Bedrijfstrajecten';
- › Policy development: supporting the Flemish Government in its innovation policy; e.g. by studying the effectiveness of the innovation initiatives and different support programmes.

VLAIO supports all types of innovators in Flanders:

- › Companies that are actively innovating, from small start-ups to multinationals with a branch in Flanders; specific attention is paid to SMEs, although partnerships between companies and knowledge centres are also eligible for innovation support. VLAIO supports a number of spearhead clusters (see chapter 4);



- › Individual researchers and research centres can apply to VLAIO for the appropriate support and can also receive funding, advice and contacts with potential partners for innovative scientific research, applied research and technology transfer;
- › Organisations of various types (e.g. collective research centres) that stimulate innovation in Flanders can receive financial support.

The agency applies a bottom-up approach: subsidies and advice are typically awarded to initiatives proposed by the actors themselves and any project including a technological innovation component is eligible for funding. VLAIO continues to adapt its policy instruments to broaden and deepen the innovation trajectory, as well as adapting this trajectory to specific needs.

The support schemes are aimed at businesses (from SME's to large companies), research organisations, service-providing organisations, non-profit organisations, and individual persons.

The main support instruments for innovation and R&D are:

- › R&D business projects
- › R&D feasibility studies
- › Innovative start-ups support
- › Interdisciplinary cooperative research projects (ICON)
- › Baekeland mandates
- › Innovation mandates
- › COOCK (Projecten 'Collectief Onderzoek & Ontwikkeling en Collectieve Kennisverspreiding/-transfer')
- › Support for cooperation and the dissemination of knowledge (TETRA, Agricultural Innovation Projects)
- › Co-financing of international projects (ERA-Net, JTI, Eurostars, EUREKA)
- › Spearhead clusters and cluster projects
- › Living labs
- › Innovative Public Procurement Programme (PIO)

www.vlaio.be

Participation Company Flanders (PMV)

Participation Company Flanders (PMV) is a public investment company that provides financial instruments to support innovative enterprises and strategic projects in Flanders. PMV is the partner of ambitious companies and projects, focusing on social impact and financial return. PMV finances promising companies from the very start, through to growth and internationalisation. PMV offers tailor-made financial solutions to all entrepreneurs with a good business plan and a strong management team. It does so with capital, loans and guarantees. PMV also provides financing and expertise for the transition to sustainable energy, the reallocation of cultural-historical heritage, the investment in infrastructure and the efficient (re) use of space in Flanders. PMV is also functioning as the National Promotional Bank (NPB) for Flanders in the framework of the InvestEU programme.

PMV focuses on long-term value creation and combines financial returns with societal impact. It finances companies from early-stage development through growth and international expansion, and plays a specific role in areas such as life sciences, sustainable energy, infrastructure and technology valorisation. In addition, PMV manages specific government-backed investment funds aimed at strengthening the Flemish innovation ecosystem.

PMV offers financial solutions through capital, loans or guarantees, or combination thereof. PMV provides venture capital – always in co-financing with the market – both at an early stage and to more mature companies. This may range from limited tickets – often in as convertible subordinated loans – to large capital tickets. PMV is different from many other capital providers. It has no pre-determined exit date and can therefore spend years working with companies to build their future. Moreover, it is an active but patient investor. PMV will try to meet the company's financing needs in the best possible way, taking into account both the company's needs and those of other stakeholders.

PMV raises capital for companies in various sectors, but has developed particular expertise in the Life Sciences & Care industry. For the latter, PMV focusses on pioneering innovations that offer scalable solutions with a strong ambition to strengthen the local ecosystem.

PMV also provide the Flemish Government with fiduciary management of some of its assets. One recent example is the Flanders Future Tech Fund (FFTF). This fund, set up in 2019 with an initial 75 million euro injection by the Flemish Government, is an early-stage financing fund that wants to meet the financing needs of early technology initiatives of research centres, universities and Flemish spearhead clusters, as well as private parties. Through its investments, the Flanders Future Techfund wants to focus on the valorization of technology developed by Flemish companies, with particular attention to the spearhead domains of Care & Welfare, Digital Transformation and Climate & Sustainability.

www.pmv.eu

Limburg Reconversion Company (LRM)

The Limburg Reconversion Company (LRM) is a regional investment company focused on economic development and industrial transition in the Flemish province of Limburg.

LRM targets all sectors and companies, from starting companies to growing SMEs and larger businesses. LRM provides lending and venture capital to companies who are related to Limburg and is a catalyst for the transition of the Limburg manufacturing economy towards an innovative and technological economy. LRM is developing qualitative clusters within the spearhead sectors in Limburg. In addition, LRM develops infrastructure, such as campuses and incubators, and gives former mining sites a make-over. LRM focuses on the following four investment domains:

- › Sustainable Societies;
- › Health & Care;
- › Smart Services & Manufacturing;
- › Leisure & Heritage Experience

www.lrm.be

2

Strategic orientation of STI policy in Flanders

The strategic orientation of Science, Technology and Innovation (STI) policy in Flanders is defined by a strong focus on **productivity growth, competitiveness and long-term resilience**. In a global context characterised by rapid technological change, climate transition and growing geopolitical uncertainty, STI policy is increasingly positioned as a **core pillar of economic and industrial strategy**, rather than as a stand-alone research policy.

This orientation is articulated and underpinned by several key policy documents, including:

- › the **Flemish Government Coalition Agreement 2024–2029** in which the various political parties that are part of the governing coalition outline their priorities for the five-yearly parliamentary term;
- › the **Policy Note on Economy, Science, Innovation and Industry 2024–2029** of the Flemish Minister for Economy, Innovation and Industry, Foreign Affairs, Digitalisation and Facility Management;
- › **several multi-annual strategic plans and targets** that are agreed with a broad-ranging group of stakeholders from government, civil society and industry. These plans set out targets across a range of policy fields, amongst which STI is assigned a clear priority. The major plans include **The Flemish Resilience (2020)** and the **Productivity and Competitiveness Agenda (2025)**.

Together, these documents outline a coherent policy framework that combines excellence in research with a stronger emphasis on valorisation, diffusion and strategic impact.

The Flemish Government has set a bold objective in this legislative period (2024-2029): to position Flanders among the top five most innovative knowledge regions in Europe as measured by the Regional Innovation Scoreboard. To make this ambition a reality, **we are increasing our combined investments in research and development to 5% of GDP, while continuing to strengthen public investment up to 1%.**

To provide clearer strategic steering, the Flemish Government presents its agenda through a small set of **Overarching Strategic Objectives (OSDs)** that are intended to be actionable

and monitorable across policy instruments. This framing helps position subsequent **thematic priorities** and **flagship initiatives** as concrete delivery vehicles, while supporting alignment with complementary domains such as skills, energy and digitalisation.

Overarching Strategic Objectives (OSDs)

Policy Note on Economy, Science, Innovation and Industry (2024–2029)

- › **OSD 1** – Sustainably strengthen the **productivity and competitiveness** of the Flemish economy and industry.
- › **OSD 2** – Support **strategic sectors** and increase **strategic autonomy**.
- › **OSD 3** – Create an **entrepreneur- and SME-friendly** government and business environment.
- › **OSD 4** – Increase investment in **R&D&I** while strengthening **economic valorisation**.

Source: Policy Note on Economy, Science, Innovation and Industry 2024–2029.



2.1 STI policy within a productivity and competitiveness framework

Flanders ranks among Europe's leading innovation regions, with high levels of public and private investment in research and development and strong performance in international benchmarking exercises. At the same time, recent analyses highlight that **high R&D intensity alone does not automatically translate into sustained productivity growth**.

As a result, STI policy in Flanders is explicitly embedded in a broader **productivity and competitiveness agenda**. Innovation is regarded as a key engine of productivity growth, but one that must interact with complementary factors such as skills development, entrepreneurship, digitalisation, infrastructure, efficient regulation and access to markets.

This systemic insight is central to the Flemish productivity agenda, which adopts a **cross-policy and whole-of-government**

approach. STI policy is therefore closely aligned with policies on education and talent, labour markets, industrial transformation, energy and climate, and international economic positioning. Within this framework, STI policy acts as a lever for structural transformation and value creation across the entire economy.

2.2 A systemic and transformative STI policy approach

Recent Flemish policy documents and analyses point to a clear evolution towards a system-oriented and transformative STI policy model. This approach recognises that today's major societal and economic challenges – such as climate neutrality, digital transition, demographic change and strategic autonomy – require innovation that goes beyond incremental technological improvements.

Consequently, Flemish STI policy increasingly:

- › emphasises the interaction between different stages of the innovation chain, from fundamental research to applied innovation and market diffusion;
- › promotes cooperation between universities, research centres, companies, governments and civil society, in line with a quadruple helix model;
- › complements bottom-up, excellence-driven research funding with more mission-oriented and challenge-driven initiatives.

This transformation does not imply a departure from established strengths. On the contrary, **scientific excellence and academic freedom remain core principles** of the Flemish STI system. The policy ambition is to better align this strong knowledge base with societal needs and economic opportunities, while preserving openness and international orientation.

2.3 Thematic priorities, flagship initiatives and strategic collaborations

The thematic priorities of Flemish STI policy are translated into a number of **flagship initiatives, structured programmes and strategic collaborations** in which the Flemish Government invests during the current legislative period. These initiatives operationalise the policy ambition to combine scientific excellence with productivity growth, industrial transformation and societal impact.

These thematic priorities and their associated flagship initiatives can be read as the concrete operationalisation of the four **Overarching Strategic Objectives (OSDs)** set out in the 2024–2029 Policy Note. In particular,

- › they translate the ambition to strengthen productivity and competitiveness (**OSD 1**) into targeted technology and ecosystem investments;
- › they reinforce strategic sectors and reduce critical dependencies through strategic programmes and European partnerships (**OSD 2**);
- › they support an entrepreneur- and SME-friendly innovation environment by combining funding, advice and diffusion instruments (**OSD 3**);
- › and they connect increased R&D&I investment with stronger valorisation pathways and scale-up finance (**OSD 4**).

The remainder of this section presents the main thematic priorities and illustrates, for each, the key flagship initiatives and strategic collaborations through which the Flemish Government is steering STI policy in practice.

2.3.1 Digital technologies and data-driven innovation

Digitalisation is a cornerstone of Flemish STI policy and a key driver of productivity growth across the economy. Public investment focuses on both **frontier research** and **large-scale uptake of digital technologies** by enterprises and public actors.

A cornerstone actor is **imec**, the Flemish strategic research centre for **nanoelectronics and digital technologies**. Imec combines frontier research with large-scale R&D infrastructure (including pilot lines and test environments) and plays a system role in **technology transfer and ecosystem building**, connecting universities, start-ups, SMEs and global technology firms. Through this position, imec helps anchor Flanders in European initiatives on semiconductors, high-performance computing and trusted AI, and accelerates the translation of research results into industrial applications.

A central initiative in this domain is the **Artificial Intelligence Policy Programme**, which combines:

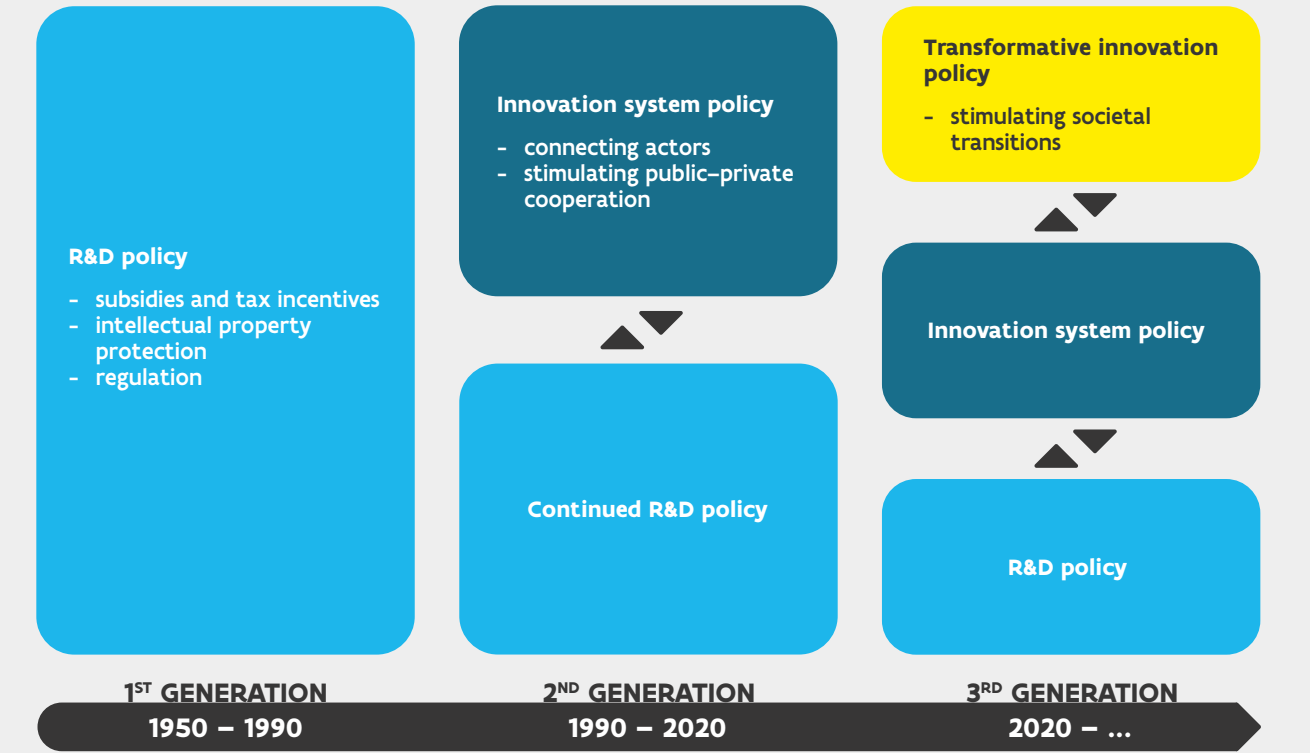
- › a **Flanders AI Research Program** bringing together all five Flemish universities, all strategic research centres as well as Sirris and ILVO with imec acting as overall coordinating organisation,
- › **business-oriented** AI adoption via innovation support schemes,
- › and a **governance and societal embedding component**, supported by actors including the Flemish AI Institute (VAIA) and the Knowledge Centre Data & Society (Kenniscentrum Data & Maatschappij).

In addition, Flanders invests in **European digital infrastructures and partnerships**, including participation in the **EuroHPC Joint Undertaking** (high-performance computing) and the **Chips Joint Undertaking**, with **imec** acting as a key Flemish anchor organisation in the European semiconductor R&D ecosystem. The further roll-out of a Belgian **AI Factory Antenna** (coordinated by imec), the establishment of an AI-centered **European Digital Innovation Hub** (coordinated by Sirris), the participation of imec and ILVO in the Testing & Experimentation Facilities (**TEFs**) on **edge computing resp. agriculture** as the local implementation of various European AI policy initiatives strengthens access to cutting-edge AI infrastructure and expertise for Flemish researchers and companies.

Cybersecurity is addressed through a dedicated **Cybersecurity Policy Plan**, combining research, innovation support for enterprises and skills development, and linked to both economic and security policy objectives.

Three generations of innovation policy

Figure 8



Source: Rathenau Instituut. Gebaseerd op Schott & Steinmeuller, 2018)



2.3.2

Climate transition, energy and sustainability

STI policy is a key lever in the Flemish approach to the **industrial climate transition**, combining innovation, infrastructure and competitiveness considerations.

A central system actor in this domain is **VITO** (the Flemish strategic research centre for cleantech and sustainable development), which combines applied research, pilot infrastructure and ecosystem collaboration to accelerate industrial decarbonisation and circular solutions.

A flagship programme in this domain is **Moonshot CO₂**, a long-term research and innovation programme focused on breakthrough technologies for industrial decarbonisation, CO₂ capture, utilisation and circular carbon pathways. Moonshot is explicitly connected to industrial ecosystems and is being reinforced with stronger attention to valorisation and industrial uptake.

In parallel, the **Flemish Climate Leap for Industry (Klimaatsprong)** functions as a coordinating framework for the industrial transition to climate neutrality. Under the current legislature, this programme is being further developed with:

- › updated transition roadmaps (including international competitiveness considerations);
- › pilot instruments such as **Contracts for Difference** to support early movers;
- › and close alignment with energy, infrastructure and innovation policy.

Hydrogen is addressed through the **Flemish Hydrogen Vision and Strategy**, currently being updated. A major investment with strong European leverage is the **FLHYports Hydrogen Valley**, which connects the ports of Antwerp-Bruges, North Sea Port and Ostend into an integrated hydrogen ecosystem covering production, transport, storage and industrial use. The hydrogen ecosystem is further structured through the **Waterstof Industrie Cluster**, coordinated by **WaterstofNet**.

2.3.3

Health, life sciences and biotechnology

Health, life sciences and biotechnology constitute a long-standing strategic domain within Flemish STI policy, combining scientific excellence with strong economic value creation.

Public investment supports a dense ecosystem of universities, hospitals, research institutes and companies, with **VIB (Flanders Institute for Biotechnology)** as a cornerstone actor. The policy framework emphasises:

- › translation of fundamental research into medical, pharmaceutical and biotech applications;
- › support for spin-offs and scale-ups in health-related value chains;
- › and international collaboration and participation in EU research programmes.

This thematic priority also ties into broader societal goals, including sustainable healthcare systems, preventive medicine and bio-based solutions for agriculture and food.

2.3.4

Industrial transformation and advanced manufacturing

Strengthening productivity, competitiveness and resilience of the Flemish industrial base is a core orientation of STI policy.

A key role is played by **Flanders Make**, the strategic research centre for manufacturing, which supports long-term, pre-competitive research on advanced materials, production technologies and digital manufacturing systems, in close collaboration with industry.

This domain is strongly connected to the **Productivity and Competitiveness Agenda**, under which the Flemish Government invests in:

- › innovation-driven industrial modernisation;
- › diffusion of advanced manufacturing technologies to SMEs;
- › and alignment between STI policy and broader industrial, skills and investment policies.

Cluster policy further reinforces this orientation. The **spearhead clusters** (such as Catalisti, Flux50, Flanders' FOOD, Biovia, ENT.A, the Blue Cluster and the Logistics cluster) are being reformed in the current legislature to become more mission-oriented, internationally connected and productivity-focused. See further more in Chapter 4.

2.3.5

Security, defence and space-related technologies

In response to the evolving geopolitical context, Flemish STI policy places increasing emphasis on **security, defence and space-related innovation**, always within a European and international cooperation framework.

A major new policy initiative is the **Flemish Innovation and Industry Strategy for Security and Defence (VISD)**, which aims to strengthen Flemish participation in European and NATO innovation ecosystems. Flanders actively contributes to and co-finances participation in **NATO DIANA** and the **NATO Innovation Fund**, and supports defence-related innovation via VLAIO and PMV, including through adapted ethical and strategic governance mechanisms.

In the space domain, the **Space Economy Impulse Programme** supports R&D, entrepreneurship and talent development in space-related applications. Flanders also actively seeks to increase its return within **European Space Agency (ESA)** programmes and to strengthen links between space technologies, digitalisation and defence.

2.3.6

Large-scale research infrastructure and international programmes

Across all thematic priorities, Flanders invests in **research infrastructure as a strategic asset**. A flagship example is the **Einstein Telescope** candidature in the Euregio Meuse–Rhine, supported by significant Flemish investment. Beyond its scientific importance, this project is explicitly framed as a driver of innovation, valorisation and industrial participation (See Chapter 6 for more details about the Einstein Telescope).

Furthermore, Flemish STI policy strongly leverages **European framework programmes**, with high participation in **Horizon Europe** and related initiatives (See chapter 6). Strategic research centres (imec, VIB, VITO, Flanders Make) and organisations such as VLIZ play a key role in international research infrastructures and global knowledge networks (See chapter 3).

Major policy initiatives in the field of STI in Flanders – Explanatory Boxes

Table 3

	1 Flemish Acceleration – Productivity and Competitiveness Agenda	2 Nano Integrated Circuits (NanoIC Pilot Line)	3 Contracts for Difference (CfD)	4 Flemish Defence Plan & VISD (Flemish Innovation and Industrial Strategy for Security and Defence)	5 Einstein Telescope	6 EuroHPC
Who?	The Flemish Government, coordinated by the Minister-President of Flanders, involving all policy domains related to economy, science, innovation, industry and labour.	Hosted by imec, supported by the Flemish Government, the European Commission and international industry partners under the EU Chips Act.	Flemish Government, implemented by VLAIO, with scientific support from VITO.	Flemish Government, coordinated via the Department WEWIS, in close collaboration with industry and knowledge institutions.	International consortium involving Belgium, the Netherlands and Germany, with strong Flemish coordination.	European High Performance Computing Joint Undertaking (EuroHPC JU), with participation of EU Member States, including Belgium and Flanders.
What?	The Flemish Acceleration is a government-wide agenda aimed at structurally strengthening productivity and competitiveness in the Flemish economy. It brings together concrete actions focusing on a business friendly environment, robust infrastructure and investment in human capital, explicitly positioning R&D, innovation and strategic research infrastructures as key levers.	NanoIC is a European pilot manufacturing line for sub 2 nanometre semiconductor technologies. It enables companies and research organisations to develop, test and validate next generation chip technologies before large scale industrial production, bridging the gap between research and market deployment.	Contracts for Difference are market based support instruments that stimulate industrial investment in low carbon technologies through long term contracts. Public support partially offsets price and market risks, accelerating deployment of climate neutral industrial solutions.	The Flemish Defence Plan aims to strengthen security, resilience and economic opportunities. VISD (Flemish Innovation and Industrial Strategy for Security and Defence) translates this ambition into concrete innovation and industrialisation instruments targeting defence and dual use technologies, with a strong focus on collaboration, scaling up and integration into European value chains.	The Einstein Telescope is a future underground research infrastructure designed to detect gravitational waves with unprecedented sensitivity. Beyond fundamental science, it drives technological spill overs in areas such as photonics, precision engineering and data analytics.	EuroHPC is a European public private initiative developing world class supercomputing, AI and quantum computing infrastructure. Flanders participates via Belgian contributions and the EuroCC Belgium competence centre, facilitating access for researchers and industry.
Why?	It provides the overarching economic and innovation framework guiding major investment choices and reforms to safeguard long-term prosperity and welfare in Flanders.	NanoIC anchors Flanders as a core region in Europe's strategic semiconductor ecosystem and strengthens Europe's technological sovereignty.	They speed up industrial decarbonisation while maximising leverage and limiting distortive subsidy effects.	It enhances strategic autonomy while creating new industrial and innovation driven growth trajectories.	It represents a potential scientific and economic game changer, comparable to CERN in earlier decades.	It is essential for Europe's digital and technological sovereignty and underpins innovation in AI, climate modelling, health and advanced industry.
Duration	2024–2029 (current legislative period)	Starting in 2024; long-term research and innovation infrastructure	Pilot contracts with a duration of up to 10 years	2025–2029	Preparatory phase until around 2027; construction and operation from the mid 2030s onwards	Multiannual EU programme (current phase 2021–2027)
Key actors	Flemish Government, Department WEWIS, VLAIO, VESOC (Flemish Economic and Social Consultative Committee), VARIO, ECOOM, Voka, Unizo	imec, Flemish Government, European Commission, industry partners (including ASML), universities and research institutes	VLAIO, VITO, Flemish Government, participating industrial companies	Flemish Government, Department WEWIS, VLAIO, defence and technology companies, research organisations, European partners	Flemish Government, FWO, universities, international partners (NL, DE), European research organisations	European Commission, Member States, Flemish Government, EuroCC Belgium, research organisations and companies
Investment (€)	No single dedicated budget; the Flemish Acceleration acts as an overarching policy framework that aligns and pools existing and new investments within the Flemish budget for the 2024–2029 period. Its concrete implementation is translated through, among others, the Flemish Industry Plan, R&D funding instruments, and strategic infrastructure projects (amounting to several billions of euros, but spread across different policy lines).	Approximately €2.5 billion (combined public–private investment from Flanders, the EU and industry). The Flemish contribution amounts to €750 million .	€70 million for the first Flemish pilot call, spread over a 10 year period. In addition, a political commitment has been made to make €2 billion available, spread over 10 years (e.g. €200 million per year from 2029 for 10 years).	› Flemish Defence Fund: up to €1 billion in strategic capital › VISD innovation budget: annual growth path up to ± €50 million per year by 2029	A political commitment has been expressed for €500 million from Flanders ; estimated total project cost of ± €1.7 billion at international level .	Approximately €7 billion at EU level (joint EU and national funding). In addition, an investment decision of the Flemish Government of over €20 million was taken in 2025.
Broader theme	Productivity, competitiveness, economy and innovation policy	Key enabling technologies, micro electronics, digital sovereignty	Climate transition, industrial innovation, energy policy	Security, defence, innovation, strategic autonomy	Large scale research infrastructures, fundamental science, advanced technologies	Digital infrastructure, AI, data intensive research

2.4
Balancing excellence, valorisation and diffusion

A defining feature of the Flemish STI policy orientation is the continued commitment to **excellence in fundamental and strategic research**. High-quality research is recognised as the indispensable foundation for future innovation and long-term societal progress.

At the same time, stronger emphasis is placed on **knowledge valorisation and diffusion**. Policy initiatives seek to:

- › improve the translation of research results into economic and societal applications;
- › reduce bottlenecks between research, innovation and market deployment;
- › ensure that innovation benefits reach a broad range of actors, including small and medium-sized enterprises and innovation-followers.

This balance between excellence and impact is reflected in support for strategic research centres, collaborative research with industry, innovation ecosystems and knowledge transfer mechanisms, while maintaining open competition and international peer review standards.

2.5
International openness and strategic autonomy

Flemish STI policy remains firmly embedded in an **open and international research and innovation system**. Participation in European and international programmes, networks and partnerships is a cornerstone of the policy, enabling critical mass, international visibility and access to global knowledge flows.

At the same time, recent policy documents highlight a growing focus on **strategic autonomy and resilience**. Without moving towards protectionism, Flanders seeks to reduce excessive dependencies in key technologies, value chains and infrastructures, and to strengthen its role within European strategic initiatives.

In this context, STI policy serves a dual purpose: anchoring Flanders in global knowledge networks, while contributing to a more resilient and competitive European innovation and industrial ecosystem.

2.6
Enabling and cross cutting drivers of STI policy

Beyond thematic priorities, Flemish STI policy is shaped by a number of **cross cutting enabling drivers** that attract substantial public investment and determine system performance.

The **Productivity and Competitiveness Agenda** acts as an overarching steering framework that aligns STI investments with industrial, digital, energy, infrastructure and talent policies. STI initiatives are increasingly assessed on their contribution to productivity, diffusion and economic impact, supported by the systemic analysis of the R&D&I system.

Strategic research and innovation infrastructure constitutes a major investment area. Projects such as the **Einstein Telescope candidature** and investments in **European digital and AI infrastructure** are framed as long term assets for excellence, valorisation and industrial participation.

Human capital development – through STEM education, digital skills and lifelong learning – is treated as a core enabling condition for STI impact. Initiatives to strengthen innovation culture and societal engagement complement formal education and training.

Strategic infrastructure, notably **ports and logistics hubs**, is increasingly positioned as an innovation platform for energy transition, industrial decarbonisation and smart logistics, attracting significant public and private investment.

Finally, growing attention is paid to **knowledge security and economic resilience**, addressing risks related to sensitive technologies, dual use research and foreign investment, while maintaining openness and international collaboration. European initiatives and funding mechanisms are actively leveraged to reinforce this approach.

2.7
Smart specialisation and innovation ecosystems

Smart specialisation constitutes a core organising principle of Flemish STI policy. In line with the European Smart Specialisation Strategy (S3) framework, Flanders focuses its public investments in research and innovation on domains where **scientific excellence, industrial strength and societal challenges converge**, while maintaining openness and flexibility for emerging opportunities.

Rather than a narrow sectoral selection, smart specialisation in Flanders is conceived as an **ecosystem oriented approach**. It builds on existing competencies, dense innovation networks and strong interactions between research organisations, companies and public authorities. This approach is explicitly embedded in broader economic and industrial policy objectives, notably productivity growth, competitiveness and strategic autonomy.

From sectoral focus to ecosystem logic

Over successive policy periods, Flemish smart specialisation has evolved from a largely sector based orientation towards a **cross cutting, mission aware ecosystem approach**. This evolution reflects the recognition that innovation increasingly takes place at the intersection of technologies, sectors and value chains.

Strategic domains such as digital technologies, advanced manufacturing, health and life sciences, climate transition, circular economy and bio economy are therefore not treated as isolated silos. Instead, policy focuses on enabling collaboration across domains, for example between digital technologies and manufacturing, or between biotechnology, health and sustainable food systems.

This ecosystem logic is reinforced through instruments that stimulate cooperation, pre competitive research and collective knowledge creation, while also supporting valorisation and diffusion towards a broad range of enterprises, including SMEs.

Spearhead clusters as smart specialisation vehicles

A key operational pillar of smart specialisation in Flanders is the policy on **spearhead clusters**. These clusters bring together companies, research organisations and other stakeholders around shared innovation agendas in strategically important domains.

Under the current legislative period, cluster policy is being further refined to:

- › strengthen its mission oriented character, in line with climate, productivity and societal objectives;
- › enhance international positioning and European embedding;
- › ensure stronger alignment with STI policy, industrial transformation and skills development.

Clusters function as platforms for collective research, innovation projects, ecosystem building and international collaboration, and play a central role in translating smart specialisation priorities into concrete action. (See chapter 4)

Territorial dimension and regional ecosystems

While Flanders is a relatively small and highly integrated innovation region, smart specialisation also has a **territorial dimension**. Regional and provincial ecosystems build on local strengths, industrial legacies and knowledge infrastructures, while remaining connected to the broader Flemish and international innovation system.

Investment companies and development actors at regional level contribute to this territorial anchoring by supporting campus development, incubators and innovation driven regeneration of former industrial sites. This reinforces place based innovation without fragmenting the overall STI strategy.

Alignment with European policy and funding

Flemish smart specialisation is closely aligned with European policy frameworks and funding instruments. Participation in **ERDF programmes, IPCEIs, Horizon Europe** partnerships and other European initiatives strengthens both financial leverage and strategic positioning.

Smart specialisation thus functions not only as a regional prioritisation instrument, but also as a gateway for international collaboration and European integration of Flemish innovation ecosystems.



3

Monitoring, reporting and evaluation of R&D&I policy

Monitoring and reporting are integral components of Flemish STI policy. They support evidence based policymaking, ensure transparency on public investments and provide insights into the performance and impact of the R&D&I system.

Rather than focusing exclusively on input indicators such as expenditure levels, current monitoring practices increasingly emphasise **system performance, outcomes and impact**, in line with the productivity oriented policy framework.

Evidence based policymaking and system monitoring

The Flemish Government systematically monitors its STI policy through a combination of administrative data, statistical indicators and analytical studies. A central role is played by the **systemic analysis of the Flemish R&D&I system**, which assesses how research and innovation contribute to productivity growth, competitiveness and societal value.

This analysis serves multiple purposes:

- › identifying strengths and bottlenecks in the innovation system;
- › supporting policy prioritisation and rationalisation;
- › informing budgetary and expenditure reviews;
- › strengthening coordination across policy domains.

Monitoring frameworks are periodically refined to reflect new policy objectives, emerging technologies and evolving societal challenges.

Reporting at Flemish, European and international level

Flemish STI policy is embedded in a multi level governance context. As a result, reporting takes place towards:

- › the Flemish Parliament and Government;
- › the federal level (where relevant);
- › European institutions, notably in the context of the European Semester, Horizon Europe and cohesion policy;
- › international organisations such as the OECD.

These reporting processes ensure comparability, accountability and international benchmarking, while also allowing Flanders to position itself as a mature and transparent innovation system.

Role of FRIS and data transparency

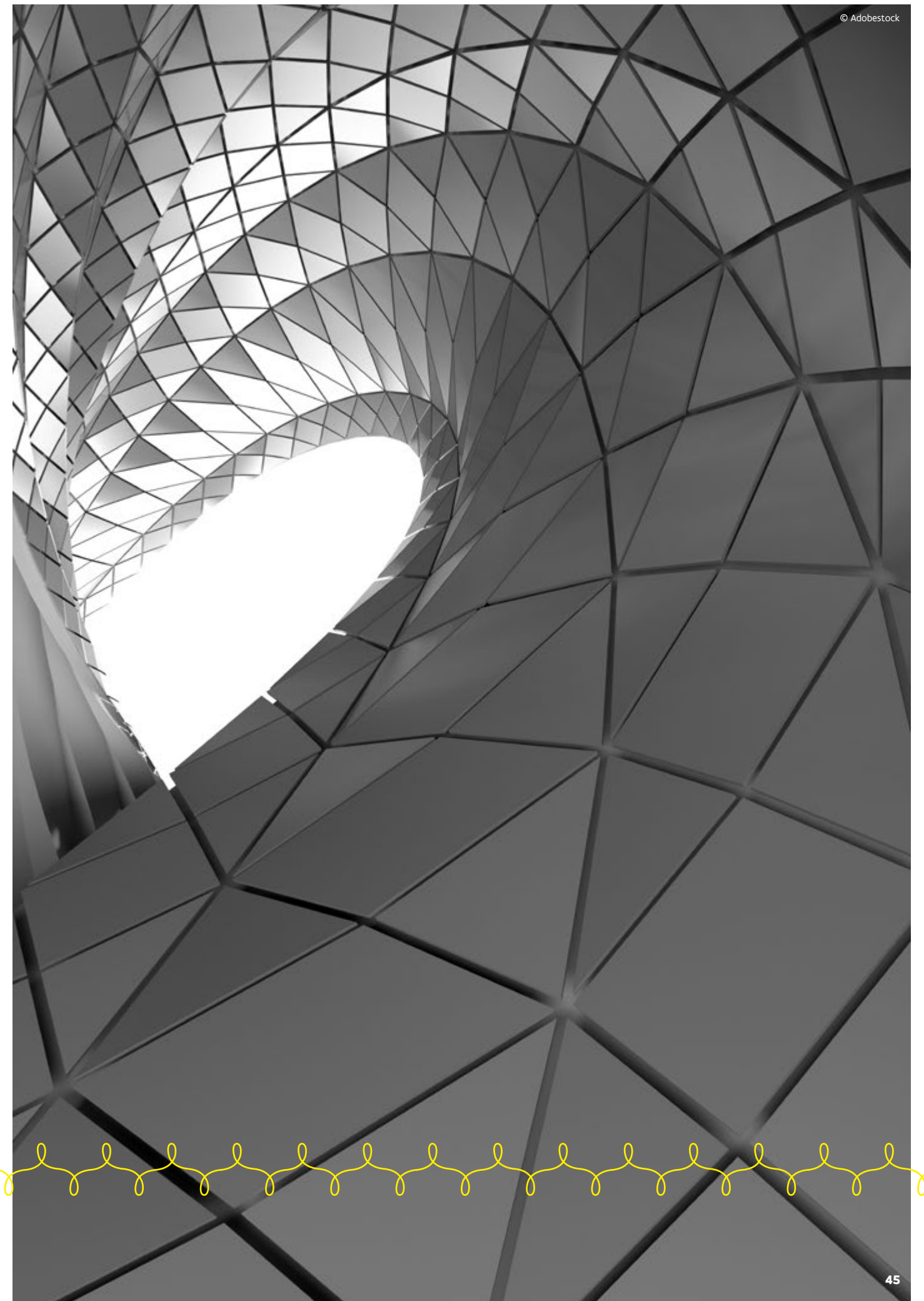
The research portal Flanders Research Information Space (FRIS) plays a central role in improving transparency and accessibility of data on publicly funded research and innovation. FRIS provides structured information on research organisations, projects, infrastructures and funding streams. See Chapter 3.

By enhancing data availability and interoperability, FRIS supports:

- › policy monitoring and evaluation;
- › strategic analysis at system level;
- › evidence based dialogue with stakeholders;
- › international visibility of the Flemish research and innovation landscape.

Evaluation of instruments and organisations

In addition to system level monitoring, Flemish STI policy includes regular evaluations of policy instruments and publicly funded organisations. These evaluations assess effectiveness, efficiency, relevance and coherence, and underpin decisions on continuation, adaptation or reform of funding mechanisms.



CHAPTER 3

RESEARCH ORGANISATIONS

1

Higher education institutions¹

1.1

University associations

The backbone of the output generated by Flanders’ academic and other knowledge actors is shaped by the 5 university associations. These associations each bring together one of the universities with one or more universities of applied sciences and arts. Universities of applied sciences and arts provide higher education and advanced vocational training, and their mission includes research and the provision of other services to society. The bachelor qualification in almost all the disciplines is the highest obtainable at the universities of applied sciences and arts, with the exception of the master in nautical science that can be obtained at the Hogere Zeevaartschool and the master in arts which can be obtained in their schools of arts. The master diplomas (and higher) in all other disciplines remain the preserve of the universities.

- The 5 university associations of the Flemish Community are:
- **AUHAntwerp:** UA and 3 universities of applied sciences and arts in the city of Antwerp
 - **UABrussels:** VUB and 1 university of applied sciences and arts in Brussels
 - **AUGhent:** UGent and 3 universities of applied sciences and arts, in 2 provinces East-Flanders and West-Flanders
 - **AKU Leuven:** KU Leuven and 5 universities of applied sciences and arts spread throughout all of Flanders
 - **AUHLimburg:** UHasselt and 1 university of applied sciences and arts PXL

Universities and universities of applied sciences and arts each have their organisation that promotes dialogue and cooperation amongst them and defends their interests in a concerted way. Universities are united in **VLIR** (Flemish Inter-University Council), while the universities of applied sciences and arts are united in **VLHORA** (Council of Flemish Universities of Applied Sciences and Arts).

ASSOCIATIE KU LEUVEN

ASSOCIATIE KU LEUVEN (AKUL)
Katholieke Universiteit Leuven and the 5 universities of applied sciences and arts: Odisee, LUCA Schools of Arts, Thomas More, UC Leuven Limburg and Vives Hogeschool.
www.associatie.kuleuven.be

ASSOCIATIE UNIVERSITEIT GENT

ASSOCIATIE UNIVERSITEIT GENT (AUGENT)
Universiteit Gent and the 3 universities of applied sciences and arts: Arteveldehogeschool, Hogeschool Gent (HoGent), Hogeschool West-Vlaanderen (Hwest).
www.augent.be

ASSOCIATIE UNIVERSITEIT & HOGESCHOLEN ANTWERPEN (AUHA)

ASSOCIATIE UNIVERSITEIT & HOGESCHOLEN ANTWERPEN (AUHA)
Universiteit Antwerpen and the 3 universities of applied sciences and arts: Artesis Plantijn Hogeschool Antwerpen (AP), Hogere Zeevaartschool and Karel de Grote Hogeschool.
www.auha.be

UNIVERSITAIRE ASSOCIATIE BRUSSEL (UAB)

UNIVERSITAIRE ASSOCIATIE BRUSSEL (UAB)
Vrije Universiteit Brussel and the university of applied sciences and arts: Erasmushogeschool Brussel.
www.universitaireassociatiebrussel.org

ASSOCIATIE UNIVERSITEIT-HOGESCHOOL LIMBURG (AUHL)

ASSOCIATIE UNIVERSITEIT-HOGESCHOOL LIMBURG (AUHL)
Universiteit Hasselt and the university of applied sciences and arts: Hogeschool PXL.
www.auhl.be

1.2

Universities and universities of applied sciences and arts

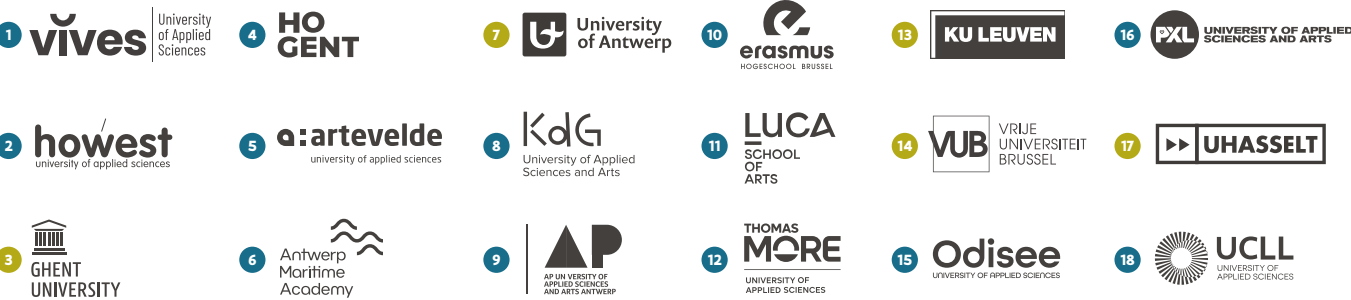
The universities play a major role in (the output of) Flemish R&D. The universities generate almost 90% of all non-private scientific output in Flanders.

The **five universities** of the Flemish Community are:

- Katholieke Universiteit Leuven (**KU Leuven**);
- Universiteit Gent (**UGent**);
- Universiteit Antwerpen (**UA**);
- Vrije Universiteit Brussel (**VUB**);
- Universiteit Hasselt (**UHasselt**);

And the **thirteen universities of applied sciences and arts** of the Flemish Community are:

- Artesis Plantijn Hogeschool (**AP Hogeschool**)
- Arteveldehogeschool
- Erasmushogeschool Brussel (**EhB**)
- Antwerp Maritime Academy (**AMA**)
- Hogeschool Gent (**HoGent**)
- Hogeschool PXL (**PXL**)
- Hogeschool West-Vlaanderen (**Hwest**)
- Odisee co-hogeschool (**Odisee**)
- Karel de Grote Hogeschool (**KdG**)
- UC Leuven-Limburg (**UCLL**)
- VIVES Hogeschool (**VIVES**)
- Thomas More
- LUCA School of Arts (**LUCA**)



1.3

Funding

The Flemish Government’s department Education and Training grants the following budgets:

- A **basic allowance for the universities** amounting to 1,076.77 million euro in 2023, of which 285.9 million euro allocated for R&D-related initiatives. Additionally, the universities received 97,3 mio€ **supplementary research funding**, for their demand-driven fundamental and applied research in 2025.
- The **basic allowance for universities of applied sciences and arts** was in 2025 only 36,5 mio€ for their practice-oriented research and 25,5 mio€ **supplementary research funding**, for their academic and demand-driven fundamental research.
- support granted on a **competitive** basis;
- a variety of (project-based) external (private) sources, donations, income from IPR, etc.

1.3.1

Competitive funding

The **Research Foundation Flanders** (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO) and the subsidy **Special Research Fund** (Bijzonder Onderzoeksfonds, BOF) mainly support academic fundamental and basic research. Both have an array of different types of funding to do so. Two complementary programmes are aimed at attracting (Odysseus, FWO) and retaining (Methusalem, BOF) top researchers. FWO support is granted based on competition between the different universities and other research institutes in Flanders, while BOF support is a performance-based research funding system of which the funds are allocated to the Flemish universities only based on fixed competitive parameters.

¹ For more information, visit www.studyinlanders.be

The agency **Flanders Innovation & Entrepreneurship (VLAIO)** and the subsidy **Industrial Research Fund** (Industriële Onderzoeksfonds, IOF) mainly support economic beneficial industrial and applied research. VLAIO support is granted on a competitive basis, to a range of research institutes whereby applications are evaluated on several criteria and the collaboration and benefit with companies is a prerequisite. VLAIO also provides support at academic level for research conducted at the request of companies; for example, through innovation mandates for postdoc's and Baekeland mandates for PhD research in collaboration with a company. VLAIO supports a limited number of large-scale and ambitious spearhead clusters, to develop and implement an ambitious long-term strategy and competitiveness programme for the chosen Flanders strategic domains, in collaboration with companies, knowledge centres and the government (triple helix).

The IOF support is a targeted subsidy for applied and strategic basic research, allocated to the associations of universities and universities of applied sciences and Arts based on fixed valorisation criteria and intra-association competition.

Extra support is provided and aimed at further strengthening academic working conditions and research excellence, e.g. through the research infrastructure programme at FWO. VLAIO supports research infrastructure for the practice-oriented research at the Flemish universities of applied sciences and Arts

The **major budget sources** for 2025 were:

- › FWO (427 million euro), of which 81.97 million euro for strategic basic research including doctoral grants, clinical research 20.09 million euro and 33.34 million euro for research infrastructure;
- › BOF (247.53 million euro);
- › Industrial research funds (IOF) and interface activities (70.187 million euro).

1.3.2
Private funding and income

Higher education institutions also receive support from private partners (to conduct contract research), donations and bequests from private persons or institutes.

Funding sources of commercialising research results, setting up spin-offs, contract research with private and public partners and license income from patents has also increased in recent years.

1.3.3.
Public funding beyond Flanders

Funding via the Belgian federal authorities, other Flemish public bodies and the EU (mainly through the consecutive Framework programmes for Research and Technological Development (currently Horizon Europe 2021-2027), and to a limited extent from other EU programmes such as ERDF-Interreg.

1.3.4
Tech transfer activities of the associations

See TTO-Flanders – the Five Knowledge and Technology Transfer offices of the five associations of universities and university colleges in Flanders. See further in this chapter.

1.3.5
Flanders Research Information Space

FRIS

Researchportal.org

All information on publicly funded research conducted at Flemish research institutions is available through the **Flanders Research Information Space (FRIS)** research portal: www.researchportal.be.

FRIS provides comprehensive data on researchers, research organisations, publications, projects, patents, research infrastructures and datasets.

The FRIS Research Portal offers a unique, transparent view of publicly funded research in Flanders. It serves as a valuable source for reporting, analysis and statistical insights. This enables the government to develop stronger policies and respond more effectively to societal trends. The open data made available through FRIS—retrievable via open web services—is also used by many institutions and companies to enrich their own information systems.

FRIS aims to bring researchers closer together, stimulate interdisciplinary collaboration, enable networking, and shorten the innovation chain by helping users -institutions and companies- to find domain experts.

Thanks to direct integrations with the systems of the participating scientific institutions, the portal always reflects the most up to date information: changes made in a research organisation's database are immediately visible in FRIS.

Information on researchers, research groups, publicly funded projects, publications, patents, research infrastructures and datasets is openly accessible to everyone. FRIS also connects at the European level through its links with **OpenAIRE**, the **European Open Science Cloud (EOSC)** and within the **euroCRIS** community as a frontrunner.

Looking ahead, FRIS is integrating with more referential sources as funders and registries. The goal is to function as a source of truth on the one hand and to simplify the reporting process for researchers by automatically sending relevant data already available in FRIS to funders' reporting tools at the other hand.

At the same time, FRIS is exploring how AI technologies can provide additional services to research institutions, individual researchers and the wider public.



© Shutterstock

2

Strategic research centres

Flanders aims to be a front-runner in the European knowledge society and economy by continuing to build on and utilize its existing knowledge base and by increasing its innovation potential. Apart from the universities, the leading Flemish research and innovation actors are the **four strategic research centres** (SRC, or 'Strategische Onderzoekscentra' (SOC) in Dutch), sometimes referred to as public research organisations (PRO). Each of the centres is active in a specific research area and they have co-founded several spin-off or start-up companies, often based on breakthrough research.

FLANDERS MAKE

Industry 5.0

- › Research centre for industrial innovation, driving product and production innovation with direct industrial impact
- › 1,100+ researchers and 200+ companies collaborating in an industry-driven ecosystem delivering implementable solutions
- › Close collaboration with the five Flemish universities and strong integration of academic and industrial research
- › Sector–technology approach across 8 sectors and 8 technology domains, developing reusable building blocks for cross-sector applications
- › Focus on the full value chain, enabling strong synergies, faster implementation and maximum impact for members and partners
- › High-tech research infrastructure for testing and validating products, machines and production systems in realistic industrial environments
- › **€134 million revenue in 2025**

www.flandersmake.be



Chip-driven innovation

- › The **world's leading independent nanoelectronics R&D center**
- › Over 6,500 brilliant and curious minds from over 100 nationalities
- › Headquartered in Leuven, Belgium with offices worldwide
- › **€1,216 billion revenue in 2025**

www.imec-int.com

The Flemish Government concludes with each of these SRC a multi-annual management agreement including key performance indicators, in return for an annual grant. In addition, some SRC receive a grant for the execution of reference tasks on behalf of the Flemish government. The total budget from the Flemish Government for the 4 SRC reached 371,442 million euro in 2025. The amount of public support for imec alone is 157 million in 2025, which makes it the biggest funding from the Flemish Government awarded to any knowledge institute.



Biotechnology

- › Independent research institute doing cutting edge research on molecular mechanisms of life, from microorganisms to plants and human beings
- › 2,050 scientists from 78 countries
- › **Close collaboration** with Flemish universities and businesses **to bridge the gap** between **scientific research** and **entrepreneurship**
- › Achieved major biotech breakthroughs
- › **€163.6 million turnover in 2025**

www.vib.be



Cleantech

- › Science-to-technology partner translating scientific insights into innovations, data-driven solutions and policy advice
- › Accelerates the transition to a future-proof, safe and sustainable world
- › 1,400 multidisciplinary employees with strong scientific expertise
- › Focus on circular industry, resilient societies and a healthy living environment
- › Active in circularity, energy, water, climate, health and security
- › International reach with activities in 65+ countries and strong public-private partnerships
- › **€310 million annual revenue in 2025**

www.vito.be

2.1 IMEC



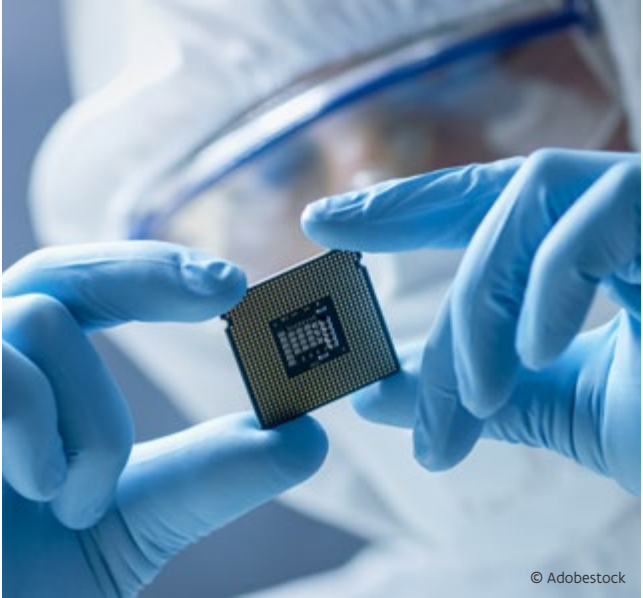
Chip-driven innovation

As the world's trusted leader in chip-driven innovation, imec pioneers, scales and delivers advanced technology solutions. By driving the progress in chip R&D – the foundation of today's digital society – imec builds the hardware for tomorrow's AI-driven era. By making chips smaller, faster, more affordable, and more sustainable, imec enables applications that transform how people live, work, move, learn, and stay healthy. From the chips in your smartphone and laptop to the innovations changing computing, health, automotive, industry, consumer electronics, aerospace and security: imec is building the future.

Imec unites expertise from multiple scientific disciplines and industry partners around imec's globally recognized research environment to develop the systems, architectures, and application technologies that will shape tomorrow. Through its service organisation IC-Link, imec guides companies through every step of the chip journey - from initial concept to full-scale manufacturing - delivering customized solutions tailored to meet the most advanced design and production needs.

Imec employs over 6,500 brilliant and curious minds from over 100 nationalities. It is headquartered in Leuven (Belgium) and has research facilities in Belgium, across Europe, the USA and the GCC region, and representation on three continents. **In 2024, imec's revenue (P&L) totaled 1,03 billion euro, of which 120 million euro from the Flemish Government.**

The imec campus in Leuven (Belgium) consists of 24,400m² of office space, laboratories, training facilities, technical support rooms, and 2 cleanrooms which run a semi-industrial operation (24/7). There is a 300mm cleanroom that focuses on advanced R&D, a 200mm cleanroom for R&D, development-on-demand, prototyping and low volume manufacturing of innovative technology solutions for smart applications including sensors, actuators, MEMS, advanced RF, life sciences technologies, silicon photonics, ...



Imec has unique laboratories for bioelectronics research, life sciences labs, state-of-the art tools for materials characterization and reliability testing, dedicated labs for sensor and imaging technologies, silicon photonics, ...

2.1.1 Imec's research

Imec's research covers various aspects of nanoelectronics such as advanced semiconductor scaling, silicon photonics, low power sensing and actuating, radar and radio technology, and digital technologies including data science and AI. By bringing the largest semiconductor ecosystem together around unique state-of-the-art R&D infrastructure, imec builds on complementary strengths to ensure fast, scalable and sustainable innovation.

Among its fields of expertise:

- › CMOS and beyond CMOS technologies
- › Integrated photonics
- › Health technologies
- › Sensing and actuation
- › Connectivity
- › Compute system architecture
- › Energy technologies
- › Artificial intelligence

Imec was founded in 1984 as a non-profit organisation led by Prof. Roger Baron Van Overstraeten. It is supervised by a Board of Directors, which includes delegates from industry, Flemish universities and the Flemish Government. Since 1984, imec has been led by Roger Van Overstraeten, Gilbert Declerck (as of June 1999), Luc Van den hove (as of July 2009) and Patrick Vandenameele (as of April 2026).

2.1.2
Imec’s venturing initiatives

Imec offers an ecosystem of tailored venturing support to give new start-ups and entrepreneurs a head-start on their road to market. Imec has a long history of launching start-ups and supporting innovative ideas. Imec already launched over 120 spin-offs since its foundation in 1984.

Imec’s business accelerator program, imec.istart, offers selected start-ups an initial financial injection (50,000 EUR pre-seed funding), professional coaching and mentoring, access to technology and working facilities, access to its network of partners and investors. Since its launch in 2011, the imec.istart portfolio has over 350 startups and scaleups in diverse fields, ranging from multimedia and logistics to the healthcare sector, to develop into sustainable ventures. In 2023, imec.istart was granted first place in the ‘Top University Business Accelerators’ ranking by UBI Global. Imec.istart is currently active in Belgium, The Netherlands and Italy.

Imec.ventures is imec’s deep tech venture creation and development engine. Its role is to turn breakthrough semiconductor and hardware based technologies into scalable companies, leveraging imec’s research, IP, infrastructure, and ecosystem with hands on venture building and access to capital.

Imec.xpand is a venture capital fund initiated by imec, investing in innovative semiconductor and hardware research spinouts and startups. Imec.xpand is an independently managed, game-changing way to enable early-stage nanoelectronics-based innovation powered by imec, the world-leading R&D hub for nanoelectronics and digital technology.

2.1.3
Leveraging expertise to excel

Imec partners with other research leaders in the region to combine and leverage expertise and drive innovation and position our region as a leader in a specific research domain.

Holst Centre, set up in 2005 by imec and TNO (The Netherlands), is an independent research and innovation center, aiming at responding to the global societal challenges of tomorrow. Supported by local, regional and national governments, Holst Centre is located on High Tech Campus Eindhoven, benefiting from, and contributing to, the state-of-the-art on-site facilities. Holst Centre employs more than 200 employees from 28 nations.

EnergyVille was set up by imec, KU Leuven, VITO, and UHasselt to perform research into sustainable energy and intelligent energy systems. EnergyVille employs more than 700 researchers whose work centers around six interdisciplinary domains: photovoltaics, electrical and thermal storage, power control and conversion, electrical and thermal networks, buildings and districts, strategies and markets.

Solliance Solar Research was founded in 2010 as a joint venture between the Dutch TNO, the Belgian imec and ECN (the Energy research Centre of the Netherlands, that became a part of TNO since 2018. Together with the industrial and academic partners Solliance Solar Research plays a leading role in the worldwide research and development of thin-film solar technology.

OnePlanet Research Center is a Dutch innovation center for Food, Health and Agricultural Technology. It was launched in 2019 as a collaboration between imec Radboud University, Wageningen University & Research (WUR) and the academic hospital Radboudumc focusing on the development of sustainable technologies for food, health and agriculture.

2.2
VIB



Biotechnology

VIB is a leading life sciences research institute with an entrepreneurial mindset, bringing together a dynamic, multidisciplinary, and international community of more than 1,900 scientists. Driven by curiosity, its researchers explore the fundamental building blocks of life—from molecules and cells to complex biological systems in humans, animals, plants, and microorganisms. Through close partnerships with Flemish universities and supported by a strong structural funding framework, VIB creates an integrated environment where scientific excellence and collaboration thrive.

At the core of VIB’s mission is the belief that groundbreaking innovation starts with fundamental insight. By continuously investing in advanced technologies, data platforms, and AI capabilities, VIB enables its scientists to push the boundaries of knowledge and address some of today’s most pressing challenges in health, agriculture, and sustainability.

VIB actively translates scientific discoveries into tangible societal impact. Through its innovation and business activities, new insights evolve into patents, strategic partnerships, and spin-offs that bridge the gap between laboratory research and real-world applications. These efforts lead to novel diagnostics, therapies, and agricultural solutions, while also contributing to economic growth, job creation, and a resilient biotech ecosystem.

Beyond research and innovation, VIB plays an active role in the public debate on biotechnology by developing and sharing science-based information, fostering dialogue, and strengthening trust between science and society.

Over the years, VIB has contributed to major advances across fields such as cancer biology, immunology and inflammation, neuroscience, microbiology, and plant systems biology. The institute also supports a vibrant innovation landscape through its bio-incubators and accelerators, primarily in Ghent and Leuven. In 2025, VIB’s total income amounted to 193.08 million euro, of which 49% came from public funding.



2.2.1
VIB’s research

VIB consists of 9 thematic research centers with a total of 101 research groups performing pioneering research at the campuses of the partner universities.

- › VIB-KU Leuven Center for Neuroscience
- › VIB-KU Leuven Center for Cancer Biology
- › VIB-KU Leuven Center for Microbiology
- › VIB-UAntwerp Center for Molecular Neurology
- › VIB Center for Inflammation Research
- › VIB-UGent Center for Medical Biotechnology
- › VIB-UGent Center for Plant Systems Biology
- › VIB-VUB Center for Structural Biology
- › VIB.AI: Center for AI & Computational Biology

VIB’s strength lies in its ability to combine world-leading expertise with cutting-edge core facilities, enabling research at a scale and level of sophistication that goes beyond individual labs. This integrated approach allows scientists to study life across multiple levels—from organisms and organs to cells, molecules, and atomic structures.

Addressing the complex questions of modern life sciences requires a multidisciplinary and multiscale perspective. VIB fosters this by bringing together diverse talent from different scientific and cultural backgrounds and by encouraging researchers to think beyond traditional boundaries. Curiosity-driven exploration remains the engine of discovery, with each new insight opening the door to further questions and opportunities.

2.2.2
VIB's tech transfer activities

While research forms the basis of scientific knowledge, transferring the research results to the marketplace is of equal importance to VIB. The Innovation & Business team ensures that research results are translated into tangible products and services that find their way to patients and consumers. Financial return from tech transfer activities is reinvested in VIB's basic research programs.

Translating scientific findings into drugs for patients or products for consumers is a long and costly process, requiring skills, expertise and financial means that exceed VIB's resources. To bridge this gap, VIB has established partnerships with several companies. Additionally, VIB's Discovery Sciences team specifically bridges the gap between promising targets to the commercial development of products, de-risking the initial investments of interested industry partners.

To fuel economic growth and accelerate the translation of VIB's research into actual products, investment in the establishment of new start-up companies is of the utmost importance. So far, VIB has been involved in creating over 30 new companies in fields such as therapeutics, diagnostics, agrotech, food, and animal health, employing around 1,000 people.

Biotech companies need appropriate infrastructure to carry out their work. VIB has invested in three bio-incubators in Ghent and Leuven, as well as three bio-accelerators in Ghent. These bio-incubators now house 43 companies with 680 employees. Ghent is also home to three bio-accelerators which allow small companies to accelerate their development into key players. Currently, 12 companies are located in these accelerators.

2.2.3
Investing in cutting-edge technology

Science and technology are inextricably intertwined. The development of new technologies often leads to breakthroughs in scientific research. VIB Technologies, which consists of Tech Watch and Core Facilities, ensures that its scientists have early access to a wide range of state-of-the-art technologies. Staying at the forefront in research also means staying on top of developments on the technology front. Tech Watch team continuously scouts for novel technologies of potential interest to VIB and, when appropriate, mediates early access to these disruptive technologies through partnerships with cutting-edge technology providers.

VIB believes in an integrated approach to the various 'omics' domains. This approach opens perspectives to gain more focused insights into the molecular blueprint of many development and disease processes. However, it requires a techno-scientific expertise that is impossible to create within one research group.

VIB has recognized this trend and made substantial investments in embedding high-tech platforms in the institutional core and service facilities. In consultation with Tech Watch team several leading-edge technology platforms have been implemented. VIB's core and service facilities do not only provide their high-tech equipment and expertise to researchers within the institute; they also reach out to scientists from academia and industry. A recent evaluation by an international expert panel has confirmed the status of VIB's core facilities as 'gold standard' in Europe.

In addition, VIB Technology Training offers comprehensive courses that equip researchers with hands-on experience using a variety of tools and methods, enabling them to overcome any challenge.

The recent introduction of VIB Spatial Catalyst has further enhanced VIB Technologies' offerings. This initiative has made spatial technologies more accessible by pooling expertise from across the institute and providing data analysis and software development support. This holistic approach ensures that researchers have all the resources they need to maximize the benefits of spatial technologies in their work.



2.3
VITO



Cleantech

VITO is a leading independent research organisation and science-to-technology partner in the field of cleantech and sustainable development in Flanders. It supports companies, governments and society by translating scientific insights and technological advances into practical innovations, data-driven solutions and evidence-based policy advice.

In a context of rapid technological change, climate pressure and geopolitical challenges, VITO helps shape the transition towards a future-proof, safe and sustainable world. By combining deep scientific expertise with industrial applicability, VITO develops solutions that are scalable, economically viable and strategically relevant. In doing so, it strengthens the competitiveness of companies and supports governments in making informed strategic decisions.

VITO focuses on three key impact domains: circular industry, resilient societies and a healthy living environment. Within these domains, it develops and deploys solutions in areas such as circularity, energy, water, climate, health and security. Its activities range from advanced data and AI-driven insights to the development and validation of new technologies and systems.

With its interdisciplinary approach and extensive laboratory and pilot infrastructure, VITO de-risks innovation and accelerates the transition from research to real-world implementation. The organisation works in close collaboration with industry, governments and research partners, building integrated solutions across entire value chains.

VITO is strongly internationally oriented, with activities in more than 65 countries and collaborations with over 1,700 industrial partners and numerous research organisations worldwide. Through this systemic approach, it contributes to sustainable economic growth and societal resilience.

In addition to supporting established industries, VITO actively fosters innovation through venture acceleration, including technology transfer, spin-offs and support for start-ups. This enables new technologies to reach the market faster and contributes to the development of future-oriented industries.

In 2025, VITO employs around 1,400 people of diverse international backgrounds and generates an annual revenue of approximately €310 million.

2.4
Flanders Make

FLANDERS MAKE

Industry 5.0

Make is the strategic research centre for industrial innovation. Its mission is to strengthen the competitiveness and sustainability of industry by developing and transferring advanced technologies for products, machines and production systems of the future.

The centre brings together industry and academia in a collaborative research ecosystem, working closely with the five Flemish universities and a broad network of industrial partners. Through this model, Flanders Make connects excellent scientific research with concrete industrial needs, ensuring that research results translate into practical innovations with economic impact.

As a strategic research centre, Flanders Make plays a key role in supporting the digital and sustainable transformation of industry. By focusing on industry-driven research and long-term technological capabilities, it helps companies develop smart products, more efficient production systems and resilient industrial processes. Its 2025 revenue was 134 million euro of which 70,45 million euro of the Flemish Government.

2.4.1
Key competences

Flanders Make distinguishes itself through a strong **sector-technology approach** that aligns research activities with concrete industrial needs. Research agendas are defined in close collaboration with industry, combining a **pull-push dynamic**: industrial challenges guide research priorities while emerging technologies create new opportunities for innovation.

The research portfolio is structured across **eight industrial sectors and eight technology domains**. Within this framework, Flanders Make develops reusable technological building blocks that can be flexibly combined to address sector-specific challenges. This modular approach accelerates innovation while enabling efficient knowledge transfer across different industries.

By using a clear technology classification and a focus on the



full value chain, Flanders Make creates strong synergies between research programmes and industrial applications. This integrated approach facilitates faster implementation of new technologies and maximizes impact for member companies and research partners.

2.4.2
Research infrastructure

Flanders Make operates a distributed research infrastructure across several sites in Flanders, providing state-of-the-art laboratories and test environments. These facilities enable researchers and companies to develop, test and validate new technologies under realistic industrial conditions.

The infrastructure supports research in areas such as smart machines, advanced production systems, robotics, sensing technologies and digital engineering. Through pilot environments and demonstrators, companies can evaluate new concepts and reduce technological risks before implementation in industrial settings.

By combining specialised research facilities with strong academic collaboration and industrial involvement, Flanders Make provides a unique platform where scientific excellence and industrial relevance meet, accelerating the development and deployment of next-generation manufacturing technologies.

Today, Flanders Make has more than around 1100 researchers and over 200 company members.

3

Flemish scientific institutes

Within the Flemish Community, there are six scientific institutes, each managed by a department of the Flemish Government. These perform scientific research in a specific policy field. Apart from building up and diffusing the knowledge gained from scientific research, the institutes also provide advice and assistance to policy-makers, as well as services to society as whole. Furthermore, they strive to develop and exchange their knowledge through international contacts or programmes and via cooperation with other (foreign) institutes, e.g. through membership of EU research networks.



The **Agency Botanic Garden Meise** (Agentschap Plantentuin Meise) is a scientific research institute, that operates as a centre of excellence for research into tropical and European botany, with a collection of over 18,000 species of plants and one of the largest herbaria in the world. It has been a part of the Flemish Community, following its de-federalisation in 2014, as an agency of the EWI domain.

ILVO

The **Flanders Research Institute for Agriculture, Fisheries and Food** (Instituut voor Landbouw, Visserij- en Voedingsonderzoek, ILVO) conducts research in four main areas: plant sciences (applied genetics, breeding, crop protection), animal sciences (functional nutrition), technology and food science (food safety) and social sciences; in many cases this research is conducted in collaboration with various international partners.

RESEARCH INSTITUTE
NATURE AND FOREST

The **Research Institute for Nature and Forest** (Instituut voor Natuur- en Bosonderzoek, INBO) conducts research on themes such as fauna, flora, biotopes, areas and regions, sustainable land and water use, with a focus on factors such as ecohydrology, acidification, pollution and climate change.



The **Royal Museum of Fine Arts Antwerp** (Koninklijk Museum voor Schone Kunsten Antwerpen, KMSKA) is charged with the care of a unique art collection, composed of mainly Flemish works, complemented with several pieces from other schools.



The **Flanders Heritage Agency** (Agentschap voor Onroerend Erfgoed, AOE) conducts research into the immovable heritage of Flanders (archaeology, monuments, landscapes), focusing on themes such as the restoration of historic gardens, sea wrecks, historic organs, parks, industrial and maritime heritage, etc.



Flanders Hydraulics (Waterbouwkundig Laboratorium), is a centre of expertise for research and advice on hydraulic, nautical, sediment-related and hydrological topics.



4

Other Flemish knowledge institutes

Apart from the aforementioned organisations, there exist a variety of other institutions and organisations in the public domain with activities that primarily focus on (scientific) data collection, research and/or knowledge generation. In most cases, they are mainly or to some extent supported by the Flemish Government. Some of these organisations play a prominent worldwide role in their field of activity.

The largest knowledge institutes include:



The **Flanders Marine Institute**, VLIZ (Vlaams Instituut voor de Zee): is renowned for supporting coastal and marine scientific research. It does so by offering an array of services for which scientists do not have the time or resources, but that are nevertheless essential for the success of scientific research. It operates the Simon Stevin vessel (the Flemish multidisciplinary coast research ship), manages the InnovOcean campus site and the Flanders Marine Data and Information Centre, which is active in international networks such as the IOC of UNESCO.. It also houses the European Marine Board and supports the European-level initiatives EMODnet and JPI Oceans. VLIZ has been instrumental in supporting knowledge brokerage for the benefit of the Blue Economy in Flanders, where the new spearhead cluster 'Blue Cluster' is catalysing innovation projects among its industrial membership.



The **Institute for Tropical Medicine**, ITM (Instituut voor Tropische Geneeskunde, ITG): is one of the world's leading institutes for training, research and support of tropical medicine and health care in developing countries, providing (reference) clinical services for the management of tropical diseases. ITM hosts many international reference laboratories and is an expert centre on HIV.



The **Antwerp Zoo Centre for Research and Conservation** (CRC): is the research department of the Royal Zoological Society of Antwerp (RZSA), conducting applied and fundamental hypothesis-driven conservation research in various zoological disciplines (e.g. veterinary sciences). Research takes place in Flanders, in zoos and associated institutions, as well as in Brazil, Cameroon and Congo (bonobo research).

Apart from the aforementioned institutions, the Flemish Government supports an array of different research centres, amongst which Orpheus Institute (artistic research into music) and the Alamire Foundation (interdisciplinary research into and valorization of music).



5

Institutes governed by other authorities

5.1 Federal authority

Belgium has **ten federal scientific institutions** (FSI), most of which are located in Brussels. They cover a wide variety of research activities and collections and include museums, libraries, weather and space observatories, as well as research institutes dealing with African culture, geology and public health. Some of these bodies not only perform research in specific fields of expertise, but also have a publicly orientated scientific mission. At the administrative level, they are managed by various policy fields and under the overall responsibility of the federal State Secretary for Science, as part of the Programmatic Public Service for Science Policy (BELSPO).

The federal scientific establishments have a **two-fold mission**: a scientific public service mission on the one hand (the development, maintenance and dissemination of scientific, technical and cultural information and documentation, collection conservation, etc.) and a research mission on the other hand (through research often conducted in partnership with the universities of the Flemish and/ or French Community). As such, these establishments interact with and enhance the scientific potential and outcome generated by the actors in the Flemish STI landscape, particularly the researchers in higher education institutions who are active in the same field of activity. The federal scientific institutes are:

- › the Belgian Institute for Space Aeronomy (BIRA);
- › the National Library of Belgium (KBR);
- › the Royal Belgian Institute of Natural Sciences (KBIN);
- › the Royal Institute for Cultural Heritage (KIK);
- › the Royal Meteorological Institute (KMI);
- › the Royal Museum for Central Africa (KMMA);
- › the Royal Museums of Art and History (KMG);
- › the Royal Museums of Fine Arts of Belgium (KMSK);
- › the Royal Observatory of Belgium (including the Planetarium) (KSB);
- › the State Archives of Belgium (RA).

In addition to these institutes, there also exist **federal partner institutions and other organisations subsidised by BELSPO** (for example, the University Foundation), whilst some of the federal scientific institutes report to other federal public services. E.g. in the field of health, Sciensano provides research and monitoring services on health-related risks in the broad sense (healthcare, animal health, environment, food safety, medications and vaccines...).

The Federal Government also has responsibility for two other research organisations, being **the National Institute for Radioelements (IRE)**, and the renowned **Belgian Nuclear Research Centre (SCK CEN)**.

sck cen

SCK CEN in Mol (Flanders) has been researching future reactor concepts for many years, including advanced Small Modular Reactors (SMRs).

In 2025, SCK CEN together with a number of international partners signed an agreement to further develop this technology. By 2034, SCK CEN wants to build the first Belgian demonstrator of a lead-cooled Small Modular Reactor: **LEANDREA**. This takes place within the **EAGLES programme**, an international collaboration with Ansaldo Nucleare (Italy), ENEA (Italy) and RATEN (Romania).

These are fourth-generation lead-cooled reactors that are also intended for the commercial market. The aim of the demonstrator is to pave the way for the commercial roll-out of this type of innovative nuclear reactor.

The European Industrial Alliance for Small Modular Reactors was established specifically to accelerate the development of small reactors in Europe.

SMR in a nutshell

- › **Small**: SMRs are super-compact, modular reactors that can produce not only electricity, but also heat and hydrogen.
- › **Modular**: Unlike traditional nuclear reactors, the components are mass-produced in factories and assembled at the chosen site. This also makes them flexible in energy production – in periods with sufficient electricity from wind and solar power, SMRs can be switched to produce hydrogen, for example.
- › **Reactor**: Small and modular, but above all a reactor where energy is produced by nuclear fission. For cooling the SMR demonstrator, SCK CEN chooses a lead-cooled version instead of the traditional water-cooled reactor.

www.sckcen.be

5.2

International institutions, organisations or platforms in the STI field

Apart from institutes related to or managed by the Government of Flanders and the Federal Government, there are also a few other EU or international institutions located in Flanders that collect scientific data or conduct research. Some of these receive funding or support from the Flemish Government.

Examples include:

- › the **EU Joint Research Centre (JRC)** known as the **Institute for Reference Materials and Measurements (IRMM)**, location: Mol (nearby the Flemish VITO and the federal SCK/CEN);
- › The executive offices of the **EU's Joint Technology Initiatives** for Innovative Medicines (IMI), Clean Sky, Electronic Components and Systems for European Leadership (ECSEL) Fuel Cells and Hydrogen (FCH), location: Brussels;
- › **European Cooperation in Science and Technology (COST)**, funding organisation for science and technology research networks, location: Brussels;
- › the **ESA Business and Innovation Centre (ESA BIC)**, location: Mol and Geel;
- › **United Nations University Institute on Comparative Regional Integration Studies (UNU-CRIS)**, location: Bruges;
- › the **European Marine Board (EMB)**, location: Ostend;
- › European Marine Observation and Data Network (EMODnet), location: Ostend;
- › the **Project Office of the Intergovernmental Oceanographic Commission (IOC)** of UNESCO for the International Oceanographic Data and Information Exchange (IODE) programme, location: Ostend;
- › the **Von Karman Institute for fluid dynamics**, which is funded by consortium of 15 countries, location: Sint-Genesius-Rode.

6

Policy research centre

In 2001, the Flemish Government launched a centralised policy research centres programme ('Steunpunten' programma) to provide a scientific basis for policy research.

From 2016 on, a decentralised approach towards policy research centres was elaborated whereby every policy area was made responsible for setting up, funding and following up its own centres.

The policy research centre that is active today with the STI policy area is:

- › **ECOOM**, Expert Centre Research and Development monitoring of the Flemish Community: an interuniversity consortium with participation of all Flemish universities; ECOOM develops a consistent system of R&D and Innovation (RD&I) indicators for the Flemish government. This indicator system has to assist the Flemish government in mapping and monitoring the RD&I efforts in the Flemish region. ECOOM is, inter alia, responsible for the calculation of the official R&D-intensity indicator of Flanders and the mapping of Flanders within global value chains.

ECOOM used to be focused on research and innovation policy, but extended its reach to entrepreneurship and economy with the integration of STORE (Steunpunt Economie en Ondernemen - Policy Research Centre Economy and Entrepreneurship) in 2022.

So ECOOM also conducts policy-relevant scientific research into the consequences of shocks in global value chains and local production networks, the effectiveness and efficiency of economic policy, and the implications of regional, federal and supranational (strategic) industrial policy for the economic outcomes of Flemish firms.

7

Other bodies of public interest in the field of science and innovation

Several other long-standing public institutions of the Flemish Community, which are related to science policy in a more academic context, play a promotional or advisory role. Although they are not directly involved in policy-making, they are part of the broader Flemish STI domain:

- › **Koninklijke Vlaamse Academie van België voor Wetenschappen en Kunsten (KVAB)**, Royal Flemish Academy of Belgium for Arts and Sciences), established in 1772;
- › **Koninklijke Academie voor Geneeskunde van België** (KAGB, Royal Academy of Belgium for Medicine);

- › **Koninklijke Academie voor Nederlands Taal- en Letterkunde** (KANTL, Royal Academy for Dutch Language and Literature), established in 1886;
- › **Stichting Technologie Vlaanderen voor Innovatie en Arbeid** (STV voor Innovatie en Arbeid, the Flanders Foundation for Technology Assessment in Innovation and Work), which is a part of the SERV;
- › **Vlaamse Academische Stem** (VLAST, Flemish Academic Centre for Science and the Arts) is a non-profit organisation supported by both the KVAB and the KANTL;

8

Research infrastructures

The Flemish policy relating to research infrastructure is the responsibility of two entities, namely FWO and the WEWIS Department. WEWIS is the liaison with the relevant minister. It drafts policy and is responsible for regulations. It represents Flanders in the Belgian consultative bodies and expresses the Flemish/Belgian position in international forums. FWO supports fundamental and strategic, basic research in Flanders. The three complementary financing instruments of the FWO for research infrastructure are: the programme for medium-scale research infrastructure (150,000 to 1,000,000 euro); the programme for large-scale research infrastructure (starting from 1,000,000 euro); and the programme for international research infrastructure (IRI).

An overview of the large-scale research infrastructure and the Flemish participation in International and European research infrastructures can be found online in our Research information Space (FRIS) (www.researchportal.be), or you can download our latest publication² 'Large scale research infrastructures in Flanders. Flemish participation in international research infrastructures (2025)'.

At present, Flanders participates in 28 European or International research infrastructures.

The European Infrastructure for Plant Phenotyping- EMPHASIS is planned to become an ERIC (European Research Infrastructure Consortium), by the end of 2026. Flanders will become host of the first European research infrastructure within Belgium. Flanders Institute for Biotechnology (VIB) will act as host institution.



² Download publication via www.ewi-vlaanderen.be/publications.

9

Cooperation and outreach to businesses

9.1 Cooperation among knowledge actors within Flanders

The various Flemish R&D&I performers cooperate increasingly among each other. In some cases, this takes place through formal institutes or cooperation agreements. There is numerous cooperation through and with strategic research centres like VIB or imec, from the level of individual research groups up to the level of the university as a whole. Two examples of the latter are:

- › **Energyville vzw**: association of KU Leuven, VITO, imec and UHasselt in the field of sustainable energy and intelligent energy systems. It provides expertise to industry and public authorities on energy-efficient buildings and intelligent networks for a sustainable urban environment. This includes, for example, smart grids and advanced district heating and cooling.
- › **REGMED**: this basic research initiative is a collaborative venture between imec, VIB and KU Leuven. It aims to unravel the neuronal circuitry of the human brain through research that combines nano- electronics and neurobiology.

Cooperation may also take place on a project basis and include federal or international institutes that are located in Belgium. For example, ILVO cooperates with UGent and Scienscano. Imec and VITO have formed a consortium with private partners for the production of green hydrogen (Hyve). The InnovOcean site in Ostend is home to an array of actors in the field of marine issues: the province of West-Flanders, VLIZ (Flanders), IODE (UNESCO/ IOC Project Office), the secretariats from the European Marine Board (EMB) and from the European Marine Observation and Data network (EMODnet). The EC's JRC IRMM in Mol cooperates in Belgium with, among other, VITO, imec, KU Leuven, VLIZ and UGent.

3 www.ttoflanders.be/en

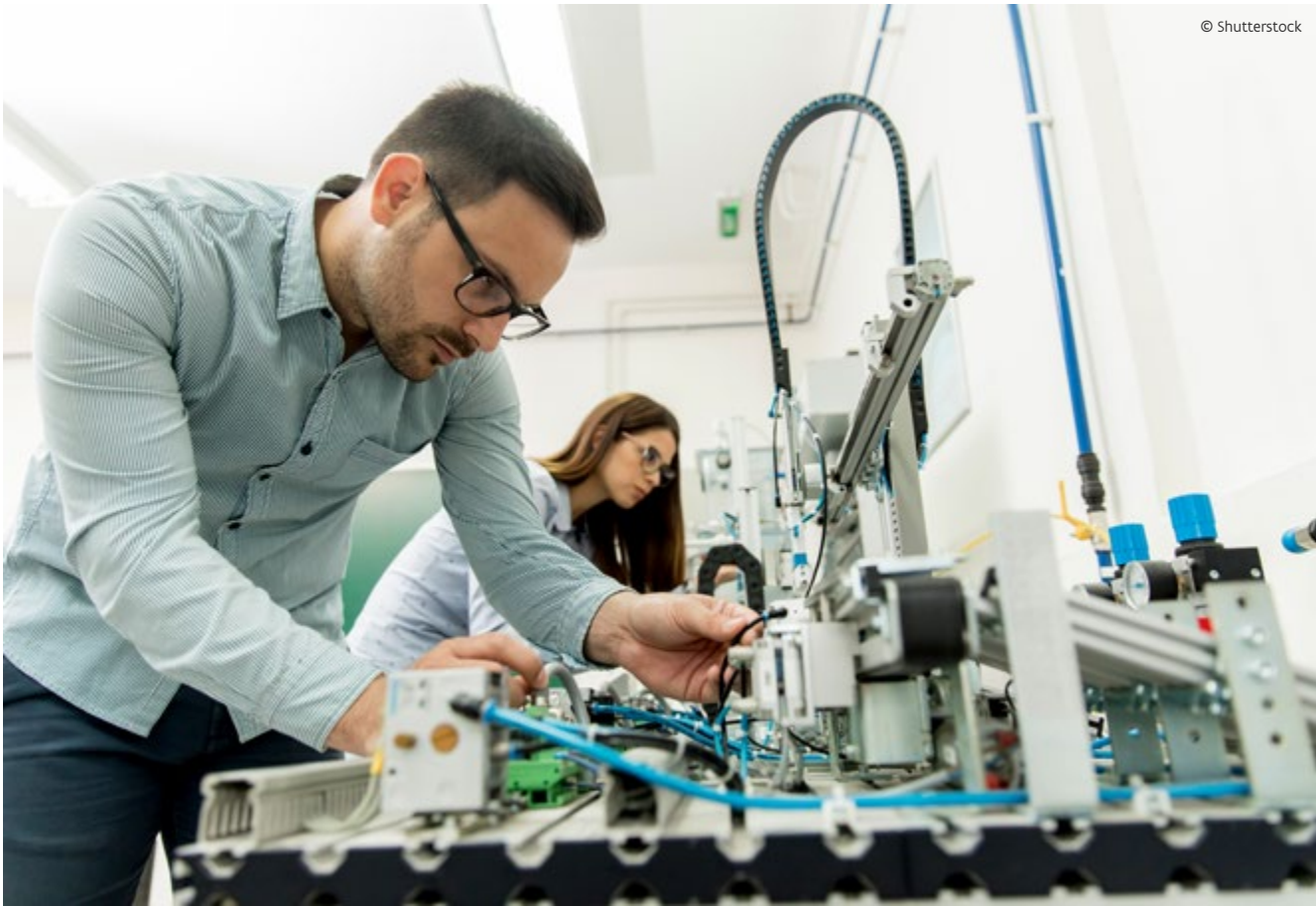
9.2 Technology transfer

Networking with the knowledge institutions of Flanders in the field of innovation takes place through the business developers of the **Knowledge & Technology Transfer Offices** of the five university associations (TTO-Flanders), the similar services of the strategic research centres such as imec Istart, VIB TTO and the knowledge diffusion liaison officers of the universities of applied sciences and arts.

The Tech Transfer Offices of the five Flemish universities are well developed and operate independently with a focus on the valorisation of the expertise within their own university association via spin-off creation (411 spin-offs in the period 2000-2023) and active collaboration with companies for economic and economic-societal benefit. Researcher are supported by a wide range of experts on Intellectual Property Rights, research and license contracts, business development and spin-offs creation, marketing and communication etc.. in translating their findings into tangible products and services that find their way to society. Financial return from these tech transfer activities is reinvested in the innovative research teams and further research.

In order to lower the barrier for external potential partners they promote themselves as a group under the name TTO Flanders on events, innovation fairs, in publications and they have a **common website** TTO Flanders³, which offers a unique portal to the knowledge and technology of the five Flemish universities and thirteen universities of applied sciences and arts and aims to:

- › be a unique point of contact for industry and other companies looking for research expertise and licensing opportunities
- › maximise the valorisation of the available university knowledge and technology for the benefit of the economy and society
- › further improve the collaboration between the KTTOs of the Flemish universities
- › strengthen the performance of the KTTOs by developing common means and sharing best practices
- › become a player on the European and international innovation



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To develop strategic alliances with companies, each Flemish university has created dedicated expertise centres. Within the universities, each expertise centre is coordinated by at least one business developer who has a liaison role in the process of the valorisation of knowledge, between on the one hand the researchers and their findings and the other hand the companies and the market needs. The business developers have an overview of the expertise within their specific domain and can refer efficiently within the university and the market.

On the TTO-Flanders website, the expertise and the business developers are clustered in the following expertise domains⁴ (and one residual category).

- › Nutrition & Agriculture;
- › Healthcare;
- › Materials & Chemistry;
- › ICT & Electronics;
- › Cleantech & Energy;
- › Engineering;
- › Others.

4 www.ttoflanders.be/en/expertise

5 www.vlaamsehogescholenraad.be/nl/onderzoeksthemas

6 www.vlaamsehogescholenraad.be/nl/blikopener/wie-kan-ik-contacteren

7 www.vlaamsehogescholenraad.be/nl/expertisezoeker

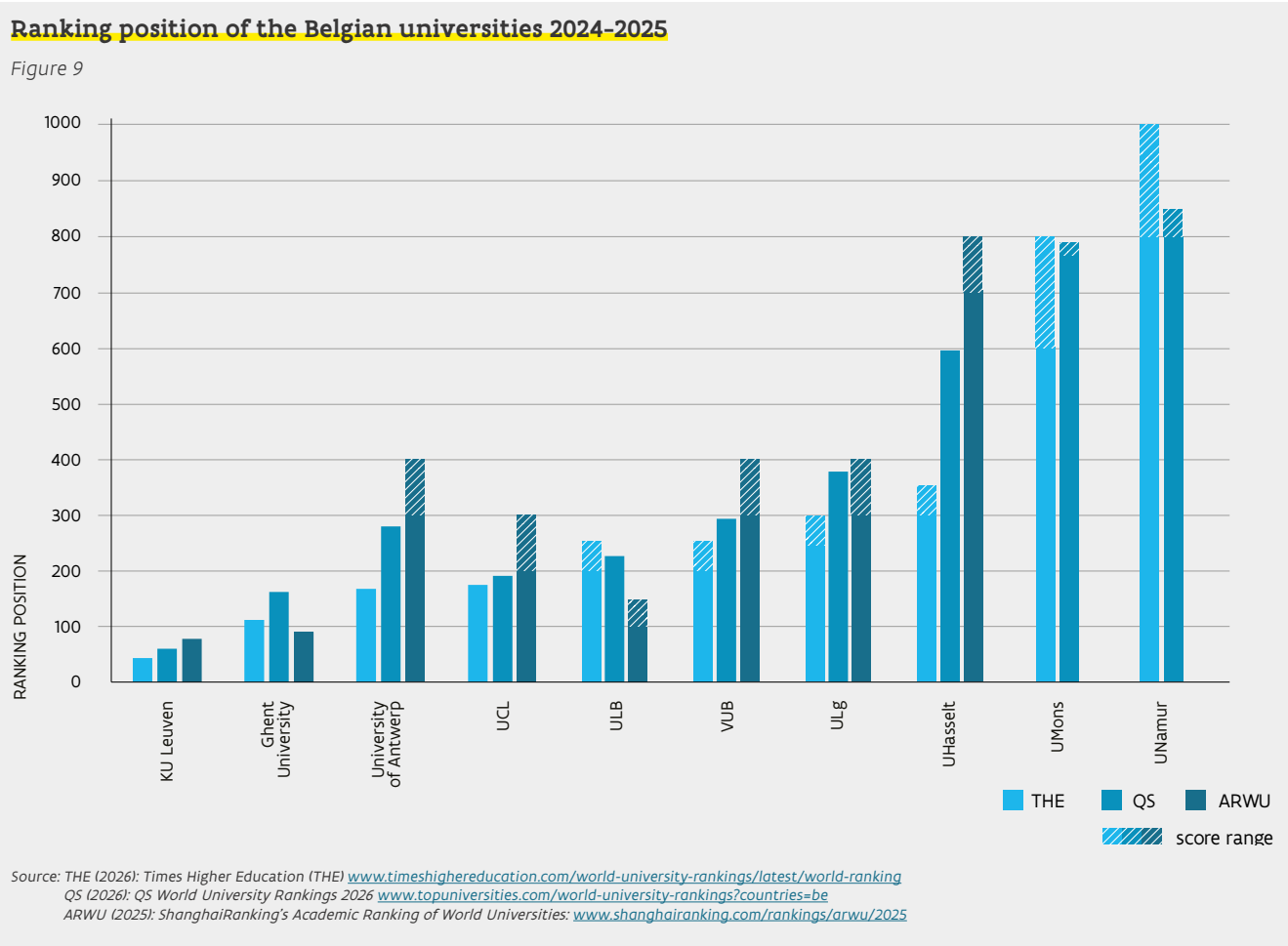
The universities of applied sciences and arts have clustered their Knowledge in nine expertise domains, see website⁵. Contact the liaison officers directly⁶ or do a search for your specific expertise⁷ need.

- › Art & Culture
- › Education
- › Work & Economy
- › Health
- › Equal Opportunities
- › Space and infrastructure
- › Climate, Environment, Clean Energy
- › Mobility
- › Food & Water

10

Performance from institutions benchmarked internationally

Several international rankings exist in which academic or knowledge institutes are listed, that can provide an indication of their relative strength in an international perspective. The presence of universities from the Flemish Community in the major worldwide rankings are as follows:



All the Flemish universities score very high on these three different rankings and belong almost for each ranking to the top 3% worldwide. The Catholic University of Leuven and the Ghent University even rank in the top 1% for all these three rankings.

Each ranking uses different criteria with different weights in their calculation of the ranking position. We give the main elements for these three well known rankings.

The Times Higher Education (THE) World University Rankings 2025 is an international “league table” ranking that uses 13 metrics clustered in following 5 indicators teaching, research, citations, industry incomes and international outlook.

The Academic Ranking of World Universities (ARWU) 2024, the so-called “Shanghai Ranking”, scores the 1,000 universities worldwide that have the best results on indicators that are mainly focusing on research (Highly cited researchers in Web of Science, articles in Nature and Science, articles in two citation indexes of Web of Science and results on the indicators per researchers) and prestige (Alumni and staf with awards). Since 2019 all Flemish universities are part of this ranking.

The Quacquarelli Symonds (QS) World University Ranking 2025 scores universities worldwide on the indicators Academic reputation, Employer reputation, Faculty/student ratio, Citations per faculty, International faculty ratio and International student ratio.

Next to these three well known rankings, the European Commission asked to develop another type of ranking. Since 2014 the **online ranking tool U-Multirank** has been active. The U-Multirank is different from the other rankings because it scores the universities in groups from A “very good” to E “weak”. This meets a frequently recurring criticism of rankings, namely that the allocation of ranking positions makes performance differences between universities appear larger than they really are. Through the online tool national-policies.eacea.ec.europa.eu/eheso/benchmarking-tool-for-higher-education-institutions – the European Higher Education Sector Observatory (EHESO), which has integrated U-Multirank since December 2023 – it is possible to compare universities based on the criteria of your own choice. The 35 different criteria are grouped into 5 dimensions: Teaching & learning, Research, Knowledge Transfer, International Orientation and Regional Engagement.



CHAPTER 4

ENTERPRISES

1

Business enterprise sector

Enterprises are of major importance within the STI system in Flanders. **6% of R&D** in Flanders was funded by the business enterprise sector in 2021. However, they are a very heterogeneous group. Most large companies are clearly innovation-active. Some of them have significant research budgets. Given the industrial texture in Flanders, most of these large enterprises belong to multinational groups, so that their research policy is not exclusively determined in Flanders.

Alongside the large, innovation-intensive companies, a group of **high-technology SMEs** has arisen in recent years and continues to grow steadily. Moreover, even though the large majority of SMEs do not conduct research directly, many of them outsource research to some extent, so that they can also be regarded as innovation-oriented.

According to the Community Innovation Survey (CIS) carried out in 2023, 75% of all companies (2020-2022) in Flanders can be called innovative (= had either product innovations, business process innovations and/or ongoing or abandoned innovation activities). Nevertheless, innovation continues to be **largely concentrated** in industry and large companies.

International comparisons demonstrate that the **share of people employed in (medium) high-tech industry and high-tech services** in Flanders is lower than the EU average (8.8% versus 9.9% for the EU-27 in 2023). The R&D activities (expenditure) within companies in Flanders are mainly focused on the following high-tech sectors (2023): chemicals and pharmaceuticals (NACE 19-21) account for 37% of total BERD (based on a sample); motion picture, video and TV production, computer programmes, engineering, and technical testing and analysis activities (NACE 58-63, 71-72) account for 24%. Machinery and transport (NACE 28-30) account for about 10% and information technology, electronic products, optical products and electrical equipment (NACE 26-27) account for about 7%.

2

Infrastructure and financial intermediaries

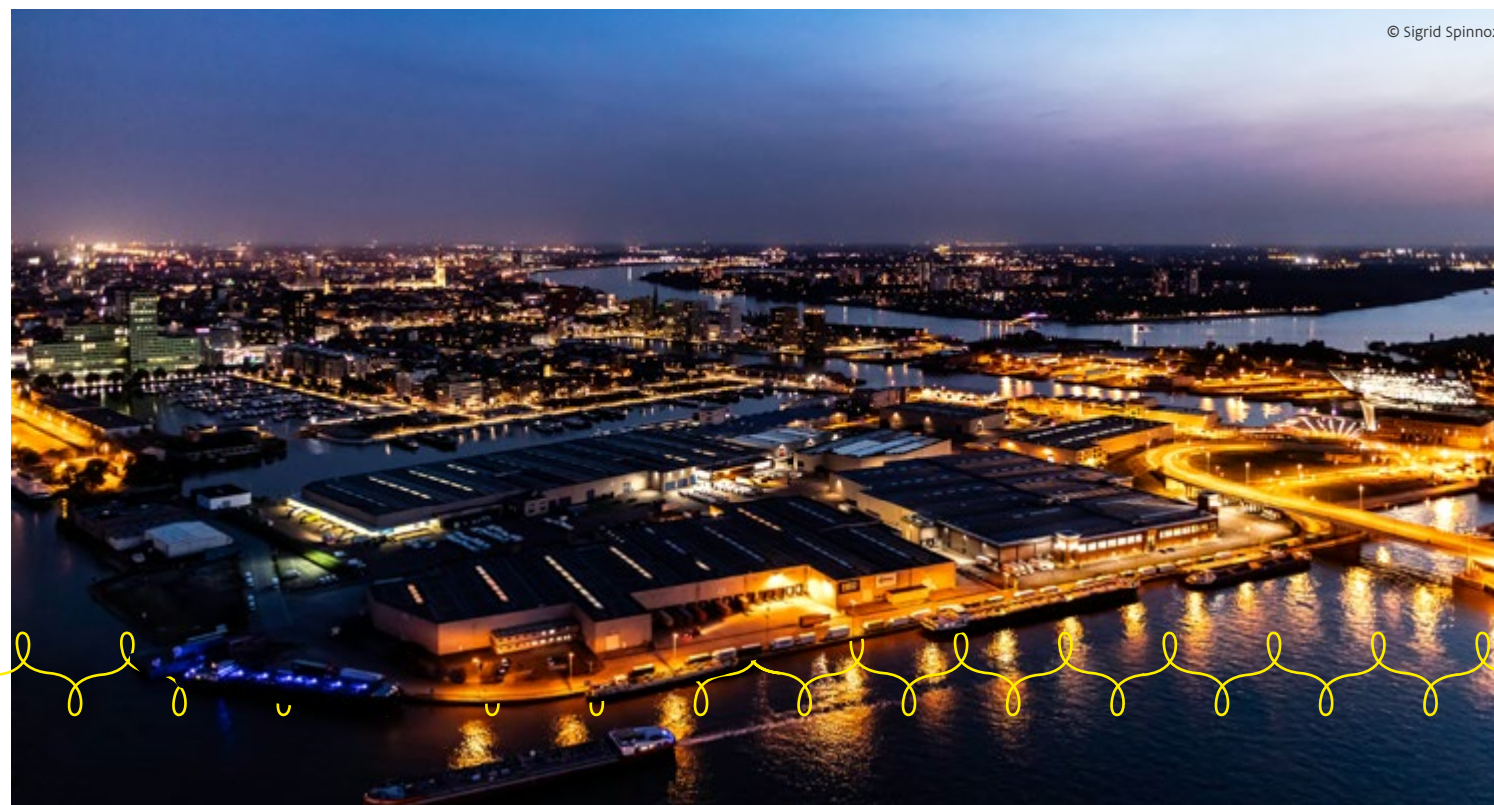
INCUBATOR IN THE PICTURE

BLUECHEM

BlueChem is the first incubator for sustainable chemistry in Belgium as well as the ideal location for start-ups and scale-ups to grow and innovate.

This unique public-private partnership brings industry, academics and government together with the common ambition to help start-ups and growth companies grow on an industrial scale. Open innovation and the mutual exchange of expertise make BlueChem the place to be for promising innovation, development and cutting-edge research.

BlueChem opened its doors in May 2020 at the eco-effective Blue Gate Antwerp business park, in the heart of one of the largest chemical clusters in the world. BlueChem is boosting promising innovations to create the chemistry of the future. Together with the pre-incubator BlueApp and the NextGen District in the Port of Antwerp, BlueChem forms Antwerp's innovative ecosystem for sustainable chemistry, which has been awarded by the European Enterprise Promotion Award (EEPA) in 2025.



In Flanders, several science parks, research parks, incubators and accelerators offer facilities for research-based young companies and innovative enterprises. Often, these are spin-off companies from a university or a PRO and are located close to the knowledge centre in question. In some cases, an incubator is specifically oriented towards a particular scientific area.

Universities and strategic research centres are increasingly able to professionally guide spin-off companies, e.g. with finding the appropriate CEO, financial structure, and administrative issues. An important trend is the establishment and elaboration of different types of incubators. An overview of **business centres and incubators** can be found at: <https://www.vlaio.be/en/guidance-advice/vlaio-supports-foreign-investors/finding-right-location>.

The various private risk capital funds providers in Flanders include the large banks in Belgium, and specific funds. There are more than 100 private risk capital funds active in Flanders. An overview of risk capital providers in Flanders is available at <https://www.vlaio.be/nl/begeleiding-advies/financiering/risicokapitaal>.

There also exist several funds that are linked to the Flemish universities or the strategic research centres. Examples of these are:

- › the **Gemma Frisius seed capital fund** (KU Leuven)
- › the multi-sector **Qbic Fund** (UGent, VUB, UA and VITO)
- › **Imec.xpand**, which focuses on hardware-driven nanotechnology innovations, with imec's unique expertise playing a decisive role in the company's success.

- › **Imec.iStart** offering coaching, support and infrastructure to (future) technology start-up companies
- › **V-Bio Ventures Fund** (VIB) investing in European start-up companies and young companies in biopharmaceuticals, diagnostics, and agricultural improvements. It was initially set up by the Flemish Government, which still holds a minority stake in the company.

It is noteworthy to mention the following initiatives:

- › **Business Angels Network Flanders (BAN Vlaanderen):** a platform in which starting or growing entrepreneurs seeking risk capital are matched with informal private investors, the so-called "business angels". The latter offer not only money but also their own know-how, experience and contacts. BAN Vlaanderen is a marketplace where demand and supply meet, rather than an investment fund.
- › **FINMIX:** a project from VLAIO aimed at companies with innovative challenges, growth ambitions or take-over plans, that use risk capital for their plans. It provides the possibility to these businesses to propose their plan to a panel of funding experts who will provide advice on the best funding mix. There are panel sessions focusing on specific sectors or themes, and there is also a session aimed at women entrepreneurs (FINMIX 4 females in cooperation with Vrouwennet vzw).
- › **The Flemish investment company PMV** finances without sector preference in promising Flemish enterprises with a solid business plan, from their earliest start through growth and internationalization. In addition to venture capital, PMV also offers financing solutions in the form of (a combination of) loans and guarantees.
- › **LRM** is a Flemish investment company that provides risk financing, loans and expertise available to companies and projects that contribute to prosperity and well-being in Limburg and Flanders.
- › **The Flanders Future Tech Fund** is a public early-stage financier that can award initial tickets of up to €5 million for early technology initiatives from the strategic research centers (SOCs), universities, Flemish spearhead clusters, and also from private parties. For strategic investments, the initial ticket can amount to a maximum of €25 million. One follow-on investment is possible in the form of a convertible loan. This amounts to a maximum of €2.5 million for 'standard files' and up to €12.5 million for strategic files.

3

Collaboration: innovative networks and research-business links

Collaboration is an important aspect of Flemish innovation policy. It enables companies and knowledge centres to develop their internal know-how and allows them to tackle common technological issues efficiently, by using a shared platform for the demand and supply of R&D and other innovative matters.

3.1 Cluster policy

On 4 March 2016, the Flemish government approved the decree regulating support for innovation clusters in Flanders. The objective of the cluster policy is to unlock untapped economic potential and to increase the competitiveness of Flemish companies through active and sustainable cooperation between actors. The policy focuses on partnerships between Flemish companies. These companies are characterised by their growth ambitions, a high level of innovation awareness and their international outlook. In addition, they must be open to cooperation with other companies and knowledge centres, both for the realisation of their individual business objectives and for contributing to an increase in the competitiveness of a large group of Flemish companies.

Within the cluster, a cluster organisation acts as the facilitator of the network and the representative of the cluster members. Cluster organisations can be financially supported by the Flemish government for the implementation of their role as facilitators. With a support percentage of 50%, the companies should annually collect an equivalent amount of co-financing for the operation of the cluster organisation. In addition to the financial support, to the cluster organisation, the Flemish Government earmarks a dedicated budget in the overall innovation investment fund (FIO). With this earmarked budget collaborative innovation projects are supported in order to reach the objectives of the competitiveness program set up with and for the cluster members.

The **spearhead clusters** fit in with Flanders Smart Specialization Strategy. Flanders has seven spearhead clusters:



Blue cluster with an emphasis on sustainable economic activities related to the North Sea and beyond. The cluster is active in (1) coastal protection and mineral resources, (2) renewable energy and fresh water production, (3) maritime connectivity, (4) sustainable food production and marine biotechnology, (5) blue tourism and (6) ocean pollution.

www.blauwecluster.be



Flanders' Food in the domain of agro-food. The cluster has two knowledge-driven strategic objectives (lead in knowledge and lead to knowledge) and two business-driven strategic objectives (accelerate efficient & effective innovation and cross/create value chains). The knowledge-driven strategic goals will focus on (1) World Class Food Production, (2) Resilient & Sustainable Agrifood Systems and (3) Personalized Food Products & Healthy Diets.

www.flandersfood.com



ENT.A is the Flemish innovation cluster that helps companies, organisations and knowledge institutions create state-of-the-art experiences, and connects them to the future through foresight analyses, training programs, international opportunities, and robust innovation pathways.

ENT.A aims to set an example across Europe in stimulating innovation within the entertainment landscape by constantly pushing boundaries. By fostering a culture of experimentation, international collaboration and continuous learning, ENT.A inspires their members to think boldly, to explore new territories and to create pioneering solutions that shape the future of experience.

www.entertainmentassociatie.be



Flanders Logistics cluster (VIL) in the domain of specialised logistics. Its programming is centred around four main themes: (1) digitization with three sub-themes: smart technology, business models and data management, (2) sustainability themes like CO2 reduction and energy efficiency objectives for logistics in smart cities, circular and sharing economy, infrastructure (3) ambition 'Flanders gateways', i.e. Flanders as a global connected trading partner and (4) omni-channel distribution systems for various application.

www.vil.be



MEDVIA and flanders.bio have joined forces to become **Biovia**: the new health innovation cluster for Flanders, uniting human and planetary health into one vibrant ecosystem.

Biovia is an industry-driven organisation with some 400 members and partners, from companies, research institutes, universities, hospitals, service providers, investors and government. Biovia brings together all sectors at the crossroads of health innovation – medical biotech, medtech, digital health, agtech and industrial biotech. Because at Biovia, we recognize that all health is connected – people, animals, plants and planet.

www.biovia.be



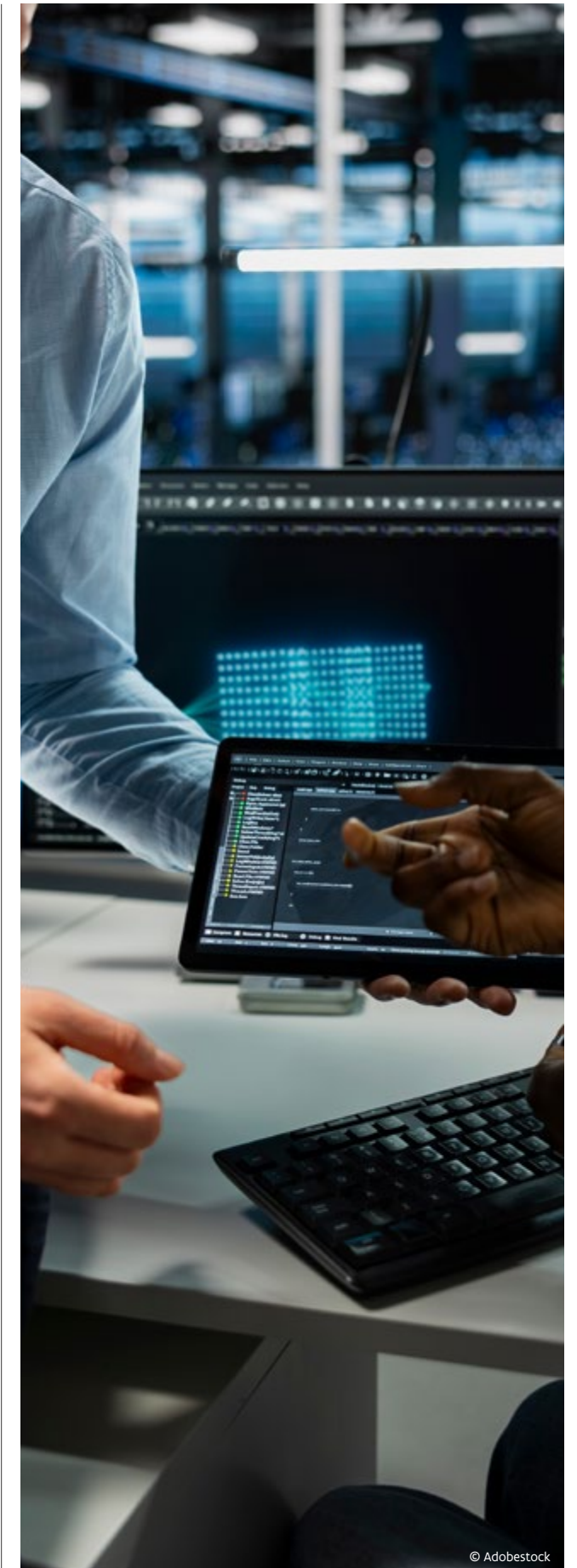
Catalisti in the domain of sustainable chemistry. The cluster has four main innovation programmes: "Renewable Chemicals", "Sidestream Valorisation", "Process Intensification and Optimisation" and "Advanced Sustainable Products".

www.catalisti.be



Flux50 in the domain of energy (Smart grid), five innovator zones have been selected: energy harbours, micro grids, multi-energy solutions for districts, energy cloud platforms, intelligent renovation.

www.flux50.com



3.2
Local and thematic initiatives

Examples of **place-based initiatives**, driven by one or more knowledge actor(s), and supported by various public stakeholders are Leuven Inc., Leuven Mindgate, or Ghent Bio-Energy Valley (GBEV) and BBEU (Bio-Base Europe).

Thematic or sector-oriented organisations and networks exist in a broad variety. Examples include the FlandersBio network (life sciences – biopharmaceuticals, medical technologies or agricultural / industrial biotech products), Agoria Flanders (federation for the technology industry), MedTech Flanders (medical technology). The “Agoria International Business” helps technology companies increase their international market share and profitability by identifying business opportunities abroad.

HYDROGEN as a thematic priority

The Government of Flanders has put increasing emphasis on hydrogen as a future energy source, both driven by the presence of a significant hydrogen value chain in Flanders, as well as the presence of companies that will need hydrogen for their transition to a net zero industry. The hydrogen community in Flanders is organised in the “Waterstof Industrie Cluster (WIC)”, a strong collaboration of companies, research institutes and government agencies and coordinated by WaterstofNet, the Flemish hydrogen knowledge and collaboration platform. They join forces on pilot projects, studies and project consortia along the hydrogen value chain to establish a complete hydrogen ecosystem in Flanders. In line with the Flemish policy vision on hydrogen the WIC published “An industrial Flemish Hydrogen Strategy 2025-2030” in December 2020.

Flemish universities and knowledge centres are conducting groundbreaking research in hydrogen technologies. An overview (updated yearly) of Flemish research groups and their activities can be found in the publication “Hydrogen Research in Flanders (January 2023)” on www.waterstofnet.eu/en/knowledge-centre/publications.

In July 2023 the Port of Antwerp-Bruges, North Sea Port and Port of Ostend have officially been recognised as a ‘Hydrogen Valley’ at the European level. That status is granted to a geographical area that houses a complete hydrogen value chain – from production to distribution, storage and local end-use in different sectors. The Flemish Hydrogen Ports Valley is coordinated by WaterstofNet.

www.waterstofnet.eu/en



FLANDERS SPACE as a thematic initiative

Alongside hydrogen, the Government of Flanders also supports the development of a strong space economy through Flanders Space, a programme and cluster initiative supported by VLAIO. Flanders Space aims to give Flemish companies, knowledge organisations and young talent opportunities to work with space data and space infrastructure, and to translate these assets into new products, services and applications. The initiative addresses both established space actors and companies from other sectors that want to explore how satellite data and space-enabled services can create value in their own activities, including for public authorities seeking solutions for societal challenges.

Flanders Space focuses on four complementary pillars: attracting young talent, supporting competitiveness and entrepreneurship, providing R&D funding and science communication. In practice, this translates into support for feasibility studies, the development of prototypes and innovative technologies and concepts, as well as targeted actions to stimulate Flemish space entrepreneurship, including support for space start-ups. In addition, the programme offers opportunities such as Frank De Winne (post)doctoral mandates and internships to help STEM graduates build a sustainable career in the Flemish space industry, while communication activities highlight how space data and infrastructure can contribute to solving societal challenges.

www.flandersspace.be

EDTECH/STATION as a thematic initiative

Another thematic initiative supported by VLAIO is edtech/station, a hub that strengthens the Flemish educational technology (EdTech) ecosystem and accelerates digital transformation and innovation in learning technologies. The initiative responds to the strong growth of the EdTech sector and to the need for technology transfer from research to industry in domains such as simulation and training, AR/VR/XR, high-performance synchronous communication, adaptive learning and AI. It targets EdTech companies delivering solutions to the education sector as well as to companies in the context of lifelong learning, and connects them with researchers, schools and companies that want to apply these technologies in a variety of learning environments.

In practice, edtech/station supports start-ups, scale-ups and established companies through an ecosystem approach that stimulates cross-fertilisation between EdTech members, research groups and relevant organisations, and by building links with international sister hubs. The hub organises matchmaking around collaboration opportunities with national and international research institutes, offers visibility to EdTech actors and solutions, and provides a platform through a broad range of activities such as workshops, bootcamps, information sessions, trainings and event participation.

www.edtechstation.be

3.3
Collective (research) centres

Collective research centres are recognised as a scientific organisation by BELSPO (and eligible for the scheme of reduced social contributions on researchers' salaries). Their main activities include collective research, various services of a scientific or technical nature (provided individually to their members), dissemination of technical information and training. The collective centres were founded after WWII by **the Belgian business federations**, usually by way of an association, and over the years several of other institutes have gained a similar status. The target groups of their applied research activities are either defined by sector or by theme. In addition, they often participate in European, federal and Flemish research programmes and carry out self-generated research to maintain their overall levels of knowledge and expertise.

These centres conduct (contract) research at the request of individual companies. These centres, including the equivalent organisations, are:

- › Belgian Institute for Wood Technology and the Wood Training Centre (WOOD);
- › Belgian Welding Institute (BWI);
- › Belgian Research Centre for the Cement Industry (CRIC);
- › Belgian Road Research Centre (BRRC);
- › Scientific and Technical Service Centre for the Belgian Textile Industry (Centexbel);
- › Belgian Building Research Institute (BBRI);
- › Scientific and Technological Research Centre for Diamond (WTOCD);
- › Collective Centre for the Belgian Technology Industry (SIRRIS), which includes several sub-sectors (e.g. “Aeronautics, Space, Security & Defence Industries”);
- › Coatings Research Institute (CORI);
- › Research Centre for of certification and standardisation (CRIG- OCCN);
- › Belgian Ceramic Research Centre (BCRC) (includes ceramics, glass and bricks industry);
- › Metallurgic Research Centre (CRM) (for ferro and non-ferro metals);
- › Tecnolec / Volta (electrical business).

3.4
Research – business links

The Flemish Government has developed a number of initiatives to **increase the valorisation** of research results, to better diffuse technology, and to strengthen the direct links between companies seeking to innovate and researchers from higher education institutions. **Support** is available to companies, institutions, networks and private individuals (researchers).

Other examples of current measures towards business include:

- › **Baekeland mandates and innovation mandates** allowing researchers to conduct research with a specific business-oriented purpose in close relation with the business,
- › support via the **TETRA Fund** aimed at applied-research projects,
- › the support for the universities of applied sciences and arts to professionalise the knowledge diffusion towards SME's "**Blikopener**" ("Mind opener").

- › **‘Collective Research & Development and Collective Knowledge Dissemination/Transfer (COOCK+)’** is a policy instrument that focuses on groups of companies, with the aim of valorising (basic) research results by accelerating the introduction of technology and/or knowledge,
- › **“Proeftuinen” (Living Laboratories, or test beds)**, were set up in various domains. These are structured test environments in which organisations can test innovative technologies, products, services and concepts, using a representative sample of individuals, who are used as testers in their normal living and working environments. Current Living Labs are active in the fields of Industry 4.0, Circular Economy and Smart cities.

The measures geared towards knowledge institutes are discussed under chapter 3.

4
Business expenditure on R&D

Business Expenditures on R&D (BERD) represent 8.915 billion euro, of which the **chemical and pharmaceutical** sector led the way with 37% (2023). Other main performers were motion pictures, video and TV production, computer programmes, engineering, technical testing and analysis activities. The top-50 R&D-active companies jointly represent about 51% of all R&D expenditures in Flanders. Of all total foreign investments in Flanders in 2024 (representing 5.40 billion euro), about 27% of foreign investments in 2024 took place in the R&D sector.

In **2023**, the R&D intensity in the business sector was 2.50%, a slight increase in comparison with 2022 (2.48%). Flanders therefore ranks higher than the EU-27 average and the Netherlands, Finland, Germany and Austria. Sweden, Japan, the USA and Korea score higher than Flanders.

For more information on BERD, see Annex III.



CHAPTER 5

CITIZENS



1

Science communication

Since 1994 the popularisation of science, technology and innovation has been considered an essential part of the STI policy in Flanders and is implemented in a Science Communication Policy Plan. The objectives are to strengthen the scientific and technological potential of all citizens, and in particular of youngsters and other (hard to reach) target groups. Too few young people opt for science and technology disciplines in education and in labour. Increasing the scientific literacy of society at large is also an important goal.

Several **science information actors** contribute to the science communication policy: the Science Centre Technopolis (www.technopolis.be), the Science Communication Expertise

Centres at the Universities and Universities of applied sciences and arts (see Chapter 3), RVO-society (www.rvo-society.be), and several others are involved. Their specific activities are posted on the Science Communication Agenda hosted by Eos Wetenschap (www.eoswetenschap.be).

Media actors such as the science popularisation publisher EOS (www.eos.be), Journalismfund.eu, [Het Geluidshuis](http://HetGeluidshuis) and [University of Flanders](http://UniversityofFlanders) are also involved.

The general public can meet and engage with scientists, science educators and science communicators in a wide variety of inspiring settings – from **science festivals**, **science cafés** and **science shops** to major events such as [Maker Faire Gent](http://MakerFaireGent), Scienceville and [the Day of Science](http://theDayofScience), among many others.



© Technopolis

2

Citizen science

Since 2018 **calls for Citizen Science project proposals** are launched regularly in collaboration with Scivil, the knowledge centre for Citizen Science. Scientific projects rely on the active participation of citizens for data gathering and data processing.

Researchers from universities, universities of applied sciences and arts and research centres initiate the projects. They collaborate with trained science communicators to reach and to engage the public.

New approaches will be explored whereby sandbox environments will be created by opening up data from knowledge institutes and companies, so that entrepreneurial citizens and small companies can develop and test new solutions.

In 2021, SciMingo, one of the science policy actors, launched with support of the Flemish Government a science communication academy where young PhD students and scientists can acquire the necessary science communication skills in order to strike the right balance between engaging the public about their research without compromising themselves nor their research.

3

STEM-initiatives

Attracting more people towards STEM-careers still remains a challenge for Flanders. In 2024, 21.6% of the total number of degrees awarded in higher education were degrees in mathematics, science or a technological discipline. This is a slight increase compared to the previous year. In 2025 the most recent edition of the STEM Monitor (reporting annually on the education indicators linked to the STEM-agenda 2030) was published by the Department of Education and Training. In secondary education, 35.50% of pupils were in a STEM course of study in school year 2024-2025 with an increase in girls in technical STEM courses and a decrease in girls in vocational STEM courses. The number of pupils in STEM in dual learning continues to rise, with a total of 4012 pupils in 2024-2025. 41.50 percent of all pupils leaving secondary education graduated with a STEM diploma in school year 2023-2024, which is a slight decrease compared to previous years.

To stimulate youngsters to choose for STEM-study paths and STEM-careers, the STEM Action Plan 2012-2020 was implemented by the Flemish government. In 2021, a new action plan was implemented, called the STEM-Agenda 2030. The STEM Agenda 2030 is focusing on attracting more people towards STEM courses and careers, on STEM specialists and on the general strengthening of STEM competences in society at large (STEM literacy). The STEM Agenda 2030 is structured around 4 strategic objectives:

- 9. Everyone in society is aware of the importance of STEM competences for their future.
- 10. Anyone with an interest and talent in STEM can easily find the way to a suitable STEM study program that offers security in a changing future.
- 11. STEM education and training responds to the evolutions and transitions in business, research and society, both now and in the future.
- 12. STEM competences are used as much as possible according to the needs, developments and transitions in business, research and society.

To support businesses in their commitment to playing a role in this issue, a STEMhub was established at VLAIO in 2024. The STEMhub informs, inspires and supports companies committed to nurturing STEM talent. In this way, local ecosystems are strengthened by linking businesses to schools, leisure organisations, knowledge institutions, local authorities, and so on.

Besides STEM-Hub VLAIO also supports the ecosystem STEM in leisure time to give children opportunities outside school hours to have positive experiences with science and technology. The ambition is to have a high-quality range of STEM activities accessible in every municipality. The number of organisations that work together with VLAIO to organize STEM activities outside school hours has increased from 50 in 2019 to 169 in 2025.

4

Science careers

Working as a researcher could be made more attractive by the development of **more transparent career paths and specific programmes to attract foreign talents or externally active Belgian (Flemish) researchers** that offer perspectives. Flanders' ambition to be a successful knowledge society can only be realized if it continues to invest in high-level research and good researchers.

Apart from the regular funding channels, such as the Special Research Fund (BOF) or the grants, fellowships and research projects from the Research Foundation Flanders (FWO), several **specific initiatives** were developed to encourage excellent researchers and support these in a long-term career path. These include budgets for the "tenure track mandates" that lead to a position within the ZAP (Senior Academic Staff) and Methusalem (long term support for excellent researchers), worth a total of about 31,4 million euro in 2026, as well as the Odysseus programme, a bi-annual brain gain initiative. Moreover, the Flemish government supports the training on career development and transferable skills of PhD students and other young researchers through funding of the Doctoral Schools at the Flemish universities within the framework of the OJO-support (support of young researchers), worth 6,3 million euro in 2026.



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5

Quadruple helix model

In line with the ambitions to implement the quadruple helix model, the current government has asked VARIO for advice on a method for better implying citizens and civil society in the development and deployment of policy initiatives. VARIO has addressed this question in its advisory report 16 'Involving citizens in science and innovation policy' and the accompanying background report. It thus goes further than involving citizens in science and innovation, to which Flanders is already highly committed (see above).

In comparison, Flanders has been investing less in involving citizens in policy. VARIO has emphasized that good communication about government decisions and initiatives to the public is pivotal for that. Furthermore, the council has pointed out the importance of evidence-informed policy to let the general interest of citizens take precedence and thus

strengthen support and confidence in the policy. The 'data' for evidence-informed policy can be collected via studies, in a broad sense of the word or via co-creation, such as in living labs or in citizen science. VARIO advised to stimulate co-creation in the quadruple helix, and to take away existing hurdles.

VARIO is not in favor of a last form of involving citizens, as providers of direct input for science and innovation policy, this should happen only exceptionally, with expert citizens or citizens organised in Civil Society Organisations (CSOs). The latter is already done in Flanders as CSOs are traditionally represented in advisory councils, mainly on a local level, and more recently for example also in the sounding board group of the Moonshot and the Climate leap (Klimaat sprong) programmes. In this context VARIO asked to look beyond the 'usual suspects', and at newer forms of civic organisations.





6 Flanders Technology & Innovation

Flanders Technology & Innovation

The government of Flanders launched Flanders Technology & Innovation (FTI) in October 2022. The intention is to bridge the gap between Flanders’ cutting-edge technology, which is highly regarded internationally, and segments of the population who have a gloomy outlook on the future. Government, companies, knowledge centres and citizens will focus on six domains:

- 1. Energy transition
- 2. health care
- 3. lifelong learning
- 4. data
- 5. mobility
- 6. media and entertainment.

The FTI acronym has been used before in Flanders and is a householdname for generations. The FTI technology fairs, which took place between 1984 and 1999, were an inspiration to many and the launching platform for knowledge centers such as imec and VIB.

With the new Flanders Technology and Innovation, the government of Flanders is now launching a contemporary project and a promotional campaign on innovation and technology.

The Flemish Government is convinced that technology can generate progress and therefore there is ample room for optimism. With the slogan “Update yourself”, the initiative encourages citizens, entrepreneurs and organisations to actively engage with the technologies shaping our future.

Flanders Technology & Innovation Festival – Ambitions that Shape the Future

In 2026, the Flanders Technology & Innovation Festival sets out to position Flanders as a leading innovation hub—both nationally and internationally. With a bold vision and a hands-on approach, the festival brings together technology, entrepreneurship, and society to inspire meaningful progress.

Spanning 30 days the festival will activate **7 regional cities** alongside one central flagship event. Together, these experiences are expected to attract over **25,000 visitors per city** and more than **95,000 attendees** at the central festival—creating a powerful ecosystem of ideas, talent, and opportunity.

At its core, the festival aims to **cultivate a culture of innovation and entrepreneurship**. Through immersive, high-impact experiences, it enhances the international visibility of Flanders while strengthening its reputation as a dynamic and future-focused region.

The festival also plays a key role in **amplifying the Flemish start-up and scale-up ecosystem**, embedding innovation and entrepreneurship as fundamental societal values. By showcasing cutting-edge research and breakthrough technologies, it inspires the broader public and fuels a strong STEM-oriented mindset across education, research, and business.

Beyond inspiration, the festival is designed for impact. It **connects SMEs with the technologies and challenges of tomorrow**, accelerates knowledge exchange, and highlights regional innovation hubs that drive sustainable growth and development.

With a commitment to **biennial editions through at least 2030**, the Flanders Technology & Innovation Festival is not just an event—it is a long-term movement to shape the future of innovation in Flanders and beyond. The programme is implemented by VLAIO, the Flemish agency responsible for fostering innovation and entrepreneurship.



CHAPTER 6

INTERNATIONAL ACTIVITIES

1

EU-level

Flanders is autonomous in exercising its own competences internationally, in line with the principle of *in foro interno, in foro externo*: the authority competent for a policy area internally is also competent to represent that area externally. This has been the case since 1993, when the Belgian Communities and Regions became able to execute their competencies at the EU and international policy level. Where a Belgian position is required, it is prepared through coordination meetings chaired by the Federal Public Service Foreign Affairs, in which the competent federal and federated entities agree on a common position that is subsequently validated at political level.

Science, Technology and Innovation (STI) policy is one of the competence areas covered by this autonomy. In practice, this means that the international aspects of STI cover a wide range of activities and institutions, embedded at the public, semi-public and private level.

In addition, the various public, semi-public and private actors that are interested or eligible can initiate their own policy initiatives and programmes at the international level.

In Flanders, a substantial effort has been made to internationalise STI policy. More concretely, this policy is shaped by the preparation and follow-up of policy initiatives at the bilateral, interregional, intergovernmental, EU and international policy levels, including the OECD and the UN. The main policy focus is on the EU level.

This chapter 6 distinguishes between policy preparation and follow-up on the one hand, and policy implementation on the other. For EU programmes, the dividing line is generally situated at the publication of the work programmes by the European Commission. Policy preparation and follow-up, including participation in working parties and programme committees, is primarily carried out by the WEWIS Department. Policy implementation focuses on supporting Flemish actors in preparing and submitting project proposals, with NCP Flanders acting as a key facilitator.

Flanders strives to align its R&D&I priorities as much as possible with the priorities defined at EU level regarding the grand challenges, the European Research Area, the European Semester, Horizon Europe and other European programmes, such as the Digital Europe Programme.

Such goals can be achieved by striving towards excellence, increasing budgets, facilitating researcher mobility and participating in EU and international cooperation programmes and networks. This is particularly relevant for the future prosperity of Flanders, given its open economy and the high proportion of international companies active in R&D.

Indeed, in addition to funding from the Flemish and federal authorities, research and innovation actors also receive significant amounts from various EU programmes (mainly Horizon Europe, the future European Competitiveness Fund and, to some extent, the European Regional Development Fund (ERDF) and the European Defence Fund (EDF)).

1.1

Policy preparation and follow-up

In the ministerial meetings of the Council of the European Union concerning research and innovation policy, Belgium is represented by its Communities and Regions, which take turns according to a rotation system agreed between the entities, while the federal level acts as assessor. As a result, Flanders is one of the authorities directly involved in the preparation of decisions within the Council, and when its turn in the rotation comes around, it acts as Belgium's spokesperson, allowing it to help shape the common position that is drawn up jointly by consensus.

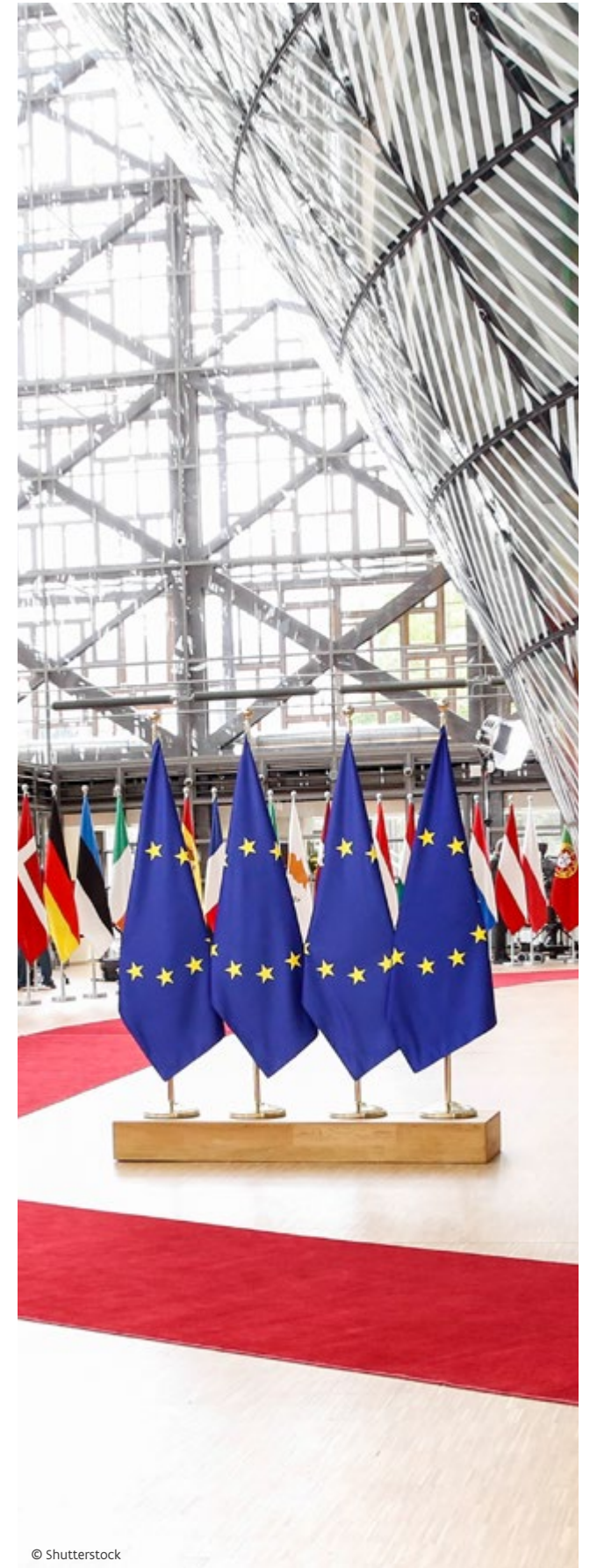
Meetings of the Council Working Party on Research are attended by the Flemish attaché for research and innovation, who is assigned to, and is an integral part of, the Belgian Permanent Representation to the EU.

Principal fields of action include the Framework Programme for Research and Innovation, the European Research Area (ERA) and all related R&D&I matters in the broadest possible sense, including international R&I cooperation under the EU Global Approach, ESFRI and related initiatives.

The domain of digital policy is becoming ever more important to innovation, as this field also governs the development, deployment and use of cutting-edge technologies. These include artificial intelligence, data technologies, virtual worlds, high-speed connectivity and more. To more closely follow and interact with EU digital policy, the department has seconded a part-time attaché at the Permanent Representation of Belgium to the EU to follow and report on EU telecommunications and digital-policy dossiers.

Active involvement in the EU's research and innovation policies includes:

- › Preparation and follow-up of ministerial decisions within the EU Competitiveness Council, as well as relevant EU telecommunications and digital-policy dossiers;
- › The EU's Horizon Europe and Digital Europe programmes: preparation of the programme themes, involvement as programme committee members in Horizon Europe and Digital Europe, participation in the ERA networks, and other support actions;
- › Preparation and participation in the meetings of ERAC and the ERA Forum, which advise the European Commission, the Council and the EU Member States on research and innovation policy;
- › Participation in the bilateral meetings between the Commission and Belgium for the European Semester (Fact Finding Mission);
- › Participation in various EU initiatives in the field of R&D&I, such as ESFRI (international large research infrastructure) and the EIT (European Institute of Innovation and Technology);
- › Contributions to, or revisions of, reports and consultations involving the European Commission in the field of scientific research and innovation, such as the Flemish and Belgian National Reform Programmes for the European Semester, the various ERA reports and the EC/OECD STI Policies report;
- › Active involvement in the discussions and preparations for the programmes under the next EU Multiannual Financial Framework 2028-2034, such as the 10th Framework Programme for Research and Innovation and the European Competitiveness Fund.



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Einstein Telescope – Flemish Policy Priority

note: The Einstein Telescope is a strategic government priority with dedicated funding. It is therefore presented here under policy preparation, and its operational follow-up (via WEWIS/FWO) is described in section 1.3.

Flanders plays a central role in the bid to host the Einstein Telescope (ET) in the Meuse–Rhine Euroregion (border area of Belgium, the Netherlands and Germany). The project is a priority for the Flemish Government, which has earmarked €500 million for construction of the detector. This is complemented by investment in scientific research via IRI, the programme operations of ET-Flanders science communication, valorisation and feasibility studies.

What is the Einstein Telescope (ET)?

- › Underground facility: A gigantic gravitational-wave detector, planned at a depth of 250–300 metres.
- › Triangular design: The observatory consists of three detector arms, each 10 kilometres long.
- › Scientific mission: To study black holes, neutron stars, dark matter and dark energy, and the Universe shortly after the Big Bang.
- › Objective: Using lasers and mirrors, it will measure extremely small ripples in spacetime: gravitational waves originating from cosmic events such as the merger of black holes and neutron stars, as well as the Big Bang itself.

Key facts

- › Location: The Meuse–Rhine Euroregion has subsurface conditions well suited to building this large-scale tunnel complex. The wider area hosts an impressive ecosystem of knowledge institutions and high-tech companies.
- › Impact: A recent study (February 2025) commissioned by the Flemish Government shows that the project could generate up to €1.5 billion in added value and lead to net productivity growth, peaking at 0.22% in 2041.
- › Innovation ecosystem: The aim is to create an ‘ET Valley’, building on the high-tech cluster already present in the Eindhoven–Leuven–Aachen triangle.
- › Funding: Construction is estimated at €2.9 billion; Flanders has already earmarked €500 million. To date, Flanders has also invested €36 million in scientific research, feasibility studies, valorisation and science communication.

Status in 2026

- › Candidate sites: The Meuse–Rhine Euroregion (tri-border area near the Voerstreek), Sardinia (Italy) and Saxony (Germany) are the official candidates.
- › Decision: The final site selection is expected in mid-2027.
- › Timeline: If the decision is positive, construction will start in 2028, with the ambition to be operational by 2040.

1.2

Policy implementation

A major source of R&I budget lies at the EU level, through Flemish participation in EU programmes that complement national and regional funding.

The main instruments in which Flemish actors participate are described below.

1.2.1

EU Framework Programme for Research and Innovation (Horizon Europe)

The Framework Programme for Research and Innovation (Horizon Europe) is the European Union’s main funding instrument for research and innovation. Through competitive calls for proposals, it funds transnational research and innovation projects, partnerships and infrastructures involving universities, research institutions, companies and public authorities across Europe and beyond. Its overarching aim is to strengthen the EU’s scientific and technological base, boost innovation and competitiveness, and address major societal and global challenges.

Framework programmes have been implemented since 1984 and cover a period of several years. Since 2021, the ninth Framework Programme, Horizon Europe, has been active. The programme is organised around three pillars – Excellent Science, Global Challenges and European Industrial Competitiveness, and Innovative Europe – complemented by a fourth part dedicated to Widening Participation and Strengthening the European Research Area. Participation data show that actors in Flanders participate strongly: with a financial return of 3.33%, Flanders scores above the expected level.

KU Leuven is a frontrunner in Flanders and in Europe, particularly within the Global Challenges and European Industrial Competitiveness pillar. KU Leuven and Ghent University rank 1st and 5th respectively in the European top 10 of academic participants. The top 10 Flemish participants in terms of number of projects and budget are: KU Leuven, Ghent University, imec, VUB, VITO, University of Antwerp, VIB, ILVO, VLIZ, and Bio Base Europe Pilot Plant.

The overall results for the Framework Programmes show that the Flemish R&I ecosystem excels in fundamental and strategic research, with strong participation in the European Research Council and in the Marie Skłodowska-Curie Actions (MSCA). In terms of applied science, the results show a clear scientific specialisation in fields related to health, digital technologies, and agriculture and the bioeconomy.

Under Horizon Europe (2021–2027), European partnerships form an important component. They are divided into three types: co-programmed partnerships, co-funded partnerships and institutionalised partnerships, such as Joint Undertakings or EIT Knowledge and Innovation Communities.

The core principle is that Member States can achieve more by collaborating and pooling their resources than by acting independently. Flemish actors participate in these partnerships with funding from FWO, VLAIO or through their own resources. In total, the Flemish government contributes around €218 million in cash to the Horizon Europe partnerships.

1.2.2

Digital Europe Programme

The Digital Europe Programme (DIGITAL) is an EU funding programme launched in 2021 to reinforce Europe’s strategic digital capacities and support the deployment and uptake of digital technologies by businesses, citizens and public administrations. It complements Horizon Europe by focusing less on research and more on implementation, scaling and market uptake. With an overall budget of over €8.1 billion for 2021-2027, it is particularly relevant for the WEWIS Department given its links with digital transformation, innovation, industrial competitiveness and strategic autonomy.

The Digital Europe Programme supports the following key capacity areas:

- › High-Performance Computing;
- › AI Continent (Artificial Intelligence, data and cloud, including the European Digital Innovation Hubs (EDIHs);
- › Cybersecurity;
- › Semiconductors, through the Chips for Europe Initiative;
- › Advanced Digital Skills;
- › The wide use of digital technologies and interoperability.

These priorities are implemented through successive work programmes and calls, including the 2025-2027 Digital Europe work programme and separate arrangements for cybersecurity, high-performance computing and chips. The programme is applied in strategically important sectors and policy areas for Flanders, such as manufacturing, mobility, agriculture, health and public services, and has strong links with the Flemish Artificial Intelligence and Cybersecurity Policy Agendas and broader digital R&D priorities.



A major Flemish-European investment in this context is the IC Pilot Line (NanoIC), the largest pilot line for advanced semiconductor technology in Europe and the largest Flemish-linked investment in this field. Flanders also participates in European Testing and Experimentation Facilities for Smart Cities & Communities and Agrifood, and Flemish actors are involved in sectoral European data spaces and related initiatives. Flanders is further aligning with the renewed EDIH network with support for the Flemish EDIH 'FAITH', and with the European AI infrastructure ecosystem through the AI Factory Antenna. Given the programme's strong focus on cofinancing and European-scale infrastructures, strategic prioritisation and coordination at Flemish level remain important.

1.2.3
European Defence Fund (EDF)

The European Defence Fund (EDF) is an EU programme (2021-2027) with a budget of nearly €8 billion that stimulates cooperation in defence research and development. It strengthens the technological sovereignty and competitiveness of the European defence industry.

The EDF is of strategic importance to the Flemish research and innovation landscape in security and defence. The participation of Flemish companies, knowledge institutions and research organisations, as well as the financial contribution Flanders obtains from the EDF, demonstrates a high level of engagement. The EDF is a strategically important vector within the ambitions and objectives of the Flemish Innovation and Industry Strategy for Security and Defence.

1.2.4
European Cooperation in Science and Technology (COST)

COST is a European funding mechanism that supports international research networks across all scientific fields. These bottom-up networks are initiated by researchers and remain open to new participants throughout their four-year duration. Funded through the EU's Research and Innovation Framework Programmes since 1971, COST fosters collaboration, knowledge exchange and innovation across Europe and beyond.

1.2.5
European Strategy Forum on Research Infrastructure (ESFRI)

The European Strategy Forum on Research Infrastructures (ESFRI) plays a key role in policy-making on research infrastructures in Europe. Flanders participates actively in ESFRI through funding and representation in the relevant working groups. The Einstein

Telescope bid – a Flemish government priority described in section 1.1 of this chapter – is closely linked to ESFRI processes.

1.2.6
Smart Specialisation and Spearhead Clusters in the EU Context

In 2012, following the Communication 'Regional Policy contributing to smart growth in Europe 2020', the EC set up thematic S3 Platforms to assist EU countries and regions to develop, implement and review their Research and Innovation Strategies for Smart Specialisation (RIS3). The Flanders' profile for the period 2021-2027 consists of 9 priorities: (1) Sustainable chemistry, (2) Smart manufacturing, (3) Health and life sciences, (4) Specialised logistics, (5) Agro-Food, (6) Electronic systems, IoT and photonic systems, (7) Energy, (8) Environment & cleantech, (9) Blue economy.

The focus of the Flemish cluster policy is on a limited number of large-scale and ambitious spearhead clusters. These clusters develop and implement an ambitious long-term strategy and competitiveness programme for the Flanders strategic domain, in collaboration with companies, knowledge centres and the government (triple helix). Spearhead clusters are also explicitly internationally oriented, focusing on both the internationalisation of the cluster through cooperation with foreign clusters, and the internationalisation of the cluster members.

Current spearhead clusters: Catalisti (sustainable chemistry), ENT.A (entertainment), FLUX50 (energy), VIL (logistics and transport), Flanders' Food (agrofood), Blue Cluster (blue growth), Biova (crossover in biotech, medical and digital technologies).

1.2.7
EU Regional Policy (ERDF / Interreg)

VLAIO is responsible for the implementation of the Flemish programmes related to the European Regional Development Fund (ERDF) delivered under shared management with the EU Commission. The goal of EU regional ERDF policy is to strengthen the economic and social cohesion by pursuing a better balance between the different EU regions.

The programme 'ERDF Flanders' is investing in two thematic objectives – Smart Flanders and Sustainable Flanders – with specific territorial investment strategies for Limburg, West-Flanders, Kempen and the larger cities Antwerp and Ghent. The programme has an EU-budget of approximately 276 million euro for the whole period. Together with the national contribution, the total financing amounts to approximately 596 million euro.

ERDF Interreg is a collection of multiple programmes that operate within the same EU post-2020 framework aimed at smart, green and inclusive growth. Flanders uses these cross-border programmes to complement and strengthen the ERDF Flanders programme. Three types of Interreg programmes apply:

- › Cross-border programmes: Border regio Flanders-Netherlands, Euregio Meuse-Rhine, France-Wallonie-Flanders.
- › Transnational programmes: North Sea Region and North-West Europe.
- › Interregional programmes: Interreg, URBACT and INTERACT.

1.2.8
Vanguard Initiative

The Vanguard Initiative is an inter-regional network of currently 25 regions from 12 EU Member States. Its main ambition is to contribute to the European agenda and boost industrial transformation by innovation, and to set up networks among regions of different (non-bordering) countries in several domains. The initiative supports the development of innovative industrial value chains in Europe by building on smart specialisation (S3) strategies, based on a four-step methodology: learn, connect, demonstrate, commercialize.

Flanders takes the co-lead, together with Norte (Pt) and South-Netherlands, in the pilot action 'High Performance Production through 3D Printing'. Also in the Smart Health/Personalised Medicine Pilot, Flanders takes the co-lead. Moreover, Flanders is involved in pilot actions on Bio-Economy, ADMA Energy, NANO and ESM.

1.3
Implementing actors for EU Programmes

The implementation of EU-level STI policy in Flanders is carried out by a number of public bodies and agencies. Their roles are complementary and together they ensure that Flemish actors are well-positioned to participate in and benefit from EU programmes.

1.3.1
Research Foundation Flanders (FWO)

FWO's general role and position as an agency within the WEWIS policy domain are presented in Chapter 1.

The Research Foundation Flanders (FWO) actively promotes international collaboration as a lever for research excellence. Their actions relate to international mobility, international collaboration (including joint research projects), international networks, European programmes, and involvement in international policy.

With regard to international and EU programmes specifically, FWO combines a funding role – co-financing Flemish participation in EU-level instruments such as the European Research Council and the Horizon Europe partnerships – with a facilitating role, supporting researcher mobility and a wide network of bilateral and multilateral cooperation agreements that allow Flemish researchers to collaborate internationally.

FWO provides back-up funding for excellent ERC applicants (i.e. researchers who applied for funding from the European Research Council but were not selected), ensuring that high-quality proposals that were not funded by the ERC can still be (partially) carried out. In addition, it funds Flemish participation in international collaborations and in selected European partnerships, such as the co-funded partnerships described under Horizon Europe (see section 1.2.1).

International mobility:

- › Incoming – Odysseus programme: a 'brain-gain' programme to (re)-attract top researchers from around the world to the universities of the Flemish Community;
- › Incoming – Grant for a scientific stay in Flanders: researchers can come for 1 up to 3 months to a Flemish research institution;
- › Outgoing – Several grants or fellowships for conferences, workshops, courses, short stays, and longer scientific stays abroad.

International collaboration:

- › Weave: bottom-up cross-European initiative to support excellent European collaborative research projects, based on the Lead Agency Principle. Agreements with Austria (FWF), French-speaking Community of Belgium (F.R.S.-FNRS), Germany (DFG), Luxembourg (FNR), Poland (NCN), Slovenia (ARIS), Sweden (Formas) and/or Switzerland (SNSF);
- › Scientific mobility projects to promote exchange of researchers: agreements with Japan, China, Brazil, France (Tournesol), South Korea and Taiwan;
- › Bilateral research cooperation: with Brazil, China, Vietnam, South Africa and Québec (Canada);
- › International research infrastructure: support for researchers at Flemish Community institutes who want to conduct research at major international research facilities;
- › International Coordination Action: support for coordination activities of international collaborative associations (EU, OECD, UN, UNESCO, WHO...);
- › Organisation of scientific meetings in Belgium: support for researchers for the organisation of scientific conferences;
- › Scientific Research Network: support for coordination of scientific research networks at postdoctoral level.

FWO also facilitates the operations of Einstein Telescope Flanders, which is embedded within the FWO. In doing so, Flanders is strengthening a compelling bid to bring the Einstein Telescope to the border region of Belgium, the Netherlands and Germany. ET-Flanders also actively invests in science communication for the Einstein Telescope.

1.3.2 Flanders Innovation & Entrepreneurship (VLAIO)
VLAIO is the National Contact Point (NCP) for Flanders for supporting applications relating to thematic programmes within the Framework Programme for Research & Innovation, the Partnerships, EUREKA and some Joint Undertakings.

In the field of international innovation, VLAIO provides co-funding for participants from Flanders to take part in European projects, including projects under the Partnerships, the Chips Joint Undertaking, and EUREKA. EUREKA is an intergovernmental initiative to promote international cooperation through projects for applied and market-oriented industrial R&D, based on a bottom-up principle. Belgium, through a collaboration between VLAIO, SPW, Innoviris and Belspo, holds the EUREKA presidency for the 2026–2027 period.

VLAIO further participates in several Important Projects of Common European Interest (IPCEIs) in domains such as batteries, hydrogen, microelectronics, cloud technologies and health, and is currently involved in ongoing IPCEIs in areas including artificial intelligence, advanced semiconductor technologies, innovative nuclear technologies, circular advanced materials and bioeconomy.

Moreover, VLAIO shares best practices with other European agencies in the innovation domain and is involved in various international networks and actions. For example, it is a member of the Association for Technology Implementation in Europe (TAFTIE). In 2026, VLAIO acts as chair of TAFTIE.

The Enterprise Europe Network (EEN) Flanders consists of VLAIO and FIT (Flanders Investment and Trade), and provides companies with reliable information on European legislation and regulations, connects them with European and international partners for economic and technological cooperation, and offers access to a global network.

1.3.3 NCP Flanders
FWO and VLAIO together serve as National Contact Points (NCPs) for the EU research and innovation programs Horizon 2020 and Horizon Europe. Since summer 2021, NCP Flanders has also been the contact point for the Digital Europe Programme (DEP) and EDF. NCP Flanders provides free of charge information and advice to all stakeholders located in Flanders (enterprises, institutes, non-profit organisations, universities, university colleges...) and to all Flemish public institutions located anywhere in Belgium.

1.3.4 VLEVA
The Flemish-European Liaison Agency (VLEVA) is a not-for-profit association subsidized on a structural basis by the Flemish Government. VLEVA's mission is to form a link between the EU and the civil society and local authorities in Flanders. In the field of STI, VLEVA monitors the calls from various EU initiatives, in order to provide maximal information on opportunities for EU programme participation for actors from Flanders. It also takes part in the European Regions Research and Innovation Network (ERRIN) for Flanders.



All the different public and private actors that are interested or eligible can initiate their own policy initiatives and programmes at the international level.

2

Bilateral and international activities (excluding EU-related activities)

2.1 Policy preparation and follow-up

2.1.1 Department of Chancellery & Foreign Affairs
Flanders acts internationally in all areas for which it has internal jurisdiction such as economy, innovation, education and employment. Flanders has the constitutional right to conclude internationally-binding treaties in these areas, and can appoint diplomatic representatives abroad. The Department of Foreign Affairs monitors international policy coherence and is responsible for the coordination between the various policy areas. It is also the first point of contact for foreign embassies and diplomatic representations.

The Department of Foreign Affairs is the responsible administration for bilateral and multilateral treaties, agreements and declarations of intent. These agreements are often elaborated through multi-annual working programmes that cover various policy areas, one of which is scientific research and innovation. The current active agreements include those with Estonia, Latvia, Poland, South Africa, Romania, Lithuania, Croatia, Slovenia, Hungary, Bulgaria, North Rhine-Westphalia (Germany), Catalonia (Spain) and the German-speaking Community (Belgium). Several other agreements are currently being negotiated.

The Minister-President of Flanders offers Flemish STI actors the possibility to participate in official missions abroad, based on the so-called 'academic diplomacy' principle. Flemish STI actors (universities, innovative companies, knowledge institutes) can also participate in Belgian economic missions or other official missions (e.g. State visits) that take place all over the world.

2.1.2 The WEWIS Department
The WEWIS Department prepares and monitors the memoranda of understanding (MoU) that are concluded directly between the administrations or ministers charged with R&D&I. During ministerial missions abroad or during the official visits of foreign delegations to the Flemish minister or to public WEWIS entities, such agreements may be discussed and/or signed officially.

In some cases, treaties that include topics relating to scientific research exist or are being prepared between Belgium and another country. Whenever it is required, the WEWIS Department acts as the responsible entity to monitor such agreements.

2.1.3 International organisations
In addition to the EU level, Flanders also has representative functions linked to the preparation and follow-up of the policy-making of various international organisations. This includes the OECD and the United Nations (UN). More precisely:

- OECD:**
- › The Committee for Scientific and Technological Policy (CSTP): The WEWIS Department participates in the CSTP as well as in several of its sub groups, including the Global Science Forum, the Working Party on Technology and Innovation Policy (TIP), the National Experts on Science and Technology Indicators (NESTI), and the Working Party on Biotechnology, Nanotechnology and Converging Technologies (BNCT). WEWIS also provides a substantial contribution to the OECD's STIP Compass.
 - › The Digital Policy Committee (DPC): WEWIS is involved in this committee as well.
 - › The OECD Steel Committee and the Global Forum on Steel Excess Capacity (GFSEC).
- UN:**
- › Support for the Flanders UNESCO Science Trust Fund (FUST: capacity building in developing countries);
 - › United Nations University – Centre for Regional Integration Studies (UNU-CRIS) until 2025;
 - › The project office of the Intergovernmental Oceanographic Commission (IOC) for IODE at Ostend.

- NATO:**
- › The Flemish Government decided in 2023 to contribute to two NATO initiatives: the Defence Innovation Accelerator for the North Atlantic (DIANA) and the NATO Innovation Fund. DIANA focuses on dual-use technologies for solving security and defence issues, including AI, big data and cloud computing, hypersonic systems, quantum and biotechnology.
 - › The NATO Innovation Fund is the world’s first multi-sovereign venture capital fund. The fund will invest €1 billion in early-stage start-ups and other venture capital funds working on emerging and disruptive dual-use technologies. Three Flemish Strategic Research Centers (SRC) will act as a test center within the NATO Alliance.



2.2
Policy implementation

2.2.1
Flanders Investment and Trade (FIT)

Flanders Investment & Trade (FIT) plays a central role in the internationalisation of the Flemish economy. It supports Flanders-based companies in their export and internationalisation ambitions, while also attracting and guiding foreign investors to Flanders. FIT provides tailored advice, market intelligence, networking opportunities and financial support, and works with partners to strengthen Flanders’ international business strategy. Together with VLAIO, FIT organises Enterprise Europe Network Flanders, which helps companies access European and international opportunities, partners, technologies and funding.

A key priority within FIT’s internationalisation strategy is the global positioning of Flanders as a leading innovative and technology-driven region. FIT has a strong worldwide network of more than 70 offices, including 10 Science & Technology Counselors in key innovation hotspots: New York, Palo Alto, Paris, London, Copenhagen, Munich, Mumbai, Singapore, Guangzhou and Tokyo. These offices focus on Digital Tech, Health Tech and Climate Tech. They connect Flanders-based companies, research centres, clusters and other innovation actors with international technology ecosystems, while also identifying foreign technology players that can strengthen Flanders’ innovation landscape.

While FIT focuses primarily on the internationalisation of companies and the positioning of Flanders within global technology ecosystems, the WEWIS Department contributes to the bilateral and multilateral implementation of STI policy from a governmental perspective. Its role is situated at the interface between policy, diplomacy and international cooperation, translating Flemish STI priorities into concrete agreements, programmes and exchanges with partner countries and international organisations

Flanders Investment & Trade agency: presence in the world

Figure 10



Source: © Flanders Investment and Trade (FIT) Agency

Technological counselors at the Flanders Investment and Trade agency

Table 4

HOTSPOT	FOCUS AREA	FOCUS DOMAIN
NEW YORK	East Coast US	Health Tech
PALO ALTO	Bay Area – West Coast US	Digital Tech & Climate Tech
PARIS	France & South Europe	Digital Tech & Health Tech
LONDON	UK	Health Tech & Digital Tech
COPENHAGEN	Scandinavia	Health Tech & Climate Tech
MUNICH	DACH region (Germany, Austria, Switzerland)	Digital Tech & Health Tech
MUMBAI	India	Digital Tech
SINGAPORE	South & Southeast Asia	Digital Tech & Climate Tech
GUANGZHOU	Pearl River Delta – China	Digital Tech
TOKYO	Japan	Health Tech & Digital Tech

2.2.2

WEWIS Department – Bilateral Implementation

The WEWIS Department manages several multi-annual agreements and their accompanying budgets to implement actions within the framework of the United Nations (UN), including the Flanders UNESCO Science Trust Fund (FUST).

The WEWIS Department also hosts, or is part of the Flemish delegation, during visits from foreign authorities, delegations and multilateral authorities. Conversely, it can be a part of, or represented in, Flanders' delegations abroad.

Through the 'Flanders Inspires International Visitors Programme' (FIIVP), the WEWIS Department presents Flanders' strengths in the fields of economy, science and innovation, and learns from other countries and regions. The FIIVP has been ongoing since 2010 and aims to establish long-term relationships with high-level international opinion-makers and decision-makers by organising a broad multi-sectoral programme, usually focused on a specific theme.

2.2.3

FWO – Bilateral Research Collaboration

The FWO supports bilateral research cooperation through specific agreements and funding instruments. Scientific cooperation and researcher exchange agreements exist with Japan, China, Brazil, Argentina, France, South Korea, Taiwan, Turkey, Mexico and France-Tournesol. Bilateral research cooperation programmes exist with Brazil, China, Vietnam, South Africa and Québec (Canada).

2.2.4

VLAIO – Cross-border Programmes

In the field of international cooperation via the EU Regional Development Fund (Interreg), there are several ERDF-Interreg initiatives in which STI actors, public authorities and private partners from Flanders jointly support multi-annual projects. Projects support new strategic initiatives such as the Einstein Telescope bid in the region Meuse-Rhine. Cooperation between SMEs takes place within 3 CrossRoads programmes and in Crosscare 2.0. Furthermore, there are cooperations with the neighbouring regions of North Brabant (the Netherlands) and North Rhine Westphalia (Germany) based on joint government declarations. In recent years, collaboration has been extended to the domains of sustainable chemistry and circular economy.



VLAIO also supports Flemish participation in EUREKA, an intergovernmental initiative that promotes international cooperation through market-oriented industrial R&D projects. EUREKA enables companies and knowledge actors to build bottom-up international consortia, with support provided through national and regional funding schemes.

3

International activities from research organisations

Most research and innovation-performing organisations can autonomously develop international links, ranging from network memberships and joint initiatives to bilateral agreements and foreign representation. Such initiatives are the result of a gradual trend towards greater internationalisation, whereby companies, universities, research institutes and knowledge centres develop bottom-up cooperation with foreign partners.

All five **universities of the Flemish Community** have developed partnership and cooperation agreements with research organisations worldwide and take part in international networks and programmes. Examples include the Coimbra Group (KU Leuven), CESAER (UGent), the University Consortium International (UHasselt), the Network of Universities from Capitals of Europe (VUB) and the Utrecht Network (UA). All five universities are a member of the European University Association (EUA). On top of that, they are all part of several other international initiatives aiming to shape EU policy, such as the League of European Research Universities – LERU (KU Leuven), The Guild (UGent) and the Young European Research Universities Network – Yerun (UA).

The Flemish strategic research centres are strongly embedded in international research and innovation networks, each in line with their specific mission and domain. **Imec** has developed a pronounced global presence, with its headquarters in Leuven and an extensive network of research sites and offices across

Europe, the United States and Asia. **VITO** combines a strong European orientation with an active international footprint beyond Europe, with subsidiaries and long-term activities in India and the Middle East. The international engagement of **VIB** is primarily situated within the European research landscape, contributing to knowledge exchange and the strengthening of European research excellence in the life sciences. Most strategic research centres are members of EARTO, the European association representing research and technology organisations and supporting their role in Europe's innovation ecosystem. **Flanders Make** participates in numerous international collaborative projects and is actively engaged in initiatives such as the Mechatronic Alliance, and the Eureka Smart Platform. VLIZ concludes cooperation agreements with international universities, research institutions and individual research groups, and participates in international networks and projects in the field of marine sciences. ITG works with many scientific institutions, governments and organisations all over the world for the long-lasting improvement of health care and disease control in developing countries.

In addition to the above examples of universities and (strategic) research centres, all other knowledge centres and organisations in Flanders cooperate with international partners in various initiatives, networks or actions.

ANNEX I

Belgian institutional context

1

Federalism in Belgium⁸

Belgium has **two types of federated entities**: Regions and Communities. That is why our state structure is so complicated. The country was divided into regions and communities because the Flemings and Walloons wanted a federal state for different reasons.

- › Flemish citizens pursued cultural autonomy for all Dutch speakers, as well as for Flemish citizens living in Brussels. That is why three Communities were created: the Flemish Community, the French Community and the German-speaking Community. The word 'community' refers to the population group, which must be able to make decisions independently.
- › The Walloons mainly wanted to pursue their own social-economic policy. For this reason, three Regions were created: the Flemish Region, the Brussels-Capital Region and the Walloon Region. The word 'region' refers to the territory.

The Belgian form of federalism is unique in the world. Its main characteristics are briefly:

- › each entity has exclusive powers and competencies in various areas (no shared competencies);
- › each entity has its own separately elected parliament, government, administration, legislation, advisory bodies, etc.;
- › no hierarchy exists between the different entities regarding their competencies (no overruling is possible);
- › since the fourth state reform of 1993, the principle of "in foro interno, in foro externo" has been applied, meaning that each entity executes its competencies both inside and outside Belgium.

1.1

The communities

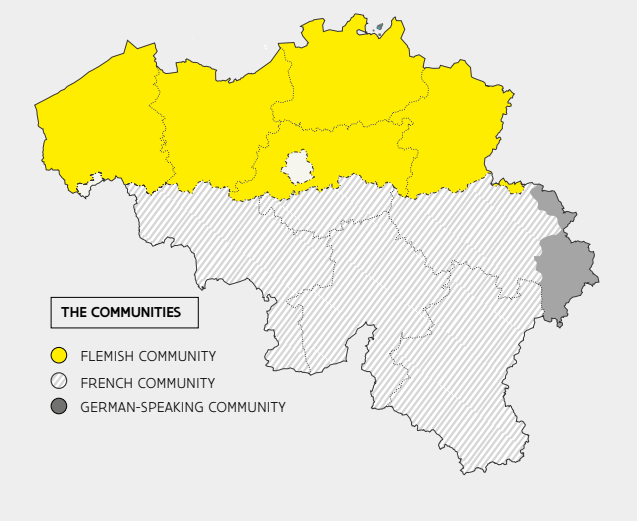
Belgium is divided into a Flemish, a French and a German-speaking Community.

- › The Flemish Community comprises all the inhabitants of Flanders and Brussels-based Flemings. Brussels Flemings live in the bilingual Brussels-Capital Region and speak Dutch.
- › The French Community comprises all the residents of Wallonia and French-speaking inhabitants of Brussels.
- › The German-speaking Community comprises all the inhabitants of the nine German-speaking municipalities in the east of Belgium.

Each community has its own legislative body, and its own government.

Communities in Belgium

Figure 11



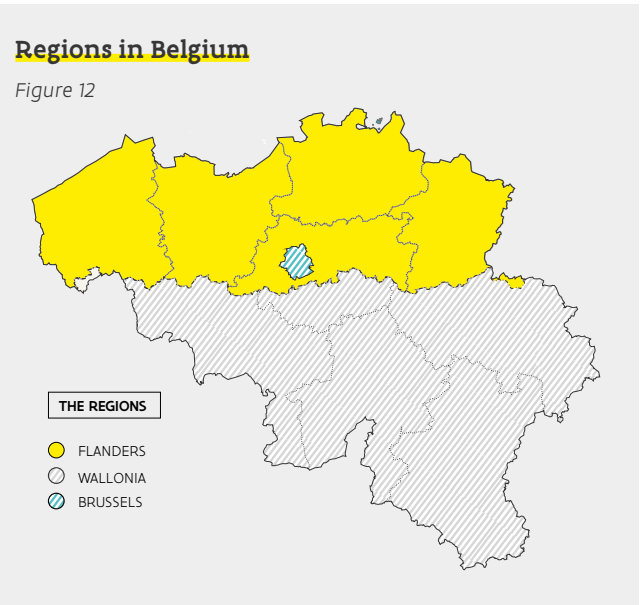
⁸ Source: www.belgium.be/nl/over_belgie/overheid/federale_staat (4 February 2020)

1.2
The regions

In addition, Belgium is divided into three Regions: the Flemish and Walloon Regions and the Brussels-Capital Region.

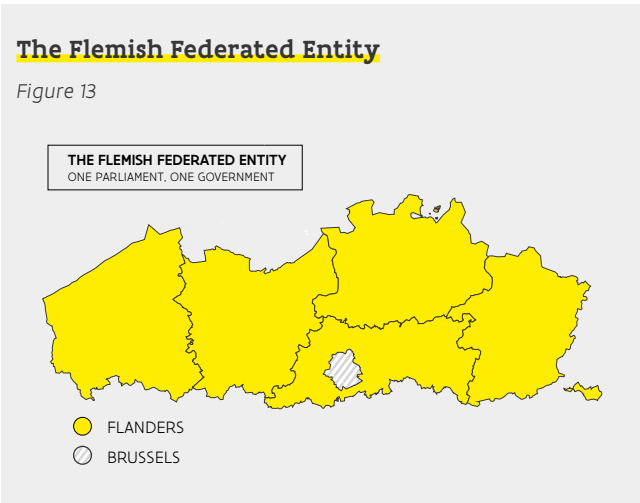
- › The Flemish Region is made up of the territory of the five Flemish provinces.
- › The Walloon Region encompasses the territory of the five Walloon provinces. There are also nine German-speaking municipalities in the Walloon Region. They do not constitute a German-speaking region.
- › The Brussels-Capital Region encompasses the territory of the nineteen municipalities of Brussels.

Each region has its own legislative body, and its own government. The regional governments and legislative bodies decide upon matters such as housing, economy, transportation, public works, the environment, spatial planning, energy, land use etc.



1.3
One Flemish Government

Contrary to the Walloon side, the Flemish community and the Flemish region were immediately combined into one Flemish federated entity, with one Flemish Parliament and one Flemish Government. This single government and parliament can decide on all matters in Flanders and on all matters pertaining to the Flemish community in Brussels.

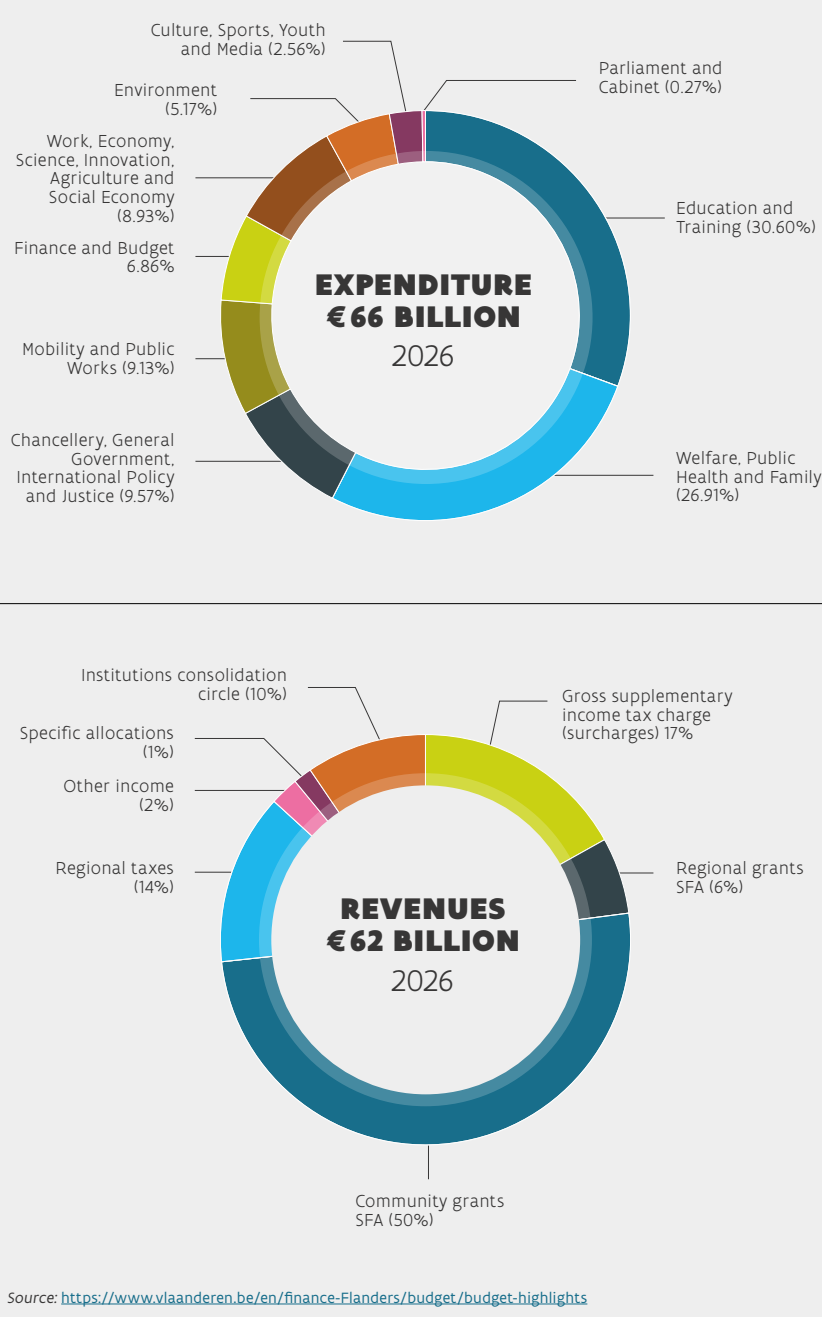


1.4
Budget

Flanders' budget in 2026 amounts to 66.033 billion euro. Its budget is for the biggest part funded by federal government resources. Flemish (supplementary) taxes make up approximately one third of the revenue. Expenditure-wise the bulk is spent on the policy areas Education and Training and Welfare, Public Health and Family. The policy area WEWILS is responsible for 8.93% of Flanders' expenditure.

Budget of the Flemish Government in euros

Figure 14



1.5 Competencies of the Flemish Government⁹

The Flemish Government makes decisions about aspects of people’s lives. This means that it has a huge influence over the life of every Flemish citizen (environment, schools, welfare and so on). This is an overview of the areas on which the Flemish Parliament can legislate.

Competencies of the Flemish Government

Table 5

PERSONAL ASSISTANCE	HEALTH CARE	CULTURE
› youth protection › youth policy › family policy (Child & Family) › family allowance, child birth allowances and adoption allowances › child care › policies for the elderly and the disabled › equal opportunities policies and the Equal Opportunities Centre › the integration of immigrants	› hospital policy › preventive health policy › home care › policy for the elderly and homes for the elderly › mental well-being › assistance to disabled persons	› arts › cultural heritage › museums › libraries › media (the Flemish Public Broadcaster VRT) › sports and tourism
LANGUAGE LEGISLATION	EDUCATION	ENVIRONMENT AND WATER POLICY
› use of languages by the authorities › use of languages in the business community	› all aspects of educational policy › except for a small number of matters such as compulsory education and teachers’ pensions which are a federal competence	› environmental protection › waste management (Public Waste Agency of Flanders OVAM) › drinking water › waste water purification › sewage systems
MUNICIPALITIES AND PROVINCES	PUBLIC WORKS, MOBILITY AND TRAFFIC SAFETY	EMPLOYMENT
› financial resources › administrative supervision	› roads › waterways and inland navigation › seaports › regional airports › regional transport (public transport agency De Lijn) › Belgian institute for traffic safety and technical inspection › driving instruction, driving schools and exam centres	› labour market policy and employment (Flemish Service for Employment and Vocational Training VDAB) › employment programmes

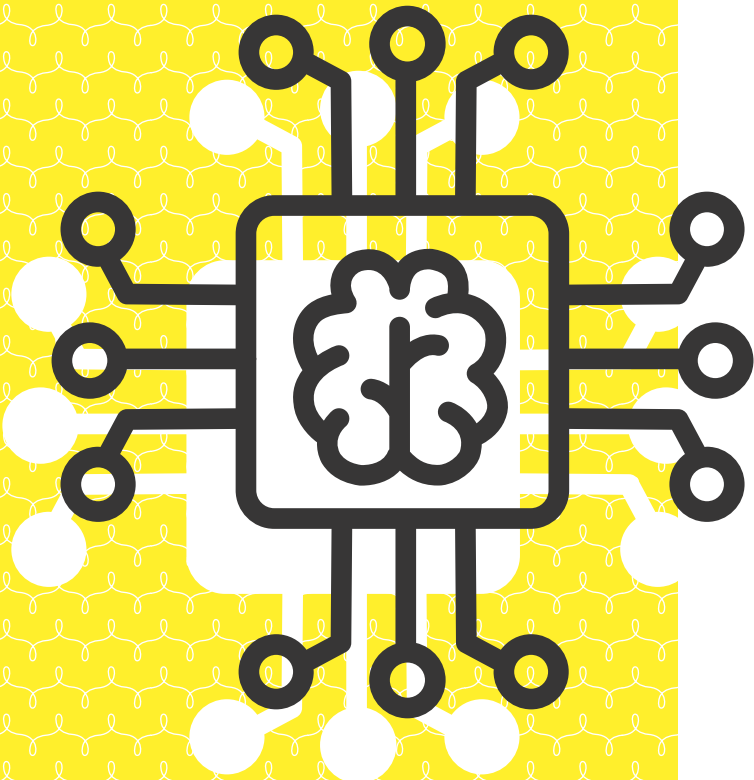


ECONOMY	ENERGY	AGRICULTURE AND SEA FISHERIES
› support to companies › permits for trading establishments › foreign trade › statistical research › professional qualifications › commercial rental legislation	› distribution of electricity and natural gas › promotion of rational energy consumption	› support to agricultural and horticultural companies › Flemish promotion centre for the marketing of agriculture, horticulture and fisheries (VLAM)
LAND-USE PLANNING AND NATURE CONSERVATION	HOUSING	SPATIAL PLANNING
› land consolidation › parks › forest › hunting › fisheries › animal welfare	› building of social housing › financial housing support › rental of commercial and residential properties, leases, expropriations	› town and country planning › building permits › urban renewal › monuments and landscapes
FOREIGN AFFAIRS	SCIENTIFIC RESEARCH ABOUT THE FLEMISH COMPETENCES	
› international treaties regarding Flanders’ competences › Cooperative development › foreign trade		

9 Source: Flemisch Parliament (www.yumpu.com/en/document/read/63047400/vp-a5-brochure-en-v28012020-druk)

ANNEX II

Socio-economic, technological and scientific context



1

Performance of Belgium and/or Flanders in international perspective

Belgium and/or Flanders are listed in several EU or other international rankings based on (several) R&D&I criteria or indicators.

The main indexes are:

1.1 European innovation scoreboard, EIS 2025
See chapter 1

1.2 Regional innovation scoreboard, RIS, 2025, from the EC
See chapter 1

1.3 Global innovation index, GII 2024
The GII considers Belgium ranks 26th for input and 22th for output.

Notable strengths are 'education', 'knowledge workers', 'GERD', 'general infrastructure' and 'school life expectancy'.

For 10 indicators it reaches the **top 10 of the world**: education, researchers (FTE/population), GERD (%GDP), logistics performance, knowledge workers, Firms offering formal training (%), GERD performed by business (%GDP), GERD financed by business (%GDP), research talent (% in business), software spending (%GDP).

1.4 Community Innovation Survey, CIS, 2023
The CIS contains a broad set of indicators on innovation activities of enterprises and provides information on environmental benefits due to innovation.

With a score of 75% (versus 70% for Belgium) Flanders ranked first during the period 2020-2022 in the list of the highest proportion of enterprises with innovation activity (product innovations, business process innovations and/or ongoing or abandoned innovation activities), Flanders is ranked among the top countries Belgium (70%), Greece (66%), Norway (64%) and Germany (63%). The EU average is 51% of enterprises of 10 employees or more that reported innovation activity during the period 2020-2022.

2

Focusing on strengths and “spearhead domains”

The **relative specialisation index** can be a useful indication to map the specialisation structure of the science, innovation and economy system, which in turn can be a starting point for the future potential for smart specialisation. This index compares the distribution of activities in science production, technology production, economic performance from a region or a country with the average distribution of the same type of activities in the whole of Europe (or the world). The statistics on respectively the scientific publications, patents and exports are used as proxies for these kinds of activities that can be considered as successive steps in the innovation trajectory, from idea to market. A more than average share of these suggests a specialisation in that specific domain.

2.1 Scientific specialisations
The scientific specialisation pattern of Flanders is rather **typical for a mature economy with a long tradition in scientific research that covers the whole spectrum**. The Flemish profile is similar to that of most Western countries, with life sciences and medical sciences as the dominant publications areas.

Annex VI provides more details on the scientific publication performance (as well as on the citations and co-publications) and contains a spider web display that benchmarks Flanders to the world standard.

2.2 Technological specialisations

This section considers the technological specialisation pattern of Flanders. The RTAN index (Relative Technological Advantage Normalized Index) is used for mapping technological specialisation. It is based on a breakdown of EPO patents in 35 technology domains (ISI, Fraunhofer Gesellschaft). Patent data provide an insight in technological progression since they represent an indicator that is used to get a picture of the innovation degree within an organisation, region or innovation system. The index represents the share of a given technology domain in the Flemish patent portfolio, compared to the share of that technology domain in the patent portfolio of a reference group: EU-15, US, Canada, Switzerland, Japan and South-Korea.

An RTAN index between -1 and 0 implies relative under specialisation in Flanders, an index between 0 and +1 implies that Flanders is specialised in that domain.

The radar graph (see Figure 7) reveals that Flanders has a relatively strong technological specialisation in chemical domains (e.g. basic materials chemistry, food chemistry, macromolecular chemistry, polymers), as well as biotechnology

and pharmaceuticals, although specialisation in the latter ones has been decreasing over the considered time period. Further Flemish specialisations are semiconductors, textiles and paper machinery and other specialised machinery, all of which have been increasing over the considered period; as well as - but to a lesser extent - microstructures and nanotechnology.

This specialisation is driven on the one hand by several Flemish companies with strong in-house R&D in sectors such as machinery/mechatronics, foods and particularly pharmaceuticals (which is the largest high- technology sector in Flanders). On the other hand, these specialisations also reflect the activity of the different Flemish strategic research institutes: nanotechnology (IMEC), biotechnology (VIB), materials and energy (VITO) and specialised research departments at the five universities of the Flemish Community (see page chapter 3).

Flanders represents about two thirds of the total Belgian patent portfolio, whereby 82% of patent activity is accounted for by private companies (see Figure 7).

2.3 Economic specialisations

To establish the degree of economic specialisation, the Revealed Comparative Advantage normalized index (RCAN) is used. It benchmarks the breakdown of Flemish export in sectors (NACE) to the sectoral breakdown of export in a set of reference regions and countries. The figures reveal a very strong specialisation of Flanders in **printing and reproduction of recorded media** and strong specialisations in **the manufacture of chemicals and chemical products** and **manufacture of food products, beverages and tobacco and manufacture of basic metals and fabricated metal products, except machinery and equipment**.

These are usually sectors that are closely linked to the intermediate position of Flanders in international value chains, whereby Flanders represents a link to larger economies, in particular Germany. In addition, Flanders is relatively specialised

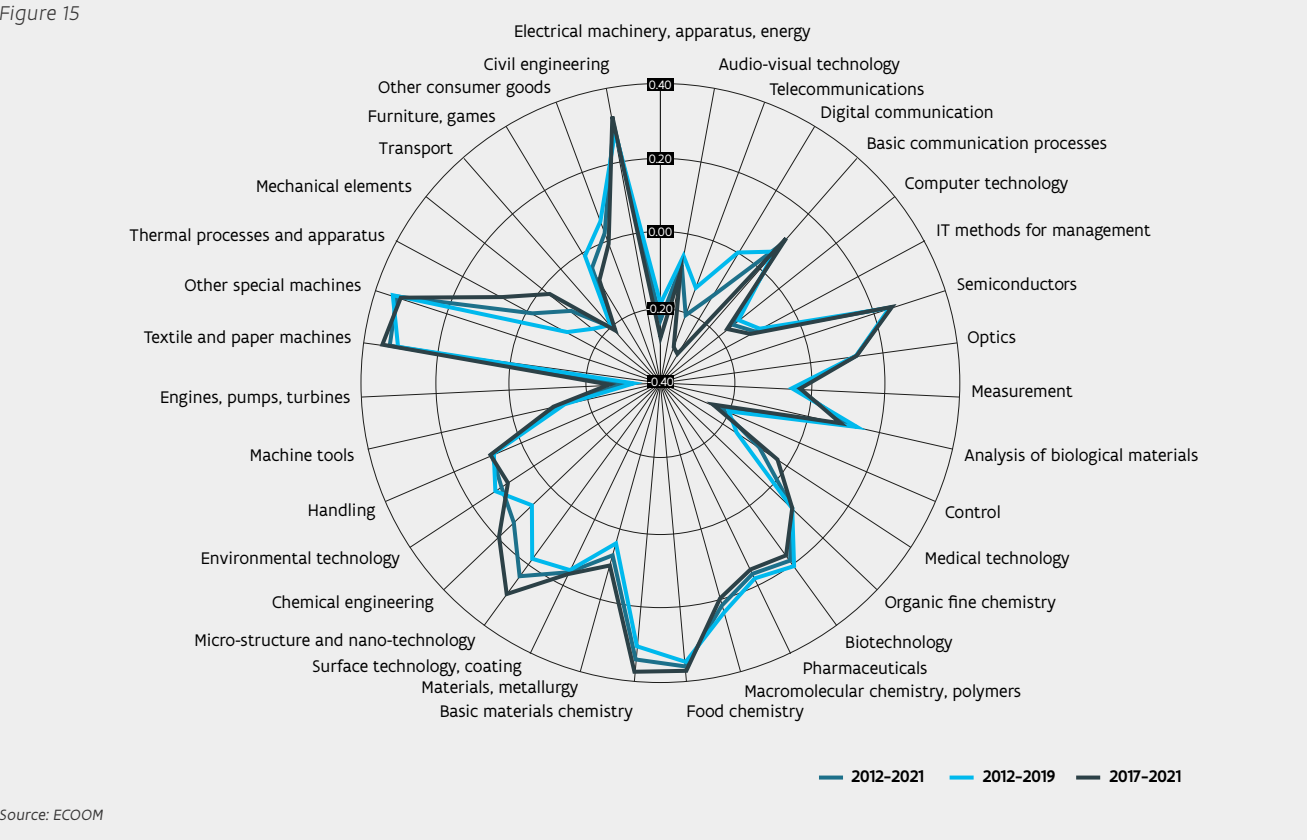
in a “traditional” sector like food products: it is a very important industrial sector in terms of employment with a wide set of specialisations such as pork meat, frozen vegetables and potatoes, etc. Also, the manufacture of basic metals, manufacture of fabricated metal products, except machinery and equipment sector remains an economic specialisation in Flanders.

The economic specialisation pattern of Flanders reflects that of a mature and (still) highly diversified economy.

In most sectors, the Flemish economy has been able to maintain a critical mass and remain competitive, while the under-specialisation in some sectors is due to the conditions in Flanders (e.g. mining).

Technological specialisation (RTAN) of Flanders based on the EPO patents, 2012-2021, 2012-2016 and 2017-2021, index between -1 and +1.

Figure 15

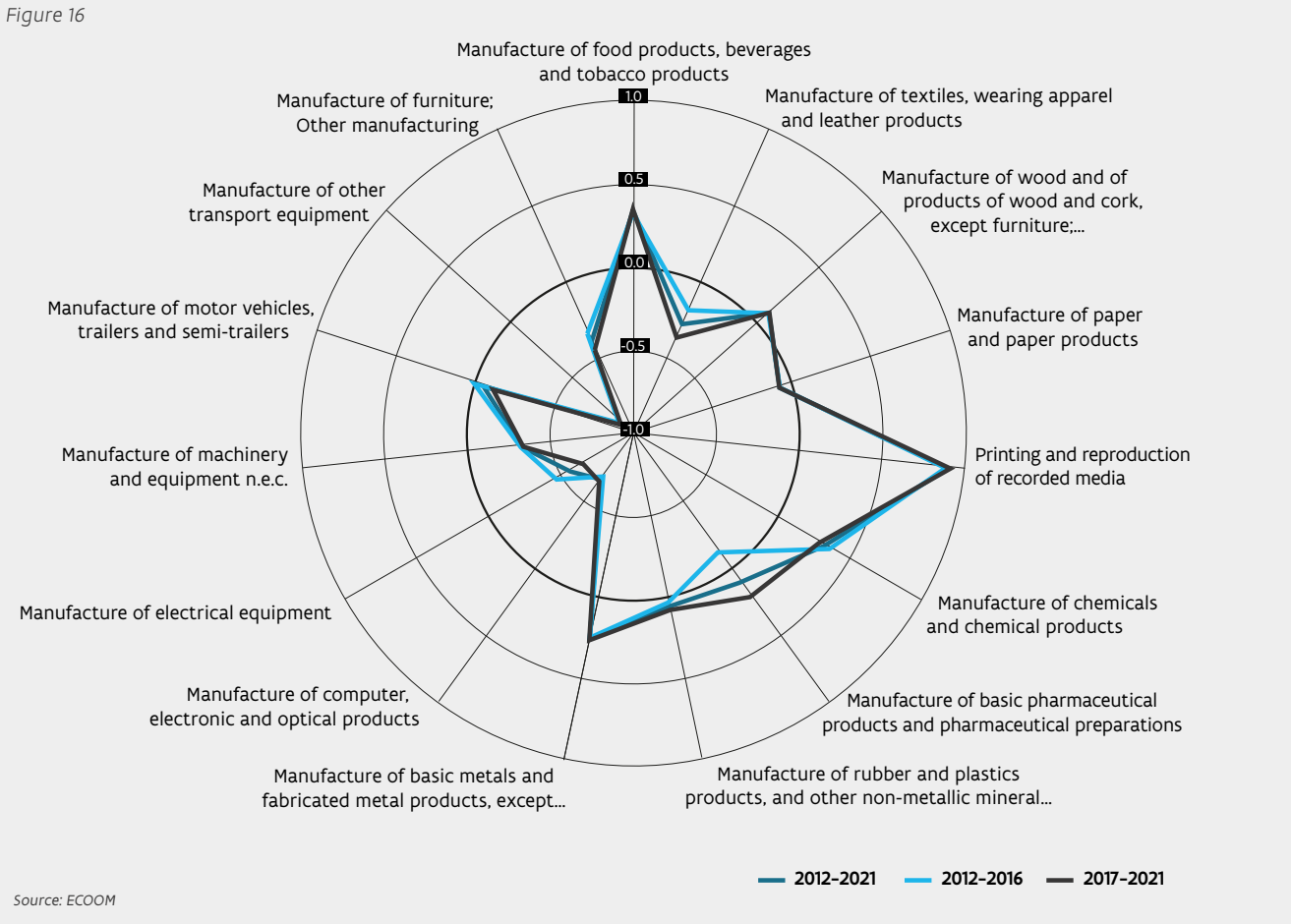


Source: ECOOM

For the calculation of the RCA values the NACE export value information of the following reference countries en regio were used: Flanders, Belgium, Austria, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, The Netherlands, Portugal, Spain, Sweden and United Kingdom, US, Canada, Switzerland, Japan and South-Korea .

Economic specialisation (RCAN) pattern of Flanders based on the relative export shares, 2012-2016, 2017-2021 and 2012-2021, index between -1 and +1.

Figure 16



Source: ECOOM

NACE sector 19 (Manufacture of coke and refined petroleum products) were not included in the calculation. The reason is the missing export values for several EU-countries, whereby a distorted representation of the RCA values is created.

2.4 Combined technological - economical specialisation profiles

The coherence of specialisations in the subsequent stages of the innovation trajectory for a specific industry, from idea to (export) market, can be considered as competitive advantage of a region or country for this specific industry. However, the correspondence between these classifications is only partially assured, hence there is no direct match between science classifications and technology classifications. Between technology and economic classifications this matching has been achieved based on the so-called “Fraunhofer classification”.

The figure below represents the alignment between technological (RTA) and economic (RCA) specialisation patterns in Flanders. For most domains, technological and economic specialisation are in line with one another.

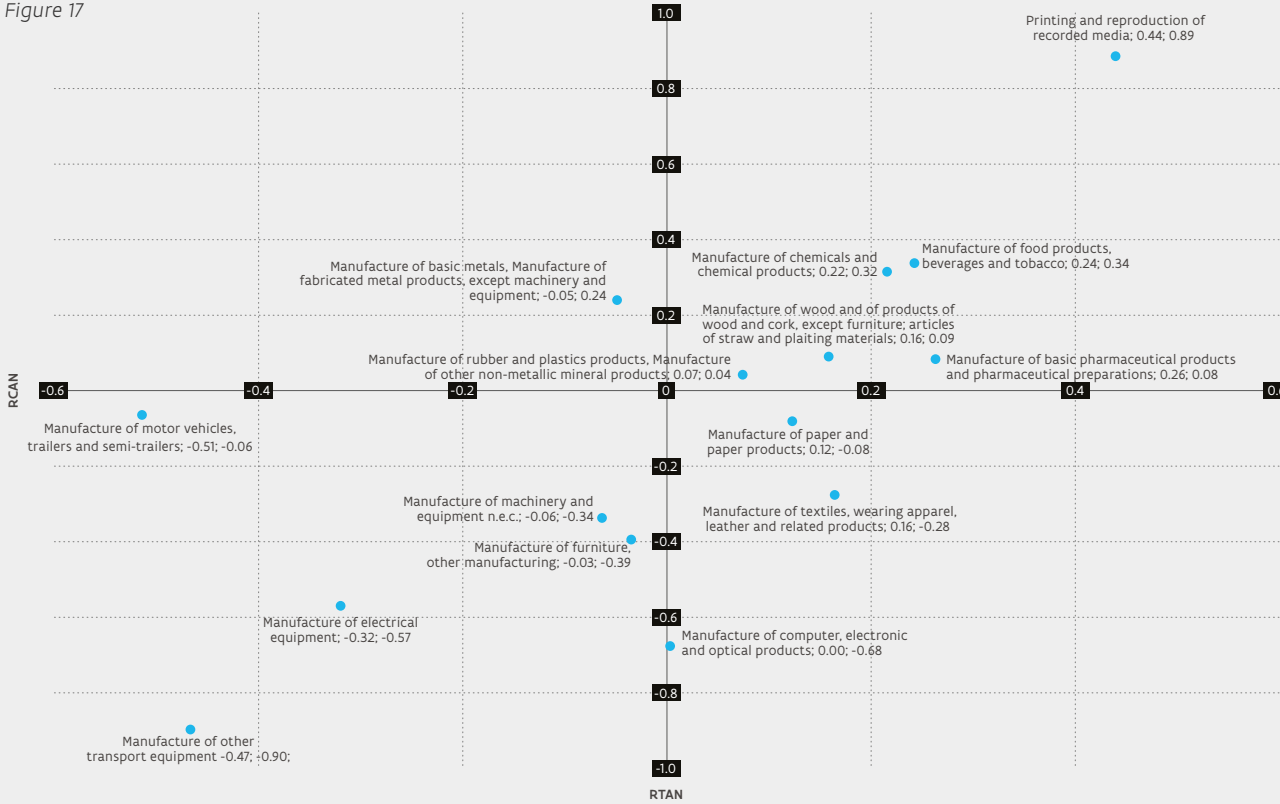
They are both high for ‘Printing and reproduction of recorded media’, ‘Manufacture of food products, beverages and tobacco’, ‘Manufacture of chemicals and chemical products’, ‘Manufacture

of basic pharmaceutical products and pharmaceutical preparations’, ‘Manufacture of wood and of products of wood and cork, except furniture; articles of straw and plaiting materials’ and ‘Manufacture of rubber and plastics products’. They are both low for ‘Other transport equipment’, ‘Manufacture of electrical equipment’, ‘Manufacture of machinery and equipment n.e.c.’, ‘Manufacture of motor vehicles, trailers and semi-trailers’ and ‘Manufacture of furniture, other manufacturing’.

For some domains however, technological specialisation in Flanders is not fully translated into economic specialisation: ‘Manufacture of paper and paper products’, ‘Manufacture of textiles, wearing apparel, leather and related products’ and ‘Manufacture of computer, electronic and optical products’. On the other hand, for one domain, the economic specialisation in Flanders is not fully mimicked in the Flemish technological specialisation pattern: ‘Manufacture of basic metals, manufacture of fabricated metal products, except machinery and equipment’.

Combination of the relative technological specialisation patterns (RTAN) with those for economic specialisation (RCAN) (2010-2019)

Figure 17



Source: ECOOM

For the calculation of the RCA values the NACE export value information of the following reference countries and regions were used: Flanders, Belgium, Austria, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden and United Kingdom NACE sector 19 (Manufacture of coke and refined petroleum products) were not included in the calculation. The reason is the missing export values for several EU-countries, whereby a distorted representation of the RCA values is created. NACE sector 18 (Printing and reproduction of recorded media) has the highest RTA and RCA values (2.57; 16.51). This sector were not included in the graph in order to visualize, more clearly, the other sectors.



ANNEX III

Funding of R&D



1

Introduction

Investments in R&D are key to ensuring a high level of productivity and maintain competitiveness in a global perspective. R&D-investments are also expected to be crucial to tackle grand societal challenges such as the energy and climate transition or an ageing population. In its Innovation Pact of 2003 and on subsequent occasions (Pact 2020, Flanders in Action, Vision 2050) the Flemish Government has stated its ambition to reach a 3% R&D-intensity, thus subscribing to the Europe 2020 3%-target.

As will become clear in the following sections, the Flemish Government has made laudable efforts in pursuit of the 3%-target.

2

GERD

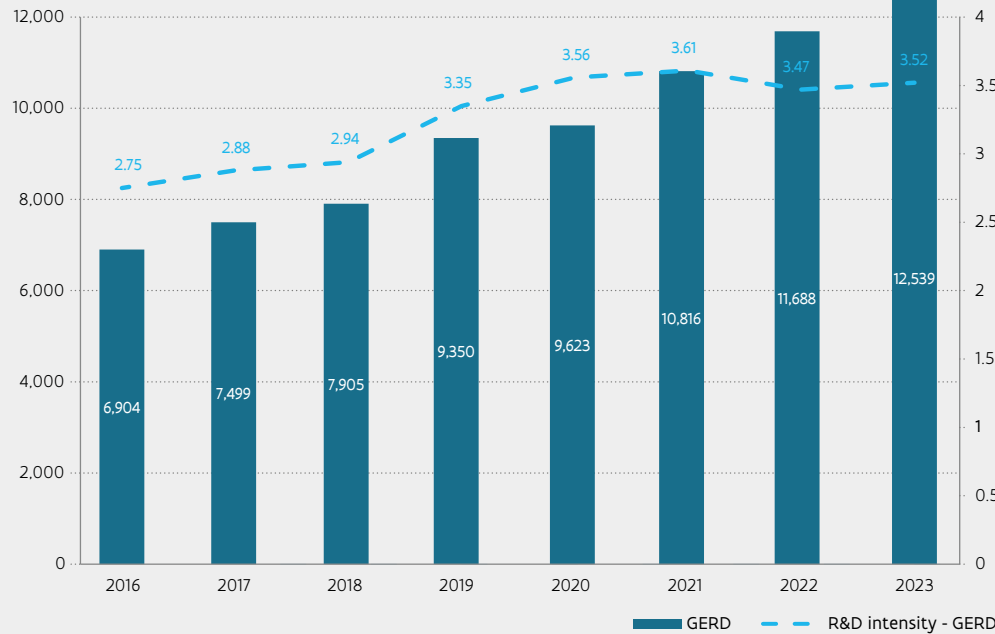
In 2023, Flanders spent over 12,539 million euros on R&D (GERD). More than 71% of the research cost was spent by companies (the Business Enterprise Sector or BES) and 29% by public research institutes (PNP, GOV and HES). The R&D effort for Flanders represented almost two-thirds of the GERD for the whole of Belgium in 2023.

The R&D intensity (measured as the percentage of GERD related to GDP) of Flanders was 3.52% in 2023 (compared to 3.56% in 2020, 3.61% in 2021 and 3.47% in 2022). Flanders reaches with this figure quite well above the Europe 2020 3% target and only Korea (4.96%) and Sweden rank still higher (3.60%). Flanders ranks higher than Austria, Germany, the USA and the EU-27 average.

When the total R&D intensity of the GERD (3.52% for 2023) is broken down by source of funding, 2.71% comes from private funds and 0.81% from public funds (federal, regional, community, European and international funds), which equates to 77% and 23% by private and public sectors respectively.

Evolution of total R&D spending (GERD) and the R&D intensity of the GERD in Flanders in million euros (current prices)

Figure 18



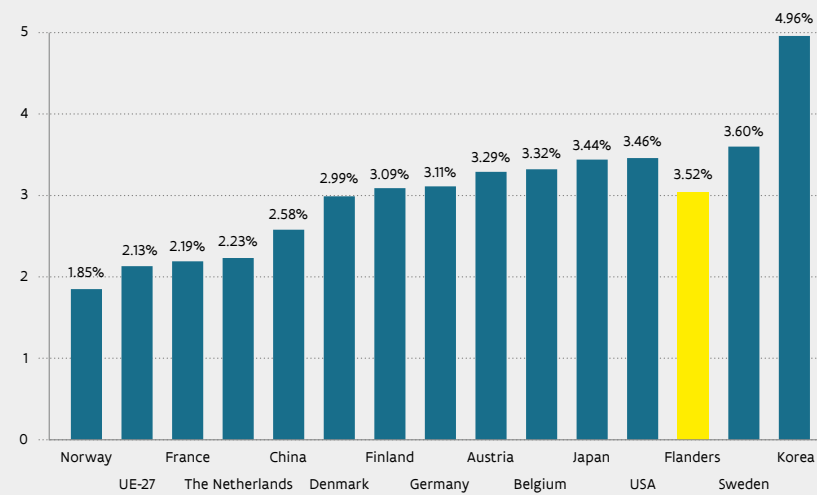
Source ECOOM



Investments in R&D are key to ensuring a high level of productivity and maintain competitiveness in a global perspective.

International comparison of the R&D intensity of GERD for 2023

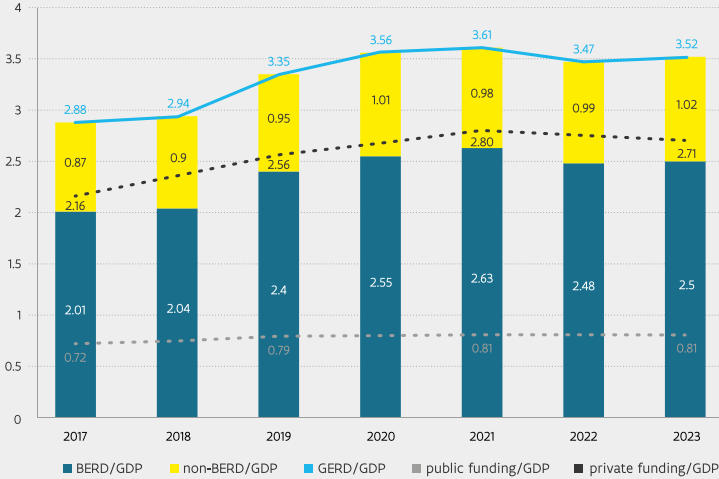
Figure 19



Source: OECD database, Main Science and Technology Indicators. ECOOM
France, Denmark, USA: provisional figure: EU-27, Sweden: estimated value; definition differs

R&D intensity broken down by sector of performance or source of funds for Flanders, 2017-2023

Figure 20



Source: OECD database, Main Science and Technology Indicators. ECOOM
Denmark provisional, EU27 estimate, USA provisional and definitions may differ
(figure for 2022), Belgium, Austria, France, Germany, Norway, the Netherlands, Denmark and Korea provisional



3

BERD

In 2023, the business enterprise sector spent 8,915 million euros on R&D activities in Flanders, measured at current prices. This is the (BERD), which corresponds to a R&D intensity (BERD as a % of GDP) of 2.50%. This level represents an increase for the GERD compared to 2019 (2.40%). The figures for 2022 and 2023 show a consolidation about 2.50% of the GDP.

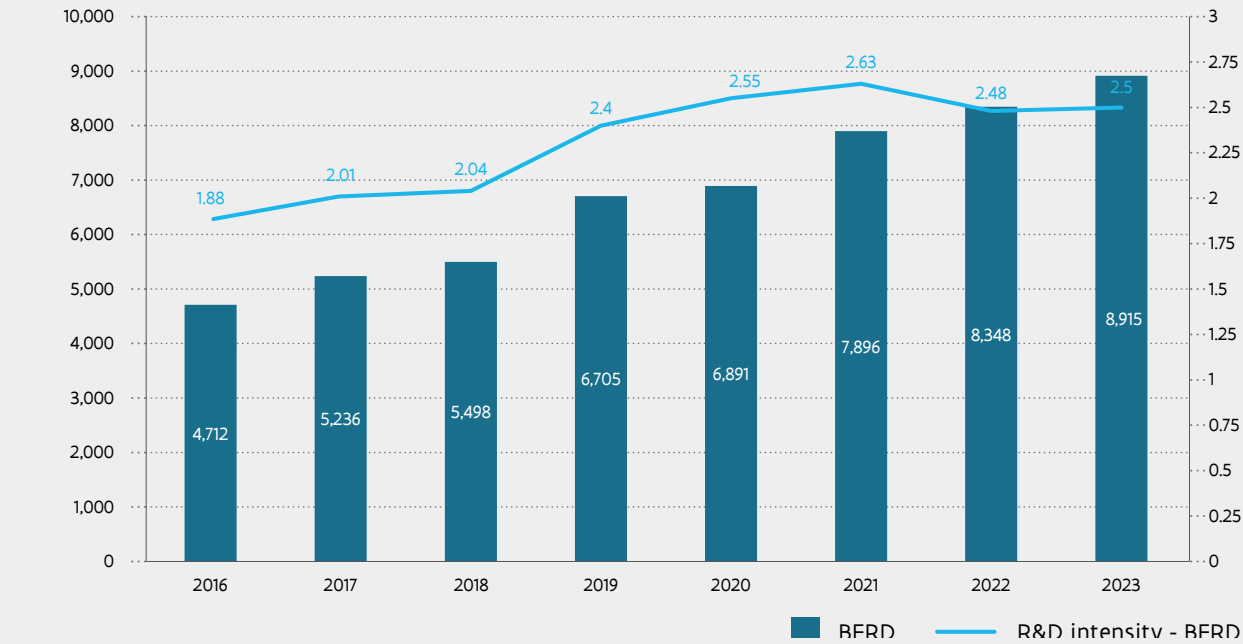
When the total R&D intensity of the BERD is broken down by source of funding, 2.40% comes from private funds and 0.10% from public funds (2023). The share of the BERD in the GERD was 71% in 2023.

The R&D activities (expenditure) within companies in Flanders are mainly focused on the following high-tech sectors (2023): refineries, chemicals and pharmaceuticals (NACE 19-21) account for 37% of total BERD expenditures on R&D (based on a sample); motion picture, video and TV production, computer programs, engineering, and technical testing and analysis activities (NACE 58-63, 71-72) account for about 24%; machinery and transport (NACE 28-30) account for about 10%; information technology, electronic products, optical products and electrical equipment (NACE 26-27) account for about 7%. In 2023, the R&D intensity in the business sector was 2.50%. Flanders therefore ranks much higher than the EU-27 average, the Netherlands, Finland, Germany and Austria. Sweden, Japan, the USA and Korea scores a little higher than Flanders.



Evolution of the R&D spending by companies (BERD) and R&D intensity for the BERD, from 2016 to 2023, in million euros (current prices)

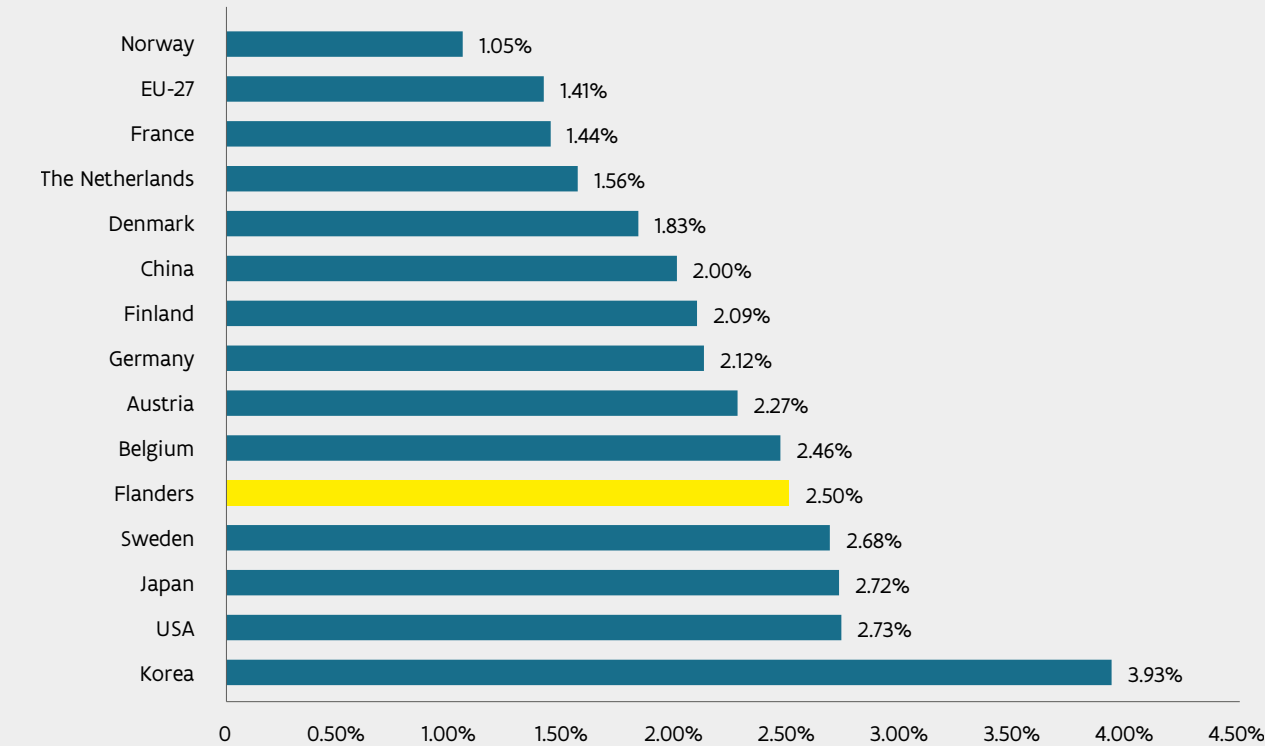
Figure 21



Source: ECOOM

International comparison of the R&D intensity of BERD for 2023

Figure 22



Source: OECD Main science and technology indicators and ECOOM
EU27 estimate, USA (figure for 2022), Belgium, Austria, France, Germany, Norway, the Netherlands, Denmark and Korea provisional

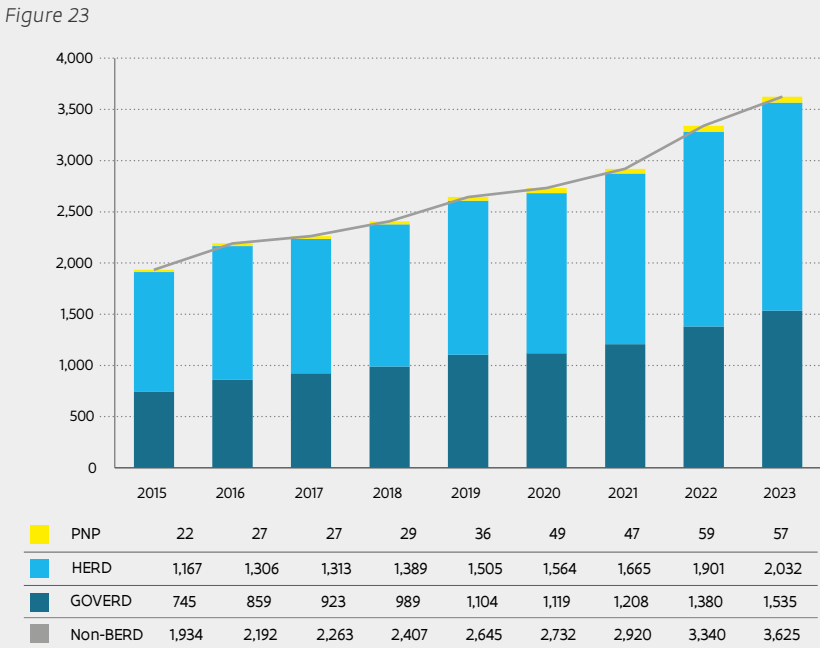
4

Non-BERD

Globally the share of R&D spending by the public sector within total R&D spending stays stable between 2017 and 2023. R&D spending by the public sector (non-BERD = GOVERD + HERD + PNP) amounted to 3,625 million euros in 2023. About 41% of this amount was spent by public research institutes (GOV) and 56% by higher education institutions (HES). There is an increase in the R&D expenditure (in absolute terms) of the public sector in 2022 and 2023. The R&D intensity for the public sector (non-BERD as a % of GDP) in Flanders amounted to 1.02% in 2023. After a stagnation between 2012 and 2015, a steady increase between 2016 and 2023 can be remarked. When the total R&D intensity of the non-BERD is broken down by source of 0.31% is funded privately and 0.71% by public funds (2023).

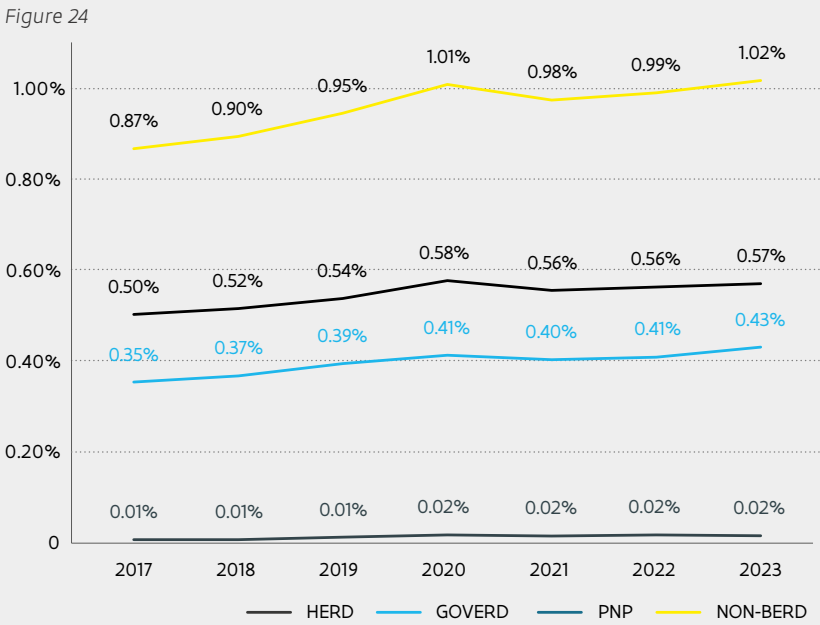
The GOVERD and HERD (2023) can be broken down by different fields of science. For the GOV sector, this indicates the dominant position of engineering and technology (70.5%). For the HES sector, the most important fields of science are the medical sciences (30.5%), engineering & technology (18.4%), the natural sciences (17.8%) and the social sciences (16.8%).

Evolution of the R&D spending by GOV,HES and PNP from 2015 to 2023, in million euros (current prices)



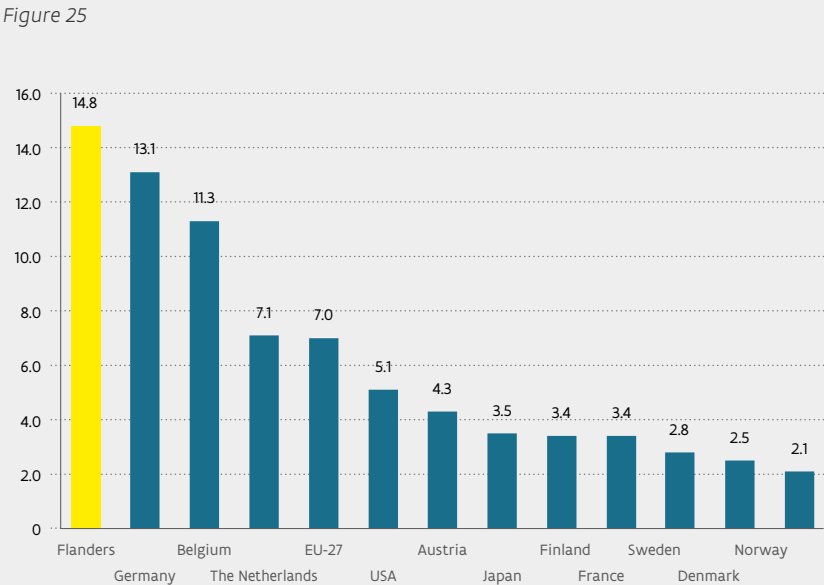
Source: WEWIS

Evolution of the R&D intensity for the non-BERD (GOVERD, HERD and PNP) from 2017 to 2023



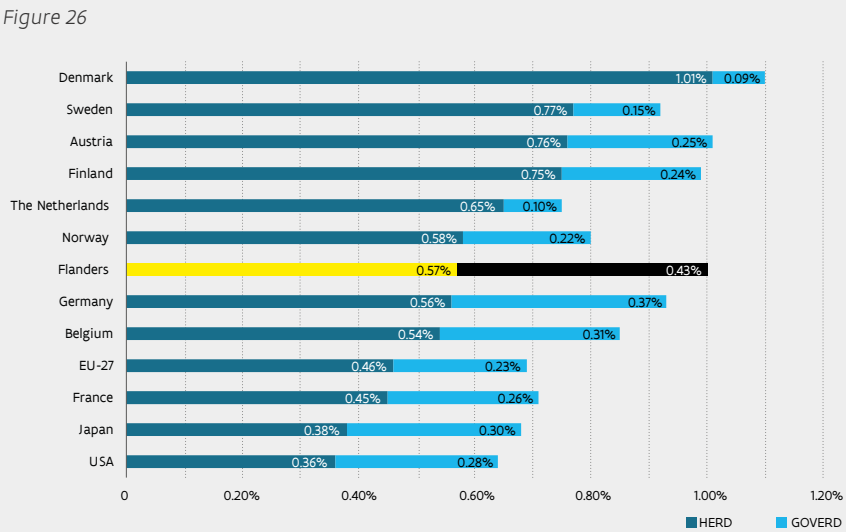
Source: WEWIS

International comparison of the funding of the HERD by companies for 2023, in %



Source: OECD database, Main Science and Technology Indicators and WEWIS (Flanders)
EU-27: estimated value; Germany and US: definition differs; figure for Denmark (2020), Belgium, Germany, EU-27, Sweden, Norway, Austria (all 2021) and The Netherlands, France, USA and Finland (all 2022)

International comparison of the R&D intensity of HERD and GOVERD for 2023



Source: OECD database, Main Science and Technology Indicators and WEWIS (Flanders)
EU27: estimated value, Germany (GOVERD), the Netherlands (GOVERD) and USA: definition differs; Austria, France, Germany (HERD) and Belgium: provisional, the Netherlands (GOVERD) and Germany (HERD): break in time series; figure for the Netherlands, France, Germany, USA and Denmark (2022)

For the GOVERD, the most important source of funds in 2023 was abroad (54.0%), followed by government funding (39.4%) and thirdly the companies (5.9%). For the HERD, government funding was again the most important source of funds (67.9%), followed by the companies (14.8%) and abroad (9.5%). The proportion of the HERD that is supported by (domestic) companies for 2023 ranks higher internationally than any of the EU-27 countries and is more than twice the figure for the EU-27 as a whole. Only Germany has a similar proportion. In other words, companies are both an important client and an important source of funds for the research carried out at the Flemish higher education institutions.

For the R&D intensity of the HES, Flanders scores above France and the EU-27 average. Norway (0.58%), the Netherlands (0.65%), Finland (0.75%), Austria (0.76%), Sweden (0.77%) and Denmark (1.01%) have a much higher R&D intensity for the HES. The R&D intensity of the GOV is the highest in Flanders compared to all other countries. In summary, for both figures, Flanders is maintaining its international position.

5

GBARD

This section examines in detail the R&D support received from Flanders, in particular that of the Flemish Government, and compares it with that of other countries. GBARD (Government Budget Appropriations for R&D) is an indicator used by the OECD and Eurostat. The table below shows an international comparison of the GBARD as a percentage of GDP. The calculation method of the Flemish figure is explained further in this chapter.

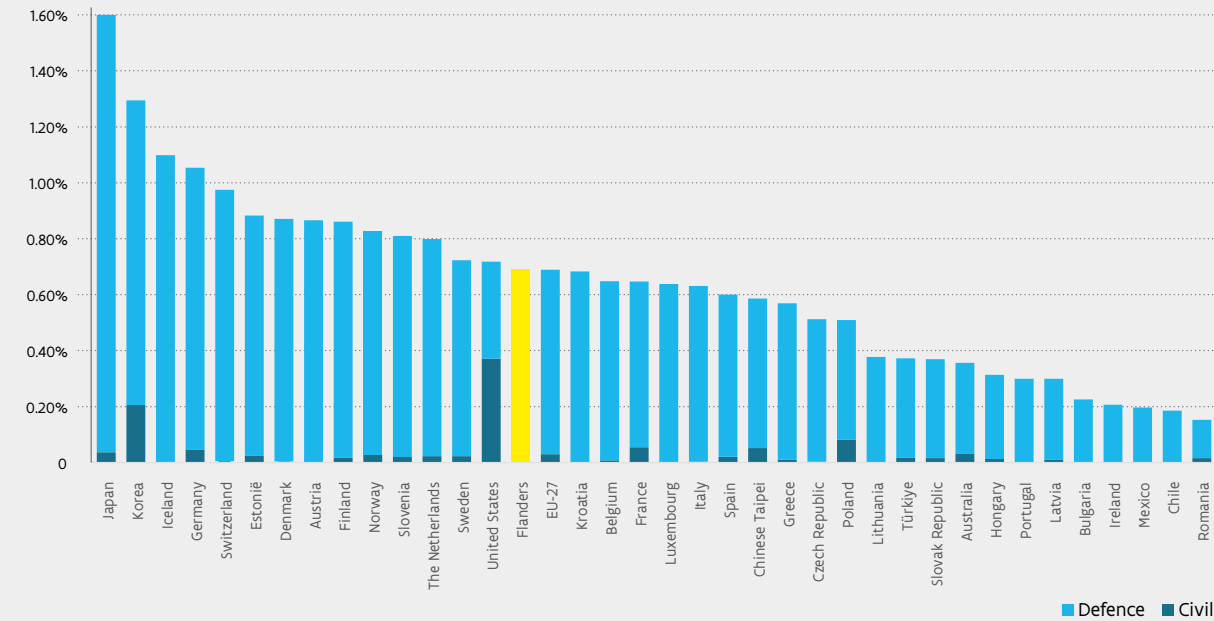
It is clear that the trends for GBARD, expressed as a percentage of GDP, differ between countries. In some countries there is stagnation; in others there is even a drop over a period of several

years. Figure 28 compares Flanders with selected countries for 2023. Because of the worldwide financial and economic crisis, followed by measures taken for the benefit of the economy, it is necessary to proceed with caution when comparing budgets. The most recent year with data for all the compared countries is the year 2023 (Table 5).

Flemish Government R&D funding + Flemish share of the federal funding (35.5% ESA, 56% for the rest). Belgium figure: Commissie Federale Samenwerking. CFS/STAT: final budget Flanders + provisional budget other authorities).

International comparison of government budget appropriations or outlays for R&D (GBARD) 2023. Expressed as a percentage of GDP(R)

Figure 27



Source: OECD database, Main Science and Technology Indicators
Flanders: Speurgids 2025

International comparison of Government Budget Appropriations or Outlays for R&D (GBARD). expressed as a percentage of GDP(R)

Table 6

COUNTRY	2016	2017	2018	2019	2020	2021	2022	2023	2024
JAPAN	0.66%	0.81%	0.86%	1.03%	1.71%	1.48%	1.69%	1.60%	1.38%
KOREA	1.04%	1.01%	0.98%	1.02%	1.18%	1.24%	1.27%	1.29%	
ICELAND	0.81%	0.82%	0.85%	0.83%	1.03%	1.15%	1.06%	1.08%	1.04%
GERMANY	0.89%	0.91%	0.93%	0.96%	1.08%	1.10%	1.08%	1.04%	1.04%
AUSTRIA	0.81%	0.79%	0.76%	0.76%	0.86%	0.80%	0.80%	0.87%	0.95%
ZWITZERLAND		1.00%	0.94%	0.97%	1.04%	0.99%	0.97%	0.98%	0.94%
FINLAND	0.85%	0.84%	0.84%	0.84%	0.97%	0.90%	0.90%	0.86%	0.90%
DENMARK	0.91%	0.89%	0.89%	0.90%	0.97%	0.91%	0.82%	0.88%	0.89%
THE NETHERLANDS	0.68%	0.66%	0.70%	0.68%	0.74%	0.77%	0.76%	0.81%	0.87%
SLOVENIA	0.41%	0.40%	0.42%	0.46%	0.52%	0.51%	0.54%	0.81%	0.87%
NORWAY	0.99%	1.02%	0.98%	1.02%	1.14%	0.89%	0.73%	0.83%	0.85%
ESTONIA	0.65%	0.59%	0.69%	0.62%	0.67%	0.69%	0.71%	0.88%	0.80%
SWEDEN	0.78%	0.78%	0.76%	0.74%	0.77%	0.79%	0.75%	0.73%	0.73%
FLANDERS	0.67%	0.74%	0.72%	0.80%	0.81%	0.83%	0.71%	0.69%	0.73%
US	0.67%	0.65%	0.70%	0.70%	0.80%	0.68%	0.72%	0.72%	0.70%
EU -27	0.63%	0.63%	0.63%	0.65%	0.73%	0.72%	0.69%	0.69%	0.68%
BELGIUM	0.63%	0.66%	0.64%	0.69%	0.73%	0.72%	0.68%	0.65%	0.64%
CROATIA	0.72%	0.71%	0.74%	0.76%	0.78%	0.71%	0.66%	0.68%	0.62%
FRANCE	0.63%	0.64%	0.66%	0.67%	0.73%	0.70%	0.67%	0.65%	0.65%
LUXEMBOURG	0.69%	0.68%	0.67%	0.69%	0.66%	0.66%	0.63%	0.62%	0.59%
ITALY	0.51%	0.50%	0.51%	0.55%	0.66%	0.63%	0.64%	0.63%	0.61%
UK	0.52%	0.53%	0.55%	0.54%	0.67%	0.61%	0.61%	0.63%	
CHINESE TAIPEI	0.69%	0.68%	0.64%	0.64%	0.62%	0.57%	0.58%	0.59%	0.58%
SPAIN	0.54%	0.51%	0.52%	0.52%	0.62%	0.61%	0.58%	0.60%	0.56%
GREECE	0.54%	0.50%	0.62%	0.70%	0.87%	0.84%	0.74%	0.57%	0.55%
ISRAEL	0.61%	0.60%	0.61%	0.59%	0.67%	0.56%	0.53%	0.55%	
CZECH REPUBLIC	0.58%	0.59%	0.61%	0.61%	0.65%	0.61%	0.55%	0.51%	0.50%
CANADA	0.50%	0.52%	0.49%	0.50%	0.56%	0.49%	0.45%		
NEW ZEALAND	0.49%	0.52%							
RUSLAND	0.47%	0.41%	0.40%	0.45%	0.51%				
POLAND	0.33%	0.36%	0.28%	0.44%	0.43%	0.45%	0.42%	0.51%	0.49%
LITHUANIA	0.32%	0.31%	0.29%	0.31%	0.33%	0.31%	0.33%	0.38%	0.47%
TURKEY	0.41%	0.42%	0.44%	0.45%	0.41%	0.38%	0.36%	0.37%	0.40%
LATVIA	0.22%	0.23%	0.23%	0.23%	0.27%	0.26%	0.26%	0.30%	0.37%
SLOVAC REPUBLIC	0.37%	0.36%	0.36%	0.38%	0.41%	0.40%	0.37%	0.37%	0.36%
AUSTRALIA	0.39%	0.42%	0.38%	0.39%	0.44%	0.37%	0.35%	0.36%	0.36%
PORTUGAL	0.38%	0.37%	0.36%	0.35%	0.37%	0.36%	0.33%	0.30%	0.29%
HUNGARY	0.39%	0.35%	0.30%	0.27%	0.53%	0.45%	0.31%	0.31%	0.27%
BULGARIA	0.20%	0.21%	0.20%	0.22%	0.23%	0.23%	0.22%	0.23%	0.24%
IRELAND	0.26%	0.24%	0.23%	0.22%	0.23%	0.21%	0.18%	0.21%	0.20%
MEXICO	0.27%	0.22%	0.21%	0.19%	0.20%	0.20%	0.19%	0.20%	0.19%
CHILE	0.22%	0.22%	0.22%	0.21%	0.21%	0.19%	0.18%	0.19%	
ROMANIA	0.28%	0.19%	0.17%	0.19%	0.18%	0.16%	0.14%	0.15%	0.10%
COLOMBIA	0.08%	0.09%	0.07%	0.07%	0.06%				

Source: OECD database, Main Science and Technology Indicators
Flanders: Speurgids 2025

6

The EU Framework Programme For Research And Innovation (2021-2027) Horizon Europe

6.1 Introduction

Horizon Europe, the current framework programme for research and innovation with a budget of €95.5 billion, is the EU programme with the largest budget for supporting research and innovation activities for the 2021-2027 period. This is an increase of 27% compared to the last framework programme Horizon 2020.

Horizon Europe is organised around four main pillars

- 1. Excellent Science: Activities under this pillar aim to reinforce and extend the excellence of the Union’s science base and to consolidate the European Research Area in order to make the Union’s research and innovation system more competitive on a global scale.
- 2. Global Challenges & European Industrial Competitiveness: This pillar gathers six thematic clusters designed to boost key technologies and solutions underpinning EU policies & Sustainable Development.
- 3. Innovative Europe: This pillar combines three structures that stimulate market-creating breakthroughs and ecosystems conducive to innovation.
- 4. Widening Participation And Strengthening The European Research Area: this pillar combines activities to improve the European research Area, and to widen to the activities of the framework programme to all EU member states.

Within this framework, there are several new initiatives compared to the previous framework Horizon 2020:

- › The European Innovation Council: The EIC is based in Pillar 3, and provides support for innovations with potential breakthrough and disruptive nature with scale-up potential that may be too risky for private investors.
- › The Missions combine projects and measures to achieve bold, inspirational and measurable goals within a predetermined timeframe. Five missions have been defined around the topics Climate, Cancer, Cities, Oceans and Soil.
- › Open science policy: The Horizon Europe programme requires mandatory open access to publications and open science principles are applied throughout the programme.
- › Horizon Europe integrates a stronger approach to partnerships: The partnerships with industry are set up in support of EU policy objectives and are objective-driven and more ambitious.

The following table shows the structure of the Horizon Europe programme. For each element of the programme, the acquired budget of Flemish partners is indicated, together with the total budget that has already been allocated at EU-level.

The share of the total EU-budget for Flemish partners is calculated as the “return”.

The data used in the present section were taken from the database that the European Commission makes available via the electronic platform e-CORDA. The release date of the data is 7th of July 2025.

Horizon Europe Programme Structure

Table 7

I. EXCELLENT SCIENCE		EUR million in current prices Allocation to FL partners	EUR million in current prices Total EU allocation	% Return*
HORIZON.1.1	European Research Council (ERC)	323.3	10,481.3	3.08%
HORIZON.1.2	Marie Skłodowska-Curie Actions (MSCA)	154.9	4,052.1	3.82%
HORIZON.1.3	Research infrastructures	20.9	1,227.9	1.70%
II. GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS**		EUR million in current prices Allocation to FL partners	EUR million in current prices Total EU allocation	% Return*
HORIZON.2.1	Health	181.0	4,999.0	3.62%
HORIZON.2.2	Culture, creativity and inclusive society	37.6	1,168.8	3.21%
HORIZON.2.3	Civil Security for Society	15.6	818.9	1.91%
HORIZON.2.4	Digital, Industry and Space	328.6	7,965.7	4.13%
HORIZON.2.5	Climate, Energy and Mobility	244.3	8,580.3	2.85%
HORIZON.2.6	Food, Bioeconomy Natural Resources, Agriculture and Environment	214.7	4,962.6	4.33%
III. INNOVATIVE EUROPE		EUR million in current prices Allocation to FL partners	EUR million in current prices Total EU allocation	% Return*
HORIZON.3.1	The European Innovation Council (EIC)	97.1	3,446.7	2.82%
HORIZON.3.2	European innovation ecosystems	6.3	381.4	1.65%
HORIZON.3.3	The European Institute of Innovation and Technology (EIT)	21.8	354.1	6.16%
IV. WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA		EUR million in current prices Allocation to FL partners	EUR million in current prices Total EU allocation	% Return*
HORIZON.4.1	Widening participation and spreading excellence	15.3	1,325.7	1.16%
HORIZON.4.2	Reforming and enhancing the European R&I System	4.8	226.4	2.12%
TOTAL		1,666.3	49,991.0	3.33%

(*) The region of Flanders hosts approximately 2% of the researchers in the EU. Also the regional and national investments in R&D mount to 2.24% of the EU-total. This indicates that a return of about 2% to 2.2% would indicate an average performance of the Flemish R&D-actors in a specific programme element. For most elements, the Flemish R&D-actors perform better, resulting in higher than average returns.

(**) The missions and partnerships are integrated in Pillar II, and are assigned to the corresponding thematic clusters.



6.2
Participation by Flanders

By now, Flanders participates 3,138 times in 2,238 projects in Horizon Europe. This equates to a total participation funding for Flanders of 1,666.3 million euros. Flanders is responsible for the major part of the total Belgian number of participations. projects and coordinators, as well as the largest share of the participation grants.

The total Flemish participation funding represents 3.33% of the total funding received from the European Commission for participating in Horizon Europe.

At present, the three thematic priorities with the highest number share of activities from knowledge actors in Flanders are Marie Curie (MSCA), HORIZON.2.4 Digital, Industry and Space and HORIZON.2.6 Food, Bioeconomy Natural Resources, Agriculture and Environment .

The largest contributions to Flemish actors have been accorded by the European Research Council (ERC), and for the clusters HORIZON.2.4 Digital, Industry and Space, and HORIZON.2.5 Climate, Energy and Mobility.

Flemish participation in the last framework programmes

Table 8

	6KP	7KP	H2020	HORIZON EUROPE
Number of participations	1,342	2,884	4,155	3,138
Number of projects	1,051	2,232	2,939	2,238
Number of actors	422	490	614	645
Granted EU-budget to FL partners	352.3	1,125,0	1,895.1	1,666,3
Total EU-budget	16.6	44.9	69.0	50.0
RETURN (%)	2.12%	2.50%	2.76%	3.33%
REFERENCE AVERAGE RETURN	1.48-1.74%	1.47-1.73%	2.04%	2.24%

6.3
Benchmark for Flanders

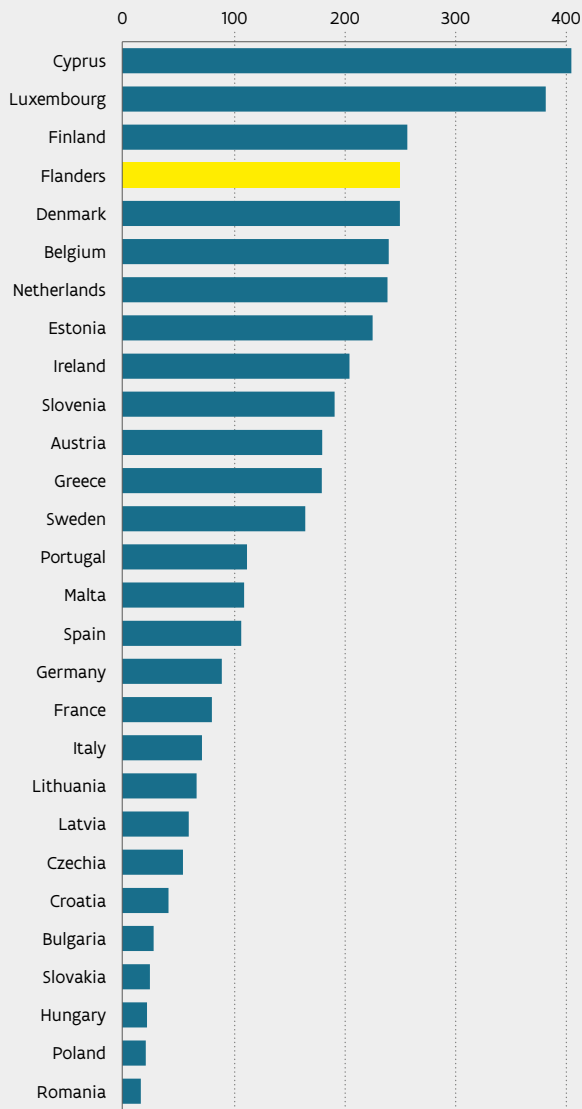
The performance of Flanders in Horizon Europe is compared to the European member states in two ways. First, the obtained EC contribution per inhabitant is calculated. Flanders comes in a 4th position, between Finland and Denmark. Belgium as a whole ranks 6th.

The second comparison shows the total obtained contribution divided by the Gross Domestic Product. The result shows the Horizon Europe funding for the first four years as a ‰ of the GDP of 2021. This index makes the performance of larger and smaller countries more comparable. The result shows that Flanders would rank in the 6th position, between the member states. Belgium as a whole is 7th.

Benchmark for the Flemish participation in Horizon Europe

Figure 28

REVENUE FROM HORIZON EUROPE PER INHABITANT (€/INH.)

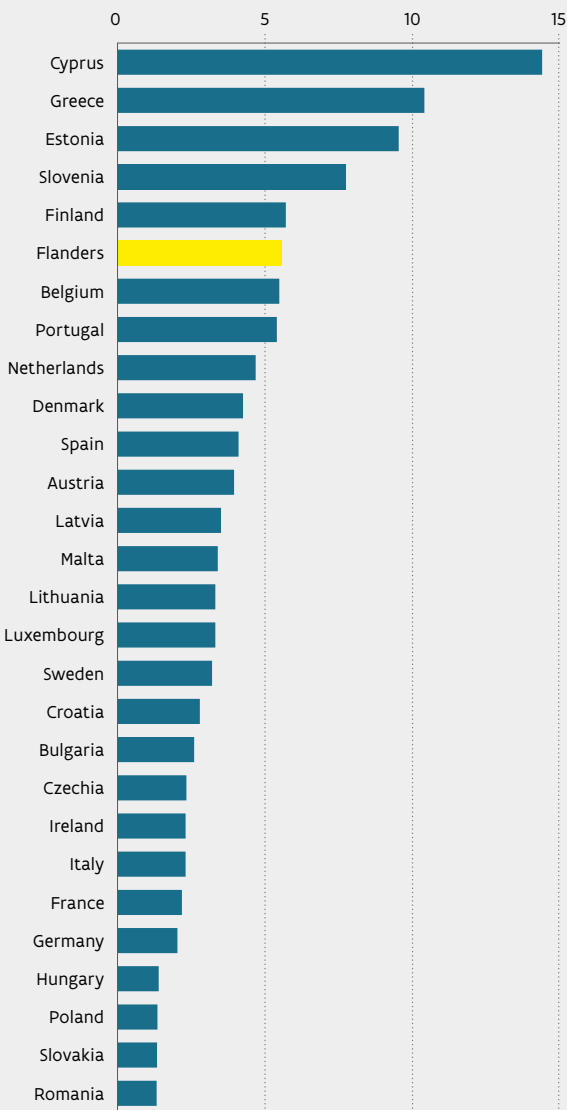


Source: WEWIS calculations based on E-Corda (situation on 7/06/2025)

Horizon Europe as per inhabitant

Figure 29

REVENUE FROM HORIZON EUROPE COMPARED TO GDP [‰]



Source: WEWIS calculations based on E-Corda (situation on 7/06/2025)

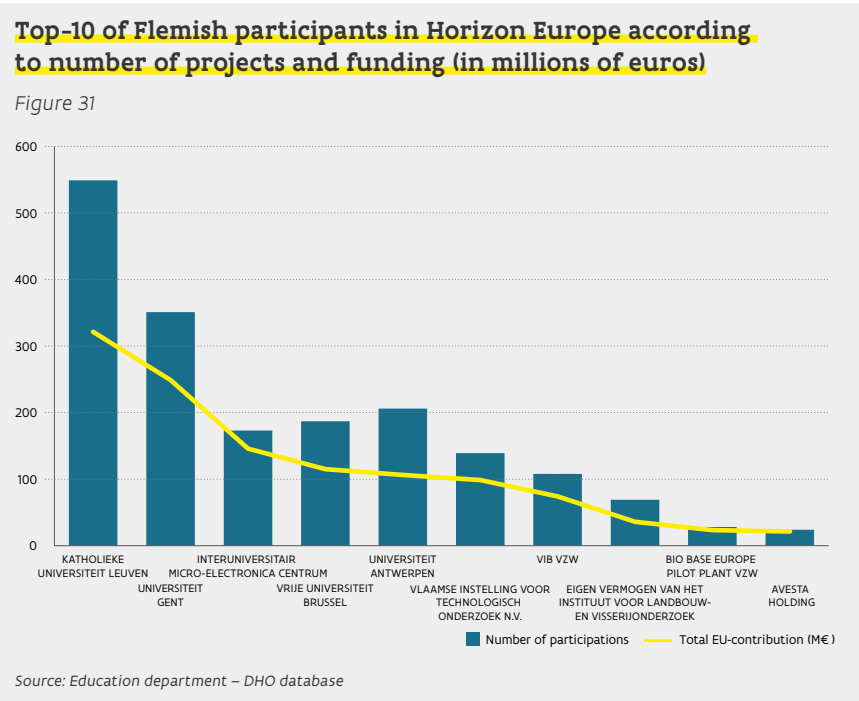
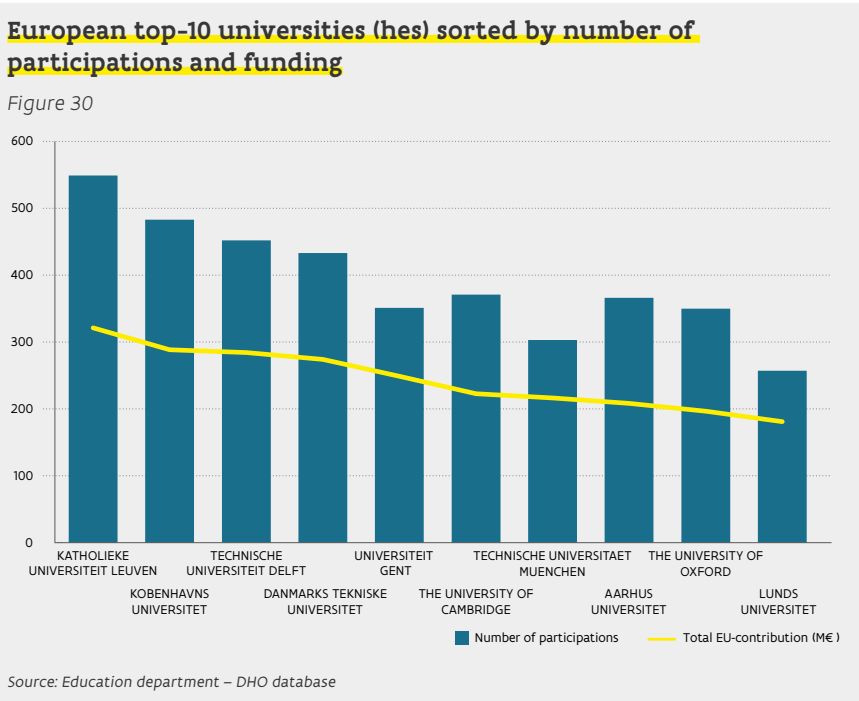
6.4
Top participating organisations

The higher education sector (HES) is provisionally the main Flemish beneficiary of Horizon Europe, accounting for 49.4% of the granted support received by Flanders. The research centers receive 25.6% of the support. Other public entities obtain a further 2.6% of the funding. Flemish private companies and non-profits account for the remaining 22.4%.

The top-3 participating institutions in Flanders in Horizon Europe are as of yet KULeuven, IMEC and UGent, which jointly represented 43% of the total EU FP contributions to Flemish grant holders.

Ranking all European Universities according to EU-contributions, the KU Leuven come out first and Ghent University as fifth for the entire EU.

The top ten of Flemish organisations is composed of four of the five Flemish Universities, four research organisations, one private organisation (Avesta Holding) and one non-profit (Bio Base Europe Pilot Plant).



7
EU regional development fund (ERDF) and R&D&I support

ERDF in Flanders is constructed around the following thematic objectives:

- TO1 « Strengthening research, technological development and innovation»
- TO3 « Enhancing the competitiveness of small and medium-sized enterprises (SMEs)»
- TO4 « Supporting the shift towards a low-carbon economy in all sectors»
- TO5 « Promoting climate change adaptation, risk prevention and management»
- TO6 « Preserving and protecting the environment and promoting resource efficiency»

7.1
Objectives

The Flemish ERDF program 2021 – 2027 aims to strengthen the sustainable growth and competitiveness of Flanders, while at the same time accelerating the transition to a low-carbon, circular and energy-efficient economy. In this way, it contributes to a strong reduction in Flemish CO2 emissions and the realization of the European Green Deal.

7.2
Policy objectives

The Flemish Operational program is developed around 2 axes (except technical assistance):

- Axe 1: a more competitive and smarter Europe by promoting innovative and smart economic transformation and regional ICT connectivity.
- Axe 2: a greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation, risk prevention and management, and sustainable urban mobility;

7.3
Budget

Table 9

PRIORITY AXE	SUPPORT OF THE EU	NATIONAL CONTRIBUTION	TOTAL FINANCING
AXE 1	160.045.353	192.189.094	352.234.447
AXE 2	106.696.903	128.126.063	234.822.966
TOTAL	266.742.257	320.315.157	587.057.413

More information on ERDF in Flanders:
› <https://www.vlaio.be/nl/vlaio-netwerk/europees-fonds-voor-regionale-ontwikkeling>
› <https://www.vlaio.be/nl/media/446>



1

Introduction

Highly educated and skilled personnel are a key resource for science and technology. Consequently, indicators for Human Resources in Science and Technology (HRST) are very important. HRST statistics always focus on two main aspects. Firstly, the stock of HRST that focuses on the characteristics of the current labour force involved in science and technology. Secondly, the flows showing the job-to-job mobility and the inflow from education to the science and technology labour force. In this case, particular attention is paid to scientists and engineers, who are often the innovators at the centre of technology-led development.

2

S&T students

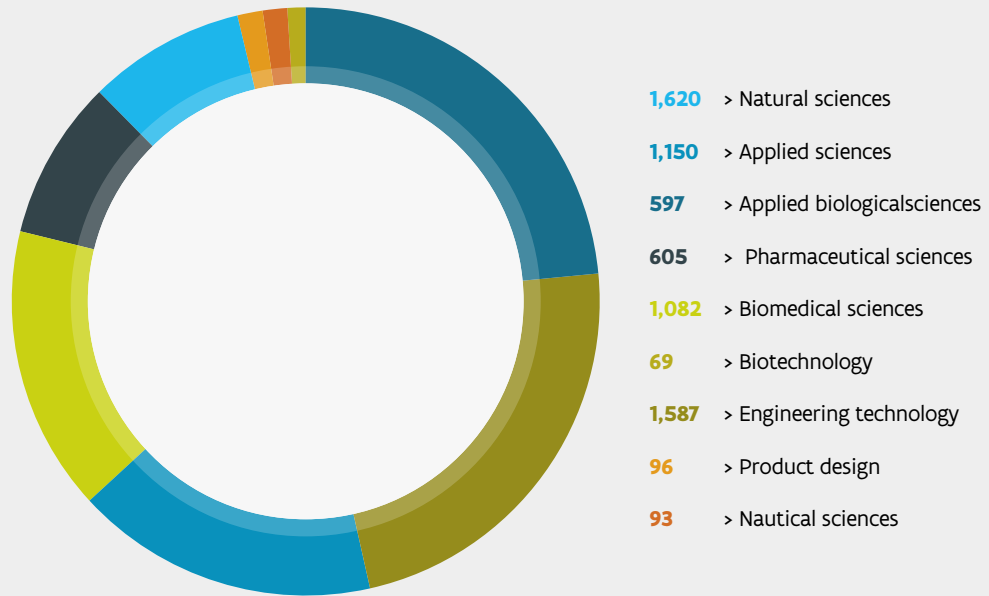
In the 2023-2024 academic year, 55,845 students enrolled for the first time at a Flemish university or a university of applied sciences and arts. Of this group, known as first entry students, more than half started a professional Bachelor training at a university of applied sciences and arts.

About 6,899 first entry students (about 29% of the total) at the universities start in the S&T domains (grouping together the natural sciences, applied sciences, applied biological sciences, pharmaceutical sciences, biomedical sciences, nautical sciences, industrial sciences and technology, biotechnology, and product design).

In the professional Bachelor at the universities of applied sciences and arts, more than 23% of first entry students opt for a study within the following science and technological domains: biotechnology and industrial sciences and technology.

The number of first entry students at Flemish universities in the S&T domain for the academic year 2023-2024, in absolute terms

Figure 32



Source: Education department – DHO database

3

S&T graduates

In 2022, 19.2% in the 20-29- year old population of Flanders had a higher degree in mathematics, science and technology. In this respect, Flanders ranks below the EU-27 average (22.3%) and the gap with the leaders Ireland (40.1%), France (29.9%), Finland (26.5%) and Denmark (25.4%) remains wide. On the other hand, Flanders scores better than the Netherlands, Norway, and Italy.

The proportion of graduates in mathematics, science and technology (higher education) in (2018-2023)

Table 10

ACADEMIC YEAR	2018	2019	2020	2021	2022	2023
FLANDERS	16.3%	16.4%	17.7%	19.1%	19.2%	20.0%

Source: Education department – DHO database
Flanders in 2023 = figure for Flemish Community academic year 2022-2023



The proportion of S&T graduates in the total number of graduates in Flanders increased slightly between 2018 and 2022. Viewed from an international perspective, in 2022 Flanders was ranked rather low and well below the leaders (Germany, Finland, Sweden, Ireland and Switzerland), where more than 25% of all degrees are awarded in science, mathematics and technology. Only the Netherlands score poorly with regard to their proportional number of ST&M graduates.

Evolution of the percentage of degrees in mathematics, science and technology in higher education as a proportion of all degrees in higher education for Flanders (2018-2022)

Table 11

YEAR	2017	2018	2019	2020	2021	2022
FLANDERS*	18.6%	19.2%	19.6%	19.3%	20.1%	20.2%

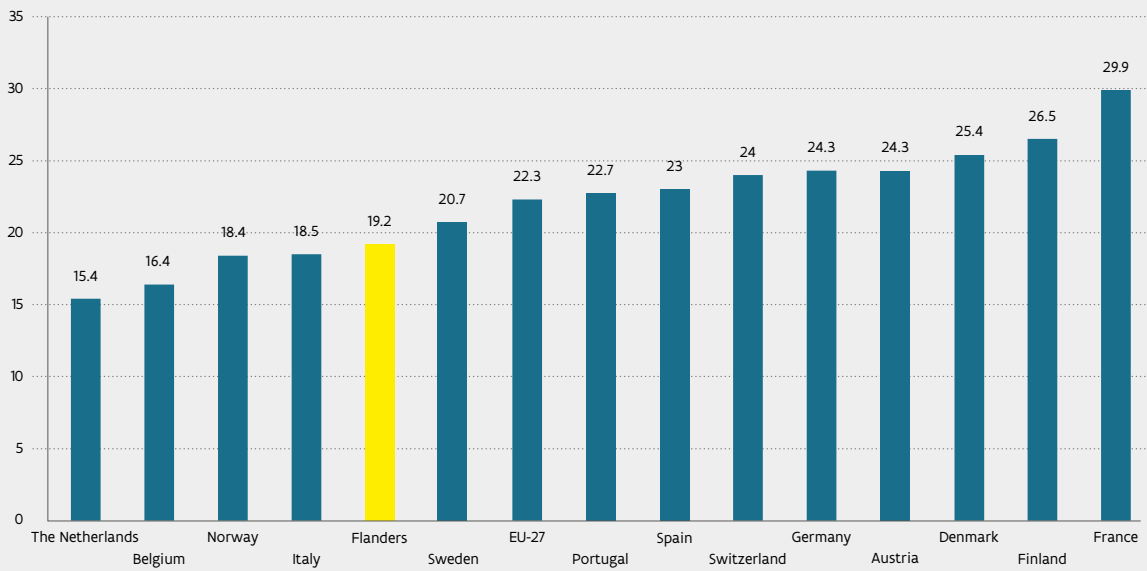
Source: Education department – DHO database;
*Flanders: figures for Flemish Community 2022 = academic year 2021-2022

Graduates higher education: ISCED 5: Short-cycle tertiary education, ISCED 6: Bachelor's or equivalent level, ISCED 7: Master's or equivalent level, ISCED 8: Doctoral or equivalent level. The ISCED fields of education classification was reviewed in 2013 and the first implementation started for the academic year 2014-2015. Due to this methodological change , figures before 2015 cannot be compared.



International comparison of the proportion of graduates in mathematics, science and technology (higher education) per 1000 for the age group 20 to 29 years (2022)

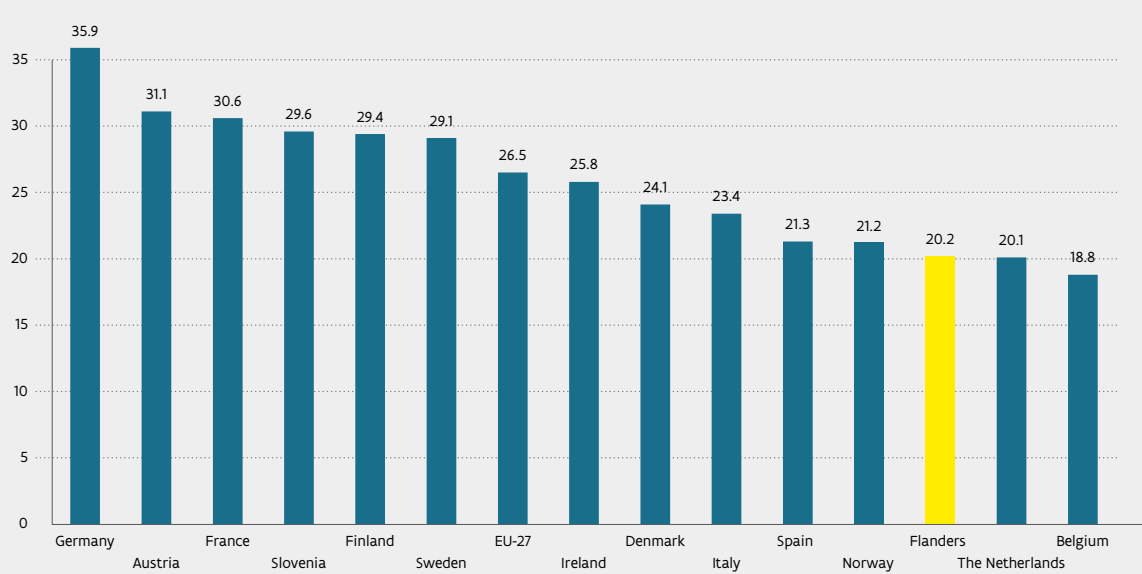
Figure 33



Source: Education department – DHO database, Ireland: definition differs

International comparison of the proportion of graduates in mathematics, science and technology in higher education as a proportion of all degrees in higher education (2022)

Figure 34



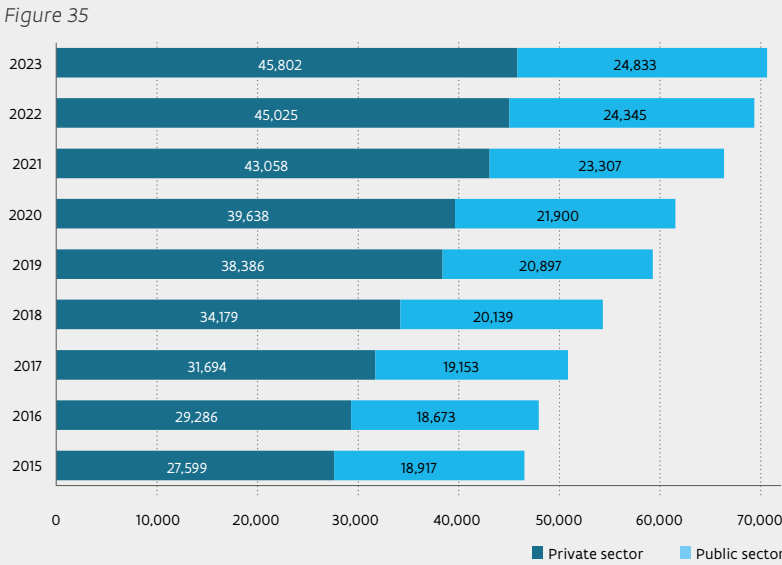
Source: Education department – DHO database; Flanders: figures for Flemish Community

4

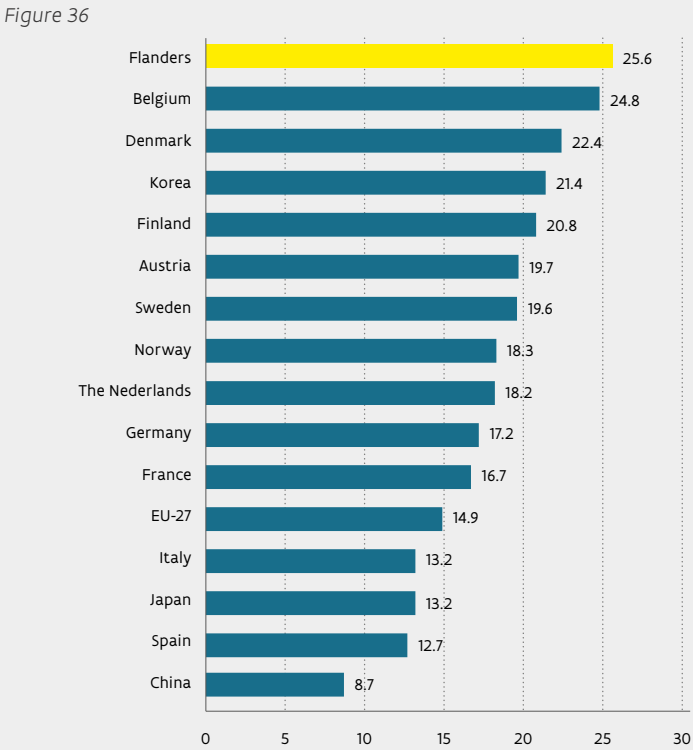
R&D personnel

In 2023, the total number of R&D personnel for Flanders reached 70.635 full-time equivalents (FTE), which is an increase of 30% since 2018. Over the past five years, the number of research staff has increased both in companies and in the public sector. The public sector groups together all research institutes from the higher education sector (HES), the government sector (GOV) and the private not-for-profit sector (PNP). The majority of the R&D personnel (64.8%) work in the private sector (BES). The overall share of the public component (PNP, HES and GOV) declined between 2013 and 2019 and stays since 2020 rather stable. The HES component is the most important element of the public component (with 17,575 FTE or 71.2%) in 2023, followed by the GOV component (6,588 FTE or 26.5%). In these evolution figures for the R&D personnel in the private sector, consultants (for 2023 about 10.800 FTE) are excluded.

Evolution of the R&D personnel from 2015 to 2023



International position of Flanders for total R&D personnel (% of the labour force) in 2023



The level of R&D personnel corresponds to 1.22% of the total population and 2.56% (2023) of the labour force. In the international comparison, figures for consultants for the private sector are included (for 2022 about 11.600 FTE) in the total R&D personnel due to international standards of Eurostat. Flanders therefore belongs to the top with regard to R&D personnel numbers as a proportion of the labour force. Denmark, Korea and Finland also show high figures but Flanders still ranks a little higher. The Flemish figure is much higher than the EU27 average.

The R&D staff with the companies (private sector) counted about 45,127 full-time equivalents in 2023 and this figure corresponds with about 66,571 headcount, of which 35,821 researchers and 30,750 technical and other personnel.

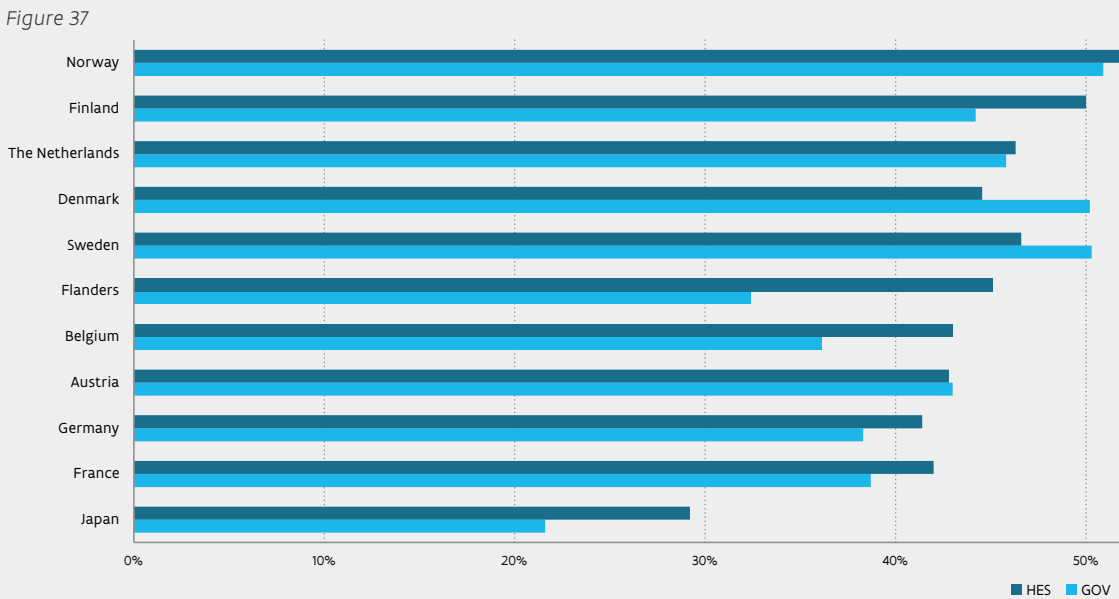
The R&D staff within the non-profit organisations (public sector) counted about 24,830 full-time equivalents in 2023. This figure corresponds with about 40,835 headcount, of which more than 29,860 researchers and approximately 10,975 technical and other personnel. The breakdown of R&D staff by gender shows that around 19,570 women and 21,265 men are employed in the public sector on R&D activities. About one in three of the R&D personnel in the public sector has granted a PhD (13,800 headcount).

The R&D personnel in the GOV and HES (2023) can be broken down by different fields of science. For the GOV sector, this indicates the dominant position of engineering and technology. For the HES sector, the most important fields of science are the medical sciences, engineering, the natural sciences and social sciences.

About 82% of the R&D personnel working in the HES on R&D activities in Flanders are researchers (2023). This figure is high compared to the other European countries and much higher than the EU-27 average but lower than Sweden. Approximately 75% of the R&D personnel (2023) in the GOV in Flanders are also researchers. Once again, this figure is higher than for France, Germany and the EU-27 average, but this time lower equal to Denmark and lower than Finland.

With a figure of 45.1% for female researchers working in the higher education (HES), Flanders again compares favourably with neighbouring countries (Germany and France), but the Scandinavian countries show similar or higher rates here. For female staff working in public research centres (GOV), Flanders has a score lower than the neighbouring countries, but once again cannot match the higher performance of the north European countries.

International comparison - % share of women researchers in GOV and HES (headcount) in 2023



5

Mobility of researchers

Between 2010 and 2024, the existing pattern of nationality for all statutes and levels of academic careers in Belgium gradually changed. These changes were least pronounced for Assisting Academic Staff or AAP (in 2010, 94.8% were Belgians and 85.7% in 2024) and for Senior Academic Staff or ZAP (93.4% in 2010 and still 84.4% in 2025). However, the changes were particularly strong for Scientific Staff or WP, above all in the sub-category “post-doctorates”, where the number of Belgian researchers declined from 66.6% in 2010 to 49.2% in 2024. The same trend is also noticeable for doctoral researchers: from 73.3% in 2010 to 57.6% in 2024.

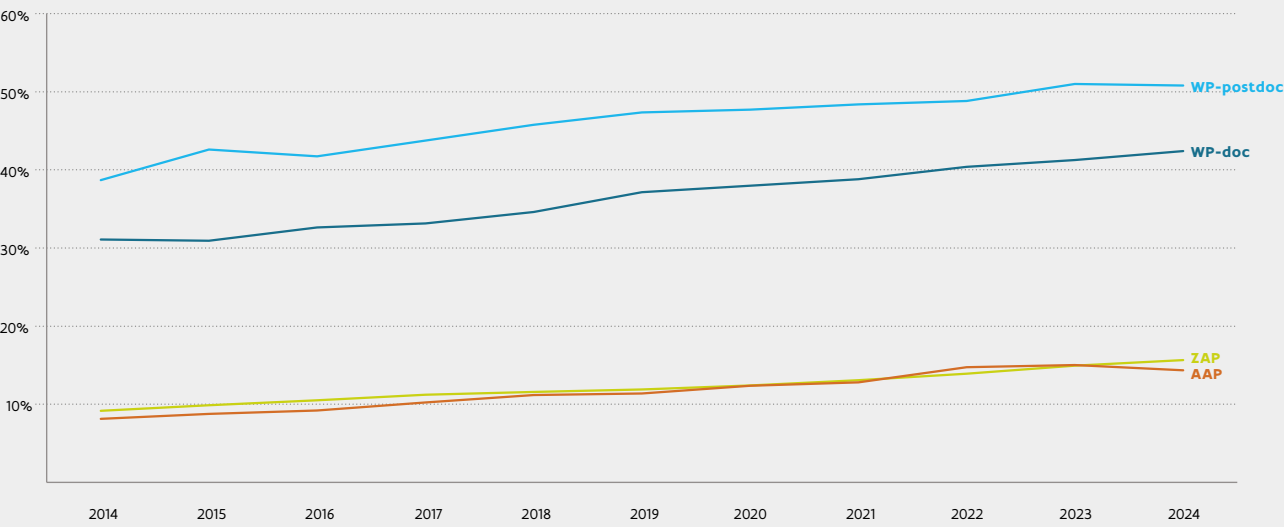
The Italians are most strongly represented among the group of foreign researchers at Flemish universities, followed by researchers from the Netherlands, China, Germany, India, Iran and Spain. Foreign researchers are mainly found in the doctoral and postdoctoral sub-categories. The share of non- EU researchers for ZAP (Senior Academic Staff) or AAP (Assisting Academic Staff) personnel is rather limited from 2.8% to 6.1% of the total.

A study some years ago showed the most popular destinations for Belgian PhD holders to continue their career. Most of them went to the United States due to the availability of positions at renowned research institutes. Belgian researchers also frequently choose neighbouring countries with strong research tradition, such as France, the United Kingdom, the Netherlands and Germany. This mobility pattern was similar to other Western European countries.

After a slow decrease between 2018-2020, the total number of PhDs in Flanders had globally increased, reaching a level of 2,538 new doctorate holders in 2023-2024. The number of female PhDs has also grown significantly more than the number of male PhDs. Even so, the proportion of women holders varies between 45% and 47%. An analysis of the number of PhDs per field of science shows a substantial increase for engineering & technology and the social sciences. The medical sciences (23%), engineering & technology (21.3%) and the social sciences (19%) have the largest share in the total number of PhDs by field of science.

Evolution of the non-Belgian nationality of researchers for the different statutes and levels of the academic career (2014-2024)

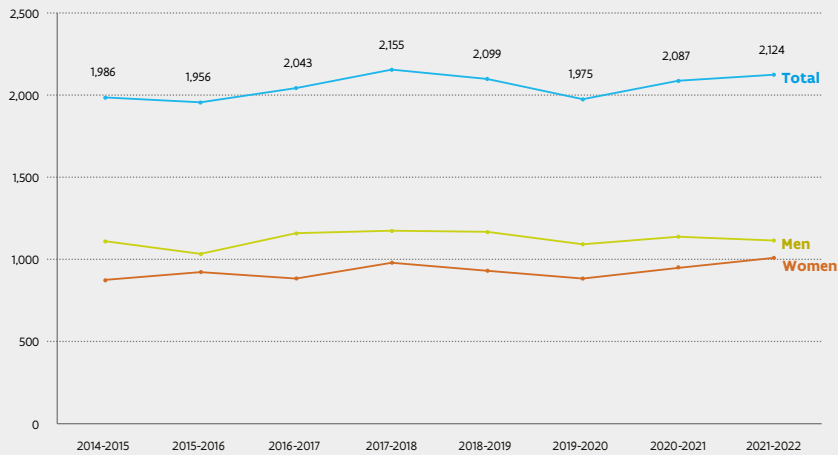
Figure 38



Source: VLIR

Evolution of the number of PhD's in Flanders by gender from 2014-2015 to 2023-2024

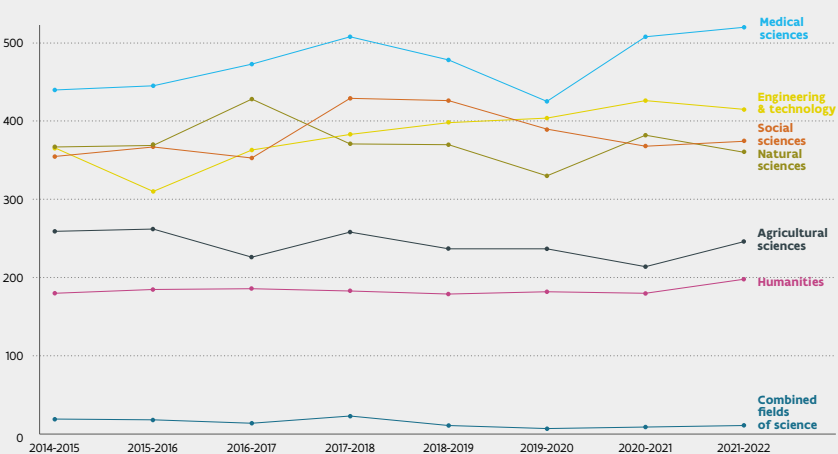
Figure 39



Source: DHO -Education department

Evolution of the number of PhDs in Flanders by field of science from 2014-2015 to 2023-2024

Figure 40



Source: DHO -Education department

ANNEX V

Innovation efforts by enterprises in Flanders



1

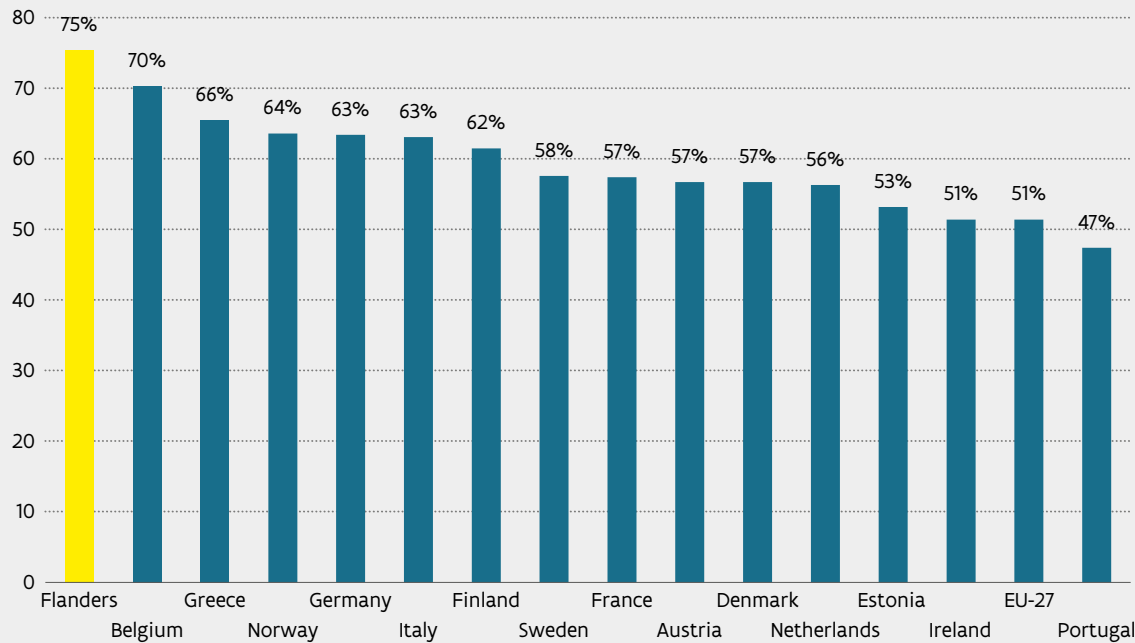
CIS: global results

Based on the principles described in the Oslo Manual, the innovation efforts made by business enterprises in the European Union are systematically measured by the Community Innovation Survey (CIS). These harmonized surveys are carried out by the national statistical offices and are designed to give information about the degree of innovativeness in different sectors and regions. In 2018 the Oslo Manual was revised. A major consequence of this revision was that the three concepts of (technological) process innovation, organisational innovation and marketing innovation that before 2018 were considered separately, were now combined into one overall concept of business process innovation. This move was motivated by the fact that the three processes oftentimes overlap and co- occur. Hence, after the 2018 revision of the Oslo Manual, we are left with two broader types of innovation to consider: product innovation, and the more broadly defined business process innovation.

The overall innovation rate (including product innovation, business process innovation as well as ongoing or abandoned innovation activities) of Flanders rose from 56% in 2010-2012 to 75% in 2020-2022. In 2020-2022, Flanders scored well above the EU-27 average (51%) and is ranked among the top countries Belgium (70%), Greece (66%), Norway (64%) and Germany (63%).

International comparison of the percentage of companies with product innovations, business process innovations and/or ongoing or abandoned innovation activities (2020-2022 (CIS 2023))

Figure 41



Source: Eurostat and ECOOM (Flanders)



2

Total innovation over time

Following the revision of the Oslo Manual, we look at the overall innovation rate in Flanders over time. The total innovation rate now includes product innovation, the more broadly defined business process innovation (which also includes non-technological aspects such as organisational and marketing innovation, besides purely technological process innovations) as well as ongoing and abandoned innovation activities. The results for CIS 2023 show that in the period 2020-2022 75% of

the business enterprises in Flanders were innovative and had either product innovations, business process innovations and/or ongoing or abandoned innovation activities. These results are in line with the results for CIS 2021 (75%) and a slight increase to those obtained with CIS 2015 and 2017 (both 68%) and CIS 2019 (70%), for the periods 2012-2014, 2014-2016, and 2016-2018 respectively.

Evolution of the percentage of business enterprises in Flanders with product innovations, business process innovations and/or ongoing or abandoned innovation activities

Table 12

	CIS2015 2012-2014	CIS2017 2014-2016	CIS2019 2016-2018	CIS2021 2018-2020	CIS2023 2020-2022
TOTAL INNOVATION ACTIVITIES	68%	68%	70%	75%	74%
SMEs	68%	68%	69%	74%	73%
LARGE COMPANIES	87%	88%	90%	93%	70%
LOW TECHNOLOGY	66%	65%	67%	71%	75%
HIGH TECHNOLOGY	78%	83%	83%	89%	87%
INDUSTRY	75%	76%	76%	80%	79%
SERVICES	63%	63%	66%	71%	70%

Source: ECOOM

Large companies and medium-sized companies generally are more innovative than smaller firms. The most innovative firms are high tech firms and manufacturing firms.

Firms report that regulations may have some negative impact on innovations, but for environmental, intellectual property and tax regulations medium and large size firms also report a positive impact of those regulations, as they facilitate or help

initiate innovations.

Collaboration in innovation activities remains very important. Suppliers, consultants, commercial laboratories or research institutions and other companies within the group are the most important partners. For large firms, public research institutes or the government are also important partners for their innovation activities.



3

Product innovation and business process innovation

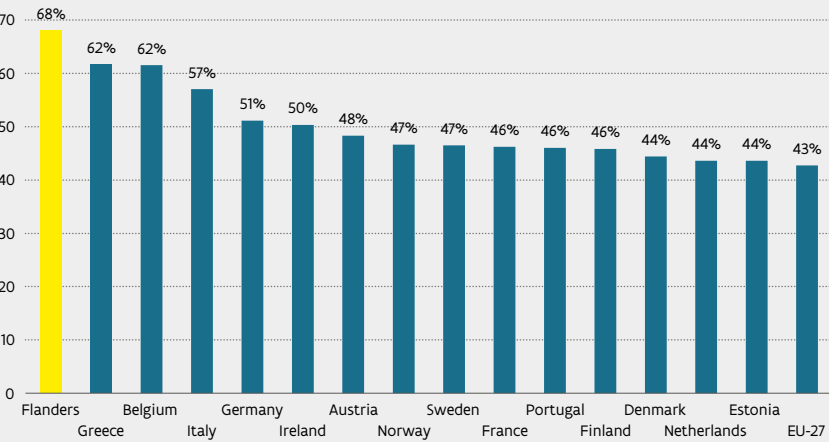
Business process innovation is a very important way of innovation in Flemish companies. Approximately 68% of all enterprises carried out business process innovation and this corresponds to 92 of all Flemish innovative companies. Approximately 39% of all enterprises carried out product innovation in the period 2020-2022, corresponding to 52% of all Flemish innovative companies. Approximately 35% of all enterprises report ongoing innovation activities and 13% report abandoned innovation activities in the period 2020-2022 (corresponding to, respectively, 46% and 17% of all innovative enterprises in Flanders).

With an innovation rate for business process innovation of 68% in 2020-2022, Flanders is one of the leading countries in comparison with the rest of Europe and the EU-27 figure.

With an innovation rate for product innovation of 39% in 2020-2022, Flanders scores higher than the figure for the EU-27 but lower than the leading countries for this indicator (Greece and Norway), and 2017 (both 68%) and CIS 2019 (70%), for the periods 2012-2014, 2014-2016, and 2016-2018 respectively.

International comparison of the percentage of business enterprises with business process innovation (2020-2022 (CIS 2023))

Figure 42



Source: Eurostat and ECOOM (Flanders)

ANNEX VI

STI productivity
or STI output?

1

Introduction

Patent statistics and publication statistics provide important indicators for measuring R&D output. Long time series are available and the data allow cross-country comparison. This section looks more closely at the role of publications and patents (applications and grants) as an output of R&D expenditure. (Source of all output publication and patent data: ECOOM)

2

Scientific publications

Scientific publications are an important instrument for measuring the visibility of research output. This analysis is based on the major bibliographic information of ISI-Thomson Scientific; namely, the Science Citation Index (scientific journals) and the Proceeding Database (conference proceedings). The Flemish output of scientific publications has increased significantly in recent years. In 2023, there were 31.9 publications per 10.000 inhabitants, whereas there were only 27.0 publications per 10.000 inhabitants in 2014. Flanders still ranks in the fourth position in Europe after Denmark, Sweden and Finland.

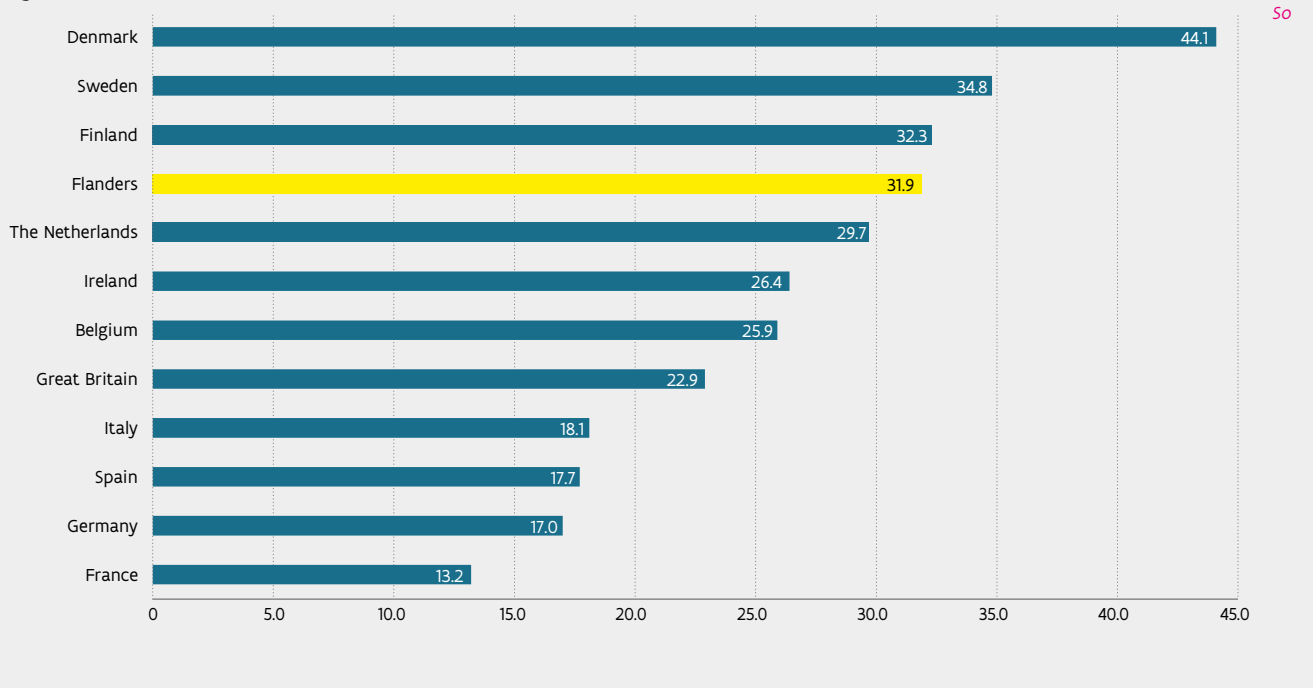
Evolution of the publication output per 10.000 inhabitants for Flanders (2016-2023)

Table 13

	2016	2017	2018	2019	2020	2021	2022	2023
ONLY SCIENTIFIC JOURNALS	25.6	27.6	29.4	30.4	29.5	33.8	30.6	29.8
SCIENTIFIC JOURNALS AND PROCEEDINGS	30.5	32.3	32.6	33.2	32.7	37.2	33.0	31.9

International comparison of the publication output per 10.000 inhabitants (2023)

Figure 43



The contribution of Flanders in the total number of publications for Belgium showed since 2000 an upward trend and now fluctuates about 75% for the most recent years (2018-2023). The Flemish contribution (journal articles only, all S&T fields) of the world total of scientific publications had fluctuated the last 10 years around 1.0% with a highest share of 1.05% in 2015. In the past ten years, the share for most European countries in in the global amount of publications started to decline or show a stagnation o. These evolutions should be seen in relation to the strong growth of China’s research output and share. In 2002, China’s share of world publication output was roughly equivalent to that of Italy (about 5%). China passed France in 2004, Germany in 2005 and Great Britain in 2006. By 2023, the Chinese share had already risen to 33%.

All publication output for the period 2018 to 2023 can be broken down into publications by different types of organisations. The share of higher education (universities and universities of applied sciences and arts) in the total number of Flemish scientific publications amounted to more than 88%. About 15% of all Flemish SCIE documents was published by employees from public research institutes or civil servants. Private institutions (both profit and non-profit) and hospitals (apart from university hospitals) were responsible respectively for almost 7% and about 6% of the total. The share of the higher education has continued to increase slightly in recent years.

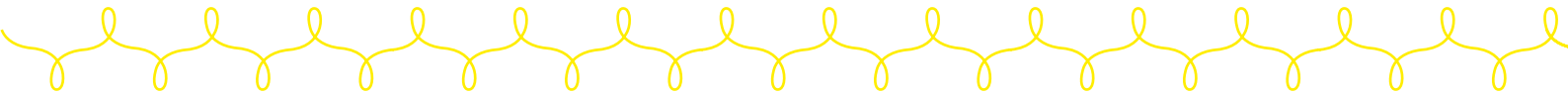
The scientific specialisation profile for Flanders for the period 2011 to 2023 is a typical example of the classic “Western” pattern, with life sciences and medical sciences as the dominant publication areas. Nevertheless, some other evolutions within his overall pattern are worth noting. For example, there was a sharp growth in Flanders between 2016 and 2021 in the fields of neuroscience (NEUR) , clinical (CLI1) and experimental medicine (CLI2) and the social sciences (SOC1 and SOC2). The Flemish publication profile also shows that its output is significantly above the world standard in terms of biology (BIOL), experimental medicine II (CLI2), clinical and experimental medicine I (CLI1), social sciences 1 (SOC1), social sciences (SOC2) and neuroscience (NEUR). In contrast to these fields related bio and life sciences, the STEM related fields show a share below the world standard: chemistry (CHEM), physics (PHYS), earth and spaces sciences (GEOS), and also for mathematics (MATH), engineering (ENGN), agronomy and environmental sciences (AGRI) and life sciences (BIOS). It is important to point out here that the share per field is a balanced indicator meaning that an increase of the share in one field is compensated by a decrease in another unrelated field.

3

Citations

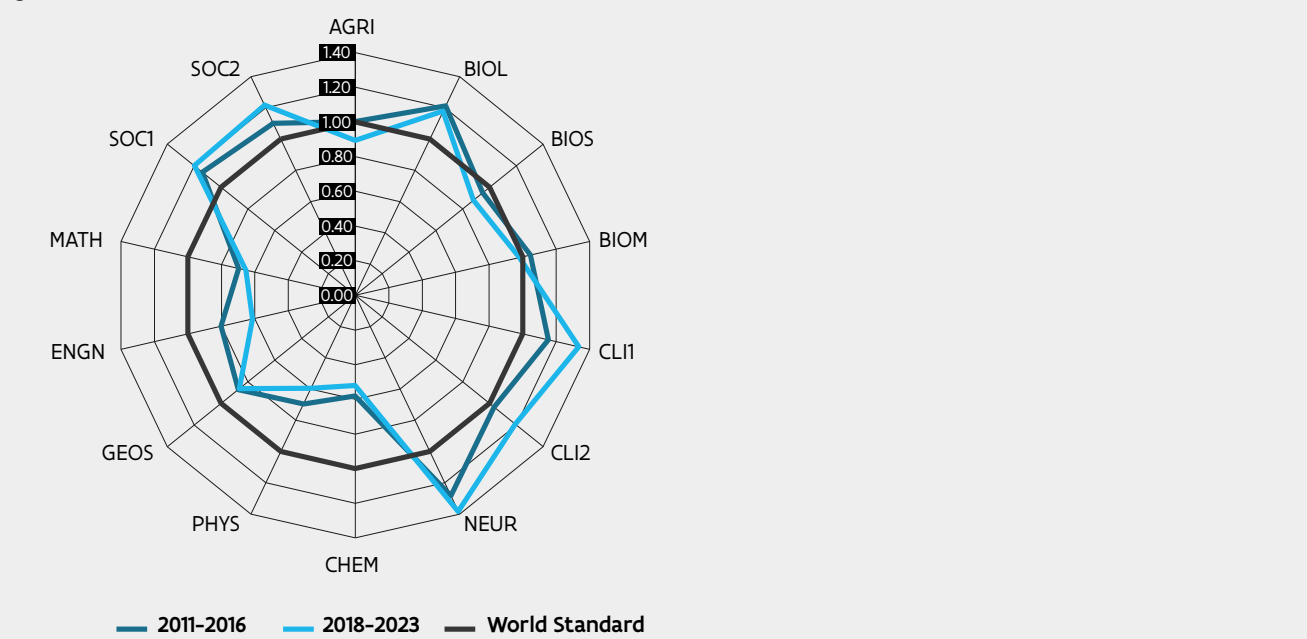
Citations analysis reflects the visibility of or impact made by the research output of the scientific community and can also be used as a proxy for measuring the quality of that output. Compared to other European countries and based on the results for the different periods covered in the citation map (2011-2015 and 2018-2022), Flanders is part of the leading group with Sweden, Denmark, Ireland and the Netherlands. Flanders is closing the gap with the leading countries: Denmark and the Netherlands.

The results of the two periods show that, in terms of relative citation frequency, Flanders is above or at least equal to the world standard in all fields of science. In particular, a very high score can be noted for the life sciences. The indicator values for chemistry (CHEM) and mathematics (MATH) are the lowest, but still almost represents the neutral value of 1.0 in comparison with the world standard. The relative citation scores for clinical research (CLI1 and CLI2) are higher than for the natural sciences. Also noteworthy is the large or increased impact in clinical research (CLI1 and CLI2) and earth and space sciences (GEOS) and the decreased impact in agriculture (AGRI), social sciences 2 (SOC2), physics (PHYS) and mathematics (MATH).



The scientific publication profile of Flanders in 2011-2016 and 2018-2023 based on the Activity Index (AI)

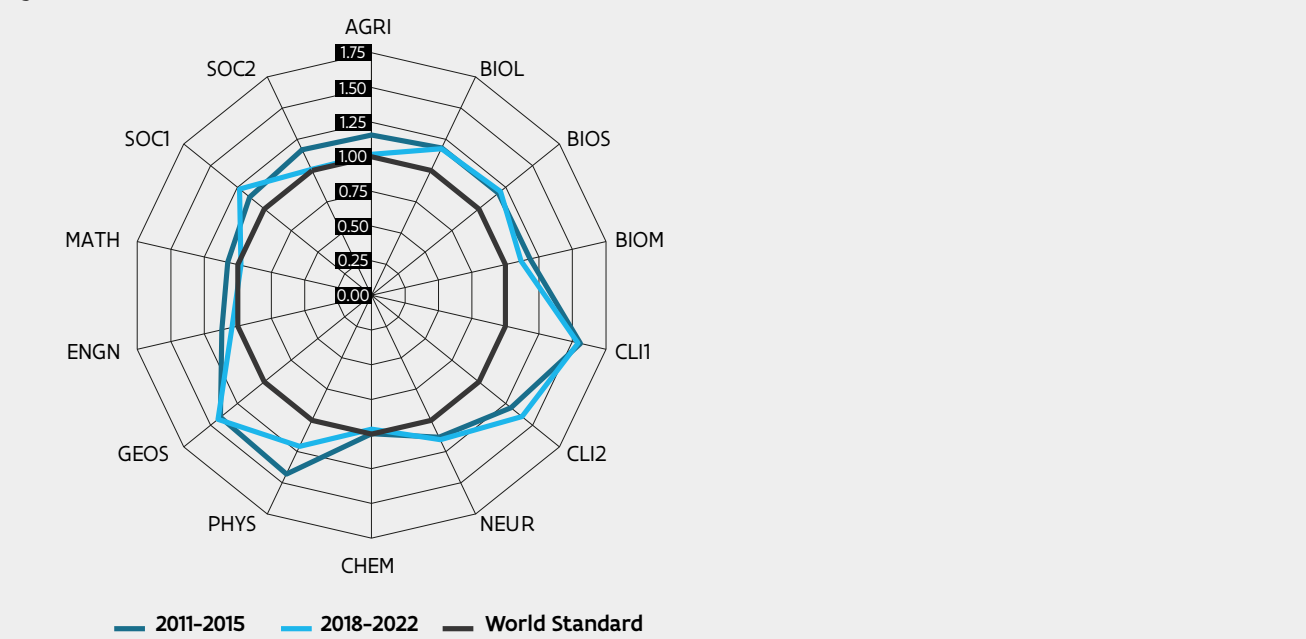
Figure 44



Source: ECOOM

The scientific citation profile of Flanders from 2011-2015 and 2018-2022 based on the Activity Index (AI)

Figure 45



Source: ECOOM

4 Co-publications

Flemish scientific publications are increasingly the result of close international cooperation. In 2023, 74.8% of the publications were written with at least one foreign co-author. Flanders occupies a leading position with Sweden (73.3%), Denmark (73.2%) and Ireland (72.8%) in the ranking of countries involved in co-authorship (2023). An analysis of the major co- publication links for Flanders for the period 2018-2023 reveal strong cooperation links with the Netherlands, Germany, Great Britain, France, Spain, Sweden, Austria, Switzerland and Italy. Other (but weaker) co-publication links can be found for most of the other EU-27 countries (Portugal, Ireland, Finland, Estonia, Latvia, Lithuania, Poland, Slovenia, Croatia, Luxembourg, Romania, the Czech Republic, Slovakia, Bulgaria, Greece, Denmark, Hungary), the USA, Canada, Belarus, Georgia, and Norway.

The relatively important link with some African countries (for example, the Democratic Republic of Congo) can partly be explained on historical grounds, but also other important cooperation with Africa, South America and Asia can be noticed.

A comparison between the profile of the international co-publications of Flanders with the profile of all publications shows a clear polarisation in favour of life sciences, earth sciences, and space sciences, and physics, to the detriment of the social sciences.

In the second period (2018-2022), the profile for Flanders for co-publications moved significantly over the world standard in the neuro- and behavioural sciences (NEUR), the Clinical and Experimental Medicine (general and internal medicine) (CLI1) and biology (BIOL). On the other hand, the co-publication activity in physics and engineering decreased and the co-publication activity in most other sciences increased.

5 Social sciences & humanities

The growing importance of publications in the innovation chain and in the distribution of research funds to universities has become evident in recent years. Studies also show that the Web of Science (WoS) does not fully represent the research efforts being made in the social sciences and the humanities. The Flemish Government also wants to map the publications that are not included in the WoS. Consequently, a group of experts was charged to collect both groups in a database, called the "Vlaams Academisch Bibliografisch bestand" (VABB) for the socio-economic sciences and humanities (SSH).

At the present time, VABB-SSH lists 162,854 publications published between 2000 and 2023, of which just 76,347 were found in the WoS (under the categorisations SCIE, SSCI, AHCI and the proceedings for CPCI-S & CPCI-SSH). The other 86,507 contained 48,703 articles in journals, 2,554 books (author), 4,005 book (editor), 27,316 chapters in books and 3,929 proceedings. Analysed by discipline, social health sciences has the greatest share (16.8%), followed by law (14.8%), economics and business (14.6%), and psychology (11.1%).

6 Patents

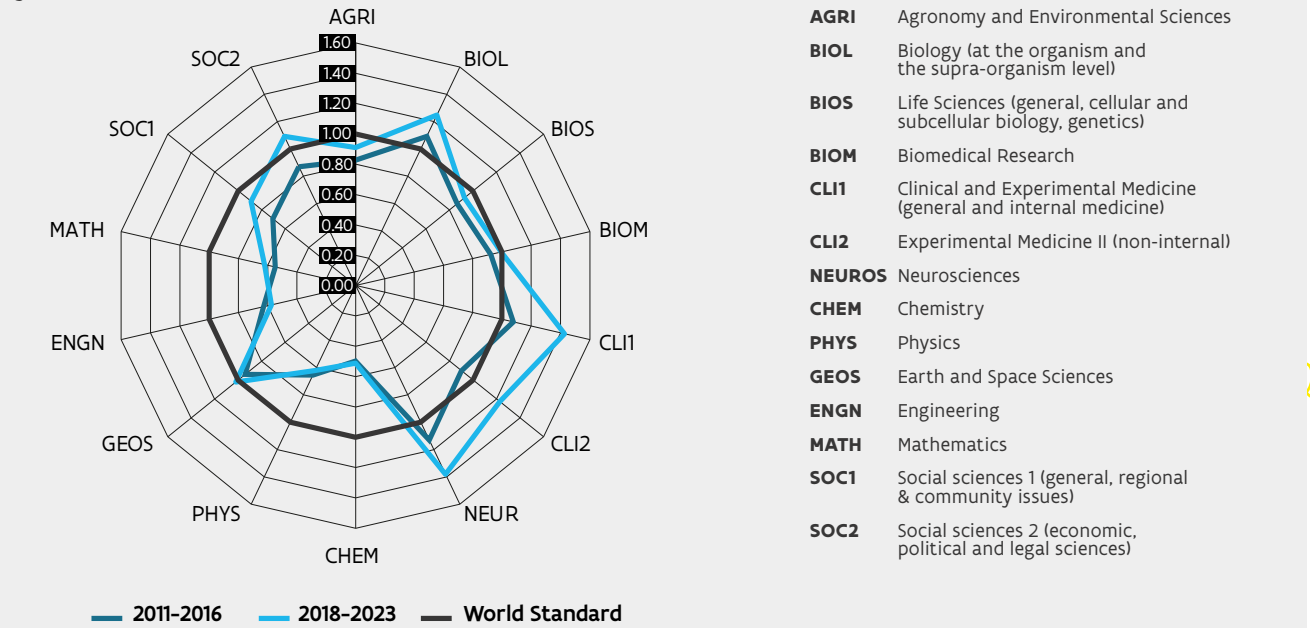
Patents are intended to grant innovators a temporary monopoly to exploit their innovative efforts. Patent information also helps to map technological progress and assess the degree of innovation within a particular organisation or region. The total number of patents for Flanders, as well as for the other reference countries, has increased in recent years.

Between 1980 and 2023, 68,186 EPO patent applications with a Belgian inventor and/or applicant were made and, at the moment when the analysis was made, 37,288 or 55% had been effectively assigned. For Flanders, 46,898 patents applications were filed during the same period and 25,829 (55%) were assigned. These proportions are roughly equal to those for the following reference countries: Italy (58%), Denmark and the Netherlands (both 57%) and Finland (56%). Germany, France, Austria and Japan (63%) have the highest assignment rates.

An international comparison (2021) of the number of patents by origin (EPO applications) indicates that Flanders is located in the group of followers (ninth position), with 282.2 patents per million of population, (origin based on inventor and/or applicant address). This ranking is led by Switzerland, Luxembourg¹⁰, Denmark and Sweden. Flanders is ranked after Austria (eighth) and before Ireland (tenth). From an international perspective, this is quite a good result for Flanders and Belgium, bearing in mind that all the reference countries together represent about 95% of total patent activities.

The scientific co-publication profile of Flanders in 2011-2016 and 2018-2023 based on the Activity Index (AI)

Figure 46



Source: ECOOM

10 It should be noted that Luxembourg is characterised by a population of less than 0.5 million inhabitants. The indicator patents / million inhabitants hence implies a multiplication of the absolute volumes with a factor approximating 2, which is not the case for any of the other reference countries. In absolute terms therefore, the numbers for Luxembourg are lower than what the figure suggests.

Evolution of EPO patent applications for Flanders per million of population by origin, inventor and/or applicant (2012-2021)

Table 14

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
FLANDERS	255.9	249.8	272.2	281.1	281.0	277.3	296.4	270.3	283.3	282.2

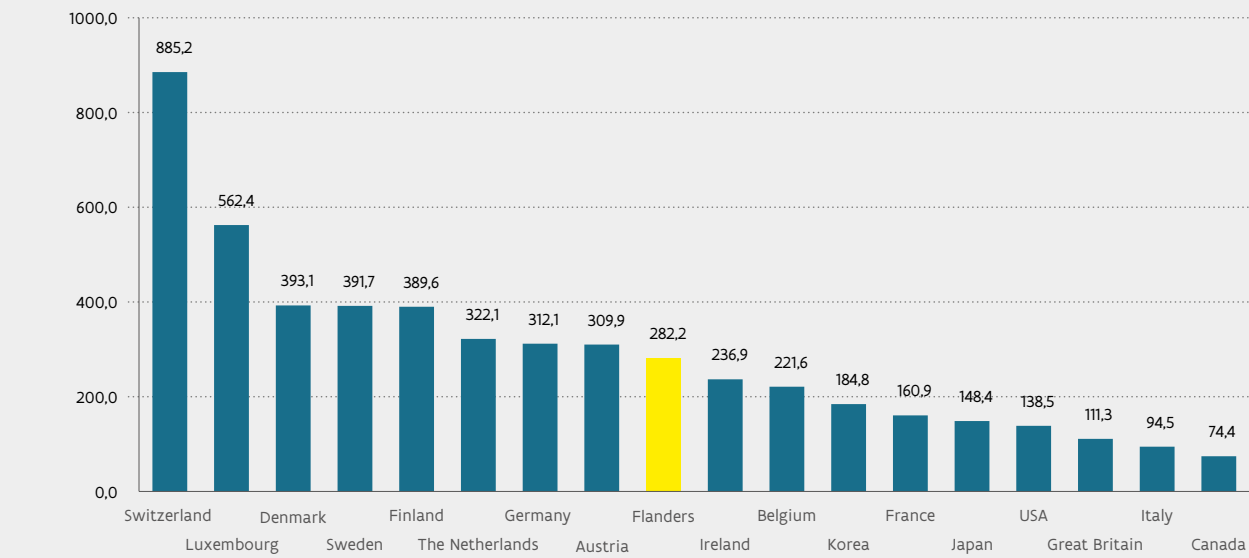
Evolution of USPTO patent grants for Flanders per million of population by origin, inventor and/or applicant (2012-2021)

Table 15

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
FLANDERS	180.2	197.0	218.0	223.3	240.9	238.3	226.5	198.1	132.4	74.3

International comparison of EPO patent applications per million of population by origin, inventor and/or applicant (2021)

Figure 47

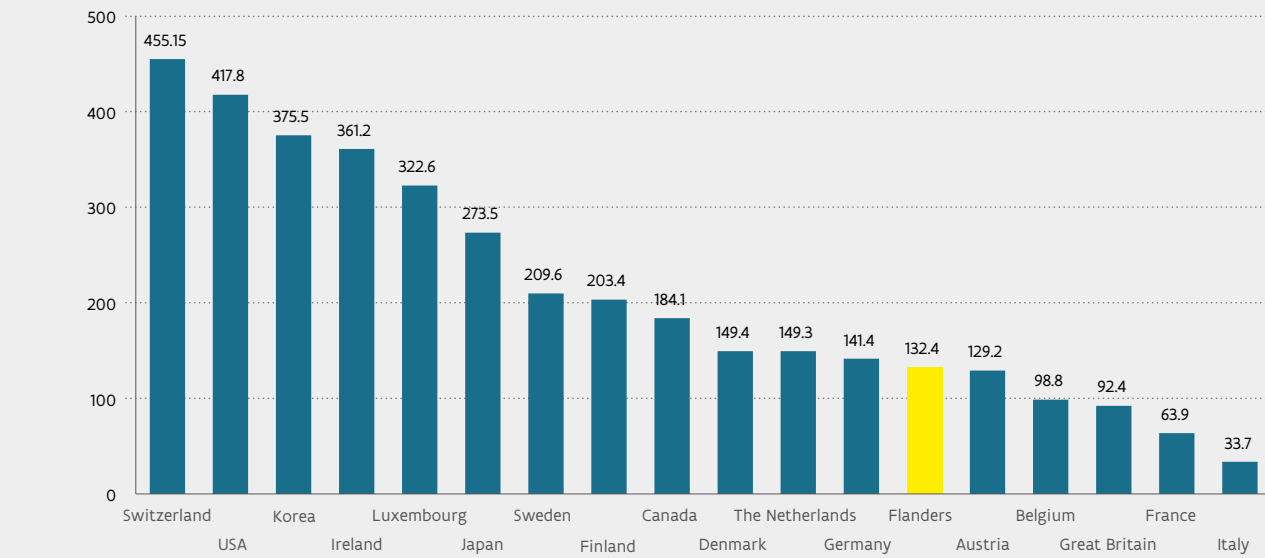


Source: ECOOM

Based on patents granted under the USPTO system, Belgium and Flanders occupy respectively the thirteenth and the fifteenth place. The leaders here are Switzerland, the USA, Korea and Luxembourg.

International comparison of USPTO patent grants per million of population by origin, inventor and/or applicant (2020)

Figure 48



Source: ECOOM

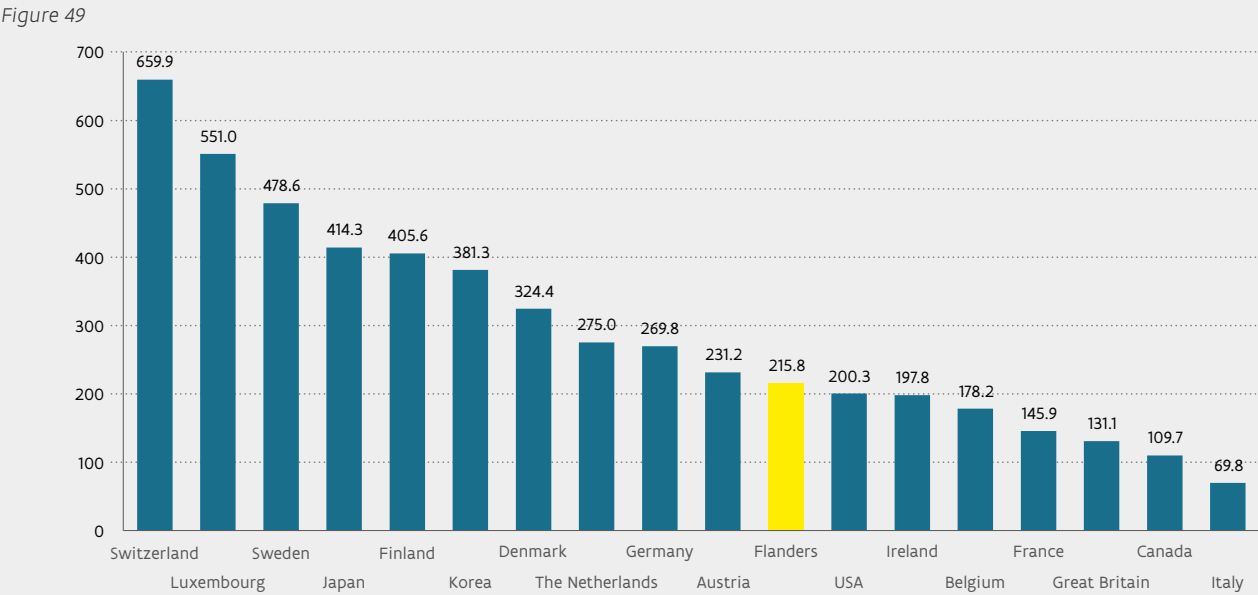
Flanders occupies the eleventh place in the ranking of PCT applications, with Belgium in thirteenth position. This list is headed by Switzerland, Luxembourg, Sweden, Japan and Finland.

Evolution of USPTO patent grants for Flanders per million of population by origin, inventor and/or applicant (2012-2021)

Table 16

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
FLANDERS	209.7	187.8	210.7	208.0	204.4	210.5	213.3	203.1	215.8	223.7

International comparison of PCT patent applications per million of population by origin, inventor and/or applicant (2020)



Source: ECOOM

A breakdown in organisational types reveals that companies are particularly active in applying for patents (82% of patents are held by companies). The most important applicants (companies) for Flanders are Agfa-Gevaert, Janssen Pharmaceutica, CNH (Case New Holland) Belgium). (IMEC, VIB,...) and universities are increasingly active as patent applicants (owning 12% of patents). An international comparison shows that this 11% rate is very high.

In 28% of all EPO-patent applications with a Flemish inventor, foreign applicants are involved (measured over the last ten years). It concerns mainly applicants from the United States (36%), France and Germany (with respectively 12% and 13%). International inventor collaboration can further be illustrated by considering patents with at least one Flemish inventor and one foreign inventor (international co-inventions). This is the case for 41% of Flemish patents. International co-applicants (at least one Flemish applicant and at least one foreign applicant) represent 49% of all Flemish patents.

A regional European patent map divided 290 European regions at the NUTS2 (NUTS2021 version) level. The European top-five (based on applicants addresses) are: Nordwestschweiz (CH),, Zentralschweiz (CH), Oberbayern (DE), Noord-Brabant (NL) and, Inner London – West (UK),. For Flanders, Vlaams-Brabant occupies position 31 in this ranking, with West-Vlaanderen at 41, Oost- Vlaanderen at 58, Antwerpen at 62 and Limburg at 85. When considering inventor addresses, the top-five are Voralberg (AT), Noord-Brabant (NL), Nordwestschweiz (CH), Mittelfranken (DE) and Oberbayern (DE). The Flemish provinces are ranked at 26 (Vlaams-Brabant), at 53 (Oost-Vlaanderen), at 61 (Antwerpen), at 67 (West-Vlaanderen) and at 100 (Limburg).

The regional patent map for Flanders allocates patents to the departmental level. Based on inventor addresses, the top-five are Leuven, Gent, Diksmuide, Kortrijk, and Halle-Vilvoorde and Kortrijk. For applicant addresses, the top-five is composed of Leuven, Brugge, Gent, Kortrijk, and Dendermonde.

ANNEX VII

Main R&D&I actors



Public authority

Department of Work, Economy, Science, Innovation & Social Economy (WEWIS)

➤ www.departmentwewis.be

Department Chancellery and Foreign Affairs

➤ www.fdfa.be/en

Research Foundation Flanders (FWO)

➤ www.fwo.be/en

Flanders Innovation and Entrepreneurship (VLAIO)

➤ www.vlaio.be/en

Flanders Holding Company (PMV)

➤ www.pmv.eu/en

Limburg Reconversion Company (LRM)

➤ www.lrm.be/en

Flanders Investment and Trade (FIT)

➤ www.Flandersinvestmentandtrade.com/en

Advisory councils

Flemish Advisory Council for Innovation and Entrepreneurship (VARIO)

➤ www.vario.be/en

Social and Economic Council of Flanders (SERV)

➤ www.serv.be

Scientific institutes (from the Flemish community)

Agency Botanic Garden Meise

➤ www.plantentuinmeise.be/en

Flanders Research Institute for Agriculture, Fisheries and Food (ILVO)

➤ www.ilvo.vlaanderen.be/en

Research Institute for Nature and Forest (INBO)

➤ www.inbo.be/en

Royal Museum of Fine Arts Antwerp (KMSKA)

➤ www.kmska.be/en

Flanders Heritage Agency (AOE)

➤ <https://www.onroerenderfgoed.be/Flanders-heritage-agency>

Other knowledge institutes

- Flanders Marine Institute (VLIZ)
➤ www.vliz.be/en
- Institute for Tropical Medicine (ITM)
➤ www.itg.be/en
- Antwerp Zoo Centre for Research and Conservation (CRC)
➤ www.zooscience.be
- Alamire Foundation
➤ www.alamirefoundation.org/nl/
- Orpheus Institute
➤ <https://orpheusinstituut.be/en/>

Federal scientific institutes

- Belgian Institute for Space Aeronomy (BIRA)
➤ www.aeronomie.be/en
- National Library of Belgium (KBR)
➤ www.kbr.be/en
- Royal Belgian Institute of Natural Sciences (KBIN)
➤ <https://www.naturalsciences.be/en>
- Royal Institute for Cultural Heritage (KIK)
➤ <https://www.kikirpa.be/en/>
- Royal Meteorological Institute of Belgium (KMI)
➤ www.meteo.be/en/belgium
- Royal Museum for Central Africa
➤ www.africamuseum.be/en
- Royal Museums of Art and History (KMKG)
➤ www.kmkg-mrah.be
- Royal Museums of Fine Arts of Belgium (KMSK)
➤ www.fine-arts-museum.be/en
- Royal Observatory of Belgium (KSB)
➤ www.astro.oma.be/en
- State Archives of Belgium
➤ www.arch.be

Federal research centres

- sciensano
➤ www.sciensano.be/en
- National Institute for Radio-elements (IRE)
➤ <https://www.ire.eu/en/>
- Belgian Nuclear Research Centre (SCK CEN)
➤ www.sckcen.be/en

International institutes, organisations or platforms in the sti field, located in Flanders

- JRC - Institute for Reference Materials and Measurements (IRMM)
➤ www.confidence.eu/participants/ec-jrc-irmm
 - European Cooperation in Science and Technology (COST)
➤ www.cost.eu
 - ESA Business and Innovation Centre (ESA BIC)
➤ www.sbicnoordwijk.nl/esa-bic
 - United Nations University Institute on Comparative Regional Integration Studies (UNU-CRIS)
➤ www.cris.unu.edu
 - European Marine Observation and Data Network (EMODnet)
➤ www.emodnet.eu
 - European Marine Board (EMB)
➤ www.marineboard.eu
 - Von Karmann Institute (VKI)
➤ www.vki.ac.be
- Other bodies of public interest in the field of science and innovation
- Royal Flemish Academy of Belgium for Arts and Sciences (KVAB)
➤ www.kvab.be
 - Royal Academy of Belgium for Medicine (KAGB)
➤ www.academiegeneeskunde.be
 - Royal Academy for Dutch Language and Literature (KANTL)
➤ www.kantl.be
 - Flanders Foundation for Technology Assessment in Innovation and Work (STV voor Innovatie en Arbeid)
➤ www.serv.be
 - Flemish Academic Centre for Science and the Arts (VLAC)
➤ kvab.be/en
 - Flanders Hydraulics
➤ www.waterbouwkundiglaboratorium.be/en

University associations

- Antwerp
 - www.auha.be/en
- Brussels
 - www.universitaireassociatiebrussel.be/en
- Ghent
 - www.augent.be/en
- KU Leuven
 - www.associatie.kuleuven.be/eng
- Limburg
 - www.auhl.be

Strategic research centres

- Interuniversity Micro-electronics Centre (imec)
 - www.imec.be
- Flanders Make
 - www.Flandersmake.be
- Flemish Institute for Biotechnology (VIB)
 - www.vib.be
- Flemish Institute for Technological Research (VITO)
 - www.vito.be

Technology transfer offices (TTO) at the universities and the strategic research centres

- KU Leuven Research & Development
 - www.lrd.kuleuven.be/en
- UGent TechTransfer
 - <https://techtransfer.ugent.be/en>
- VUB TechTransfer
 - www.vubtechtransfer.be
- AUHA Interfacedienst
 - <http://www.uantwerpen.be/forcompanies>
- UHasselt Tech Transfer Office
 - www.uhasselt.be/techtransfer
- General contact of the TTO's
 - www.ttoFlanders.be

Collective research centres and equivalent institutes

- Belgian Institute for Wood Technology and Wood Training Centre (Wood.be)
 - www.wood.be
- Belgian Welding Institute (BWI)
 - www.bil-ibs.be
- Belgian Research Centre for the Cement Industry (CRIC)
 - www.cric.be
- Belgian Road Research Centre (BRRC)
 - www.brrc.be
- Scientific and Technical Service Centre for the Belgian Textile Industry (Centexbel)
 - www.centexbel.be/en
- Buildwise (previously BBRI)
 - www.buildwise.be/en
- Scientific and Technological Research Centre for Diamond
 - www.wtocd.be
- Collective Centre for the Belgian Technology Industry (SIRRIS)
 - www.sirris.be
- Belgian Ceramic Research Centre (BCRC)
 - www.bcrc.be
- Metallurgic Research Centre (CRM) (ferro and non-ferro)
 - www.crmgroup.be/en
- Coatings Research Institute (CORI)
 - www.cori-coatings.be
- Tecnolec / Volta (electrical business)
 - www.volta-org.be/nl

Interdisciplinary research cooperation initiatives

- Energyville
 - www.energyville.be/en
- VIB-KU Leuven Center for Neuroscience
 - vibneuroscienceleuven.be/en

Science / Technology parks

Tech Lane Ghent Science Park (previously the Ardoyen and Eiland Zwijnaarde parks) (Ghent)
➤ www.techlane.be

Zellik (Asse)
➤ www.zone-researchpark.be

Arenberg, Haasrode (Leuven)
➤ www.wetenschapspark-arenberg.be

Feed Food Health (Tienen)
➤ www.foodport.be

Thor Park (Genk)
➤ www.thorpark.be

Corda Campus (previously Research Campus Hasselt) (Hasselt)
➤ www.cordacampus.com/en

Ostend Science Park
➤ ostendsciencepark.be/

Innovation centres and incubators

For an overview:
➤ www.vlaio.be/en/vlaio-network

Spearhead clusters

Sustainable chemistry and synthetics (Catalisti)
➤ www.catalisti.be

Specialised Logistics (VIL)
➤ www.vil.be

Agro-food (Flanders' Food)
➤ www.Flandersfood.com

Medical biotech, medtech, digital health, agtech and industrial biotech (Biovia)
➤ www.biovia.be

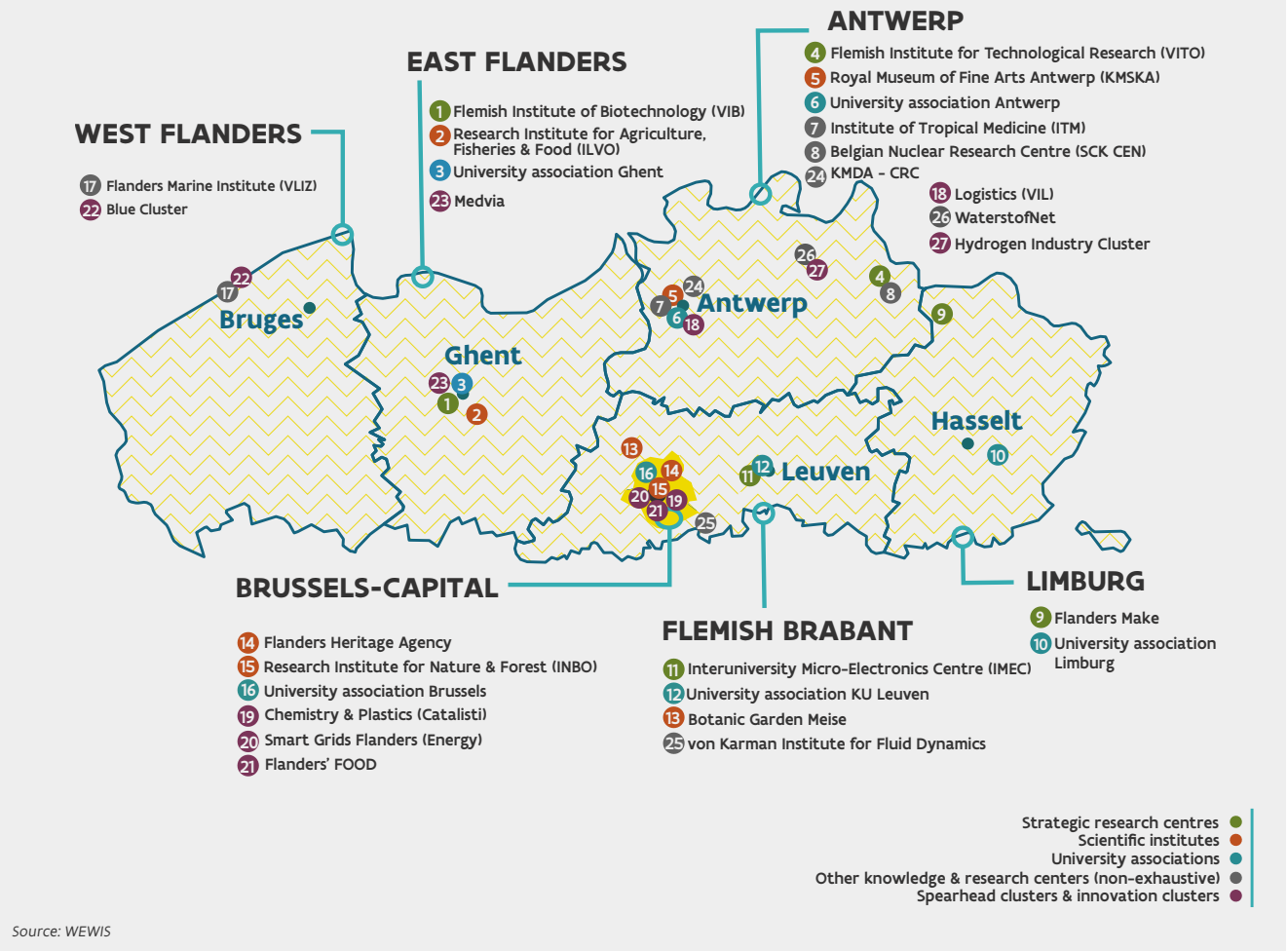
Sustainable North Sea economic activities (Blue cluster)
➤ www.bluecluster.be

Energy and smart grids (Flux50)
➤ www.flux50.com

Entertainment (Ent.A)
➤ www.entertainmentassociatie.be

Main research and economic actors in the Flemish STI-Landscape

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