



Research and innovation in Flanders

Facts and figures, trends and international benchmarking

Science,
technology
and innovation

Key Figures 2010 Edition |

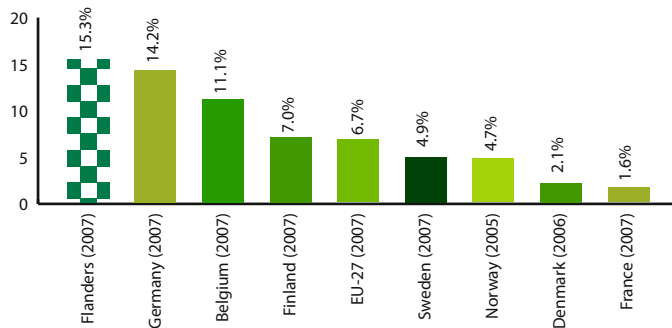
Companies are the main funders and performers of research and development in Flanders

Total expenses for research and development (R&D)

2007	R&D expenses	R&D intensity
Private sector	2,650 million EUR	1.40%
Public sector	1,197 million EUR	0.63%
TOTAL	3,847 million EUR	2.03%

- In 2007, Flanders spent more than **3,847 million euro** on R&D;
- **Two thirds** of research was performed by the private sector and one third by the public sector;
- **Three quarters** are funded by companies and one quarter by the public sector;
- **R&D intensity** (R&D expenses related to GDP amounted to **2.03%** in 2007 (2.01% in 2004 and 2.38% in 2001);
- Flanders performs better than the EU-27 figure, but Germany and the Scandinavian countries scored higher.

Privately funded part of HERD (2007)



- The share of HERD in total GERD is approximately 40% and this figure is fairly **average** compared to other European countries;
- Flanders scores **highest** for private funding of HERD institutions (15.3%) in international comparison. This confirms that there is a strong interaction in Flanders between the public and the business sector in the field of research.

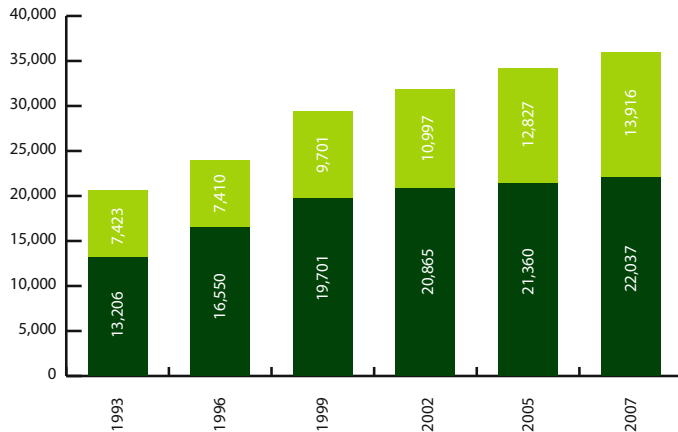
The Flemish government continues to invest in R&D

R&D funds

- Flemish government R&D funds amount to **1.07 billion euro** in 2010 (initial funds);
- Between 2004 and 2009 there was an increase of 300 million euro, but economy measures are now leading to a decrease of 64 million euro in 2010;
- The relative effort (in relation to GDRP) stagnated in the 2004-2009 period (because of a strong GDRP increase) and is decreasing in 2010;
- Together with the Flemish share in the federal research funds, the ratio GBAORD / GDRP amounted to **0.69% in 2009** and amounts to **0.65% in 2010**;
- In international comparison of GBAORD for 2008, we can situate the Flemish figure (0.70%) more or less at the EU-27 level (0.69%). It should also be pointed out that certain countries allocate a substantial share of their GBAORD to defence. The Flemish government does not finance any research in this field.

Flemish science peaks

R&D personnel

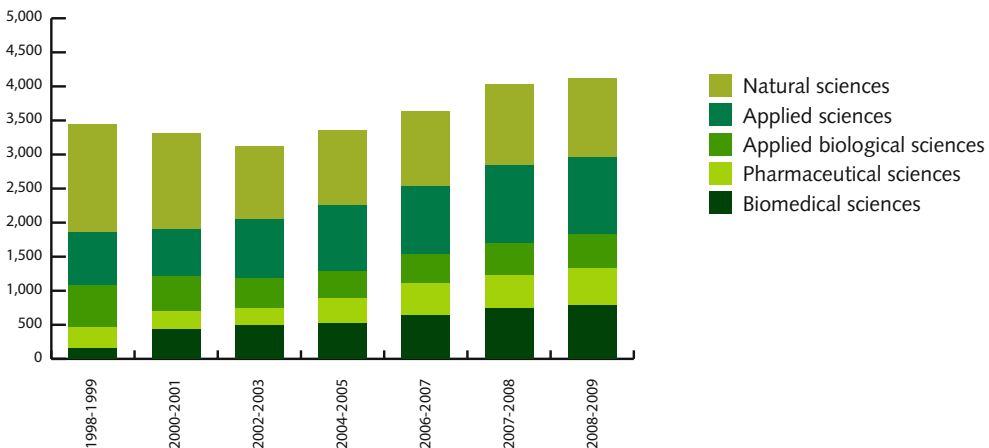


- The number of people employed in R&D has **increased by more than 12%** since 2002 to 36,000 full-time equivalents in 2007 (corresponding to 1.28% of the labour force);
- Flanders belongs to **the sub-top** with regard to R&D personnel numbers in proportion to the total population. The Flemish figure is higher than the EU-27 figure and can compete with the Dutch level. Scandinavian countries take the lead here.

Public sector
Private sector

Number of students in science & technology (S&T) (first entries)

- For many years, a downward trend in the number of science and technology students has been recorded. Since the 2004-2005 academic year, this trend has been turned into an **increase**.
- In the 2008-2009 academic year, more **than 4,100 first entry students** in S&T fields were enrolled.



Evolution of doctorates

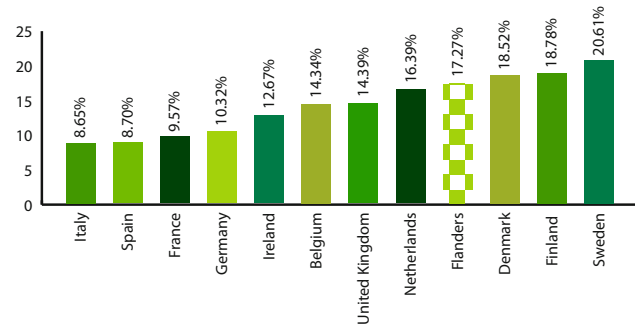
	2002 2003	2003 2004	2004 2005	2005 2006	2006 2007	2007 2008
Men	568	612	639	642	654	693
Women	294	312	368	428	437	511
TOTAL	862	924	1,007	1,070	1,091	1,204

- In the past five years, the number of doctorates has **increased by more than 30%** to 1,200 new doctorate holders in 2007-2008;
- The **number of female doctorate holders has significantly grown** (almost doubled in the past ten years). Nevertheless, their share remains limited to 42%.

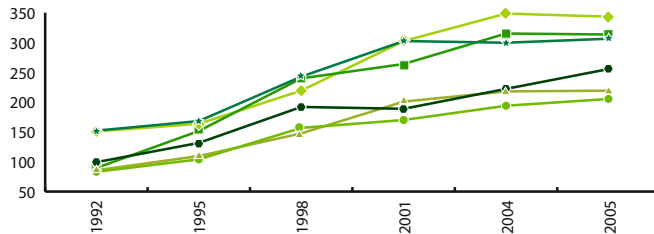
Scientific output increases

Scientific publications

- In recent years, Flemish scientific output has steadily increased to 17.27 publications (2007) per 10,000 inhabitants (journal articles and proceedings included);
- Flanders improved its international position (higher score than the Netherlands), but the Scandinavian countries are still more productive;
- In Flanders there are more publications than the world standard in the following scientific fields: biology, biological sciences, biomedical sciences and clinical and experimental medicine.



Patents



- Flanders submitted **255.4 patent applications** to the European Patent Office (EPO) **per million inhabitants for 2005** (originating from the inventor and/or applicant) and this is a good result by international standards;
- The leading countries here are the Netherlands, Finland and Germany. The gap between Flanders and the leading countries has declined;
- Flanders has built up a strong technological position in some chemical areas, engineering, and finally all technologies used in different consumer markets (textiles, wearing, leather, wood, paper, domestic appliances, furniture, food).

◆ Flanders ● Belgium ★ Germany ▲ Denmark ■ Finland ◆ Netherlands

International cooperation

- Flanders **continues to be an active player** in the major European scientific research programmes;
- In **the EUREKA-Programme**, the number of resources allocated by the Agency for Innovation by Science and Technology (IWT) has returned to its average level, thereby restoring the prominent position of Flanders in the EUREKA-Programme;
- Flemish partners participate in more than a quarter of all European **ERANET-projects**;
- Flanders is among the top ten participating countries in the **European Sixth Framework Programme for Research**. Strikingly, as regards Flemish participation, participation of public research centres has significantly increased, while participation of companies has been reduced.

Glossary

ERANET	European Research Area Networks
GBAORD	Government Budget Appropriations or Outlays for R&D
GERD	Gross Expenditures on R&D
GD(R)P	(Regional) Gross Domestic Product
IWT	Agency for Innovation by Science and Technology
R&D	Research & Development
R&D intensity	GERD / GD(R)P

Sources

ECOOM (Centre for R&D Monitoring) – R&D survey - profit
EWI Budget Browser 2010
OECD: Main Science and Technology Indicators Volume 2009/2
Statistisch jaarboek van het onderwijs
Vlaams Indicatorenboek WTI 2009
VRIND 2009

More information

More information can be found in the publication Vlaams Indicatorenboek WTI 2009 by the Centre for R&D Monitoring (only in Dutch) (available at: www.ewi-vlaanderen.be/publicaties or www.ecoom.be).

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