

## Economy, Science & Innovation in Flanders

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*May 2014*

## RESEARCH & INNOVATION

- Policy priorities
- Some important actors
- Key figures
- Internationalization

## ENGAGEMENT WITH SA

- FWO – NRF
- VLIR-UOS
- Erasmus Mundus

# Research and Innovation policy: five priorities

## ■ Focused strategies

e.g.: joining forces in spearhead areas, strengthen and renew spearhead domains, respond to societal challenges through “large project initiatives”

## ■ Innovative strength for the economy

e.g. strengthen and accelerate the valorisation trajectory, more innovative entrepreneurship, facilitate networking, clustering and cooperation means

## ■ Innovation-friendly region

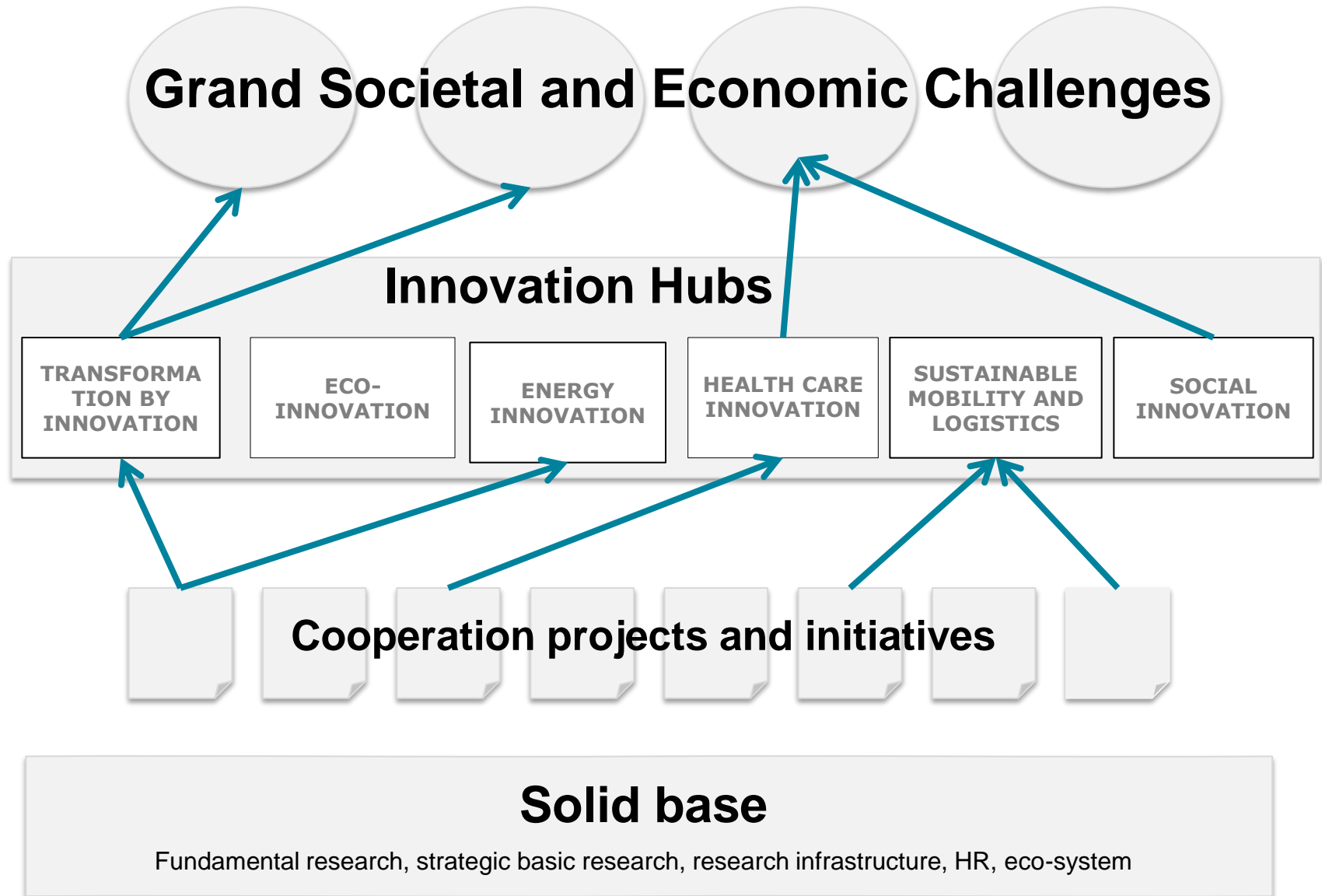
e.g. increase the innovation potential by investing in human capital, adhere to major innovation trends, a state-of-the-art research infrastructure

## ■ Strengthening the fundamentals

e.g. attractive and flexible career paths for researchers, optimisation and fine-tuning of support measures, stimulate R&D and innovation through higher education

## ■ Higher efficiency and impact

e.g. pursue budget increases (3% R&D/GDP target), Flanders a fully-fledged partner in European R&D and innovation area, effective policy evaluation & impact analysis



## Strategic research centres:

- annual grant
- based on a management agreement
  
- **IMEC** (Interuniversity Microelectronics Centre): nanotechnology and nano-electronics
- **VITO** (Flemish institute for technological research): energy, materials, environment incl. remote sensing
  - ➔ Physical infrastructure located on 1 site
  
- **Iminds** (ICT): innovative ICT services and applications in 5 domains
- **VIB** (Flanders Institute for Biotechnology): life sciences and biotechnology
  - ➔ “virtual organisation model” clustering university-based institutes

### Higher-education institutions

- 5 Universities: 90% of total scientific output
- 19 university colleges
- 5 associations: one university + one or more university colleges

### Statutory research institutes

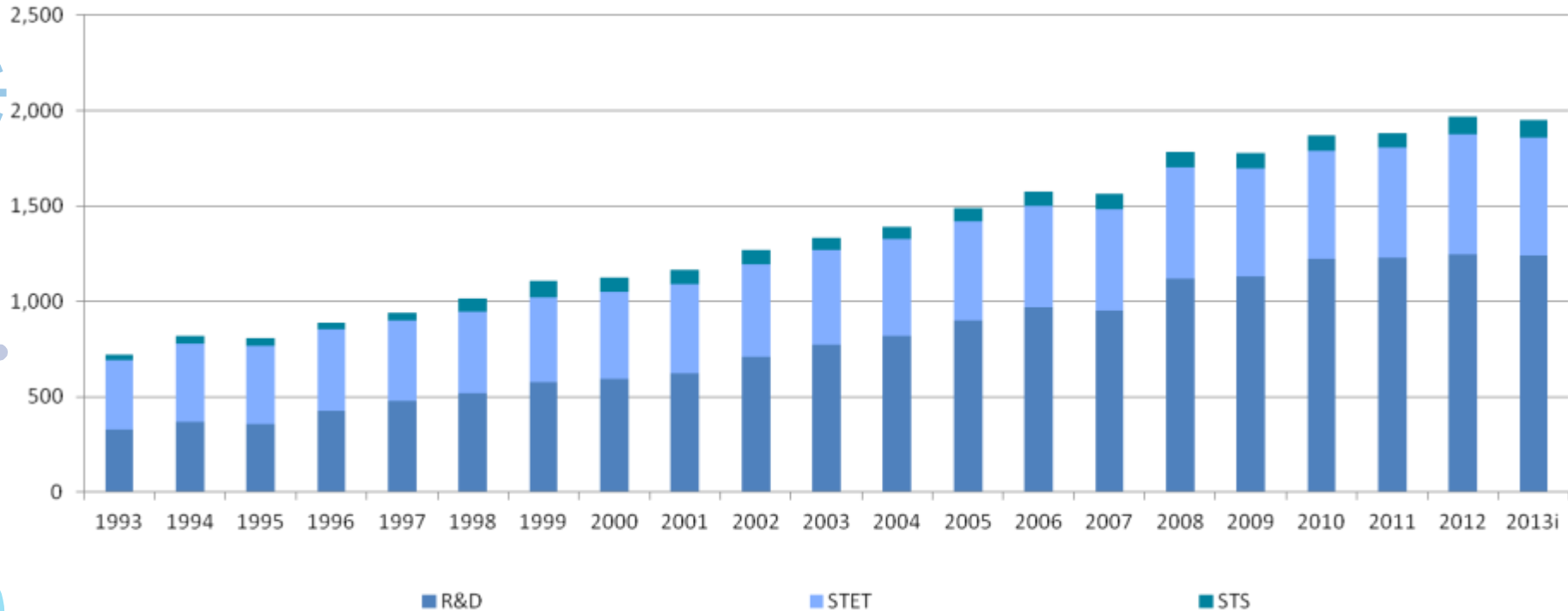
- build up and disseminate scientific knowledge
- advise and assist policy-makers and provide services to society
  - INBO (nature, environment)
  - KMSKA (fine arts)
  - Agentschap Onroerend Erfgoed (immovable heritage)
  - ILVO (sustainable agriculture, fisheries)
  - National Botanic Garden (since January 2014)
  - ITM Antwerp: training, research and technical assistance in tropical medicine

## ■ Funding for R&D

**When compared internationally, we can situate the Flemish figure (0.73%) above the EU-28 level (0.67%).**

- 1.35 billion euro in 2014;
- Average of 0.73% of GDP in 2010-2014, despite the economic crisis.

## Evolution of science policy funding 1993-2013 (in million euro)

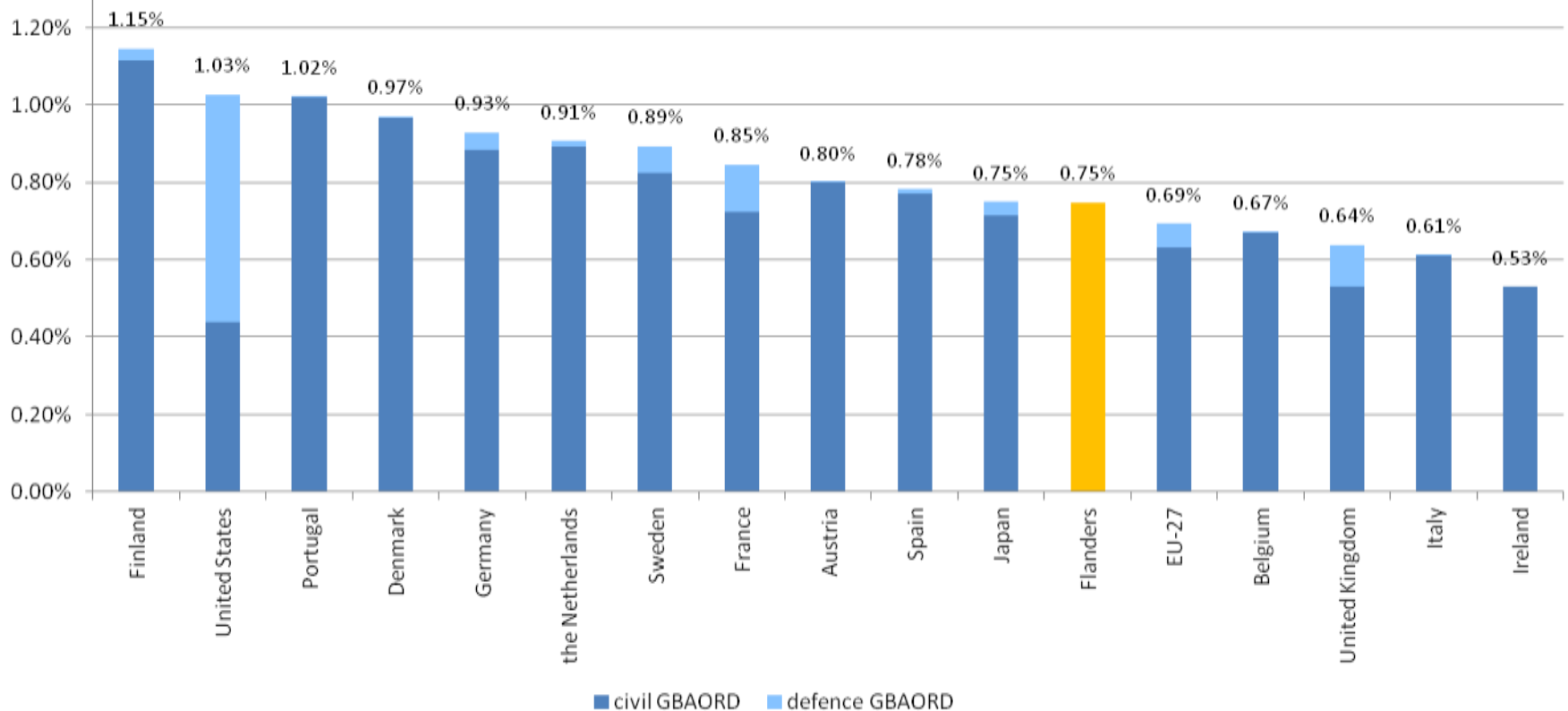


R&D: Research and development  
STET: Scientific and technological education and training  
STS: Scientific and technological services



# Research and innovation: key figures (2013)

## International comparison of R&D government budget (GBAORD) as% GD(R)P (2011)



Flanders\*: Flemish government R&D budget + Flemish share of the federal R&D budget (35.5% for the European Space Agency and 56% for the rest)

Source: for Flanders: Speurgids Ondernemen & Innoveren 2013 for other countries: main science and technology Indicators, OESO, Volume 2012/2

## Research and Innovation: expenditure (cont.)

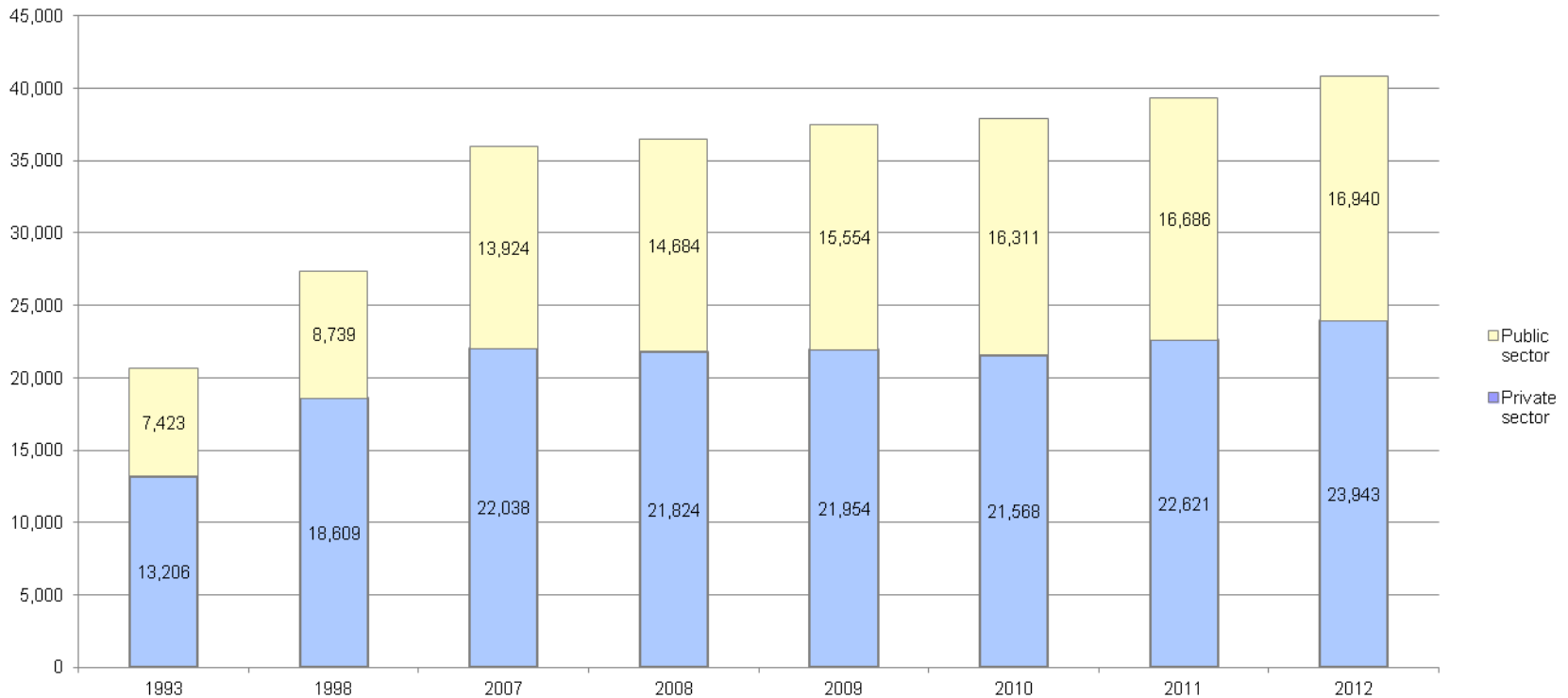
- Flanders spent in 2012 more than 5,204 million euro to R&D (GERD) or the R&D intensity (R&D expenses related tot the GD(R)P) amounted 2.42% (2.41% in 2011 and 2.28% in 2010 )
- Flanders performs much better than the EU-27 figure, but Germany and the Scandinavian countries scored higher

	R&D expenses or GERD in million euro	GERD/GD(R)P = O&O intensity
Private sector (BERD)	3,483 (66,9%)	<b>1.62%</b>
Public sector (non-BERD= GOVERD + HERD + PNP)	1,721 (33,1%)	<b>0.80%</b>
<b>TOTAL (GERD)</b>	<b>5,204 (100%)</b>	<b>2.42%</b>

Source EWI-ECOOM

# Research and Innovation: employment

- R&D employment has increased by about 13.7% since 2007
- 40,883 full-time equivalents in 2012, 1 % of the active population



Source: EWI en ECOOM

European Research Area: Flanders participates in ...

## EIT

European Institute of Innovation and Technology

- KIC InnoEnergy, Colocation Centrum Benelux for energy-efficient buildings and cities
- EnergyVille with participation of KUL, VITO, EANDIS

## Joint Programming and related initiatives

Neurodegenerative Diseases/Alzheimer's; Cultural Heritage and Global Change; Urban Europe, Healthy & Productive seas and oceans; Food Security, Agriculture and Climate Change; A Healthy Diet for a Healthy Life; More Years, Better Lives; Antimicrobial Resistance; SET-plan

## ESFRI

European Strategy Forum on Research Infrastructures

European Social Survey (**ESSurvey**)  
Survey of Health, Ageing and Retirement in Europe (**SHARE**)  
Partnership for Advanced Computing in Europe (**PRACE**)  
Integrated Carbon Observation System (**ICOS**)  
Science and Technology Infrastructure for Biodiversity Data and Observations (**LifeWatch**)

# Research and innovation: internationalisation

European Research Area: Flanders participates in ...

2 public-public  
partnerships

art. 185 initiatives

EUROSTARS  
AAL (Ambient Assisted Living)

4 public-private  
partnerships of joint  
technology initiatives

art. 187 initiatives

JTI ARTEMIS (Embedded Intelligence and  
Systems),  
JTI ENIAC (Nanotechnology),  
JTI IMI (Innovative Medicines Initiative)  
JU FCH (Fuel Cells and Hydrogen)

Interreg

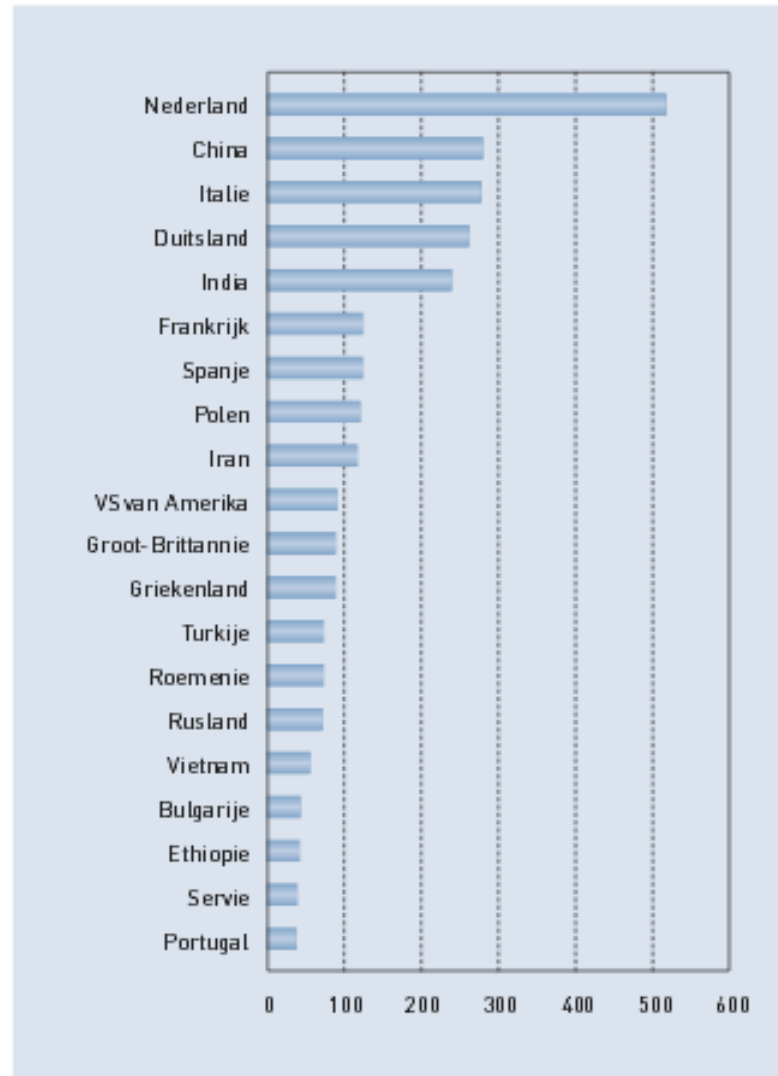
BioBase Europe  
WaterstofNet (Finalist EUROSTARS AWARD 2012)  
NanoSenseEU

# Research and innovation in Flanders: internationalisation

Origin of foreign researchers:

EU: The Netherlands, Italy, Germany, France, Spain, Poland, UK, Greece, Romania, Bulgaria, Serbia, Portugal

Non-EU: VS and America, China, India, Iran, Turkey, Russia, Vietnam, Ethiopia (South Africa and Brazil withdraws from top 20)



Bron: VLIR personeelstatistieken 2012

## Financial Subsidy of EWI:

- Social Innovation in Public Health Impulse (SIPHI) fellowship programme

Institute of Tropical Medicine (ITM) Antwerp – UWC School of Public Health

- Improving adolescent sexual health: studying the process of gender socialization in early adolescence and its association with sexual health in late-adolescence.

Joint Research proposal by University of the Western Cape (UWC) School of Public Health together with International Centre for Reproductive Health (ICRH) of the University of Ghent (UG).

- Improving skills and institutional capacity to strengthen country adolescent immunisation programmes and health systems in the African region

Collaborative project between SAVIC (South African Vaccination and Immunisation Centre, University of Limpopo) and NESI (Network for Education and Support in Immunisation, University of Antwerp).

## Bilateral scientific research cooperation

FWO – Flanders Research Foundation

NRF – National Research Foundation

### Six new research projects

1. Protective effect of South African plants on myco-toxin induced mutagenicity and toxicity
2. Machine learning for data mining applications in cancer genomics
3. Masks, puppets and performative objects as tools of critique, resistance and agency in South Africa. Developing a situational embodied and postdramatic approach for dealing with the cultural trauma of Apartheid
4. ART-C: Development of an antigen and RNA based therapy for hepatocellular carcinoma
5. Phase formation and defect generation during metallization and ion implantation of GeSn semiconductors
6. Making non-governmental organisations' accountability work



## VLIR – UOS: Flemish Interuniversity Council – University Cooperation for Development

Multidisciplinary institutional collaborations for the duration of ten years:

- **Dynamics of Building a Better Society (DBBS)**

Partnerships of 10 years with University of the Western Cape (UWC) and the University of Ghent (UG) until 2013

- **Human Wellness in the Context of Global Change: Finding Solutions for Rural South Africa**

Partnership of 10 years with University of Limpopo (UL), and the University of Antwerp (UA), until 2020

## Erasmus Mundus

An European programme that supports collaborations between institutions of higher education from Europe and South Africa.

Bursaries are awarded to promote mobility of South African students and academics to European partner institutions.

The three biggest Universities in Flanders each take part in a consortium:

- KUL – Koninklijke Universiteit Leuven, directs EMA2SA
- UA – University of Antwerp directs EUROSA
- UG – University of Ghent participates in EU-SATURN

Since recent, bursaries for the mobility of students and academics from Europe to South African partner institutions are also possible

# Research and Innovation: CHEC Workshop on Tech Transfer

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CHEC Workshop on Technical Transfer,  
9 May 2014, University of the Western Cape (UWC)

Experts in technology transfer and innovation from Flanders and the Western Cape

- to engage on issues relating to technology transfer and innovation
- to explore the potential for establishing partnerships
- to share best practices from the different regions