



A joint strategy between Brussels and Flanders with regard to science and innovation policy

Eindrapport Independent Expert Group

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1. INTRODUCTION

On April 28th 2011 the Flemish Council for Science and Innovation (VRWI) received a letter from Olivier Witmeur, President of the Science Policy Council of the Brussels Capital Region (RWBBHG), asking for a bilateral consultation with the presidents of both councils. This request came about as a result of the assignment to the RWBBHG by Benoît Cerexhe, Minister for Economics of the Brussels Capital Region, to investigate opportunities for a joint strategy with regard to science and innovation policy.

To this end an Independent Expert Group (IEG) was established composed of:

Flemish Region	Brussels Capital Region
Danielle Raspoet, VRWI, co-chair of the IEG	Claude May, Innoviris Jenny Vandenbranden, RWB ^{BHG} , co-chair of the IEG
Jan Cornelis, VUB	Daniele Carati, ULB
Jos Van Sas, Alcatel Lucent	Jeroen Deleu, Sirris
Jan Verhaeghe, Acrosoma-Compositrailer	Didier Malherbe, UCB

The present document is based on the inputs of these experts drawn up in the course of three meeting sessions. No additional benchmark study for the Flanders-Brussels Capital Region was performed as an input to the IEG, as the experts relied on existing studies and policy documents from both regions.

2. WHAT IS THE ADDED VALUE OF A JOINT STRATEGY?

Science and innovation do not stop at the border and often involve international and/or interregional cooperation. Therefore, it is important for regions to make the most of all opportunities, irrespective of where these occur. In this respect, a joint strategy between the different regions in Belgium clearly provides added value. This document investigates the feasibility of a joint strategy between Brussels and Flanders. A similar exercise is carried out for collaboration between Brussels and Wallonia. The value added of a joint strategy between regions consists of:

- creating more economical value and a larger home market (for instance in the context of innovative procurement);
- bringing together people with the right skills and competences;
- the use of each other's infrastructure and facilities;
- speaking with one voice in European matters;
- avoiding duplication of specific research and innovation programmes;
- ...

Additionally, deepened multilateral cooperation among the European regions is one of the central goals of the European Research Area (ERA). It has been well established that the research base in Europe is too fragmented, compared for instance to the United States. This manifests itself e.g. in duplication of research projects, competition that is limited to the actors of the region/country, a subcritical mass of research groups. Combining the research and innovation capacities of the Brussels Capital Region and Flanders can help realize scale and critical mass with respect to EU programmes (JPI's, JTI's ...) such as in the upcoming Horizon 2020 (i.e. clustering effects). This is even more important as Flanders and Brussels are themselves relatively small regions.

More recently, the European Union launched the process of smart specialisation. Smart specialisation aims at promoting efficient and effective use of public investment by making use of synergies between countries and regions, thereby strengthening their innovative capacity.

In short, regional innovation strategies for smart specialisation (RIS3) involve a transformation agenda based on four Cs:

Choices: RIS3 is about the selection of a few investment priorities based on a process of entrepreneurial discovery to identify promising areas for specialisation.

Competitive advantage: RIS3 builds on current regional economic specialisation and mobilizes talent by matching R&D with business needs and capacities.

Critical mass: RIS3 aims at developing world class excellence clusters and providing arenas for related variety and cross-sectoral links which drive specialised technological diversification aiming at increased connectivity between regions.

Collaborative leadership: RIS3 is the result of a collective endeavour involving not only the academic world, public authorities and the business community, but also innovation users.

Therefore, in the framework of smart specialisation, a joint strategy between Brussels and Flanders clearly provides added value as both regions would reinforce each other's strengths, and synergies can be created.

Finally, the main actors that can benefit from a joint strategy are industry, knowledge centres (including the federal research institutes in Brussels), universities (particular attention should be given to the community-dependent universities situated in the Brussels Capital Region outside the regions of Wallonia and Flanders) and citizens.

3. STRENGTHS AND ASSETS

This section provides a limited list of the main strengths and assets of both regions.

3.1. MAIN ASSETS/STRENGTHS OF BRUSSELS IN TERMS OF RESEARCH CAPACITY AND INFRASTRUCTURE

Some of the main assets of Brussels:

- Three universities are present in Brussels: Université Libre de Bruxelles, Université Catholique de Louvain-La-Neuve (medical faculty), Vrije Universiteit Brussel, as well as many higher education institutes.
- There is also a high concentration of ICT industry and decision-making centers (headquarters) in the Brussels Capital Region.
- The high concentration of hospitals in Brussels is important for healthcare innovation: l'hôpital Erasme, l'hôpital Saint Pierre, l'hôpital universitaire des enfants Reine Fabiola, l'hôpital universitaire Brugmann, UZ Brussel, Cliniques Universitaires Saint-Luc, Clinique Saint-Jean, ...
- Different collective research centres are located in Brussels such as Centexbel, CRIC/OCCN, CTIB/TCHN, WTCB/CSTC, Sirris, OCW/CRR, not to forget the initiatives Brufotec (food industry) and Tecnolec (electrotechnical and renewable energy).
- Brussels, the most cosmopolitan city in Belgium, is in itself a "living lab" for socio-economic innovation involving unique user communities.

- The presence of international institutions: the European Commission, the European Parliament, NATO, ...

Thanks to these assets, Brussels is the second wealthiest European region in terms of GDP per capita – just behind inner-London. At the same time Brussels has an enormous unemployment problem. Today Brussels has the second highest unemployment rate of all European capitals (behind Berlin). In October 2005 Brussels counted 90000 unemployed, among whom 63369 were eligible for government support (approximately 23% of the total population of the city). This has its implications on the Brussels Capital Regions budget: access to public funding for R&D is very limited, even though the Brussels Capital Region has doubled its R&D budget over the last five years (about 40 million euro in 2011).

3.2. MAIN ASSETS/STRENGTHS OF FLANDERS IN TERMS OF RESEARCH CAPACITY AND INFRASTRUCTURE

Some of the main assets of Flanders:

- Five university Associations: Ghent University, Catholic University of Leuven (including HUBrussels), University of Antwerp, University of Hasselt, Free University of Brussels
- Institute for Tropical Medicine (ITG)
- For strategic research centres: IMEC, VIB, IBBT, VITO
- NERF (Neuro-Electronics Research Flanders)
- Many important industries in different technology areas: Agfa-Gevaert, Alcatel-Lucent, Bekaert, Johnson & Johnson, Recticel, Umicore, ...
- Many important spin-offs and spin-outs, high-tech SMEs ...
- Other important research and innovation structures:
 - Competence centres Flanders' Drive, FMTC, Flanders' Food, VIL, VIM, Flanders' Plastic Vision, Flanders' Synergy, Flanders' InShape
 - Flemish Supercomputer Centre (VSC)
 - Flanders' Care Platform
 - Collective Centres (e.g. BIL, Centexbel, CRM, OCW, SIRRIS, WTCB, WTOCD ...)
 - CMI (Centre for Medical Innovation)
 - Light structures: FISCH (Flanders Initiative for Sustainable Chemistry), SIM (Strategic Initiative Materials)
 - I-Cleantech vzw

- Generaties (Renewable Energy Technology)
- Smart Grids Flanders
- Flemish photovoltaic initiative (VFI)
- Biobase Europe
- KIC EIT Inno-energy
- Energyville Genk (Knowledge centre on green energy technology)
- Living lab 'Electric Vehicles', ICT testbeds, ...
- University hospitals: UZ Gent, UZ Gasthuisberg, UZ Antwerpen, UZ Jette

4. PRIORITY DOMAINS IN THE FLEMISH REGION AND THE BRUSSELS CAPITAL REGION

4.1. R&D BUDGET IN FLANDERS AND BRUSSELS

The overall budget for R&D in the Brussels region is about 40 million euro (in 2011) of which about 7 to 10 million euro is dedicated to 'top-down' programmes.

In Flanders the regional and community authorities for research and development were bundled. This results in an overall budget for R&D of about 1.231 billion euro (2011) (EWI-speurgids 2011). Of this budget 850 million euro falls under the authority of Flemish Minister for Innovation Ingrid Lieten, 317 million euro to Flemish Minister for Education Pascal Smet (percentage of R&D in the university operational budget). The rest of the budget is distributed across the other policy domains.

The bulk of the budget of the Minister for Innovation (about 75%, i.e. 638 million euro) is assigned to 'bottom-up' financing such as FWO, BOF, IWT R&D programme, IOF, SBO, TETRA, PWO, ...

The remaining 25% of the budget (213 million euro) is assigned to priority domains such as the strategic research centres: IMEC (45.72 million euro in 2011), VIB (40.78 million euro in 2011), IBBT (24.77 million euro in 2011) and VITO (43.74 million euro in 2011); NERF (0.94 million euro in 2011), TBM (Biomedical Research) (5.7 million euro in 2011), agricultural research (10.12 million euro in 2011), VLIZ (Flanders Marine Institute) (2.98 million euro in 2011). Additionally, IWT has a budget for innovation initiatives in priority domains by the Flemish government (50.63 million euro in 2011): for instance VIL (Flemish Logistics Institute), VIM (Flemish Mobility Institute), FISCH (Flanders Initiative for Sustainable Chemistry), SIM (Strategic Initiative Materials),

Flanders' Drive, Generaties (Renewable Energy Technology), Flanders' Food, Flanders' Mechatronics Centre, ... (VRWI advice 162).

4.2. PRIORITY THEMES OF BRUSSELS

Brussels has a tradition in employing a top-down approach when setting priority themes. For each of the following themes impulse programmes were created, each with an allocated budget.

- ICT (2D/3D imaging; knowledge management, mobile computing applications);
- Life Sciences (themes 2007: Cancer, Cellular Therapy, Medical Devices, Nutrition Health);
- Environment (themes 2008: Eco-construction and eco-design, Green or Renewable Energy, Pollution and Waste, Mobility).

In 2011, 2 projects in the domain of life sciences were launched: Nano-iris and Clinicobru.

4.3. PRIORITY THEMES OF FLANDERS

The Flemish science and innovation policy has created important possibilities for bottom-up initiatives as significant resources are present for the bottom-up funding of projects (FWO, IWT, BOF).

Additionally, in the past Flemish science and innovation policy recognized and acknowledged the need to provide sufficient resources towards future-oriented spearheads. These top-down interventions resulted in the current four strategic research centres: IMEC, VITO, VIB and IBBT. This concentration of resources has often been the result of the combination of successful 'bottom-up' efforts and excellence in terms of the achievements of the research community, both academically and industrially.

Additionally, challenge-driven and innovation-oriented resource concentrations and platforms exist (Competence poles such as VIM, VIL and light structures such as SIM, FISCH ...) aiming at maximally supporting the business community with knowledge applications in a specific domain.

In 2005-2006 the Flemish Science Policy Council (VRWB, the predecessor of the VRWI, The Flemish Council for Science and Innovation) conducted a technology foresight

study in which relevant players (industry and knowledge institutions) agreed on six strategic technology clusters (including 30 priority domains, see below). Later on, together with Flanders' Chamber of Commerce and Industry (VOKA), industry and knowledge federations, for each cluster one or more specific spearhead initiatives were formulated, with the potential of initiating breakthroughs in their respective fields.

The six VRWI technology clusters (2006) are the following:

- Transport Logistics Services Supply Chain Management
- ICT and Services in Healthcare
- Healthcare Food Prevention and Treatment
- New Materials Nanotechnology Manufacturing Industry
- ICT for Socio-economic Innovation
- Energy and Environment for Services and Manufacturing Industry

In 2011 Ingrid Lieten, the Minister for Innovation, put forward six innovation nodes. These nodes are based on the transposition of the six VRWI technology clusters on the European grand societal challenges.

The Six Innovation nodes are the following:

- Transformation through innovation (industrial innovation policy).
- Innovation in care;
- Eco-innovation;
- Green energy;
- Sustainable mobility and logistics;
- Social innovation.

5. HOW CAN THE PRIORITY THEMES/STRENGTHS OF BOTH REGIONS BE MATCHED?

To determine a joint strategy between Brussels and Flanders the priority themes and strengths of each region were matched in the table below.

Brussels region	Flanders region
ICT priority theme ICT industries Living lab function of Brussels	IMEC IBBT VRWI-cluster 5 (ICT for socio-economic innovation)

	<p>ICT testbeds</p> <p>e.g. Alcatel-Lucent, Agfa-Gevaert ...</p> <p>Flemish Supercomputer Centre</p>
<p>Environment priority theme</p> <p>In 2012 two platforms will be established: Eco-build and Bru-wind</p>	<p>VITO</p> <p>I-Cleantech vzw</p> <p>Generaties</p> <p>FISCH</p> <p>Smart Grids Flanders</p> <p>Flemish photovoltaic initiative</p> <p>Energyville Genk</p> <p>Living lab 'electric vehicles'</p> <p>VRWI-cluster 6 Energy and Environment for services and manufacturing industry</p> <p>Innovation node 'Green Energy', 'Eco-Innovation', 'sustainable mobility and logistics'</p> <p>Innovation Steering Groups 'Green Energy', 'Eco-Innovation', 'Construction'</p> <p>EIT-KIC Inno-Energy</p>
<p>Brussels hospitals (Care)</p> <p>Clinico-bru</p>	<p>Flemish (university) hospitals</p> <p>Innovation node 'Innovation in care'</p> <p>Institute for Tropical Medicine (ITG)</p> <p>Centre for Medical Innovation (CMI)</p> <p>Johnson & Johnson</p> <p>Agfa-Gevaert</p> <p>NERF</p> <p>Flanders' Care</p>
<p>Life Sciences priority theme</p> <p>Nano-iris</p>	<p>VIB</p> <p>NERF</p> <p>VRWI-cluster 3 Healthcare Food Prevention and Treatment</p>

Note: All universities are strongly involved in above research themes.

On the basis of the current initiatives in both regions, the IEG sees opportunities for a joint strategy between Brussels and Flanders on five topics.

- 1. ICT and Society (vertical theme) (Brussels ICT industries, Brussels living lab; IBBT, IMEC, ICT testbeds, Flemish Supercomputer Centre);**
- 2. Environment and Energy:**
 - Sustainable Construction (vertical theme) (Eco-build; iRG Construction, Round Table Construction);**
 - Green Energy (vertical theme) (Bru-wind; Generaties, Smart Grids Flanders, Flemish Photovoltaic Initiative, Energyville Genk, Living lab 'electric vehicles', Innovations node 'Green Energy', iRG 'Green Energy');**
- 3. Sustainable Mobility and Logistics (vertical theme);**
- 4. Medical Research & Medical Care (vertical theme) (Clinico-Bru & Flanders' Care);**
- 5. Industrial Transformation through Innovation (horizontal theme);**

These themes can be used to trigger collaborative research between the regions. Such collaboration will be facilitated by removing the main bottlenecks for a joint strategy (see further). Exchange of best practices between similar platforms in both regions (e.g. ClinicoBru & Flanders' Care) could be a first phase. In a second phase, it should be investigated whether a joint call in both regions is feasible for these themes. Practical problems should be well outlined before implementing any joint calls.

6. WHAT ARE THE MAIN BOTTLENECKS FOR A JOINT STRATEGY AND HOW CAN THESE BE REMOVED?

6.1. CROSS-BOUNDARY INVESTMENTS IN SPIN-OFFS

Arkiv II, managed by PMV represents a 200 million euro government investment in public/private Venture Capital funds. After 2 years, the spin-off should have an exploitation seat in Flanders. For Flemish community institutes in Brussels this presents a serious drawback and an unfair regulation with respect to other Flemish community institutes, certainly because the number of spin-offs is a Key Performance Indicator (KPI) for the distribution of IOF money to the University Associations. It is also well known in the literature that proximity of spin-offs to the knowledge centers that founded

them is both beneficial for as well as an essential condition to create a regional ecosystem for new high-tech ventures and attracting foreign investments.

In the Brussels region the programme 'Spin-Off in Brussels' (SOIB) was created. This programme aims at setting up new enterprises in the Brussels region. On the one hand SOIB is oriented towards Universities and University Colleges for setting up academic spin-offs, on the other hand SOIB is oriented towards enterprises and collective research centres for establishing industrial spin-offs (spin-outs).

Recently the Flemish government set up the 'SOFI-fonds' (Spin-Off financieringsinstrument) in Flanders. This fund (10 million euro) is oriented towards the four strategic research centres of Flanders (IMEC, VIB, IBBT, VITO) for establishing spin-offs.

At the operational level, IWT (Vinnof), PMV (Arkimedes) and INNOVIRIS should agree on which constraints could be relaxed and which bottlenecks (for instance the geographical constraints) should be removed to facilitate collaboration between the regions. This could be investigated by developing some case studies; Financial fluxes between the regions could be monitored.

6.2. MUTUAL RECOGNITION OF PEER EVALUATION IN SELECTED PROGRAMMES

Mutual recognition of evaluations in selected programmes by INNOVIRIS and IWT (quality, due diligence, ...) should simplify collaborative and joint research, whereby each of the regions contributes financially to the work packages and/or economic partners of its own region.

6.3. SPEAKING WITH ONE VOICE IN EUROPEAN MATTERS

The negative effects of not being able to speak with one voice in European matters manifests themselves in the Belgian political framework (see 2011 Policy Mix Peer Review Belgium Report). More particularly as European initiatives such as Joint Programming, ESFRI ... ask for a more strategic approach from the Member States it is vital for a small country such as Belgium with different autonomous regions to be well prepared for these debates.

To make an impact at European level a clearer common position is needed, for instance with regard to European matters such as Horizon 2020. Common viewpoints between the Brussels and Flemish regions should already be created at the level of the different regional advisory councils or administrations.

6.4. DIFFERENCES IN LEGISLATION ACROSS THE REGIONS

There are differences in legislation ('decreten en ordonnanties') between Brussels and Flanders, for instance with regard to the construction sector. Generally, this results in extra costs for institutes and companies.

Without hampering the autonomy of the regions, removing barriers across the regions in some legislative rules is desirable.

6.5. THE REGIONALISATION OF SCIENCE AND INNOVATION POLICY: THE CASE OF IAPⁱ

Due to the regionalisation of science and innovation policy, the IAP-programme together with its budget will (probably) disappear in 2017. In the framework of this programme researchers collaborate in networks across the communities and within different scientific domains. International experts have evaluated this programme as excellent (Ex-post evaluation of the IAP programme, Phase VI, 2007-2011).

Given its clearly demonstrated added value, the IEG recommends that joint calls in the spirit of the IAP-programme should continue, preserving scientific collaboration across the regions. Discontinuation of this programme would imply an irretrievable loss of scientific quality and critical scientific human capital.

6.6. INTERREGIONAL COLLABORATION WITH REGARD TO SCIENCE COMMUNICATION¹

Regional budgets for science communication are generally very small, eliciting limited or no effect on students' interests in pursuing science and technology studies.

Common calls for multilingual science communication projects should be launched to obtain larger scale programmes and attain measurable effects of science communication strategies. Exchange of information between the regions

on how science communication should be done should also be organized.

6.7. INTERNATIONAL COMMUNICATION "BRUSSELS-WALLONIA" AND "BRUSSELS-FLANDERS"

Community matters

In matters of the communities there is currently a discrepancy between the French community and the Flemish community, both competent for certain policy domains in Brussels (e.g. education). The former are consistently communicating about Wallonia-Bruxelles and the latter about Vlaanderen (also in matters of higher education – see Flamenco), while they are both using Brussels as a strong brand to attract foreign students and generate economic value.

Interregional matters

The Brussels metropolitan area (for a definition in terms of employment, see Marissal et al., 2006) consists of a part of Vlaams Brabant and Brabant Wallon which forms a de facto socio-economic entity.

For international communications, agreements should be made to have a comprehensive, compatible presentation of this region so that foreigners are attracted and get a coherent view on this region.

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ⁱ The IEG decided to mention this bottleneck, although this is a community matter.

VLAAMSE RAAD
VOOR WETENSCHAP
EN INNOVATIE

FLEMISH COUNCIL
FOR SCIENCE
AND INNOVATION

KOLONIËNSTRAAT 56
B-1000 BRUSSEL
WWW.VRWI.BE

T +32 2 212 94 10
F +32 2 212 94 11
INFO@VRWI.BE

D. BOOGMANS | VOORZITTER
D. RASPOET | SECRETARIS