



Investing in the chemical
industry in Belgium for
a sustainable future



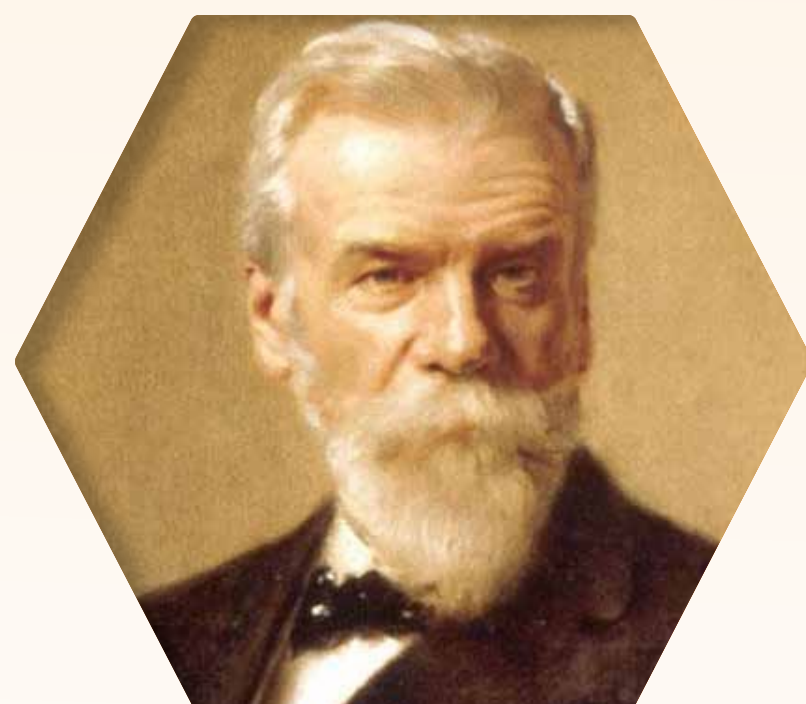
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where chemistry meets life sciences

Osaka | December 8th 2022



A long tradition of world renowned scientists



**Ernest
Solvay**
1838 – 1922



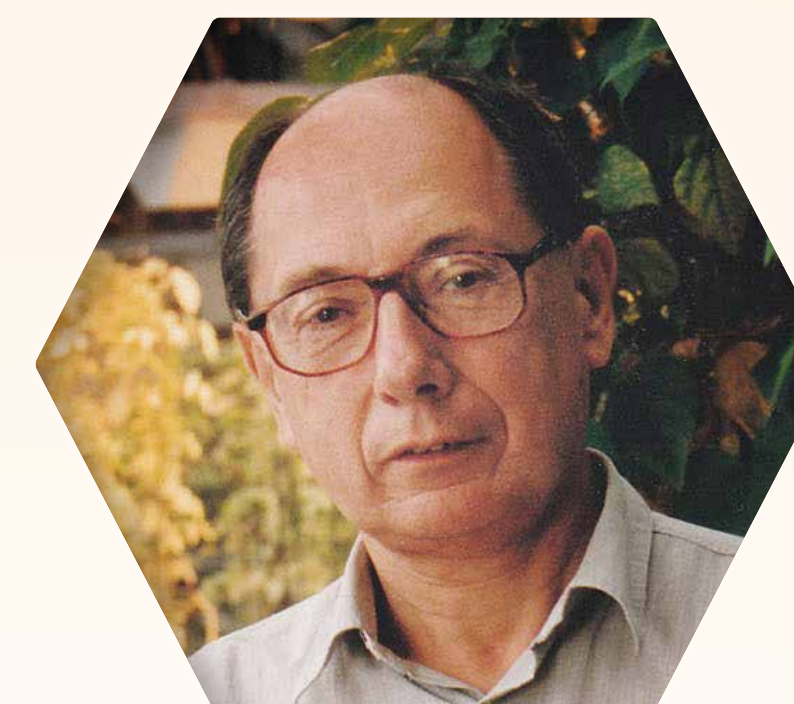
**Leo
Baekeland**
1863 – 1944



**Lieven
Gevaert**
1868 – 1935



**Christian
de Duve**
1917 – 2013



**Marc
Van Montagu**
1933 –



Chemistry and life sciences in Belgium, a cornerstone of our prosperity



● Direct jobs	97,420	x2.3
● Indirect jobs	224,000	
● Turnover	€ 73.8 billion	
● Trade surplus	€ 33.1 billion	
● Investments	€ 2.7 billion	=11% of turnover
● R&D-expenditures	€ 5.5 billion	



The chemical industry
in Belgium is world-class

The evidence



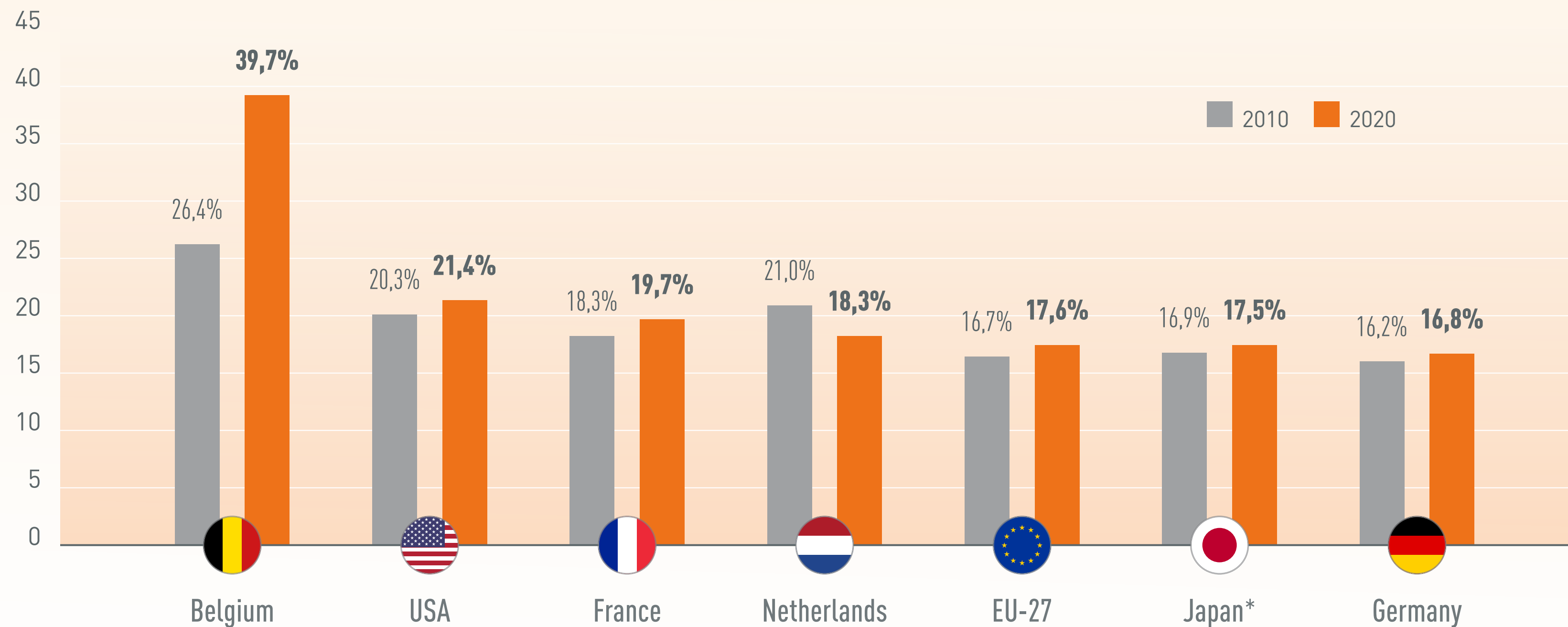
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Growing importance of chemistry and life sciences in the Belgian industry

Share of chemical, life sciences and plastics industry in total added value of manufacturing (2020)





Number 1 in Belgium and European leader for export and innovation



1/3

OF TOTAL
BELGIAN EXPORT



- **+ 24%** since 2010
- **Number 2 in Europe** for export in chemistry and life sciences
- In the **world's top ten** exporting countries

2/3

OF ALL INDUSTRIAL
R&D-EXPENDITURES



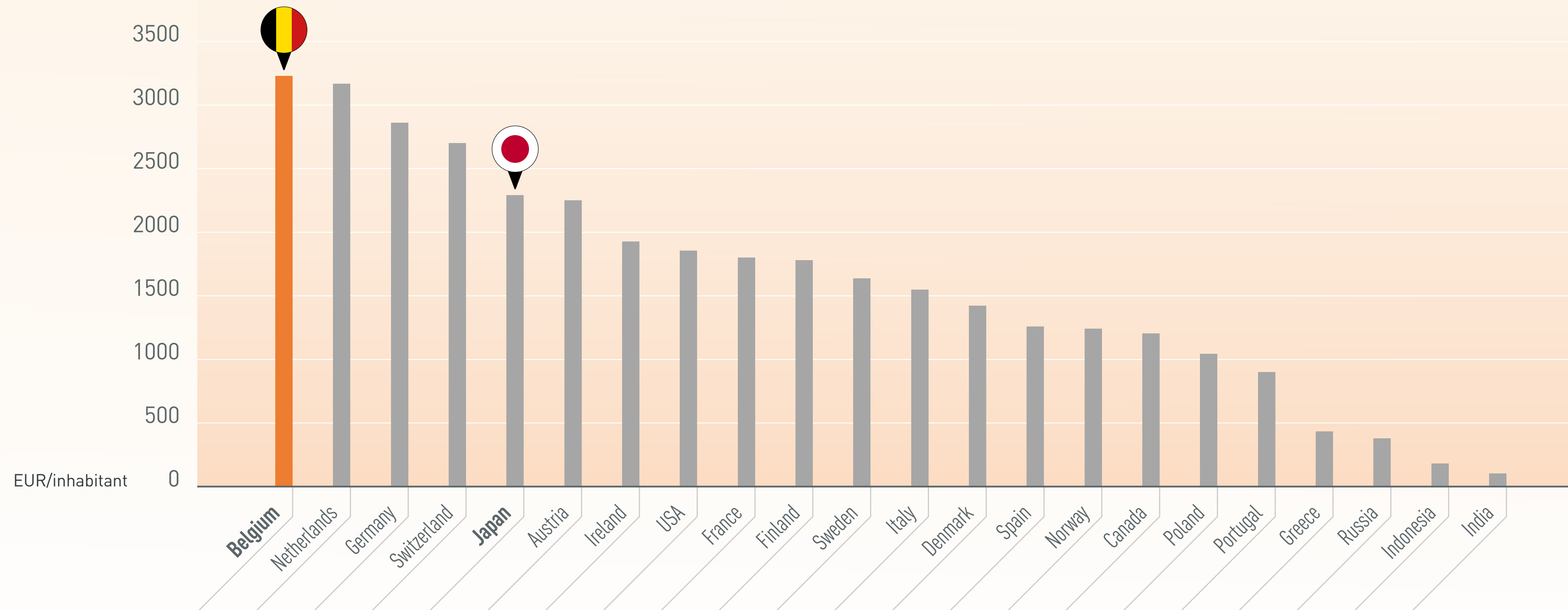
- More than **x2** since 2010
- **Number 1 in Europe** in terms of R&D-intensity (18%)
- **World's number 1**: chemistry & pharma represent 40% of Belgian patents, highest share in the world



Belgium is the world champion in chemicals & plastics



Sales of chemicals and plastics per capita in 2020



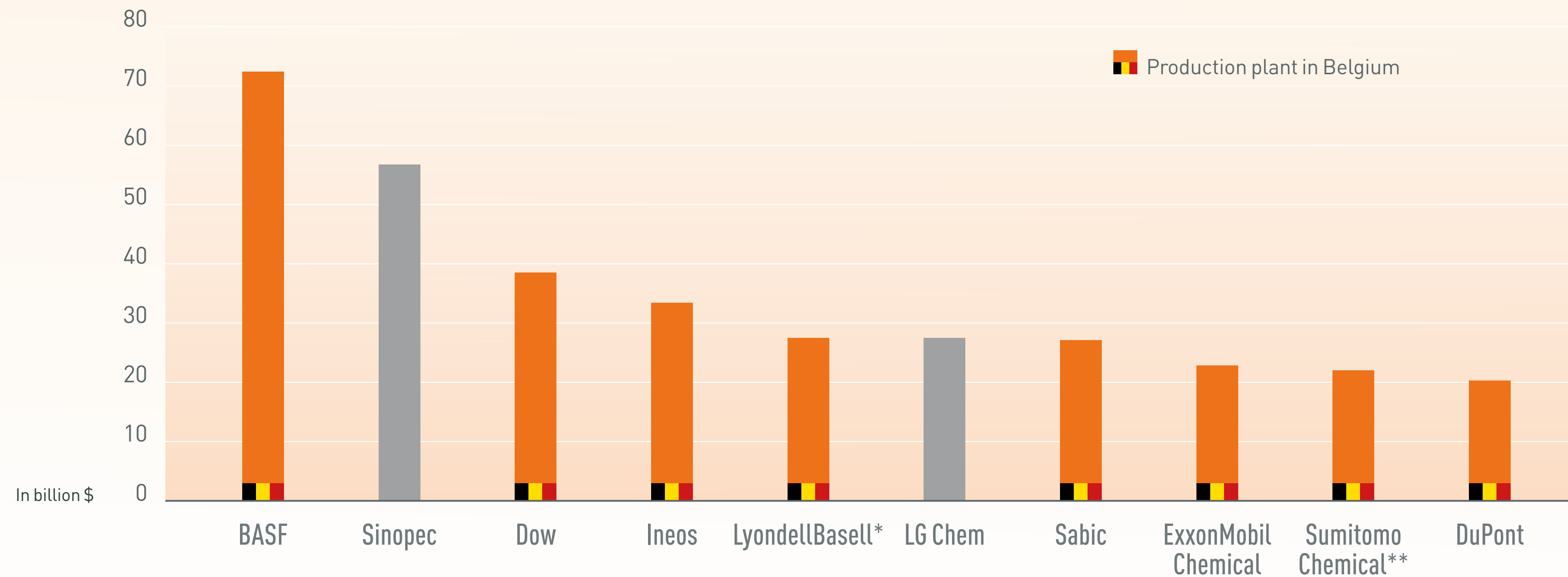
SOURCE Cefic Chemdata International, Feri, essenscia calculations (NACE 20 + 22)

The world's top chemical companies have chosen to invest in Belgium

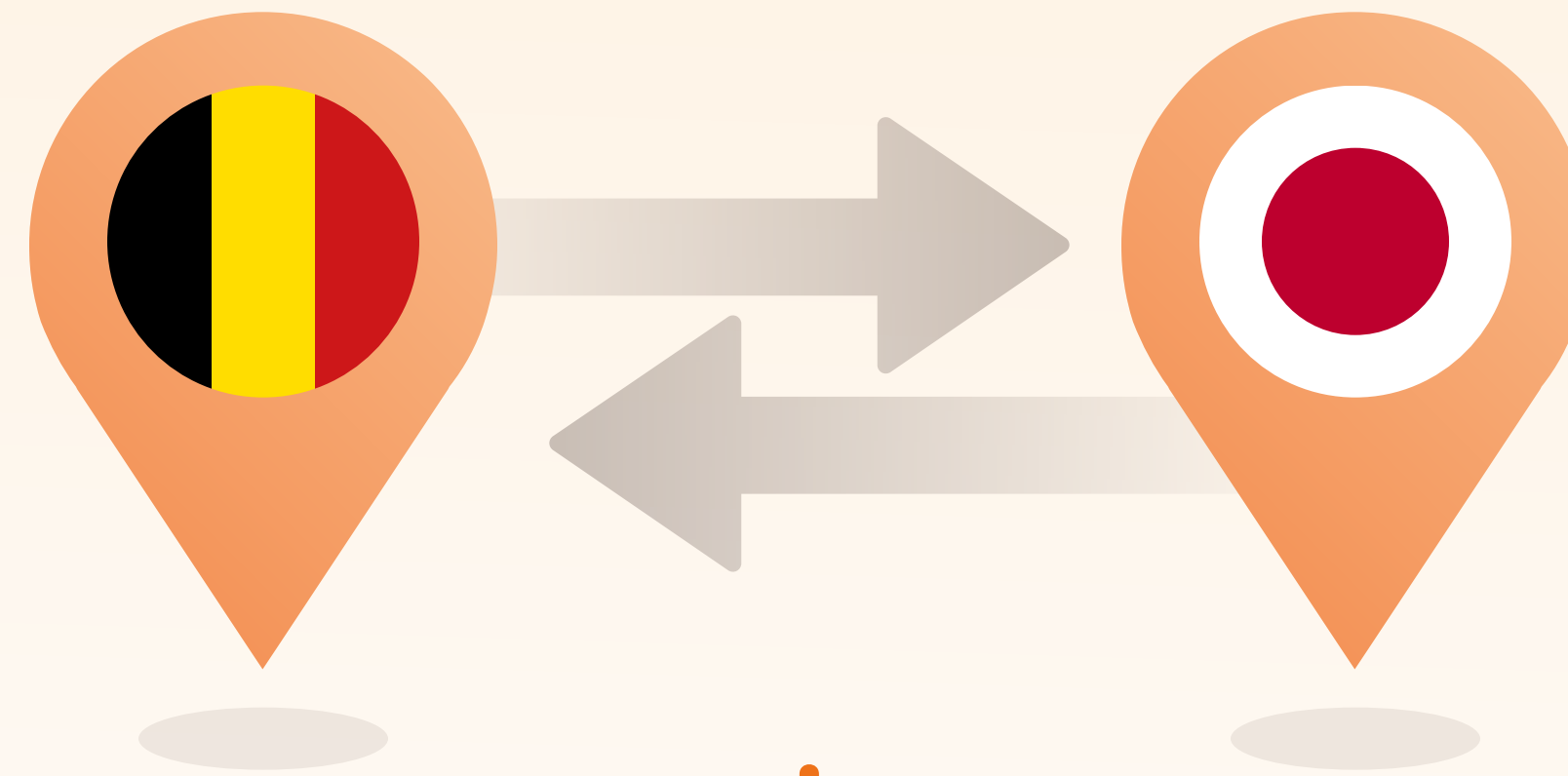


8 of top 10 chemical companies have production sites in Belgium

Top chemical companies | 2020 sales



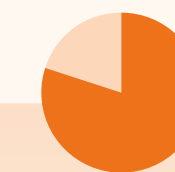
Chemical & pharmaceutical industry represents the majority of Belgian export towards Japan



EXPORT
€ 6.00 billion
7th position
in sectoral export: 3,4%



IMPORT
€ 1.32 billion
13th position
in sectoral import: 0,9%



Share of 80%
in total Belgian export
towards Japan

Chemicals, plastics & pharmaceuticals | 2021



Japanese chemical & life sciences companies represent more than 5,500 jobs in Belgium



JOBS

5.576



TURNOVER

€ 3.5 billion



ADDED VALUE

€ 876 million

Japanese member companies essenscia

Takeda Belgium	JSR Micro	Lawter	TCI Europe
Ajinomoto Omnicem	Nippon Shokubai	Fujirebio	ISK Biosciences
Nitto Belgium	Sumitomo Bakelite	Toyo Ink	Shiseido
Kaneka Eurogentec	Fujifilm Electronic Materials	Fujifilm Belgium	MEC Europe
Kaneka Belgium	Chemvicon	Tosoh Europe	KAO Belgium
Nippon Gases	Eval Kuraray	NOF Metal Coatings	Mapic
Bridgestone Aircraft Tire	Bandag-Europe	Yamauchi Corporation	



Strategic investments in the Belgian chemical & life sciences industry



LESSINES

Takeda

300 million investment in new production line for plasma-derived therapies



WESTERLO

Kaneka

Strong expansion of production capacity for silane terminated polymers



GENK

Nitto

State-of-the-art production line for high-tech wide protection tapes for the glass industry



ZWIJNDRECHT

Nippon Shokubai

350 million investment in production capacity for superabsorbent polymers



ZWIJNDRECHT

Kuraray & Qpinch

Qpinch Heat Transformer (QHT) installation with breakthrough technology converting industrial waste heat into valuable process heat



Why is Belgium
so attractive for this industry?

The reasons



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Belgium hosts one of the largest chemical clusters in the world



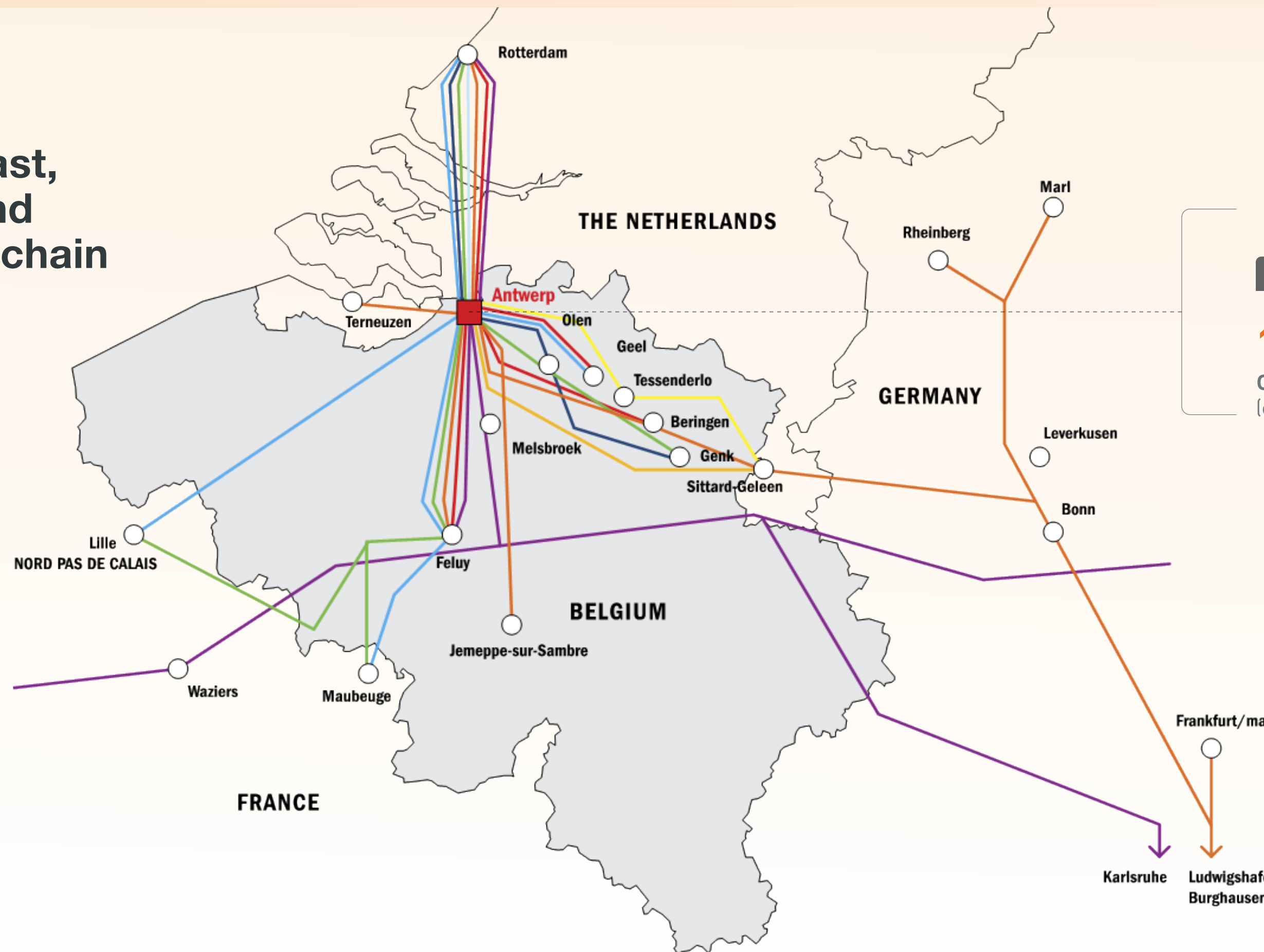


Belgium is the central location of the Western European pipeline network



Pipelines offer a fast, efficient, cheap and ecological supply chain

- Naphtha, Condensate
- Liquid hydrocarbon
- Ethylene
- Propylene
- Fuel oil, Diesel
- Crude oil
- Hydrogen
- Nitrogen
- Oxygen



1,000 km
of intraport pipelines
(excluded plant pipelines)



High level of integration and diversity across the value chain is unique



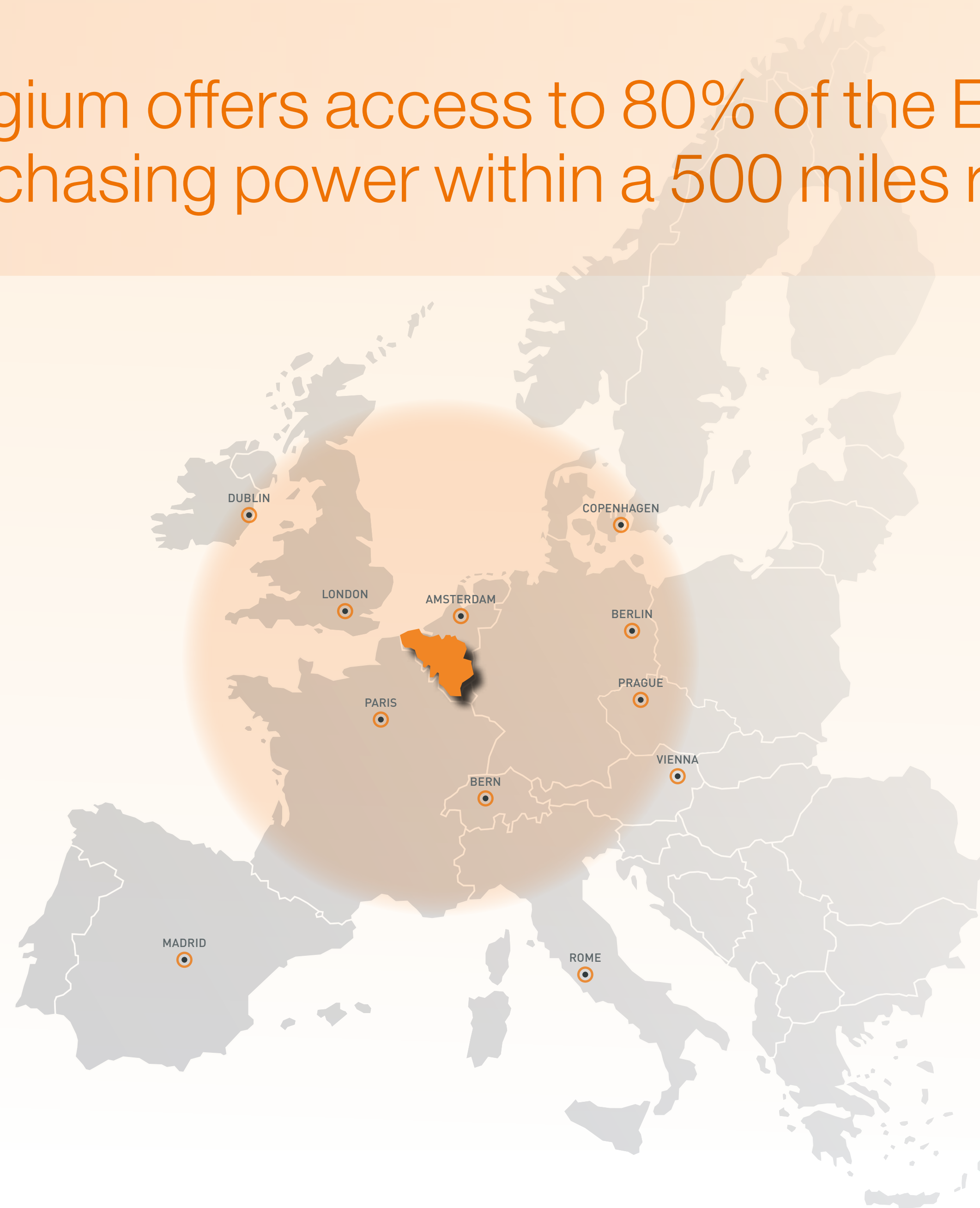
Synergies in energy, process integration and logistics offer world class cost effectiveness

RAW MATERIALS		FEEDSTOCKS	BUILDING BLOCKS	COMMODITIES	INTERMEDIATES	FINAL PRODUCTS
Natural gas/ Crude Oil/Condensate	C₁	Methane / refinery residue	Synthesis Gas	Methanol Ammonia, Nitric Acid	Formaldehyde Urea, AN, CAN, UAN	Glues, Resins Fertilizers
Natural gas/ Crude Oil/Condensate	C₂	C2 - C3 / Naphtha	Ethylene	PE, EDC, VCM Ethylene oxide	PVC Glycols, EVOH, EthylNBO Glycol Ethers	Polymers, EPDM Copolymers
Natural gas/ Crude Oil/Condensate	C₃	C2 - C3 / Naphtha	Propylene, propane	Polypropylene Propylene oxide, Acrylic acid	Polyols, SAP	Polymers e.g. Polyurethane
Crude Oil	C₄	Refinery off-gas / Naphtha	Mixed C4	Butadiene	Polybutadiene	Acrylonitrile, Butadiene, Styrene
Crude Oil	C₆	Naphtha	Benzene, Toluene	Cyclohexane Caprolactam, Aniline	BPA, Nylon 66, MDI	Polycarbonate, Polyurethane
Crude Oil	C_{7,8}	Naphtha	Mixed Xylenes	O, P-Xylene	PA, PTA	PET
Sea water / Brine	Cl	Chlorine, NaOH	EDC, Phosgene	VCM	PVC, MDI, hypochlorites	Plastics, Polyurethane, bleach





Belgium offers access to 80% of the European purchasing power within a 500 miles radius

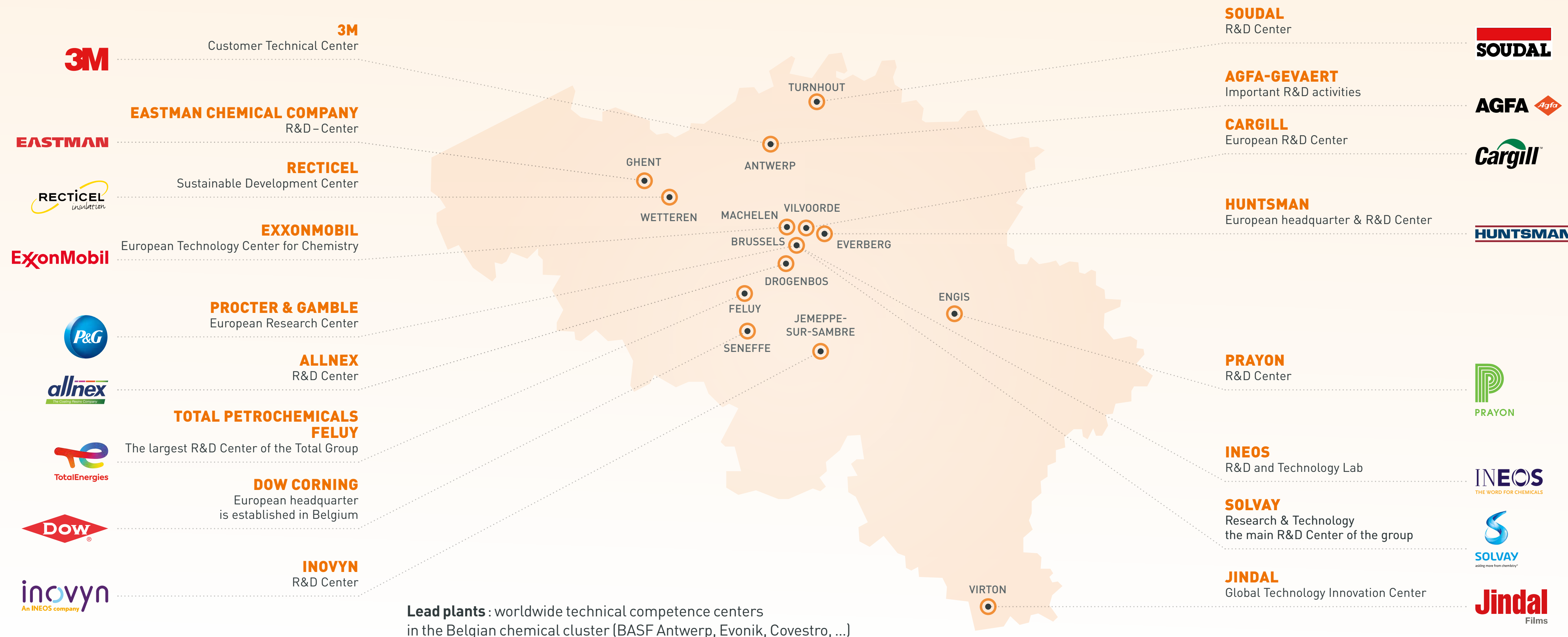


Chemistry & life sciences: crucial sector for many essential value chains

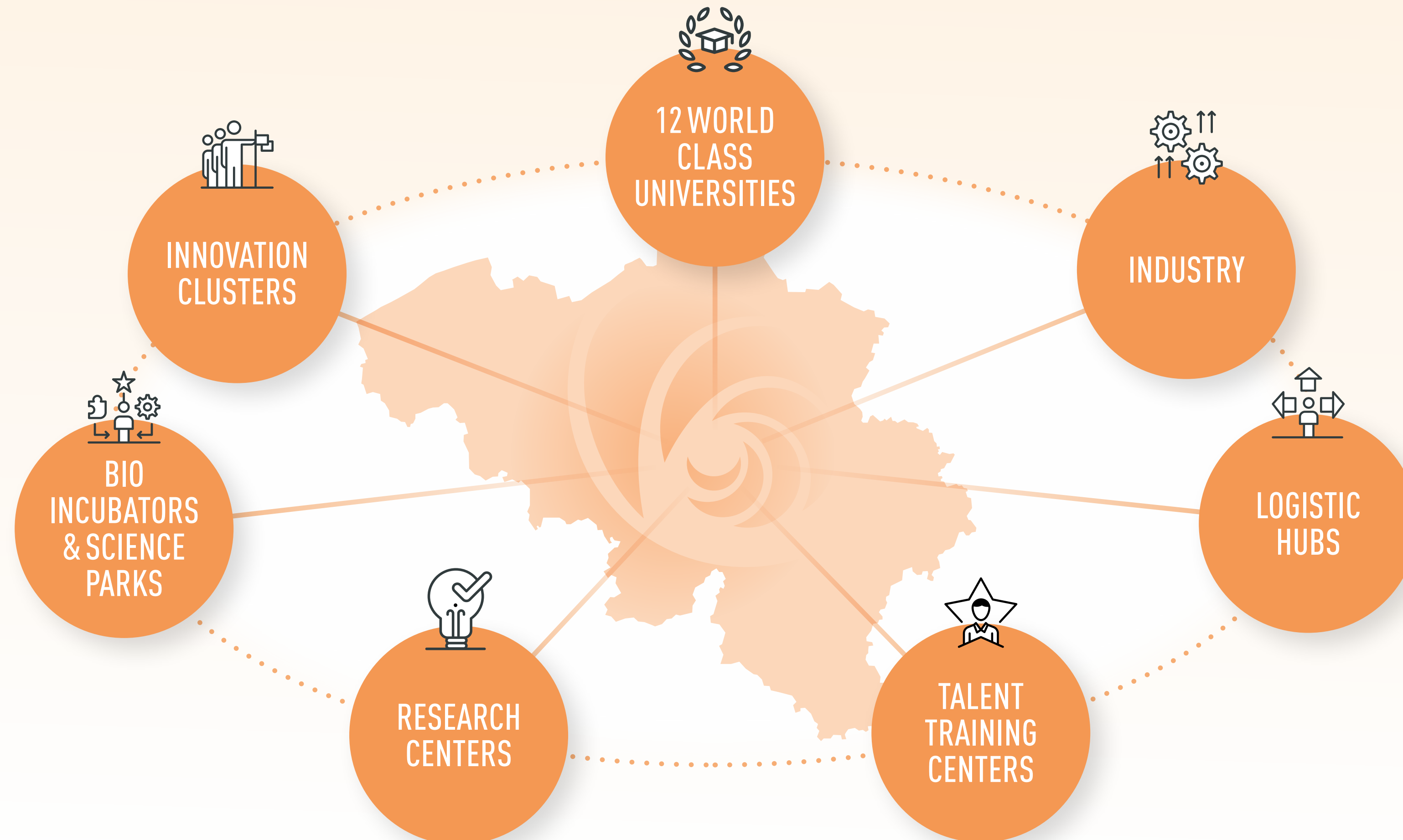




Presence of leading R&D-centers in Belgium with focus on sustainable innovation and digitalisation



A unique ecosystem for innovation

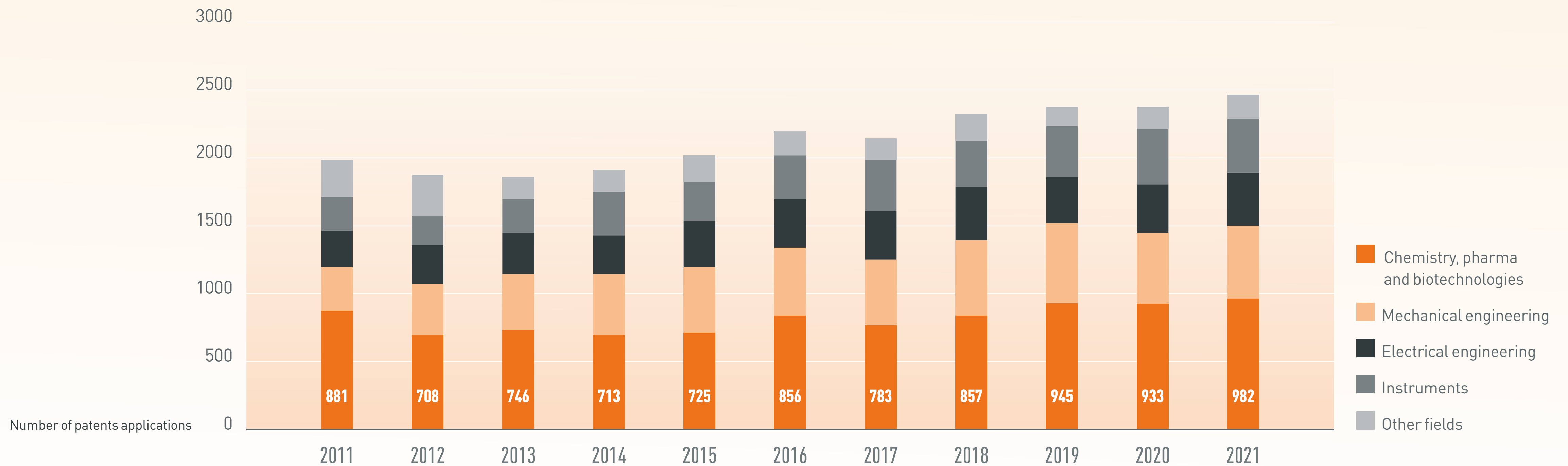




40% of all Belgian patent applications are related to chemistry & life sciences



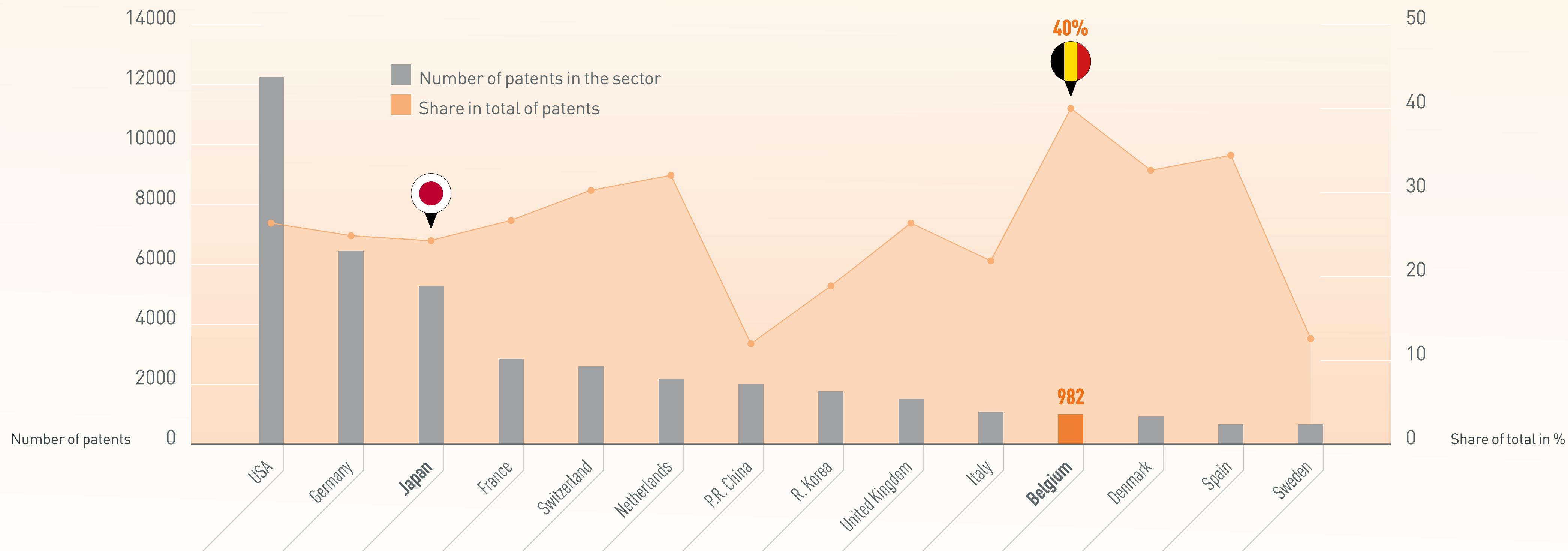
Belgian patent applications at the European Patent Office



Share of chemistry in number of patents is the highest in Belgium



Patent applications filed by the sector with the European Patent Office | 2021





BlueChem: creating an international hotspot for sustainable chemistry



BlueChem

INCUBATOR FOR SUSTAINABLE CHEMISTRY

The first incubator for sustainable chemistry in Flanders

- Start-ups and scale-ups in sustainable chemistry and circular economy
- Meeting point for open innovation and industrial upscaling together with large companies
- European hotspot for the development of the chemistry of the future
- Coordination of the Moonshot-program for climate innovation by Catalisti
- Ideally located at the eco-business park Blue Gate Antwerp

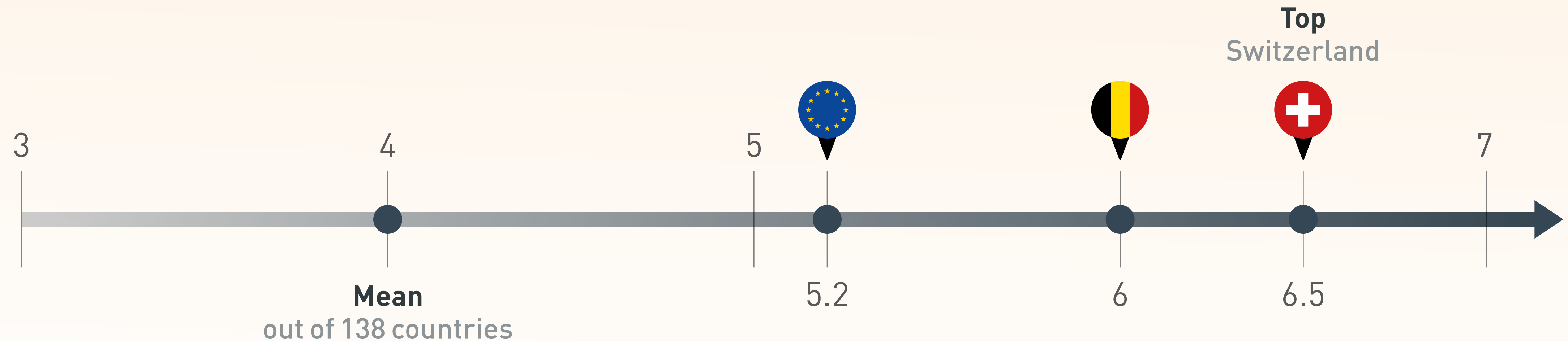
IN COLLABORATION WITH



Highly skilled labour force ensures world-class technical expertise and operational excellence



Production process sophistication: use of the world's best and most efficient process technology



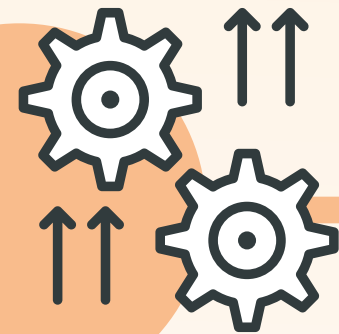
SCORE FROM 1 TO 7

1 → Labour-intensive methods or previous generations of process technology

7 → The world's best and most efficient process technology



A strong collaboration between the Belgian chemical industry, schools and universities



System of cooperative education

- Pioneering role in **dual learning & dual teaching** systems in secondary education and at bachelor level



essenscia Chairs at prominent universities

- **University of Leuven** :
Master after Master programme on Process Safety Engineering
- **University of Antwerp** :
Master of Safety Sciences



Longstanding partnerships to promote STEM

- Structural collaboration with sciences centers and educational organisations to inspire young people for **STEM**
- **STEMfluencers**: guest lectures by young industry professionals about their passion for STEM



Belgium, a world champion
for **sustainability investments**



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Industrial innovation will reinforce the role of the Belgian chemical cluster



Europe is facing important challenges and strong competition with Asia (lower labour cost) & USA (lower energy cost)

Industry will transition through sustainable innovation, consolidation and operational excellence

The European, federal and regional government support to the industry is a must to successfully manage this transition



Clear focus on four key transitions in support of the European Green Deal



Innovating towards
a carbon-smart society



Permanent strive
for safe and
sustainable chemicals



Sustainable
plastics in
a circular economy



Attracting diverse
talent and investing
in lifelong learning
and digital skills



Innovating towards climate neutrality and low carbon energy supply



Europe's biggest
industrial **heat network**
ECLUSE connects several
chemical companies



Air Liquide and Covestro
launched a
new-generation **hydrogen**
production unit



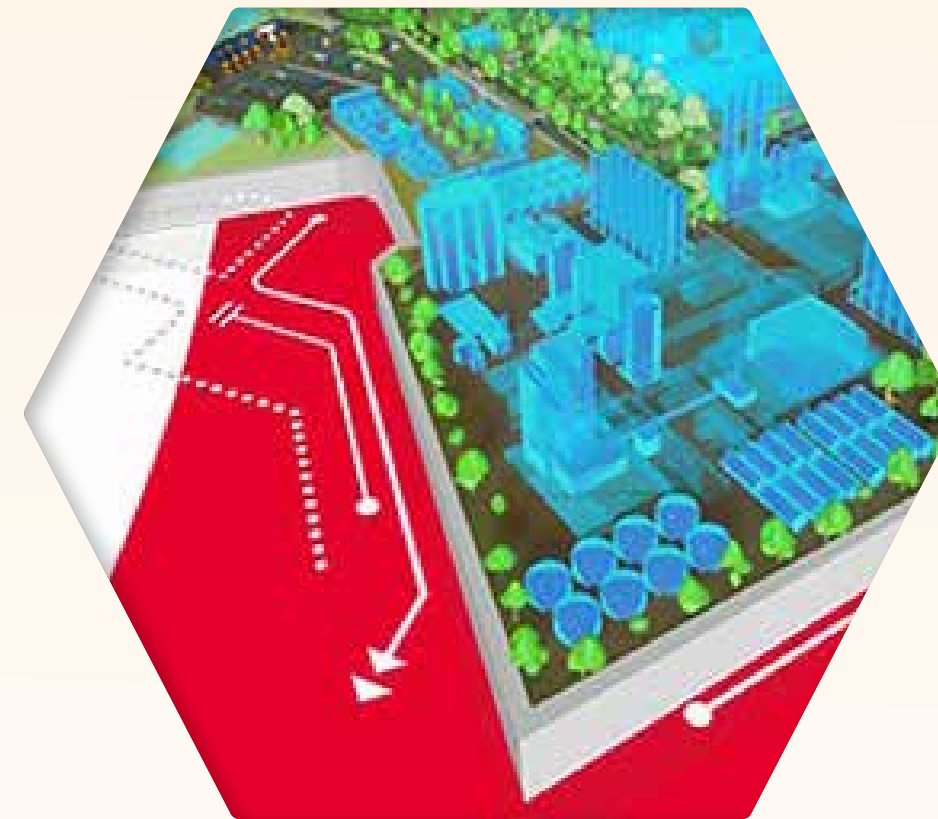
Antwerp@C-project:
5 chemical companies
in Port of Antwerp aim
to halve CO₂ emissions
with **CCUS technology**



INEOS Project ONE:
ethane gas cracker
with the **lowest carbon**
footprint in the world



Plastics2Chemicals:
Pilot installation Indaver
to convert end-of-life
plastics into chemicals



BlueChem company
Triple Helix builds
pioneering **recycling
plant** at new circular
economy hub



Takeda's **water recycling
plant** purifies
wastewater to process
water for production
of medicines



North-C-Methanol:
production of **green
methanol** based
on hydrogen and
captured CO₂ in Ghent
port area



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and Life Sciences Industries**

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