

STI OUTLOOK 2002 – COUNTRY RESPONSE TO POLICY QUESTIONNAIRE**BELGIUM****1. General framework and trends in science, technology, and industry policy*****1.1. Overview and assessment of policies for science, technology, and industry****Introduction:*

There is a growing decentralisation of public responsibilities for STI policy in Belgium. Figures 1 and 2 below illustrate this phenomenon, measured by the share of public budgetary credits to STI policy originating from the various Belgian authorities.

The growing shares of public STI credits taken by the two main Belgian regions during the last decade reflect the regionalisation of policy during that period. This rising trend has been visible in the Flemish Community since the middle of the decade, while it appeared in the second half of the decade for Wallonia. The share of the federal state has been constantly decreasing over the decade. In 2000 the Flemish Community appears as a major player in the Belgian STI policy landscape, with responsibilities for 42% of public STI credits in the country. The federal state is still managing one third of the R&D credits, while the Walloon Region and the French Community together account for almost one quarter of the public R&D budgets (24%). The Region of Brussels-Capital appears as a smaller player, measured in public budget terms.

Fig 1: Evolution of the share of budgetary credits for R&D policy from all Belgian Authorities (in %)

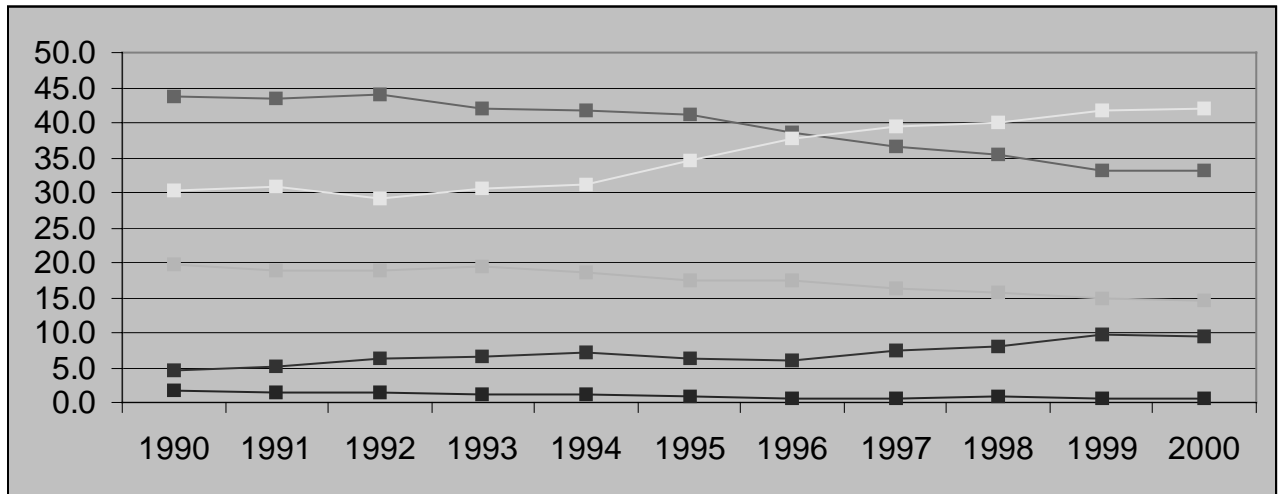
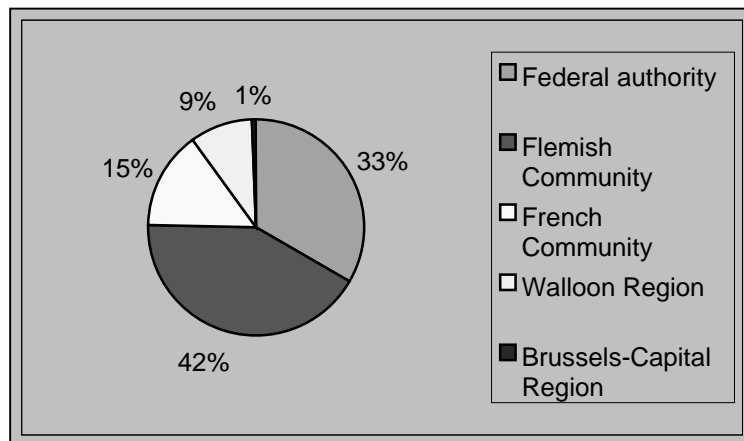


Fig 2: Share of budgetary credits for R&D policy from all Belgian Authorities



The federal science policy:

In line with its competencies, the federal State of Belgium is entitled to support scientific and research activities within its own areas of responsibilities (such as defence, development co-operation, some areas of economic policy, etc.), and also to develop its own science policy. As illustrated above, despite the growing decentralisation of STI policy, the budgetary credits for R&D from federal origin still amount to one third of all public R&D credits in Belgium in 2000.

- First, there is an intrinsic science policy at federal level, based on the implementation of its own research programmes and infrastructures of national interest and especially through the pursuit of a space policy.

It has been mentioned above that the share of the federal State in the overall budgetary credits for R&D, has been declining between 1990 and 2000, but that those R&D credits still account for one-third of Belgian governmental credits on STI in 2000. The budgetary credits for R&D of federal origin amounted to 473 Mio EUR in 2000.

Presently the most important federal science policy measures are:

Financing of R&D activities

1. The federal space research programme, in the framework of international research agreements.
2. Participation of the country in other international research organisations.
3. The activities of federal research establishments and other scientific establishments.
4. Specific, policy-oriented, research programmes in areas of national interest.
5. The inter-university attraction poles, collaborative research programmes across Belgian universities.
6. Collective research centres (in collaboration with the Regions).

Support for R&D activities and R&D policy

7. Statistical inventory of national scientific potential, development of databanks and information systems.
8. The electronic infrastructure of research players Belnet.

The Walloon STI-policy:

The Walloon government recognises explicitly that research and development is “without doubt one of the most important axes of government policy for the restructuring of economic activity in Wallonia. Within this spirit, all initiatives in the area of research and development are considered a priority” (from the “Contrat d’Avenir pour la Wallonie” - Contract for the future of Wallonia- a global policy document proposed by the Walloon government to its partners and citizens in 1999).

1. Increasing public expenses on R&D, in order to progressively catch-up with other countries in quantitative terms.
2. Promoting exploitation of research results in the economic sector and collaboration between research and business players.
3. Reinforcing poles of excellence in the region.
4. Re-focusing public resources towards future-oriented sectors.
5. Raising the awareness in the wider public of the benefits and importance of R&D for the region.
6. Networking between players.
7. Supporting the creation of new enterprises.
8. Improving access to the support system for SME’s and VSE’s (very small enterprises). It is noteworthy that such a policy is characterised by continuity, as many of the above strategic axes have already existed, perhaps in less explicit form, in previous Walloon governments’ R&D policy. This policy is based on a choice of reinforcing existing strengths and potential present in the region. Promotion of new enterprise creation is a more recent area of attention, which receives growing emphasis in contemporary government policy.

Major instruments of R&D policy in Wallonia (DGTRÉ and other authorities)

Support to R&D activities primarily in companies

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- 1 Reimbursable loans ("avances récupérables") for applied R&D projects, and R&D subsidies for basic research, including EUREKA grants.
- 2 The "FIRST"-Enterprise scheme¹.
- 3 RIT and RIT Europe schemes (subsidies to hire technicians) for SME's.
- 4 Subsidies to SME's for feasibility studies, techno-economic studies, technology transfer, access to European research projects, etc.

Support for R&D activities primarily in universities and research centres

- 5 Research centres, including the Walloon participation in collective research centres and the competence poles.
- 6 Subsidies for technological guidance activities in research centres.
- 7 Research in universities.
- 8 FIRST schemes (FIRST-Spin-off, FIRST-PhD-Enterprise, FIRST-Europe, FIRST-Higher Education Establishments): subsidies to hire researchers in education institutions, with the aim to bridge the link with the economic world.
- 9 Support for the costs of patent acquisition and for the interfaces at universities and HEI.

Support for R&D activities in universities, public research centres and enterprises

- 10 Mobilisation programmes: subsidies to universities, research centres and enterprises for R&D activities around specific themes of regional relevance.
- 11 Technological clusters: structural support for the setting-up of industry - research consortia organised around "key technologies".

Support to (R&D - driven) start-ups

- 12 Subsidies to inventors and starting companies (pre-activity grants).
- 13 Science parks and incubators.

Dissemination and awareness-raising activities

- 14 Regional Technological and Scientific Adventure Park and other dissemination activities.
- 15 Innovation relay Centre Wallonia CRIW.

Risk capital provision

- 16 Sub-regional and regional risk capital provision funds, and university funds.
- 17 Business Angels Network.

Support to Business Development

- 18 Business Innovation Centres

1. See for more details of this and other schemes the Belgian report on Science, Technology and Innovation 2001 (Bristi).

- 19 Simplification and improvement of the support scheme system for SME's.
- 20 "Decree 123" and ADI, support schemes for the hiring of new personnel in companies, notably for new technology or new product development.
- 21 Support for immaterial investments, in the form of subsidies.
- 22 Consultancy support for enterprises.

The French Community:

Through its scientific policy and its various subsidies, the French Community pursues two primary objectives:

- To finance high quality fundamental research in all areas corresponding to priorities in universities.
- To ensure excellent training of researchers.

Since the mission of the Community is to finance basic research, no thematic orientation is followed in the policy. All participation and subsidies are managed under a principle of "bottom up" – *i.e.* on the initiative of the research players themselves – and on criteria of scientific quality.

Besides this primary goal, there are two other priorities in current Community government policy:

- The promotion of inter-university co-operation, and the restructuring of higher education establishments (merging of sites).
- The fostering of international researcher mobility and the return of Belgian researchers to the country.

Main channels for the implementation of scientific policy by the French Community

- 1 Basic financing of universities.
- 2 "Fonds National de la Recherche Scientifique" – F.N.R.S. (National Fund for Scientific Research) and associated funds, supporting researchers and research projects at universities.
- 3 "Actions de Recherche Concertées" - ARC (Concerted Research Actions), aimed at developing research centres of excellence at universities.
- 4 "Fonds Spécial pour la Recherche" (Special Research Fund), providing funding for research at Universities.

The Flemish STI-policy:

The Flemish government is committed, since the mid-90's to a catching-up process for overall R&D activities and public investments in the region. Within this primary goal, the driving forces of this policy are the following:

- 1 Increasing overall budgets for STI activities carried out in Flemish organisations.
- 2 Reinforcement of fundamental research at universities, both with infrastructure and human capital (researchers).

- 3 Reinforcement of basic industrial research, through large Flemish research institutions and poles of excellence.
- 4 Increasing support for R&D and technological innovation in Flemish enterprises with special attention to SMEs.
- 5 Improving the policy design and implementation process itself (policy-oriented studies, monitoring, evaluation, simplification of administrative procedures, structural transparency).
- 6 Promoting co-operation and horizontal linkages between players in the region.
- 7 Increasing the promotion and awareness of STI in society.
- 8 Integrating the contribution to sustainable development as a horizontal priority throughout all strategic lines of the policy.
- 9 Ensuring the progressive decline of top-down initiatives, such as the “action” and “impulse” programmes, for the benefit of STI activities conducted on the initiative of the researchers themselves (both in industry and research centres).

Recently, a number of changes have been adopted to the structure of the Flemish science system:

- More autonomy has been given to the Flemish universities.
- A stronger link is being prepared between research performance and budget allocation (in the BOF funds).
- An administrative reform within the Ministry of Flanders (to be completed by 2003) will result into a separate Ministry for Science and Technological Innovation with more direct links to research institutes, IWT-Vlaanderen and FWO-Vlaanderen.
- Another goal is more co-operation between the universities and schools for higher education; due to an agreement between the Flemish and Dutch ministers for Education, the tUL (Transnationale Universiteit Limburg) has recently been established, creating for the first time a transnational university with close co-operation in the field of education and research.

In 1999 a major step was achieved in Flemish STI policy, when the Flemish Parliament adopted an **innovation decree**² (see Box 1), explicitly extending the previous policy attention to scientific research and technological development to the area of innovation. This innovation decree has broadened the policy target, as well as the role of the implementing institution IWT, to cover technological innovation as well as science, research and technological development activities. It also provides a more transparent framework for financing of support institutions, distinguishing more explicitly between their innovation stimulation activities, technological development and research efforts.

The 1999 Flemish Innovation Decree

In 1999, after intense preparatory work, an innovation decree was passed in Flanders. The aim of this decree is to provide the region with a general framework for the conduct of its innovation policy.

The decree acknowledges that, besides technology, non-technological elements such as: market orientation, financing, intellectual property, management, training, etc. are all crucial elements of the innovation process.

2. A decree is the equivalent of a law for the regional level.

Therefore there is a need, it is stated, **for better and deeper co-ordination and collaboration between innovation players**, with the aim of developing an efficient and synergetic innovation system in Flanders. **Promoting networking and decreasing bureaucratic** burdens are two key horizontal themes in the new policy.

IWT becomes the operator, the **"one-stop-shop" and cornerstone** of the technology and innovation policy in Flanders. Its primary role in technology policy is to deliver financial means for research with industrial objectives, support enterprises in technology transfer and foster technology dissemination on the enterprise side, and to deliver applied research funding and specialisation grants on the university side. With the innovation decree, these tasks are enlarged and targeted at support for innovation. It is entrusted with a central implementation role for the new policy and co-ordination of all intermediary and service-providing institutions engaged in innovation in Flanders.

The major innovations introduced by this decree to achieve its goals are:

- **1. New methods of recognition and support for clusters and collective research centres, conceived as "innovation centres"**. The changes go in three directions. Firstly, the support is no longer based on the structure but becomes conditional on the quality of services delivered (with a periodic review). Secondly, these organisations should become better linked to industry interests through involvement of the latter in their design and operation. Thirdly, the rules are harmonised across formal "collective research centres" and other organisations, such as the clusters. The decree gives provision for public support for collective research at a 50% rate; to technology advisors at an 80% rate; and to innovation stimulation (first line advice and innovation coaching) at an 80% rate.
- **2. Changes in the direct support system for R&D in enterprises**: widening of eligible costs, further definition of selection criteria; specific attention to SMEs; higher support for collaborative projects; acceleration and simplification of procedures.
- **3. Support for university interfaces** for the exploitation of collaborative projects between universities and enterprises, for the exploitation of university research and for the creation of spin-off companies. A network of university interfaces has also been set up, co-ordinated by IWT.
- **4.Improvement of the policy planning process**: the innovation policy is to be made explicit and open to discussion with the whole of society. Every four years, the Flemish government must submit, for the approval of the Parliament, an innovation policy plan containing a report on past programmes and a definition of future programmes and objectives.

Major instruments of STI policy in the Flemish Community

Support for STI activities primarily in companies

1. Subsidy for development of prototypes and for industrial basic research, including EUREKA.
2. Subsidies to SME's for innovative activities: the SME-Technological Innovation Programme.

Support for R&D activities primarily in universities and public research centres

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3. Fundamental research at universities: structural support, and subsidies for R&D activities: FWO and BOF funds for fundamental research, specialisation grants (IWT grants) and GBOU, for the financing of generic basic research at universities.
4. Support for interface cells at universities.
5. Subsidy to research centres IMEC, VITO and VIB and regional scientific centres.
6. Subsidies for research in collective research centres.
7. Subsidies for technological advisory activities in research centres.
8. HOBU-Fund: subsidy to higher education establishments for the realisation of research projects in partnership with enterprises.

Support for STI activities in universities, public research centres and enterprises

9. "Action" and "Impulse" programmes: subsidies to universities, research centres and enterprises for R&D activities in specific themes of regional relevance.
10. VIS – “Vlaamse Innovatie Samenwerkingsverbanden” (Flemish Co-operation networks for Innovation).

Dissemination and awareness-raising activities

11. Science and Technology promotion: Technopolis, Experion, the Science Week, etc.
12. VIA - Vlaamse Innovatie Adviescentrum, Innovation Relay Centre.

Activities in support for STI policy

13. Monitoring and support for STI policy.
14. STV – Stichting Technologie Vlaanderen (Flemish Foundation for Technology Assessment) and VIWTA - “Vlaams Instituut voor Wetenschappelijk en Technologisch Aspectenonderzoek”(Flemish Institute for Scientific and Technological Assessment)

Risk capital provision

15. Regional risk capital provision fund GIMV and university risk capital funds.
16. Business Angels Network.
17. Flemish Guarantee Funds.

Support for Business Development

18. Support for immaterial investments in the form of subsidies.
19. “Hefboomkrediet voor innovatie opleidingen” Leverage support for innovation training.

20. Centres providing general business support: Medialab, KMO-IT centre, TIV, Innotek, VIZO, etc.

The STI-policy of the region of Brussels-capital:

Until the end of the nineties, the Region of Brussels-Capital had not been engaged in any “Science-Technology-Innovation” policy. However it distributed subsidies and reimbursable loans to engaged in R&D activities according to the former national policy framework and with the support of federal agencies. Some regional actions and programmes also existed such as the Technopol association, a “one-stop-shop” organisation for the region, aimed at supporting business development, technology transfer and innovation in Brussels. However, despite the fact that the region was well endowed with universities, research centres and innovative companies, no strategic policy decisions were made with regard to the role of STI in the development of the region.

The situation changed recently when the new government elected in 1999 recognised the importance of fostering STI activities in Brussels and the need to endow the Region with such a policy. The formulation of this policy started at the start of the new millennium with the following future guidelines:

- 1 Increasing public credits for R&D, to progressively catch-up with other governments’ policies.
- 2 Restructuring existing regional tools and the network of players involved in STI support.
- 3 Developing a general framework for STI policy in the region: creating a legal basis for policy intervention and setting up a Science Policy Council.
- 4 Support exploitation of technological innovations from research activities.
- 5 Concentrating public action on strategic sectors: information and communication technologies, chemistry, biotechnology, pharmaceuticals, health, computer applications for building and electro-mechanics, virtual imaging.

In 2000, an audit was carried out of the players and instruments at the service of STI in the region, including the role of the administration, SRI-DOI, within the Economy and Employment Administration., and will serve as a basis for the foundation of future policy.

The major instruments of STI policy in Brussels are the following:

Direct support to R&D activities primarily in companies

- 1 Subsidies for basic research in enterprises and reimbursable loans ("avances récupérables") for applied R&D projects and prototype development, including Eureka projects.

Support for STI activities primarily in universities and public research centres

- 2 The framework programme “Prospective Research for Brussels”, supporting research projects of interest for the development of the region.
- 3 The framework Programme “Research in Brussels”, providing awards to foreign researchers working in universities in the region.
- 4 The impulse programme CELLO.
- 5 Support to university and higher education establishment interfaces.

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- 6 Support to collective sector-specific research centres.
- 7 The LINK programme, for the promotion of spin-offs at universities.

Business development support

- 8 Technopol, “one-stop-shop” organisation for business development in the region.
- 9 BRUFOTEC, organisation supporting technology transfer in the agro-food sector.
- 10 EEBIC Business Innovation Centre.
- 11 Scientific and Technology Parks.
- 12 "Decree 123", support scheme for hiring of new personnel in companies, notably for new technology or new product development.
- 13 Support for immaterial investments in the form of subsidies.
- 14 Subsidies for studies, management consultancy and training programmes carried out by enterprises Risk capital provision.
- 15 SRIB, the regional investment company and daughter companies Brustart, for start-ups, and Bruficom, for companies in the telecom sector.

STI promotion

16. Activities for the promotion of science and technology in the region.

Major changes in the legislative, administrative, organisational, institutional, and budgetary framework for the formulation, implementation, and evaluation of science, technology, and industry-related policies. Please include efforts to increase the involvement of civil society, non-governmental organisations, or private sector advisory bodies.

What is new about STI in Belgium? In the trend chart of innovation we produced the following summary of recent changes in Belgium:

1. The Belgian authorities have undertaken the production of a major report relating to innovation policy with a view to the upcoming Belgian presidency of the European Union (beginning 1 July 2001). The **Belgian Report on Science, Technology and Innovation (BRISTI)** is being produced by a number of experts under the guidance of the CFS/STAT committee (in which all authorities, Federal, Regional, language communities are represented) and co-ordinated by the Federal Office for Scientific, Technical and Cultural Affairs.
2. An April 2001 report by the High Council for Finance to the Federal Minister of Finance recommends **the phasing out of tax incentives for investment, including the current existing measures in favour of R&D**. This is motivated by the need for Belgium to comply with international obligations and increase the neutrality of the tax system.
3. In Flanders, **the new “KMO-Innovation” programme has been launched with an open call for proposals in March 2001**. Two types of measures (SME-Innovation Studies and SME-Innovation Projects) have replaced a number of former measures following an evaluation which took place in 2000. The scheme significantly simplifies the subsidy structure for supporting technological innovation in

SMEs and broadens the concept of innovation used in former measures to marketing, IPR, training, etc.).

4. In Wallonia, **the Regional Innovation Strategy project "Prométhée" was concluded by a major conference in January 2001**. A follow-up project is being prepared as a proposal for funding to the European Commission's Innovative Actions 2000-2006 programme. The outcome of the project is generally well considered with the Science Policy Council for Wallonia, issuing a positive opinion reinforcing many of the recommendation of the RIS.
5. The **Walloon Minister for the Economy, SMEs, Research and New Technologies** has taken a number of initiatives to promote new enterprise creation (adoption of a decree creating a new pre-activity grant) and is planning a new measure aimed at supporting the introduction of ICTs in firms by subsidising salary costs. A series of calls under the FIRST (human capital mobility) programme have been launched in April 2001.
6. The **Government of the Region of Brussels-Capital is giving increasing attention to the issue of industrial R&D and innovation**. A new legal framework for supporting innovation and R&D projects in firms is under preparation and the 2001 budget foresees a doubling of funds for industrial R&D and product development.

A more comprehensive description of recent changes in science policy can be found at pages 10 to 15 of the same trend chart report on innovation. See the report as an annex to this questionnaire.

For the budgetary aspects I would like to refer to the different GBOARD tables of the Bristi report (from p 265 onward). The two most important tables are shown here.

Though important to mention is the following: some of the new instruments do not necessarily cost much.

**OVERVIEW OF THE BUDGET APPROPRIATIONS OR OUTLAYS FOR R&D OF THE
DIFFERENT BELGIAN AUTHORITIES IN MIO EUR AND 1995 CONSTANT PRICES**

AUTHORITIES	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000(*)
FEDERAL AUTHORITY	433.941	424.344	433.765	432.027	432.366	430.956	436.822	434.518	434.588	441.528	436.340	446.774
FLEMISH COMMUNITY	303.653	292.438	309.665	285.500	315.091	323.002	367.928	424.768	467.858	497.655	547.246	566.562
FRENCH COMMUNITY	196.836	190.173	190.331	184.411	200.623	193.493	183.642	196.647	192.426	194.698	197.337	198.349
WALLOON REGION	52.489	45.170	50.979	60.961	69.034	73.804	66.298	67.066	86.857	99.824	126.922	125.254
REGION OF BRUSSELS-CAPITAL	12.077	16.707	14.296	15.142	12.773	12.379	8.550	5.372	8.916	10.500	7.232	7.418
TOTAL	998.996	968.832	999.036	978.039	1029.887	1033.635	1063.240	1128.370	1190.644	1244.205	1315.077	1344.357

AS A PERCENTAGE OF
TOTAL

AUTHORITIES	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000(*)
FEDERAL AUTHORITY	43.4	43.8	43.4	44.2	42.0	41.7	41.1	38.5	36.5	35.5	33.2	33.2
FLEMISH COMMUNITY	30.4	30.2	31.0	29.2	30.6	31.2	34.6	37.6	39.3	40.0	41.6	42.1
FRENCH COMMUNITY	19.7	19.6	19.1	18.9	19.5	18.7	17.3	17.4	16.2	15.6	15.0	14.8
WALLOON REGION	5.3	4.7	5.1	6.2	6.7	7.1	6.2	5.9	7.3	8.0	9.7	9.3
REGION OF BRUSSELS-CAPITAL	1.2	1.7	1.4	1.5	1.2	1.2	0.8	0.5	0.7	0.8	0.5	0.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(*) On the basis of provisional budget data.

Source: Federal Cooperation Commission, Concertation Group CFS/STAT; OSTC calculations.

1.2. Changes in the nature and process of policy evaluation

Since a few years evaluation practices are becoming quite common. The two most important examples are the Prométhée project in the South and the evaluation of public research institutes in the north. In what follows a small synthesis is given.

La Wallonie :

The “Prométhée” programme is the response from Wallonia to the European RIS-RITTS initiative, aimed at developing strategic frameworks for innovation policy in European regions. The RITTS and RIS programmes are managed by the European Commission (DG Enterprise and DG Region respectively). These programmes propose a methodology and financial support for reviews of the orientation of innovation policies in the regions, with a key question at the core: how can the innovation support system be improved so that it better meets the needs of companies?

Among 100 other European regions, Wallonia undertook this exercise over two years (1998-2000). Led by DGTRE, the implementation of the programme focused on three objectives:

1. Enhancing the knowledge about the innovation potential present in Wallonia.
2. Favouring partnerships and synergies in priority areas.
3. Restructuring and improving the role of the various players making up the innovation support structure.

The first objective was met by the implementation of a study, aimed at identifying “40 key technologies” for Wallonia, on the model of the French “100 key technologies”. These key technologies have been identified on the basis of trends in social demand, the scientific and research potential in the region and the existence of industrial exploitation potential. The work has been carried out by external consultants, in a consultation process with more than 100 Walloon experts from universities, research centres and enterprises. The key technologies are found in the following five areas: chemicals, equipment goods, information technology, life sciences and agro-food, environment-energy-transport-city. This approach, conceived as a prospective exercise, aims at delivering decision tools to regional public authorities, notably for the selection of “mobilisation programmes”, but also to research players themselves (universities, research centres, enterprises, for the development of their own research strategies).

The main answer to the second objective was the launch of a new scheme in 2000, the “technological clusters”, through which the Region supports the creation of company research consortia, also including research organisations involved, in most cases, in the “Walloon key technologies”.

The last objective was the most complex one as it opened, for the first time, an extended debate on the functioning of the overall innovation support system. It should be noted that the whole debate was centred around the concept of “technological innovation”, rather than a more open notion of innovation, as this is the case in many of the RITTS and RIS exercises. The definition of the support system was made with this concept in mind, so that a leading role in this exercise was played by the university and research players. A first task consisted of the identification of those players, their mission, their activities, the relationships between them, etc. A broad and participative exercise showed the need for clarification of the missions, evaluation of activities, and identification of complementary features and synergies between all the players concerned. Several questions of crucial importance for the efficiency of this system, were discussed in depth:

- The existing barriers to (university) research exploitation.
- The organisation of a network between the players in the innovation support system.

- The provision of risk capital.

Although many questions are still open, and need more work if this is all to lead to a fully efficient support system, concrete responses have already been given. The clearest progress achieved consists of the creation of an agreement procedure for the technological competence centres, clarifying the missions and financing arrangements of all the centres in the region, and the drafting of a “price list” for the commercial services of research centres. The organisation of an annual fair on risk capital is another visible response to the need identified in the Walloon capital for an improved availability of risk capital. Finally, the creation of a portal website for all innovation support organisations in Wallonia is a project that can be seen as a first step to reach the ambitious objective of more co-ordination and synergies between these players.

Overall, the main result of Prométhée was the creation of a broad regional dialogue on the role of research activities in economic development, and the progressive evolution of a consensus on the need for the creation of a real “system” between all organisations playing a role in research and technological development at the service of enterprises.

The Flemish community: some examples of evaluations

First of all, there has been an external evaluation of the various SME support schemes managed by IWT which has been carried out in 2000 by the MERIT research centre of the University of Maastricht. Four SME programmes existing at that time were put under scrutiny :

1. KMO-Haalbaarheidsstudies (SME feasibility studies): the government supported brief audits on the feasibility and direction of technological innovation projects in SMEs.
2. KMO-Innovatieprojecten (SME Innovation Projects): the government supported the next phase of project development in an SME.
3. KIV : KMO – Innovatie Vlaanderen (SME Innovation Flanders): public support was granted to SMEs for the hiring of highly qualified personnel to conduct an innovation project in an SME.
4. MKB – projects (Medium and small enterprise projects): subsidies were granted for brief studies to assess the practical, technical and economic feasibility of solutions to specific problems faced by SMEs.

On the basis of interviews with SMEs and support organisations, the evaluation tried to clarify the efficiency and effectiveness of the above schemes. The general results were positive and gathered a surprisingly high number of favourable opinions on the administrative aspects of the scheme management. However, a number of weaknesses were also highlighted:

- * Companies feel the need for an extension of the scope of some SMEs support schemes, to include the commercial aspects of the innovation process;
- * In general, the time frame of the measures is considered too short.
- * Companies want to receive more technological support from intermediary organisations.

Shortly after this evaluation, the range of SME support schemes from IWT was simplified, the number of schemes reduced, and their scope extended to cover a wide variety of innovation-related activities.

Secondly there are a number of evaluation tools which are now widely accepted. The Flemish government has set up a number of mechanisms to support decision-making, monitoring and evaluation of STI policy:

- Evaluation of policy programmes and instruments becomes the rule: this is already happening, notably for IMEC, VITO, VIB, the regional science institutions, the SME support programmes, etc. and is currently the focus of attention for academic research and the administrative structures responsible for STI policy preparation and implementation.
- “Support points” at universities for policy-relevant research (to be implemented in 2001). Through this mechanism the Flemish Community government provides structural financing (five year contracts) to university research teams for the conduct of research and the development of databases in areas that are considered a priority. A dozen such areas have been defined, among which “Entrepreneurship, enterprises and innovation”, and “R&D stats”, are of particular interest for the design of STI policy. The “support points” will be involved in policy evaluation, and must work in close interaction with the administration and ministerial cabinets.
- The IWT-Observatorium gathers and exploits all the available data relative to the Flemish regional innovation system. Indicators are developed and maintained, and studies are published regularly on various aspects of interest for policy making, such as: the patents situation, the impact of technological innovation on job creation and destruction, co-operation practices in R&D, financing of innovation, adoption of ICT in enterprises, etc.
- The IWETO database is maintained by AWI, including data on scientific and technological projects, research teams, expertise and services, foreign co-operation and equipment. Data are supplied directly by the universities and institutes of higher education.
- AWI produces annually, since 1993, the Science, Technology and Innovation Information guide which contains, apart from the focus on a detailed analysis of a specific topic, the Horizontal Budget Program for Science Policy (HBPWB), an overall budget summary of the competencies, activities and programmes related to science, technology and innovation.

2. Public sector research and public research organisations

2.1. Policy changes related to public sector R&D

See table 1.2.1. of the Bristi report (shown on the next page)

The main conclusions concerning the funding of public research that could be drawn from that table are the following:

- The balance between the funding of universities and the funding of public research organisations seems to be changing if we consider only the general funding data of both type of institutions. The funding of public research organisations is growing faster at a first look (55% growth compared to 30 % growth for the university research since 1993).
- Some instruments aimed to a much higher degree in financing university research have gained in importance. Special funds (aimed at financing research on a project base) have grown much faster than both the general university or public research institutes funding. This could be explained as a shift towards "call for offers" as a procedure to grant research money in stead of a general funding.

The importance given to the different types of research funding (and so also to the choice of instrument) has evolved in a slightly different direction. This is specially clear when comparing the attention given to the

financing of the research institutions and the weight of to "bottom-up" research projects which leave the initiative to the researcher versus mission-based programs.

Very recently the Flemish government is trying to correct this unbalanced evolution by augmenting the basic general credits for the universities.

New government R&D programmes and creation of centres of excellence aimed at specific areas such as information and communications technology (ICT), biotechnology, and nanotechnology.

Research in these areas happens either through:

- Setting up of specialised research institutions like IMEC (microelectronics) or VIB (biotechnology).
- Mission based research programs.

Though both of these initiatives already started several years ago.

From 2001 onwards, research responding to societal needs will be funded in Flanders through two new mechanisms:

- a) A new fund for strategic generic research at the universities ("GBOU"). This is designed to stimulate cutting-edge strategic research at the universities, for generic basic research. This programme encourages industry and the non-profit sector to participate through user groups. The projects can have both societal and/or economic objectives. In 2000, the Government of Flanders also decided to reshape the mechanisms for funding policy-related research. Therefore, support centres are currently being set up at the universities for topics such as "enterprises and innovation", "organisation of the public sector", etc.
- b) A series of "support centres" (steunpunten) for policy-related research associated with and established within the universities.

TABLE 1.2.1

**OVERVIEW OF THE GOVERNMENT BUDGET APPROPRIATIONS OR OUTLAYS FOR R&D (GBAORD)
BY INSTITUTIONAL AND FUNCTIONAL DESTINATION AND BY BUDGET YEAR**

IN MIO EUR AND 1995 CONSTANT PRICES

ALL BELGIAN AUTHORITIES

INSTITUTIONAL AND FUNCTIONAL DESTINATION	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000(*)
100 HIGHER EDUCATION (HE)	261 630	255 678	255 814	253 792	281 312	281 709	271 648	287 239	300 248	304 985	318 268	332 705
110 General university funds	188 126	190 514	195 520	201 361	204 038	206 284	210 641	212 150	215 594	216 416	217 911	220 066
120 General university funds (others than 110)	7 326	7 050	7 357	7 738	7 884	8 443	8 836	8 540	8 733	9 397	10 332	10 742
130 Special research fund in the universities	19 007	18 453	18 117	18 684	19 409	20 031	19 871	23 272	43 932	50 245	56 971	68 243
140 Financial transfers	47 170	39 661	34 819	26 008	49 981	46 950	32 300	43 277	31 989	28 927	33 054	33 654
200 SCIENTIFIC INSTITUTIONS (SI)	145 132	167 887	162 778	156 842	149 823	153 224	169 975	188 204	202 582	209 347	212 144	212 321
210 SI and departmental services	81 693	82 177	83 400	78 373	76 423	73 737	78 825	79 308	85 127	93 130	101 027	101 243
220 Academies	1 557	1 548	1 285	1 255	1 499	1 139	1 037	1 134	1 097	1 084	1 388	1 222
230 Assimilated institutions (others than 210)	61 882	84 161	78 093	77 214	71 901	78 348	90 113	107 762	116 358	115 133	109 728	109 856
300 VARIOUS CREDITS OF R&D AND STA N.C.E.	25 906	32 918	34 599	38 297	40 962	37 603	36 506	46 127	52 402	46 958	53 367	52 836
310 Credits with specific R&D finality	12 359	18 280	21 377	24 315	27 136	23 932	25 869	34 783	31 829	32 344	33 080	29 647
320 Credits with STA finality in general	13 547	14 637	13 222	13 982	13 826	13 671	10 636	11 344	20 573	14 614	20 287	23 189
400 ACTION PROGRAMMES AND ORGANISATIONAL SYSTEMS OF R&D	115 678	116 199	148 173	150 892	164 935	170 140	164 672	177 102	171 689	192 854	216 969	210 238
410 R&D programmes and projects (subsidies and repayable advances)	71 534	62 867	94 822	99 361	109 706	113 016	106 492	113 218	119 472	139 132	159 983	150 628
420 Concerted Research Activities (CRA's)	17 884	17 326	17 101	17 652	18 613	19 077	19 378	23 427	9 003	10 071	10 397	10 446
430 Inter-university Poles of Attraction (IPA)	9 270	20 378	20 164	18 660	20 545	20 230	19 675	19 918	22 126	22 136	20 980	20 849
440 Collective Basic Research Fund - Ministerial Initiative	6 085	5 019	5 455	4 568	4 928	5 192	3 433	3 198	2 911	3 337	3 710	4 901
450 Specialization grants (ex-IRSIA)	10 904	10 609	10 632	10 651	11 144	12 624	15 694	17 342	18 177	18 177	21 899	23 414
500 UNIVERSITY AND BASIC RESEARCH FUNDS	117 871	99 841	98 792	100 160	101 767	107 956	108 505	119 809	134 377	142 835	148 846	156 771
510 National Scientific Research Funds (FNRS/NFWO-VI)	50 586	35 449	35 715	37 629	38 531	74 660	75 454	85 372	101 408	109 795	120 069	123 780
520 Collective Basic Research Fund on the initiative of researchers	21 981	21 658	21 180	21 149	21 300	9 259	9 172	9 067	9 169	9 398	9 298	9 336
530 Interuniversity Institute of Nuclear Sciences (IISN)	21 800	21 164	20 029	19 822	19 977	11 380	11 339	11 292	11 329	11 483	11 395	11 453
540 Medical Scientific Research Fund (FRSM)	22 809	20 974	21 343	21 080	21 491	12 190	12 100	13 642	12 069	11 759	7 520	11 643

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550 Interuniversity College of Phd Studies in Managerial Sciences (CIM)	0 696	0 596	0 525	0 480	0 468	0 467	0 441	0 436	0 401	0 400	0 564	0 560
600 INDUSTRIAL AND APPLIED RESEARCH FUNDS	143 524	107 112	111 950	71 079	72 867	63 294	85 053	82 930	110 211	128 267	142 162	155 698
610 Industrial and Agricultural Research	27 049	28 278	28 102	40 207	47 517	45 818	35 233	43 419	58 207	68 305	67 643	58 023
620 Fund for the R&D support of enterprises	85 401	78 067	63 235	20 112	14 978	4 902	38 478	27 246	40 322	48 462	58 690	66 412
630 "Fund for the prevention and sanitation in the field of Environment and Nature"	31 074	0 767	20 614	10 760	10 372	12 574	11 342	12 265	11 681	11 499	15 829	31 264
700 INTERNATIONAL ACTIONS	189 256	189 197	186 930	206 976	218 220	219 710	226 881	226 960	219 136	218 960	223 321	223 787
710 Programmes and organisations in the field of space research	102 820	111 512	113 572	132 173	147 751	148 724	151 108	150 687	152 017	152 899	153 243	153 041
720 Other belgian contributions to different international organisations	19 902	15 486	14 632	15 027	15 795	17 238	19 059	18 891	25 967	24 507	25 985	26 606
730 Other programmes and projects on international level	58 101	53 698	50 454	51 251	48 254	53 748	56 713	57 382	41 152	41 555	44 093	44 140
740 Development Cooperation Fund	8 433	8 501	8 271	8 524	6 420							
TOTAL	998 996	968 832	999 036	978 039	1029 887	1033 635	1063 240	1128 370	1190 644	1244 205	1315 077	1344 357

3. Government support for private-sector R&D and innovation

3.1. *Enhancing the effectiveness of policy instruments used to provide public support for private sector R&D and innovation*

This is basically due to the fact that fiscal policy belongs to the competencies of the federal government while innovation policy is a regional competency. The consequence of this division of labour is that innovation policy is in Belgium basically supported with all kinds of subsidies but not fiscal instruments.

The Flemish government reviewed its procedures for subsidising industry research (by the decree of 5 October 2001) according the following lines:

1. The procedures have been simplified. This goes for the way files have to be submitted as well as for the ways the administrations are controlling and the follow-up procedures.
2. The objectives which are being pursued by companies get a higher importance as well as the obligation to valorise the innovation in Flanders. The scientific technical solution which is being proposed in the demand for a grant is only considered as a mean to achieve that innovation.
3. Some sectors or activities get a higher support. This goes especially for SME's; Eureka-type programs.

New regulations introduce a differentiation between the very small companies (less than 50 employees) and the small ones (less than 250 employees).

Wallonia:

Subsidies to SME's for feasibility studies, techno-economic studies, technology transfer, access to European research projects, etc.

Walloon SME's are entitled to a number of specific subsidies, aimed at helping them overcome the difficulties caused by their smaller size in undertaking research and technological development activities. These schemes aim to reduce financial and technical uncertainty linked to the development of innovation projects. They are :

- Feasibility study for technical support (for SME's): subsidy of 80% of the costs incurred for technical services (analyses and measurements, tests, patenting potential, etc.) with an exploratory character in order to test hypotheses before the development of a formal R&D project. These services are provided by a university or research centre;
- Techno-economic support (for SME's): subsidy of 80% of the cost of a study carried out by a consultant, in order to evaluate the potential of a new product or service (analysis of potential demand, competition, markets, regulations applicable to the products or services, state-of-the-art techniques, pricing strategy, search for partners, patenting, etc.).
- Technology transfer (for SME's): subsidy of 80% of the cost of a study carried out by a consultant, in order to analyse the potential for technology transfer to the company

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(technological evaluation of the transfer, evaluation of partners, support for an effective transfer, legal and technical assistance);

- Innovative software (for SME's): subsidy of 80% of the costs of a feasibility study for the development of innovative software;
- A number of aid schemes are also available under the Objective 1 programme, notably the International Partnership: subsidy of 50% (80% for SME's) of the costs incurred for the preparation of a R&D project in co-operation with European partners to be submitted for funding to the European Commission.

Together these aids justified expenses of € 2.5 million to the Region in 1999.

Subsidies for technological guidance activities in research centres

In addition to the structural and project funding referred to above, the Walloon Region also finances "technological guides" in collective research centres and other regional research centres and competence poles. The role of these "technological guides" is to act as links between these centres and the business world. They are at the disposal of the enterprises, and especially SME's, to disseminate the results of research undertaken in these centres and respond to technological problems. They help to introduce new technologies in companies through short term collaborative studies and technical advice. The Region finances 80% of the salary costs of the technological guides. In 1999, € 2.7 million were devoted by the Region to these technological guides.

Flanders:

Support for immaterial investments

The economic expansion laws are now being revised by the Flemish government. But up till now these laws provided the possibility for regional governments to grant subsidies to enterprises that carry out investments in the region. Besides material investments for the operation of the company's current activities, the possibility to receive subsidies for immaterial investments related to future activities of the company is of particular interest to innovating enterprises. The types of immaterial investment covered are:

- Organisation and market studies.
- R&D for new products, processes, organisations and prototype development.
- Acquisition of patents.
- Investment in quality management.
- Investment in training and education.
- Immaterial investments in relation to a cluster.

The rules for these subsidies differ according to the size of the enterprise and the sector of activity. Some sector restrictions apply to the support, and some sectors benefit from an increased rate of support. The amount of the subsidy is expressed as a percentage of the investment programme costs, with a maximum of 15% (or 12% in commerce) of the total costs for small enterprises. It is calculated as a sum of percentages granted for each of the following elements:

- Employment effect (this is a necessary condition for premiums for medium and large enterprises).
- Strategic importance of the investment.
- Relocation for environmental reasons.
- Start-up company.
- Ecological reasons.
- Etc.

Brussels:

Support for immaterial investments

Like other Belgian Regions, Brussels-Capital has adapted the former national economic expansion laws into regional decrees, with the aim of organising a regime of subsidies for enterprises that make investments in the region. Of particular interest to innovating enterprises, besides material investment for the running of the company's operations, is the availability of subsidies for immaterial investments in relation to future company activities. The types of immaterial investment covered are:

- Market studies, studies into commercialisation of new products.
- R&D for new products, processes, and prototype development.
- Acquisition of patents, trademarks, property rights.
- Investment in quality management.
- Investment in training and education.

The subsidy rules differ according to the sector, the type of financing, and the nature of the enterprise (starter, existing enterprise, enterprise created by a young entrepreneur). The amount of the subsidy is expressed as a percentage of the investment programme costs. An increase in the subsidy is granted if the investment is considered as having important economic impact on the region. The rate of support varies between 9% (basic rate) and 24% (rate for starters) of the investment programme. There are some sector restrictions to this support.

3.2. *Changes in the balance and/or priority of public support of business R&D and innovation*

In the field of industrial research, the policy letter 2001 of the responsible minister of the Flemish Government mentions four priority areas: logistics, teledetection, image and language technology, aeronautics and space research.

4. Technology transfer, diffusion, and commercialisation of new technologies

4.1. *Promoting collaboration and networking among innovating organisations*

Technology Transfer programs are open for all sectors.

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The Belgium Competition Protection Law (law of 5 August 1991, modified in April 1999) incorporates all the elements of the European competition law (articles 85 and 86 of the Rome Treaty and European Regulation of 1990). There is however an important difference between the two legal frameworks: European rules do not contain an argument of “efficiency defence” for merger control, while under Belgian law, mergers can be accepted by the Competition Council if it concludes that their contribution to the upgrading of production or distribution, to the competition structure within the market, or to the promotion of technical and economic progress, compensate for the loss of competition provoked by these mergers. Thus, the Belgian regulation takes account of more general economic policy objectives, while at EU level, maintaining competition is an objective per se. In particular, mergers that have an effect on innovation performance can be admitted under the Belgian law, while they would be prohibited under the European regulation.

FIRST schemes for universities: FIRST-Spin-off, FIRST-PhD-Enterprise, FIRST-Europe scheme and FIRST-Higher Education Establishments (Walloon Region)

The FIRST schemes for universities and higher education establishments have the general aim, as in Enterprise scheme described above, to foster relationships between the research and the business worlds. The programme started in 1989, and has been adapted through different variations since then. The principle is that the Region takes responsibility for the salary costs of a researcher, for a minimum of two years, for the conduct of a research project that is likely to deliver industrial results in the region. An additional subsidy is also granted to the research laboratory. In 1999, € 11.7 million were devoted by the Region to these schemes. There are currently three versions of this scheme:

- FIRST-Spin-off (20 mandates in 2001) is more specifically focused on researchers who develop a credible plan to exploit the results of a project in a commercial venture. The salary is paid for in full by the Region.
- FIRST-PhD-Enterprise (20 mandates in 2001) supports researchers engaged in a doctoral dissertation carried out in partnership with an industrial partner located in Wallonia, leading to the development of innovative processes or products in the enterprise. In this version, the Region finances the salary in part (80% for a SME, 50% for a large enterprise) and the rest is taken by the university and/or the company;
- FIRST-Europe (40 mandates in 2001) targets researchers involved in projects in collaboration with an industrial partner and other research organisations in the EU. As this scheme is financed by Structural Funds, it is only open to projects with industrial partners located in eligible areas of the region. The salary and travel costs are covered entirely by the Region.

Technological clusters

One of the most visible outputs of the “Prométhée” programme - a strategic review of research and innovation policy in Wallonia – is the launch of the “technology clusters” subsidy scheme in 2000. This scheme aims to stimulate innovation in enterprises through the creation of lasting partnerships between them, and between them and the research world. Clusters eligible for subsidy should be organised around one or several of the 40 Walloon key technologies identified through Prométhée. The Region finances the constitution of the cluster by subsidising, for one year, one expert chosen by the enterprises, to act as a catalyst for the cluster: supporting the creation of the partnership, analysing the competences of the various members of the cluster, studying the market and its evolution, helping formulate concrete projects, etc.

VIS “Vlaamse Innovatie Samenwerkingsverbanden” (Flemish Co-operation networks for Innovation)

Since the mid-nineties the Flemish government has been active in the implementation of support for clusters of companies organised around specific sectors or technologies. A dozen clusters have been supported by the government, with subsidies of € 5 million per year. These are: CEPRO (Centre for Product development), CLUSTA (Cluster of Steel Plate Producers and Transformers), DSP Valley (Digital Signal Processing Cluster), MIC (furniture innovation cluster), STW (Study Centre Telematics Transport), VEI (Flemish Electronics Innovation Centre), VIPO (Flemish Initiative for Product development), VKC (Flemish Chemicals Centre), VLI (Flemish Air Transport Industry), VRI (Flemish Space Industry) and DRIVE (Automotive sector cluster).

In the framework of the 1999 Flemish innovation decree, the concept of **“Flemish co-operation Networks for Innovation” (VIS)** has been introduced.³ The VIS is a new mechanism aiming to organise a common and transparent basis for the financing of clusters, collective research projects, technological services, etc. delivered by all kinds of support organisations in Flanders. While respecting the diversity of these initiatives and their promoters, the new framework establishes rules for subsidy on the basis of common criteria based on the quality of projects rather than on the identity of the promoters, as was the case before. The VIS are groupings of enterprises, possibly with the participation of other types organisation, active in the following areas:

- Technological services.
- Innovation stimulation.
- Collective research.

The first two types of services can receive of subsidy of up to 80% of the costs, while the subsidies for the latter may amount to 50% of the costs. The selection criteria foreseen for the VIS cover the following:

- Innovative potential.
- Quality of proposals.
- Additionality of public support.
- Externalities of the project.

The VIS will notably allow a more transparent financing of the existing Flemish clusters. Cluster policy was announced in Flanders in 1994: its aim was to support groups of enterprises that develop co-operation practices and/or collaborate with research organisations in one or several areas: R&D, development of products, training, etc. A dozen such organisations have been accredited by the government in the subsequent years and, together, have been granted a yearly subsidy of € 3 million for their animation, brokerage and advice activities, and for their infrastructure. They form a heterogeneous group of initiatives, ranging from collaborative arrangements between furniture makers to networks of enterprises and research institutions active in R&D in digital signal processing.

³ The official approval and implementation of the VIS is foreseen in 2001.

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4.2. *Strengthening industry-science relations*

Table 9: Overview of legal regulations with impact on ISR in Flanders

Name of the regulation	Year of implementation	Contents/Incentives/Barriers
Intellectual Property rights at universities and public research labs		
Decree on scientific or social services concerning the relations of universities with private institutions	1995	Art. 6 IPR: to be determined in contract
Decree IX on education, art. 103	1998	Art. 169 ter IPR: belongs to university
Joint R&D projects and contract research (financing etc.)		
Decree on scientific or social services concerning the relations of universities with private institutions	1995	Art. 4: contract determines regulation
Spin-offs		
Decree on scientific or social services concerning the relations of universities with private institutions	1995	No majority stake in spin-offs

Table 10: Overview of legal regulations with impact on ISR in Wallonia

Name of the regulation	Year of implementation	Contents/Incentives/Barriers
Intellectual Property rights at universities and public research labs, joint R&D projects		
Decree of 05/07/90	1990	IPR: belongs to the Walloon government
Decree of 17/12/97, title III, art. 14	1997	IPR: belongs to universities
Joint R&D projects and contract research (financing etc.)		

Universities in the Flemish Community

The legal framework of intellectual property rights is currently changing. The decree of 22 February 1995 determined that research results, which can lead to valorisation (including patents, licenses and other IPR) must be divided between the university or research centre and the principal of the contract, and that each individual contract includes the results of negotiations between parties. Article 103 of the decree of 29 August 1998 determines that IPR from research carried out by university researchers belong to university, without leaving out the possibility of negotiating contracts with third parties (and thus dividing IPR between industry and university). Even though the university obtains the IPR on the research, and the university has an exclusive right on the exploitation of the research results, the researcher can claim the rights if university fails to exploit them within three years after filing the research results. This leaves out the possibility for researchers to obtain the rights on their own research results (unless university fails to exploit these results). The same regulations are used for research projects financed by the two Inter-university research centres in Flanders: VIB and IMEC (see also below): not the researchers, but the research organisations get the IPR. For research contracts between research organisations and industry, the division of IPR depends on how much know how was needed in the research organisation previous to the start-up of the joint research project. Contract negotiations will determine whether research centre or company obtains the rights.

The decree of 1995 also determines the criteria that need to be fulfilled before a university can invest in spin-offs. Financial participation is only possible if the research results that lead to the creation of a spin-off, and other intangibles, are valorised. The university can accept shares in exchange for these intangibles, but it can never own the majority of voting rights.

For research financed by the Community, the Community still owns the rights but agrees since a number of years to let the university exploit its research results. Research contracts with the Region of Flanders (only

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for universities located in Flanders), are contractually settled between the industrial partner, the IWT and the university.

Recently, the Flemish Council for Science Policy (Advisory organism) has advised to vote a decree which stipulates that the universities *own* the results of the research performed by them regardless the party that finances the research (*i.e.* industry, government).

Universities in the French Community

Before the decree of 1997, IPR from research at universities, financed by the French Community, belonged to the French Community. The decree of December 1997 determined that universities get the rights on the research carried out. For research that was carried out before 1998, and for which the results are owned by the Walloon government, IPR can be transferred from the government to the research group or university that wants to exploit the results obtained. The Walloon government is authorised to interact with companies that will exploit the research results by taking participations, by giving convertible loans or guarantees. The new decree also determines that the Region takes costs that universities incur for patenting innovations into charge. Next to this, the salary costs of “valuators”, working at university interfaces are paid. These persons are in charge of promoting the valorisation of research results in industry. They are responsible for establishing contacts between researchers and industrial partners, helping write business plans and finding investors willing to finance the commercial exploitation of research results. Concerning IPR, they have an advisory function towards university members.

6. International co-operation and globalisation

6.1. Promoting international co-operation in science, technology and innovation

Participation in international research organisations and programmes (including the federal space research programme)

With a budget of € 162 million in 2000 space research represents a clear, long-standing, priority choice of the Belgian federal government within its science and research policy. As evidenced in Table 1 above, federal authorities devote more than one third (34%) of their total budgetary credits for R&D, to this programme. Belgium has participated in the European Space Agency programmes since its creation in 1975, and the majority of Belgian funds for space research are channelled through this organisation. Belgium is “the largest among the small” contributors to the ESA.

In addition to its space policy, Belgium takes part in other international research activities through its participation in the financing of several large-scale facilities, for a total amount of € 74.5 million in 2000. This gives the opportunity to Belgian researchers not only to access large-scale equipment and databases that can not be provided at a national level, but very often, to benefit from training in renowned international laboratories. Belgian companies also draw benefits from this participation through contracts for high-tech work related to the construction of such equipment. Belgium is a member of, and is represented in the management and expert committees of the following intergovernmental organisations:

- CERN (European Laboratory for Physics and Elementary particles).
- ECMWF (European Centre for Medium-Range Weather Forecasts).
- EMBL (European Laboratory for Molecular Biology), and EMBC (European Molecular Biology Conference).

- ESO (European Southern Observatory).
- ESRF (European Synchrotron Radiation Facility).
- EUMETSAT (the European Organisation for the Exploitation of Meteorological Satellites).

Great importance is also given to the co-ordination and stimulation of Belgian participation in European research programmes such as:

- The European Union Framework Programme for Research and Technological Development.
- EUREKA (together with the Regions).
- The COST programme (together with the Regions and the Communities).

Finally, special incentives are given to increase bilateral co-operation and researcher mobility in the frame of bilateral agreements and through the granting, by the OSTC, of research fellowships to post-doctorate students from Central and Eastern European countries.

Besides the community governments take quite a lot of initiatives through their funding agencies.

For example, the F.N.R.S. (French community) takes part in “*accords de coopération scientifique*”, often in collaboration with the “*Commissariat général aux relations internationales de la Communauté française de Belgique*” (C.G.R.I.), which are implemented with foreign governments and sister institutions. The objective of such agreements is, to reinforce co-operation in the area of fundamental research, within their respective programmes or commonly developed programmes.

In 2001, 65 projects have been supported in the framework of an agreement between the F.N.R.S., the C.G.R.I. and France and 22 projects in the framework of an agreement between the F.N.R.S., the C.G.R.I. and Italy.

Researchers financed by F.N.R.S. are also involved in the activities of several large European research centres (the «Centre Européen pour la Recherche Nucléaire» – CERN in Geneva, the European Synchrotron Radiation Facility – ESRF- in Grenoble, or the European Molecular Biology Association – EMBO in Heidelberg), or in the programmes and activities of the European Science Foundation (ESF), the European Southern Observatory (ESO), the scientific station in Jungfraujoch and Gornergrat, etc.