



CHAPTER 2

GOVERNMENT ACTORS

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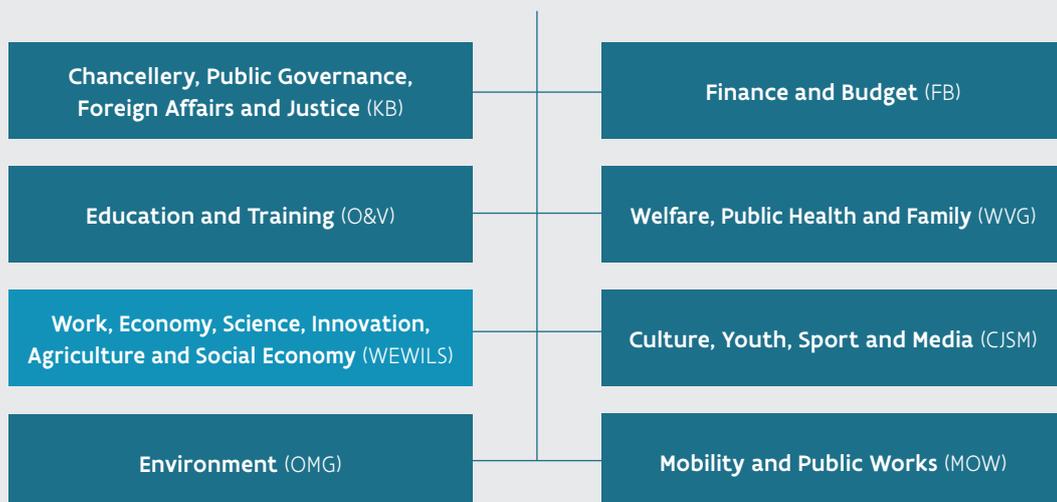
FLEMISH ADMINISTRATION

The Flemish administration comprises numerous public services, which are grouped in 8 policy areas as of 1 January 2024. Each policy area has one department and several agencies. The policy domain Work, Economy, Science, Innovation, Agriculture and Social Economy is a new policy domain since 1 January 2024.

It will have two departments (Economy, Science and Innovation, and Work and Social Economy) during a transitional period that will end with the merger of the two departments on 1st of January 2025.

THE 8 POLICY AREAS OF THE FLEMISH ADMINISTRATION

Figure 10



1.1 POLICY AREA ECONOMY, SCIENCE AND INNOVATION

At the governmental level a single **minister (Mr. Jo Brouns)** is responsible for both scientific research and innovation. The public authority charged with STI policy is the WEWILS policy-domain. WEWILS (= Werk, Economie, Wetenschap, Innovatie, Landbouw en Sociale economie) manages the broad field of Economy, Science and Innovation, together with the domains of Work, Social Economy and Agriculture. A department prepares, monitors, evaluates and reports on policy, while a few agencies execute and implement policy measures in the fields of scientific research, innovation, entrepreneurship and industrial policy.

Figure 11 represents the public bodies that are active in the WEWILS policy area as of 2024.

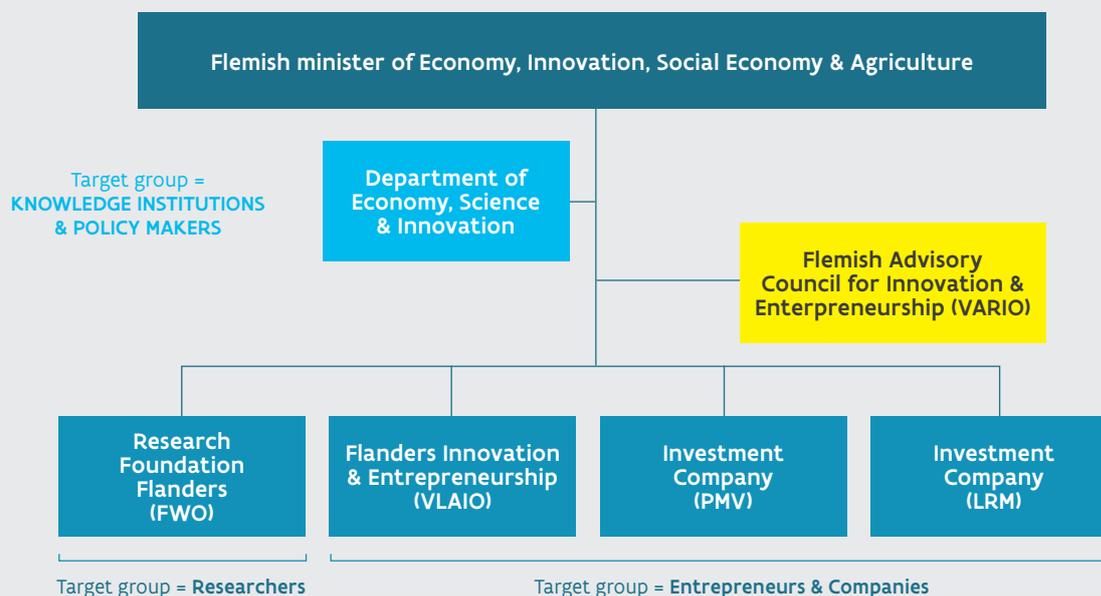
1.1.1 GOVERNMENT DEPARTMENT

The role of the department as regards STI is to **prepare, monitor, evaluate and report** on public policy in the field of enterprise (economic support and entrepreneurship), science and innovation, thereby contributing to greater wealth and well-being in Flanders. Its levers are the promotion of:

- excellence in scientific research;
- an attractive and sustainable business climate;
- a creative, innovative and entrepreneurial society.

ECONOMY, SCIENCE AND INNOVATION (EWI) POLICY AREA FROM THE FLEMISH GOVERNMENT, ANNO 2023

Figure 11



The **strategic aims** of the department regarding STI are:

- create a sustainable economic tissue and facilitate entrepreneurship;
- stimulate innovation and creativity;
- stimulate knowledge creation and knowledge valorisation;
- putting Flanders on the map internationally in the field of economy, science and innovation;
- develop itself as knowledge centre within the Flemish authority for delivering and use of insights in the field of economy, entrepreneurship, scientific research and innovation.

More specifically, **within the STI field**, the department:

- prepares all legislative initiatives or position papers in the field of science, research and innovation;
- promotes close co-operation between research institutions, higher education institutions and companies;
- prepares multi-annual management agreements with a number of organisations, such as the four Flemish strategic research centres, the Research Foundation Flanders (FWO), the Flanders Marine Institute (VLIZ)...;
- evaluates policy instruments and organisations that receive governmental and public support;
- coordinates all R&D&I topics, including the governance activities under the EU Framework Programme for R&I;
- has representatives in the General Representation of the Flemish Government to the EU (AAVREU) within the Permanent Representation of Belgium to the EU, who participate in working parties in the Council of the EU;
- participates in the high-level groups from the EC (ERAC, High-Level Group COMPCRO) and OECD (CSTP);
- 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;
- holds responsibility for the direct implementation of several policy (support) instruments, specific on-off initiatives, participation fees or representational positions. Examples of these are: the support for the BOF (Special Research Fund), the IOF (Industrial Research Fund), and the PWO (Practice oriented scientific research at universities of applied sciences and arts), governmental representatives in strategic research centres or public knowledge organisations, membership fees e.g. of EMBRC (European Marine Biology Resource Centre).

1.1.2 POLICY ADVICE

The **'Vlaamse Adviesraad voor Innoveren en Ondernemen' (VARIO)**, the 'Flemish Advisory Council for Innovation and Entrepreneurship', advises the Flemish Government and the Flemish Parliament on its science, technology, innovation, industry and entrepreneurship policy. It is formally part of the policy area Economy, Science and Innovation. The council advises on its own initiative as well as on request. It works independently from the Flemish Government and the Flemish stakeholders in the field of science, innovation, industry and enterprise. The Council consists of ten experts from the scientific world and the business community, who take part in a personal capacity. VARIO publishes advisory reports and other reports, on a diverse range of relevant topics, which can be found on its website.

VARIO exists since 2017. Its predecessors were the 'Vlaamse Raad voor Wetenschap en Innovatie' (VRWI, or Flemish Council for Science and Innovation, 2010-2016) and the 'Vlaamse Raad voor Wetenschapsbeleid' (VRWB, or Flemish Science Policy Council, 1985-2009).

Policy advice on socio-economic themes is also formulated by the Social and Economic Council of Flanders (SERV), which is formally part of the policy area Public Governance and the Chancellery. In it are represented the various Flemish employer organisations and trade unions.

1.1.3 AGENCIES

Whereas the Flemish Government's departments prepare, monitor, evaluate and report on public policy, a number of **agencies are charged with the implementation of the policy decisions**. They make up four of the seven agencies that fall under the WEWILS policy area. The funding agencies have established a wide variety of initiatives and support instruments to implement R&D&I-policy. These agencies are:

- **FWO**: Research Foundation Flanders;
- **VLAIO**: Flanders Innovation and Entrepreneurship;
- **PMV**: Flemish Investment Company;
- **LRM**: Limburg Investment Company.

RESEARCH FOUNDATION FLANDERS (FWO)

The Research Foundation Flanders¹ (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.

In 2023 there was an overall evaluation of the FWO. This evaluation assessed how FWO has fulfilled his mission and tasks during the Governing Agreement 2019-2023 and gives a potential direction to the new Governing Agreement between the FWO and the Flemish Government in 2024. This new Governing Agreement 2024-2028 will set out the strategic and operational goals for the coming period.

In this new period the FWO wants to become even more the house of science for each excellent researcher.

The overall part of the annual budget of the FWO is granted by the Flemish Government and amounts to approximately 407 million euro in total.



1 In Dutch: Fonds voor Wetenschappelijk Onderzoek Vlaanderen



FLANDERS INNOVATION & ENTREPRENEURSHIP (VLAIO)

Flanders Innovation & Entrepreneurship (VLAIO) is a government agency, charged with **implementing the economic, innovation and enterprise policy in Flanders**. 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.

VLAIO was established in 2016 after a merger of the Agentschap Ondernemen (AO, Enterprise Flanders) with the Agentschap voor Innovatie door Wetenschap en Technologie (IWT, Agency for Innovation by Science and Technology). As of 2016, VLAIO acts as the **one-stop-shop for companies**.

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. As of 2016, 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,

PARTICIPATION COMPANY FLANDERS (PMV)

As an investment company, PMV is building a sustainable Flemish economy, the engine of our prosperity and well-being. 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 internationalization. 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 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. The Flanders Future Techfund can provide financing from 0.5 to 5 million euros.

LIMBURG RECONVERSION COMPANY (LRM)

LRM is an investment company that **develops and stimulates economic growth 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

2 GENERAL ORIENTATIONS OF FLEMISH STI POLICY

2.1 POLICY DOCUMENTS IN THE FIELD OF R&D&I

Policy in the field of science, research and innovation is being implemented through a whole set of policy instruments (parliament acts, decrees, ministerial decisions, government communications, concept notes, MoU's...). The role and tasks of the major actors in the STI landscape of Flanders are defined in the "Decreet betreffende de organisatie en financiering van het wetenschaps- en innovatiebeleid" (**Flemish Parliament**

MEMBERS OF THE FLEMISH GOVERNMENT 2019-2024

Flemish Minister of Employment, Economy, Social Economy and Agriculture Jo Brouns, Flemish Minister for Youth, Media and Brussels Affairs Benjamin Dalle, Flemish Minister of Mobility, Public Work Lydia Peeters, Flemish Minister of Environment, Energy, Tourism and Justice Zuhair Demir, Flemish Minister of Welfare Hilde Crevits, Flemish Minister-President Jan Jambon, Flemish Minister of Education and Animal Welfare and Sports Ben Weyts, newly appointed Flemish Minister of Domestic Policy and Living Together Gwendolyn Rutten and Flemish Minister of Finance, Budget and Housing Matthias Diependaele pose for the photographer for a family portrait ahead of a Minister's council meeting of the Flemish Government at the Minister-President's offices, in Brussels, Friday 10 November 2023.



Act on the organisation and financing of the scientific and innovation policy), which was approved on 30 April 2009 by the Flemish Parliament (and modified thereafter).

The Government of Flanders elaborates its policy through several agreements, initiatives and statements, including:

- the **government coalition agreement** in which the various political parties that are part of the governing coalition outline their priorities for the five-yearly parliamentary term (currently 2019-2024);
- the **policy document of the minister** charged with scientific research and innovation for the five-year governing period 2019-2024 (note: this theme is a part of an overall policy document for Economy, Science and Innovation);
- the **annual policy letter of the minister**, which further elaborates and specifies the initiatives for the general policy framework that is announced in the policy document (note: this theme is a part of an overall policy letter for Economy, Science and Innovation);
- 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 transversal policy document Flanders 2050 (VISIE 2050: a long-term strategy for Flanders) and Vizier 2030 (translation of the Sustainable Development Goals to the Flemish context). The Flemish Reform Programme for the Europe 2020 strategy (in the framework of the European Semester) recaps the main policy intentions of the government as elaborated in the aforementioned documents.

In its **government coalition agreement 2019–2024**, the Flemish Government stated the ambition to become one of the top 5 innovative knowledge regions in Europe, as measured by the Regional Innovation Scoreboard. International excellence remains the most important goal of its research policy, both in fundamental and applied research. The Flemish Government furthermore committed itself **to reach the 3% target of R&D intensity by 2024**.

This commitment was translated into 195 million euro one-off investments in R&D-infrastructure during this period, and an increase of 180 million euro in the annual R&I-budget.

The government also focused on the continued implementation of the quadruple helix model. The policy approach set out three strategic axes:

1. allowing enterprises to undertake, innovate and internationalise
2. invest further in favourable framework conditions for a strong R&D&I-system
3. invest further in the interaction between the actors of the R&D&I-system

For the period 2019-2024, the EWI policy field was part of the responsibility of the Flemish Minister for Economy, Innovation, Work, Social Economy and Agriculture. The policy priorities on scientific research and innovation were elaborated in the **policy document 2019-2024**. Six cross-cutting strategic ambitions were enumerated:

1. Allow local entrepreneurship to flourish
2. An integrated industrial policy for the future
3. Regional specialisation in regions and provinces
4. Successful enterprising in the digital society
5. Innovation for climate-neutral solutions in the industry
6. Sustainable growth through a knowledge driven circular economy

The realisation of these cross-cutting ambitions was supported by measures which are divided into the categories economy, scientific research, innovation, and science communication.

Apart from the aforementioned (further) implementation of the **quadruple helix model**, another main characteristic of the policy of the past years was the focus on a **more mission oriented policy**.

2.2

MORE RESOURCES FOR R&D

The Flemish Government set itself the ambition to invest 3% of its gross domestic product (GDP) in R&D by the end of government period 2019 - 2024. It achieved this by increasing the annual budget for R&I with 180 million EUR by 2024. It also allocated 195 million EUR in one-off investments in research infrastructure.

More information on funding of R&D can be found in Annex III.



2.3

THEMATIC POLICY PRIORITIES

2.3.1.

RECOVERY PLAN FLEMISH RESILIENCE

In **2020**, responding to the COVID-19 crisis, the Flemish Government adopted a **4.3 billion euro recovery plan**, called Flemish Resilience. Of this sum, **over 500 million euro** was invested in economy, science and innovation.

The Flemish recovery plan allocated investments through five building blocks, namely government investments (1.5 billion euro), climate, sustainability and innovation (1.2 billion euro), digitalisation (800 million euro), people and society (655 million euro) and Brexit initiatives (83 million euro).

Of these investments, over 500 million euro are taking place within the policy domain economy, science and innovation. They are used to accelerate the necessary transition of the economy, in particular in the field of digital and climate. About half of this package is invested in hydrogen research and innovation (125 million euro), research infrastructure (115 million euro) and accelerating enterprise R&D-projects (100 million euro). Smaller investments are made in circular economy and construction (25 million euro), vibrant city centres (25 million euro), smart cities (20 million euro), bio-economy (10 million euro), media innovation (10 million euro), business parks (10 million euro), water security (10 million euro) and care and health (6 million euro), amongst others.

2.3.2

GRAND POLICY INITIATIVES

Since 2019, over 70 million euro per year is being invested in three grand policy initiatives relating to artificial intelligence, cybersecurity and climate change. These initiatives were adopted in March 2019. In 2020, the Flemish Government extended its efforts on transition to industrial climate neutrality through an additional programme.

POLICY PLAN ARTIFICIAL INTELLIGENCE



The policy plan Artificial Intelligence is aimed at **strengthening Flemish competitiveness by boosting the uptake of AI-technologies by enterprises**. At the same time, it also reinforces basic research in areas where Flanders has an edge over its competitors. Lastly, it aims to provide framework conditions by focussing on ethics and legal aspects, as well as competences and skills.

The policy plan foresees an **annual investment of 32 million euro**. It is composed of three complementary pillars:

- 7. Top strategic basic research** (12 million euro annually) for the targeted development of new knowledge, scientific breakthroughs and talent at world level. This part focuses on themes where Flanders already performs excellently and where synergy can be obtained with the demand-driven implementation agenda of the Flemish business community. The research programme is co-ordinated by imec (see page 58) and focuses on four challenges: (i) hybrid, automated, reliable and actionable data science ("data science"): the help to make complex decisions; (ii) real-time & energy-efficient AI: extracting and processing information at "the edge"; (iii) multi-agent, collaborative AI for autonomous interaction between decision-making entities; and (iv) human-like AI to communicate and collaborate seamlessly with people. These challenges are applied to use cases on efficient health care, future mobility, industry 5.0 and other topics.
- 8. A central focus on the implementation of AI applications in businesses** (15 million euro annually). A demand-driven agenda from the business community must be brought to existing government instruments, mainly of the Flemish Agency for Innovation and Entrepreneurship (VLAIO, see chapter 2) and relevant institutions, through open, well-organized channels and networks.
- 9. A strong supporting policy** (5 million euro annually) that, in addition to the significant training needs aimed at the labour market, also addresses the legal, ethical, democratic and socio-economic aspects of AI. The focus is on a correct

yet ambitious outreach to the population, so that innovative technologies are not regarded merely as exogenous but rather as endogenous, reinforcing evolutions, in which Flemish actors can actively participate. Initiatives under this pillar include the Knowledge Centre Data & Society (to study the legal and ethical aspects of AI) and the Flemish AI-Academy (to tackle the skills mismatch on the labour market).

POLICY PLAN CYBERSECURITY



The Policy Plan Cybersecurity is set up in a similar way as the Policy Plan Artificial Intelligence, focussing on research, implementation and competences. It foresees an annual investment of 20 million euro. This plan also has three complementary pillars:

- 1. Top strategic basic research** (8 million euro annually) to reinforce domains where Flanders is already at the forefront, such as cryptography and securing distributed systems. The research programme is carried out by a consortium of Flemish research institutions and focuses on four tracks: (i) secure software & applications; (ii) security services; (iii) system and infrastructure security; and (iv) security building blocks & secure hardware.
- 2. A central focus on the implementation of cybersecurity applications in businesses** (9 million euro annually). VLAIO and its partner network supports companies in improving their digital readiness and raise their awareness of the importance of cybersecurity. There is also support for the concrete implementation of cybersecurity, amongst others by detecting the latest trends and technologies for different sectors in the Flemish economy so companies can adopt state-of-the-art technology.
- 3. A strong supporting policy** (3 million euro annually) that focuses providing training and setting up a complementary awareness raising campaign. The aim is to raise awareness on the different security challenges for every Flemish enterprise. It also wants to make every citizen more aware on how to handle personal data and how to protect us in an increasingly online world.

MOONSHOT CO₂

In the coming twenty years, **Flanders will invest 20 million euros every year in innovation and research that can contribute to the Flemish climate targets.** The programme is referred to as a "moonshot", an ambitious investment to make a major technological leap. To tackle climate change, the industry in Flanders must fully focus on reducing CO₂ emissions, more CO₂ capture and CO₂ reuse. Breakthroughs in this area can, moreover, allow participating companies to play a pioneering role at international level and thus give Flanders a prime mover advantage.

Given the importance of chemical compounds, the spearhead cluster for the chemistry and plastics sector Catalisti (see Chapter 4) has been assigned a coordinating role. It is expected that also sectors such as construction, transport and agriculture will follow and think along.

CLIMATE LEAP (KLIMAATSPRONG)

In addition to the moonshot CO₂, which is aimed at research and innovation, the programme 'Klimaat sprong' (Climate Leap) was adopted in 2020. It aims at the transition of industrial companies to climate neutrality.

The objective of the programme 'Klimaat sprong' is to offer guidance to Flemish industrial companies in their transition to climate neutrality in line with European climate objectives and to ensure the future of these industries in Flanders.

To this end specific measures to facilitate the transition of industrial companies will be developed and implemented.

GRAND NEW POLICY INITIATIVES

GRAND POLICY INITIATIVES

POLICY PLAN

ARTIFICIAL INTELLIGENCE

| | |
|---|-----------------|
| strategic basic research | 12 million euro |
| implementation in enterprises | 15 million euro |
| supporting measures (skills, legal and ethical aspects, awareness raising) | 5 million euro |

an annual investment of 32 million euro

POLICY PLAN

CYBERSECURITY

| | |
|---|----------------|
| strategic basic research | 8 million euro |
| implementation in enterprises | 9 million euro |
| supporting measures (skills, legal and ethical aspects, awareness raising) | 3 million euro |

an annual investment of 20 million euro

MOONSHOT CO₂

| | |
|--|-----------------|
| supporting innovations related to reducing CO ₂ -emissions and Carbon Capture and Usage | 20 million euro |
|--|-----------------|

an annual investment of 20 million euro
for the next 20 years

HYDROGEN STRATEGY

Flanders aspires to become a European leader in the field of hydrogen and published a Flemish hydrogen vision and strategy “European frontrunner through sustainable innovation” in November 2020. Hydrogen plays an important role in our energy and climate transition and it creates economic opportunities for the many Flemish companies and technology players that are active throughout the hydrogen value chain. Hydrogen will be crucial for the decarbonisation of the Flemish industry for both industrial processes and as a feedstock for sustainable chemical products, and to further decarbonise our mobility sector. Large offshore windpower farms off the Flemish coast generate green electricity, which can be used for producing green hydrogen that can be stored and used later for multiple applications with no carbon emissions.

The Flemish hydrogen vision and strategy has two main overarching goals :

- Through Research and Innovation reinforce our Flemish industrial ecosystem, in view of positioning our technology providers in the European and global value chain of hydrogen technologies and systems (reinforce technological leadership)
- Support the implementation of hydrogen in our Flemish economy and society, in view of the sustainable transition of our industry and other societal sectors (e.g. mobility).

And in line with these goals five strategic objectives have been identified.

1. Supporting excellent research in hydrogen in Flanders knowledge centres (universities and strategic research centres).
2. Strengthening the industrial ecosystem in Flanders
3. Stimulating the use of hydrogen and the roll out of hydrogen technologies
4. Facilitate international partnerships
5. Establish favourable framework conditions for hydrogen

For more information on the Flemish hydrogen vision and strategy : <https://www.ewi-vlaanderen.be/sites/default/files/bestanden/5fad5387b328e9000c00018b.pdf> (in Dutch)

SECURITY AND DEFENCE

In the current geopolitical reality, several federal, European and international security and defence initiatives have been launched. Those initiatives and its projects bring about opportunities in research, development and innovation, as well as economic opportunities.

In order to contribute to our European security objectives and to reinforce Europe’s technological and industrial defence base, we will leverage those initiatives. This can be achieved by informing, inspiring, supporting and assisting our stakeholders through various ways.

The Flemish Government has articulated an ambition to support its stakeholders working or willing to work in the defence industry and on defence research, reinforcing the technological and industrial base. We aim to collaborate on several federal, European and international security and defence initiatives. To that extent, the Flemish Government decided in 2023 to contribute to two NATO initiatives, namely the Defence Innovation Accelerator for the North Atlantic (DIANA) and the NATO Innovation Fund.

Our Flemish Minister for Economy, Science and Innovation also chairs the Consultation Group on Security and Defence to discuss several opportunities and needs of our Flemish Stakeholders in this domain. This groups consists of a triple helix constellation, meaning government, industry and academia being represented.

SPACE

The ambition for the space domain was included in the Flemish Coalition Agreement 2019-2024. In order to strengthen Flanders’ position in the future at federal and European level, the ‘Space Economy Impulse Program’ has been installed.

The program focuses on four areas: attracting young talent, supporting competitiveness and entrepreneurship, providing R&D funding and science communication. The triple helix cluster initiative ‘Flanders Space’ coordinates the execution of the program and offers all possible opportunities to the Flemish actors such as companies, knowledge institutions, government and citizens.

They are given the opportunity to work with space data and infrastructure and develop applications and services relevant for Flanders. In addition to funding for feasibility studies, the development of prototypes, innovative technology and concepts, Flanders Space will focus on stimulating Flemish entrepreneurship in space, among other things by providing support to Flemish space start-ups. Also, by offering Frank De Winne (post)doctoral fellowships and internships, the program wants to offer STEM graduates an attractive opportunity to start a sustainable career in the Flemish space industry.

Finally, targeted communication actions highlight the achievements in this domain and demonstrate how space data and space infrastructure contribute to solving societal challenges.

The ambitious program, totaling € 11 million, puts space firmly on the map in Flanders.

In the current geopolitical reality, international security and defence initiatives create new opportunities for space related projects in research, development and innovation, as well as new economic opportunities.

BIOECONOMY

In 2020 the Flemish government launched the Bioeconomy policy plan, intended to strengthen the Flemish bioeconomy sector. The bioeconomy includes all economic activities that use organic material or biological processes. These activities are extremely diverse and belong to different sectors, such as agriculture and food production, waste processing, the chemical and pharmaceutical sector, energy and material production. These sectors in turn form the basis for essential green transitions in industrial sectors for food, consumer goods, construction or energy and water supply.

The policy plan gathers actions in research and innovation to pursue the further development of this sector. Since 2022, the activities have been divided between the research agenda for long-term developments, and the circular economy action plan for short term actions.

The bioeconomy research agenda has identified Flanders as one of the top regions in Europe for bioeconomy research.

- **Microbiome for agriculture:** The microbiome has various functions in agriculture, such as promotion of plant growth, helping to clean the environment and limiting the growth of harmful microbes.
- **Climate adaptation and mitigation for agriculture :** Climate adaptation is required to create a more sustainable and resilient agriculture.
- **Sustainable and circular food chains:** innovative solutions for circular food chains collaborate to transform and revalorize side and waste streams.
- **Alternative crop protection:** Alternative crop protection is aimed at reducing the use of chemicals pesticides. Alternatives are based on biological, physico-mechanic, and other non-chemical methods to control diseases, pests and weeds.
- **Synthetic biology:** The goal of synthetic biology is to understand and manipulate biological systems to develop new applications in different areas, such as agriculture, healthcare and industry.
- **Microbiome for human health:** The multiple functions of the microbiome make this field crucial for the development of safe and personalized healthcare.

These six domains are both highly strategic development areas for a future green industry and agriculture, and they correspond closely to strong clusters of scientific excellence in Flanders.



The circular economy action plan for bioeconomy brings together a large community of public and private actors to develop pathways for concrete actions.

The action areas for this plan have been collectively defined as:

- The development of new biohubs
- The development of a new biofibre sector
- Biobased building and living
- Carbon management in soil
- Production of marine bioresources
- Bioeconomy communication

Through both the research agenda and the action plan, the administration keeps a close connection to the latest developments of the Flemish bioeconomy, and adapts the policy actions accordingly.

CIRCULAR ECONOMY



Circular Flanders is the hub and the inspiration for the Flemish circular economy, jointly driven by the ministers of economy and environment. It is a partnership of governments, companies, civil society, and the knowledge community that act together on circular projects.

Circular Flanders was launched in 2017 to ensure Flanders transition to the circular economy by 2050. The current Flemish Government confirmed this objective and voiced their ambition to transform Flanders into a circular trendsetter in Europe by 2030. To do that, it aims to separate the material footprint created by Flemish consumption from economic growth and reduce that footprint by 30%.

The circular transition is far too big to assign to a single team or organisation. That is why the work is taken up by public-private partners who are working on six themed strategic agenda's, inspired by the European Green Deal, and 7 strategic levers. Each strategic agenda is a partnership in itself and is assigned a public and a private lead. They come up with targets together, define strategy, but first and foremost, they get things moving.

The themes of the strategic agenda's are circular construction, chemicals/plastics, water cycles, bio-economy, food chain and manufacturing.

To make the transitions come true, there is a whole series of habits, rules, and barriers native to the 'linear economy' that need to be tackled. For that reason, the strategic agendas are complemented by seven levers: financing, communication, research, jobs and skills, circular procurement, innovation and entrepreneurship and policy instruments.

Last but not least, there is the circular economy policy research center: CE Center. It conducts policy-relevant research in the context of the circular economy and brings together researchers from KU Leuven, UGent, UAntwerpen, UHasselt and VITO.

2.5 SMART SPECIALISATION IN FLANDERS

The Flanders' Smart Specialisation strategy aims to **focus government support** for innovation in a number of **priority areas**. The smart specialisation evolution in Flanders is driven from two angles.

- **At the policy level in Flanders**, it is recognized that clusters play an important role in a globalised world to support competitiveness. Active collaboration between companies and with other actors such as knowledge centres is essential to establish such clusters that have a pivotal role to develop innovative ecosystems. Hereby, appropriate choices that build upon regional strengths make it possible to make a difference in global value chains at the international level for a small region.
- The European regional policy (ESIF) has stimulated the regions of Europe to adopt regional innovation strategies for smart specialisation to achieve more efficient use of the Interreg and ERDF funds. For the programme period 2014-2020 DG Regio introduced the concept of smart specialisation to the regions: as a prerequisite for the approval for operational programmes. In 2023, Flanders updated its RIS3 strategy for the program period 2021-2027.

The adoption of this smart specialisation strategy 2.0 is still based on the tradition in which steps were taken to define government priorities to acquire critical mass in government support. The Flanders R&I policy provides a mix of policy instruments combining these top down priorities with a broad variety of bottom up support programmes that are open for different technologies and sectors.

One of the strengths are the **strategic research centres** (see Chapter 3), that started in the eighties with the foundation of imec. This was continued in the following years with the most recent one, Flanders' Make, in 2014. Such institutes receive a grant from the government and participate in different programmes for support to research institutes on a competitive basis. They are all involved in tech transfer and have an active interaction with industry. Together with the spearhead clusters, the strategic research centres are the basis for the smart specialisation strategy.

In addition to the foundation of the strategic research centres, several initiatives were taken to foster the collaboration between industry and non-economic actors, with continued support to clustered activities in several forms. During the 2014-2019 governing period, two types of clusters were introduced: small-scaled, short-term initiatives called "**innovative business networks**" (IBN) and large-scaled, longer-term initiatives for "**spearhead clusters**". (See Chapter 4)

The evolution in Flanders with the strategic research centres and the cluster policy has resulted in a landscape characterised by a combination **of bottom up programmes complemented with 9 focal points² (on which strategic research centres and spearhead clusters are active)**. For each of the focal points the government of Flanders has taken a decision to grant support to a strategic research centre or a spearhead clusters thereby marking the area as a priority for Flanders. **This choice equals a specialisation strategy with 9 priority domains** (see Chapter 6).

Besides the implementation of a smart specialisation at the regional level, Flanders has also contributed to the concept of smart specialisation by initiating the **Vanguard Initiative 'New Growth through Smart Specialisation'** in November 2013, that has grown to include 32 regions from 13 EU member states.

2 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

2.6

MONITORING AND REPORTING OF THE R&D&I POLICY

The policy initiatives, budgets and statistics that describe the Flanders' research and innovation landscape are being monitored and reported on in a structural manner at different policy levels. Most of these reports are the responsibility of the EWI Department. The various EWI agencies involved in STI also provide information and data about their own specific initiatives and budgets (e.g. through their annual reports) or conduct studies (e.g. on innovation support, by VLAIO), as does the advisory body VARIO (studies, advice, benchmarks).

The main sources of policy initiatives and statistical data and indicators in the STI field include:

- **“Speurgids Ondernemen & Innoveren”** (Budget browser Enterprise and Innovation): provides an overview of the budget allocations for economy, science, and innovation within the whole Flemish authority, and the R&D intensity (annually);
- **“Flemish Reform Programme”** (VHP) and **“National Reform Programme”** (NHP) of the **Europe 2020 strategy** in the framework of the **European Semester** (both programmes are submitted in April to the European Commission): the part that relates to R&D&I (annually);
- The **“Flemish Indicator Book”**, which contains the policy indicators that shed a light on the Flemish potential in terms of science, technology and innovation. The Indicator Book is being published every two years since 1999, coordinated by the Interuniversity Centre for Research and Development Monitoring (ECCOM);
- The **“3% nota”**: the so-called ‘3% paper’ is a publication from ECCOM in which the official data for Flanders on GERD, BERD, GBARD, the R&D-intensity, etc. are calculated (annually).

Furthermore, regular overviews of Flanders in the field of research and innovation are available through many **publications and reports from the EU and the OECD** in the field of R&D&I. These include the profile of Flanders described in the European Commission reports or in databases such as the report for Flanders of the RIM (Regional Innovation Monitor), the RIM policy initiative database, the Vanguard Initiative website, the S3-website of the Joint Research Centre (JRC), as well as in the many country reports on Belgium such as the reports on the European Research Area (ERA), the Research and Innovation Observatory (RIO), the OECD STI Outlook, the joint EC/OECD Policy Survey (and database) on Science, Technology and Innovation Policies (STIP), the R&D&I topics in the EC’s Country Report on Belgium (European Semester), and the OECD Economic Survey Belgium report. Benchmarking the R&D&I performance is conducted by comparing the information and data that are available in the EC Regional Innovation Scoreboard (RIS), the Report on Economic, Social and Territorial Cohesion, the Belgian profiles in the EIS (European Innovation Scoreboard) and the ‘Science, Research and Innovation performance of the EU’ report etc.

In addition to the aforementioned publications, the Department of EWI also hosts the Flanders Research and Information Space (FRIS), containing a wealth of information on publicly funded research in Flanders. More information on FRIS is included in chapter 3, point 1.3.3.

