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Combining Economy, Science and Innovation for a better society

review

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Evaluation ...

... pain or gain?

Flemish government

Contents

colophon at p. 51

Better evaluation for better government

The public trusts that policy-makers – including the politicians – will use the taxpayer's hard-earned money wisely. The policy implementers – including government agencies – are expected to use the available resources both efficiently (without waste) and effectively (achieving positive results). As far as policy planners are concerned – including various government departments – it is assumed (and rightly) that they will develop meaningful proposals and working methods which will contribute to the success of worthwhile initiatives.

A willingness to be constantly accountable for your performance is a sign of good management – and good government. And in times of crisis - when needs are greater and state funding is correspondingly less – it is only right and proper that responsible-minded citizens should look more closely at the way their government functions.

Evaluations are an ideal tool to show that an implemented policy has achieved the desired objectives in the intended manner – or not, as the case may be. Evaluations can be carried out in advance, during the planning and proposal phase (ex ante); or at regular intervals during implementation (intermediary); or after completion of the relevant action, event or measure (ex post). Many different aspects of a project can be measured and the results can then be compared with prior expectations. This allows the identification of points for improvement and may suggest a better method of approach for future plans. In this manner, the policy circle is neatly closed.

Sometimes it is difficult to measure directly the things that we would like to measure. As a result, we sometimes measure other, 'easier' things in their place. Sometimes it is difficult to find a valid point of comparison for our results: we have plenty of figures, but we don't always know how to interpret them. Sometimes important elements are viewed out of their proper context, or are even overlooked completely. No one said that evaluation was easy, and there are plenty of stumbling blocks which need to be avoided before you can finally find the correct methodology. With this aim in mind, the Study Service of the Flemish Government recently published a book entitled 'Over beleidsevaluatie: van theorie naar praktijk en terug' (Policy evaluation: from theory to practice – and back again)[1].

In this edition we will be looking at various types and examples of evaluation practices within the policy field of the EWI. To begin with, the EWI will sketch its own approach to evaluations (p. 11), while the IWT will evaluate its own evaluation tools (p. 16), and the VRWB will explain how it follows the precepts of the Flemish Innovation Pact. (p. 18). The interview with Professor Luke Georghiou of the Manchester Business School (p. 36) also devotes considerable attention to the subject of evaluation. In addition, we will be highlighting the work of another of our policy research centres: this time the Flemish Policy Research Centre for Tourism (p. 44). The fourth strategic research centre, the IBBT, will also be explored in more depth (p. 41), and a number of new legislative measures will be analysed and explained: the small businesses portfolio (p. 5), the Programme for Innovative Media (p. 47) and the revised services of the PMV and the GIMV (p. 6). Finally, EWI is proud to report a noteworthy success: our Knowledge Management Division - this department's entry for the annual innovation awards issued by the Flemish Government - recently won the prestigious SPITS Prize for 2009 (p. 4).

In short, we are once again offering you plenty of food for thought – and evaluation. We hope that you will find it interesting. As always, reactions are welcome on **http://www.ewi-vlaanderen.be/review**.

Peter Spyns,
General Editor

1 Dries Verlet and Carl Devos (ed.), 2008, Over beleidsevaluatie: van theorie naar praktijk en terug, Study Service of the Flemish Government, SVR-Study 2008/2. For more information about this study: Dries.Verlet@dar.vlaanderen.be

"F.l.t.r. Kris Maison, Pascale Dengis, Cynthia de Ghellinck, Namik Akyel en Geert Van Grootel."

A fresh new FRIS

This year saw the second edition of SPITS, the Flemish Government's awards for innovative practices within its own internal administration. The SPITS judges see innovation as being something more than technological modernisation. Imaginative projects which encourage greater cooperation between colleagues or improve services to the public are also eligible for consideration. This year no fewer than 37 entries threw their hat into the ring.

Three winners were chosen, including the EWI Department's own Knowledge Management Division. The jury praised 'FRIS' for its original concept, smart technology and sound organisation: the prefect recipe for good results. The FRIS team received the SPITS trophy and a cheque for 2,500 euros.

The FRIS programme (Flanders Research Information Space[2]) created a simple, transparent and open space for the collection of information relating to research and innovation. All the information was gathered at a single location and displayed in an orderly, easy-to-view manner. A central element in the FRIS concept is the idea that the information should be extracted directly from the core processes of the institutions themselves. This means that the data – about researchers, projects, publications, research units, financial channels – is always complete, up-to-date and accurate.

With this aim in mind, a new research portal was opened in June 2008: www.researchportal.be. At the present time, this site hosts a number of university projects, but it is the intention to gradually open the facility to university colleges and other academic institutions. And a number of other developments are also expected in the near future: a digital library containing published research results, a 'white' guide and information about patents and other relevant literature.

Steven Schelfhout,
Communication Team

Who were the other prize-winners?

The Institute for Nature and Forestry Research (INBO) and the Roads and Traffic Agency were also amongst the prizes.

- Working with a number of other partners, the Institute for Nature and Forestry Research devised the project 'Nature report: scenario thinking', a model for the analysis of future nature scenarios. What will the natural world be like in 2015? What problems will it face? And how can they be solved? A better understanding of these issues can lead to more well-founded policy decisions.
- The Traffic Parameters Unit of the Roads and Traffic Agency improved an existing system, so that 98% of traffic prognoses are now more accurate. This project was developed with minimal resources, thanks to excellent co-operation with a number of external groups and the exemplary efforts of staff in the field.

2 EWI Review 3 (1): 23-25 and EWI Review 2 (2): 11

The SME wallet: good for business!

Would you like some advice about how to improve the performance of your company? Does your firm need an injection of technological know-how? Or do you wish to improve your employees' skills – and your own – through well-targeted training? You do? Then you can look forward to the financial support of the SME (small and medium-sized enterprises) portfolio.

Agentschap Ondernemen

The SME wallet – successor to the BEA (Budget for Economic Advice) scheme – is a support programme which allows smaller businesses and professionals to claim subsidies of up to 15,000 euros each year. Four different types of efficiency-improving measures can be financed through the SME wallet:

- *Training:* every training course which is exclusively or primarily aimed at the improvement of the present or future performance of the company. Concrete examples are language training, IT training, social skills training, technical training, etc. Training which is required by law is no longer ineligible for subsidy.
- *Business advice:* this written advice must contain three different elements: an analysis of the problem, proposed solutions and an implementation plan. Concrete examples are a marketing study, a communication plan, an investment analysis, market research, etc. Advice which is required by law is still ineligible for subsidy.
- *Technological investigation:* study activity designed to introduce the necessary in-house technical knowledge to implement innovations. Concrete examples are the execution of complex calculations and simulations, experimental laboratory tests, research into appropriate technologies, etc.
- *International business advice:* written advice, which involves the identification, mapping and investigation of opportunities and solutions relating to the international world of business. Concrete examples are market studies, direct foreign investments, the setting up of overseas outlets, etc.

In addition to these four main themes, there is an extra possibility:

- *Strategic advice:* a study which assesses the economic and financial feasibility of a project. This advice will usually relate to a turning point within the company.

How do you apply for a subsidy?

All subsidy applications must be made via the website www.kmo-portefeuille.be. Access to this electronic portfolio is possible using the federal token or your electronic identity card. Businesses can submit an application via the website on the basis of an agreement with a recognised service provide[3], and this no later than 14 calendar days after the start of the service provision. The service provider must confirm these services within 30 calendar days of the application being made. Thereafter a mail will be sent to the company in question, requesting transfer of their share in the costs to the electronic portfolio within 30 calendar days of the service provider's confirmation. Once this transfer has been received, the government will deposit its share. This will happen automatically and without delay. The company can then pay the service provider online via the electronic portfolio. What could be easier?

Natalie Van Meervenne,
Enterprise Agency,
Economic Support Division

Tabel 1: Subsidy percentages and ceilings per support activity

	Training	Business advice	Tecnological investigation	International business advice	Strategic advice
Subsidy percentage	50%	50%	75%	50%	50%
Subsidy ceiling	€ 2.500	€ 5.000	€10.000	€5.000	€25.000
Max. per period	€ 15.000				€25.000
Period	1 year				

Interested in the SME wallet?
For more information call the number 0032 2 553 1700 or surf to www.kmo-portefeuille.be.
You can also use this website to submit your electronic application for access to the SME wallet.

3 Are you searching for a recognised service provider? Surf to the website www.kmo-portefeuille.be.

Short of cash?

The availability of financial resources is crucial for the success of a business. But in the current economic circumstances some Flemish companies are finding it difficult to fund their investment projects. Happily, the Flemish Government is able to assist these companies with a variety of different financial tools. In other words, if you are short of cash, just check out the subsidies database[4]: you will find a variety of financial products which can help to tide you over in these difficult times. The following summary details another range of products.

The revised programme of company financing schemes operated by the PMV, the investment company for Flanders, offers an effective response in this crisis period to the most urgent needs of companies. This revised programme encompasses three broad areas of activity.

Risk capital

PMV provides risk capital through four different channels: ARKimedes, CultuurInvest, the Flanders International Fund and the revamped Vinnof, the Flemish Innovation Fund.

ARKimedes[5] doubles the availability of risk capital for young and growing companies. The ARKimedes Fund, with resources of some 110 million euros, offers an extra euro for every euro invested by a recognised private risk capital fund (ARKIV) in a small or medium-sized Flemish business. In view of the success of the ARKimedes project so far and bearing in mind that the initial investment period for the ARKIV's comes to an end in 2010, preparations are already in hand for the launching of a second ARKimedes fund – with a value of 100 million euros - in the first semester of 2010.

The lack of private investment in the cultural sector led to the creation of *CultuurInvest*. As a result, since the end of 2006 Flanders has been able to benefit from an investment fund specifically geared to cultural activities and enterprises. This valuable financial instrument gives culture-based companies access to much needed risk-bearing capital in the shape of preferential loans and capital participations.

The Flemish Investment Fund, known for short as *Vinnof*, was founded at the beginning of 2006, with the aim of providing buffer financing for innovative companies in Flanders during the difficult early years of their business life. Vinnof was able to offer three different financial products: incubation financing[6], sowing capital[7] and project financing. However, these products were subject to a variety of different criteria, financing mechanisms, maximum investment limits, target groups, etc. This often led to confusion amongst applicants.

For this reason, Vinnof will henceforth simply be used as a brand name for sowing capital investments. The restyled Vinnof can provide sowing capital up to a maximum of 1.5 million euros. The target group of 'starters' is being expanded to cover companies which are younger than six years old. The organisation and distribution of incubation financing will henceforth be left to the IWT. Project financing is also being withdrawn from the Vinnof remit and will be transferred to the new PMV financing scheme known as 'PMV Mezzanine' (see below).

The Flanders International Fund (FVI) has been stimulating the international growth of small and medium-sized Flemish companies since the beginning of 2007. The FVI provides risk capital for investment projects abroad initiated by Flemish SMEs.

Credit provision

PMV is also indirectly active in the field of credit provision, via its Guarantee Facility and its Win-Win Loans.

The *Guarantee Facility* seeks to remove the uncertainty which often confronts small and medium-sized businesses whenever they try to obtain credit from a bank. Under this arrangement the Flemish Government agrees to act as guarantor for a part (max. 75%) of the credit required by the SME. As a result of the current financial crisis, the existing arrangements were broadened and made more flexible in November 2008:

- The guarantee budget was increased from 180 million to 240 million euros for 2008, and from 180 million to 300 million in 2009.
- The guarantee amount, for which a simple application procedure suffices, has been increased from 500,000 euros to 700,000 euros per case.
- Extra securities, in addition to the securities already requested by bank, are no longer required.
- Guarantees are now also available for shorter-term credits.

Until now, the Guarantee Facility was aimed exclusively at small and medium-

sized businesses and was limited to a maximum amount of 1.5 million euros. This system has recently been opened to larger companies as well. In addition, Flanders, in view of the current financial crisis, is able to offer ad hoc guarantees for major credit applications in excess of 1.5 million euros.

The *Win-Win Loan* encourages private individuals to lend money to starter companies, in return for significant tax benefits. Whoever agrees to a loan on a 'family, friends and fools' basis[8] will receive an annual tax deduction equivalent to 2.5% of the loan amount. If the creditor is unable to repay the loan at a later date, the investor can still recover 30% of the non-repaid sum from the government in the form of a one-off lump sum tax deduction. Thanks to the Win-Win Loan, it is much easier for young entrepreneurs to raise starting capital in their immediate social environment.

PMV Mezzanine

The provision of mezzanine financing is the third important pillar of support offered by the PMV in its bid to assist business funding. The total available budget for PMV Mezzanine amounts to 92 million euros. The first investments will be made in the near future.

PMV Mezzanine furnishes loans which are 'subordinate' to the existing or future debts of the company. Mezzanine financing is regarded by banks and other credit providers as part of the company's net assets. It contributes towards the strengthening of the company's financial structure and acts as a lever to 'extract' borrowed capital from (private) credit agencies. Subordinated loans offer entrepreneurs the advantage of protecting their share capital from the predations of outside third parties. For investors, subordinated loans offer the benefit of an agreed fixed return and a clear exit perspective.

PMV's mezzanine financing hopes to reach as large a group of entrepreneurs as possible. The PMV will concentrate in particular on medium-large and large companies and on the innovative smaller companies who wish to supplement an existing IWT subsidy for an innovation project or an R&D scheme with a subordinated loan. Smaller businesses can also apply for a subordinated loan from the Federal Participation Fund[9].

Bart De Smet,
PMV, the investment company for Flanders

PMV

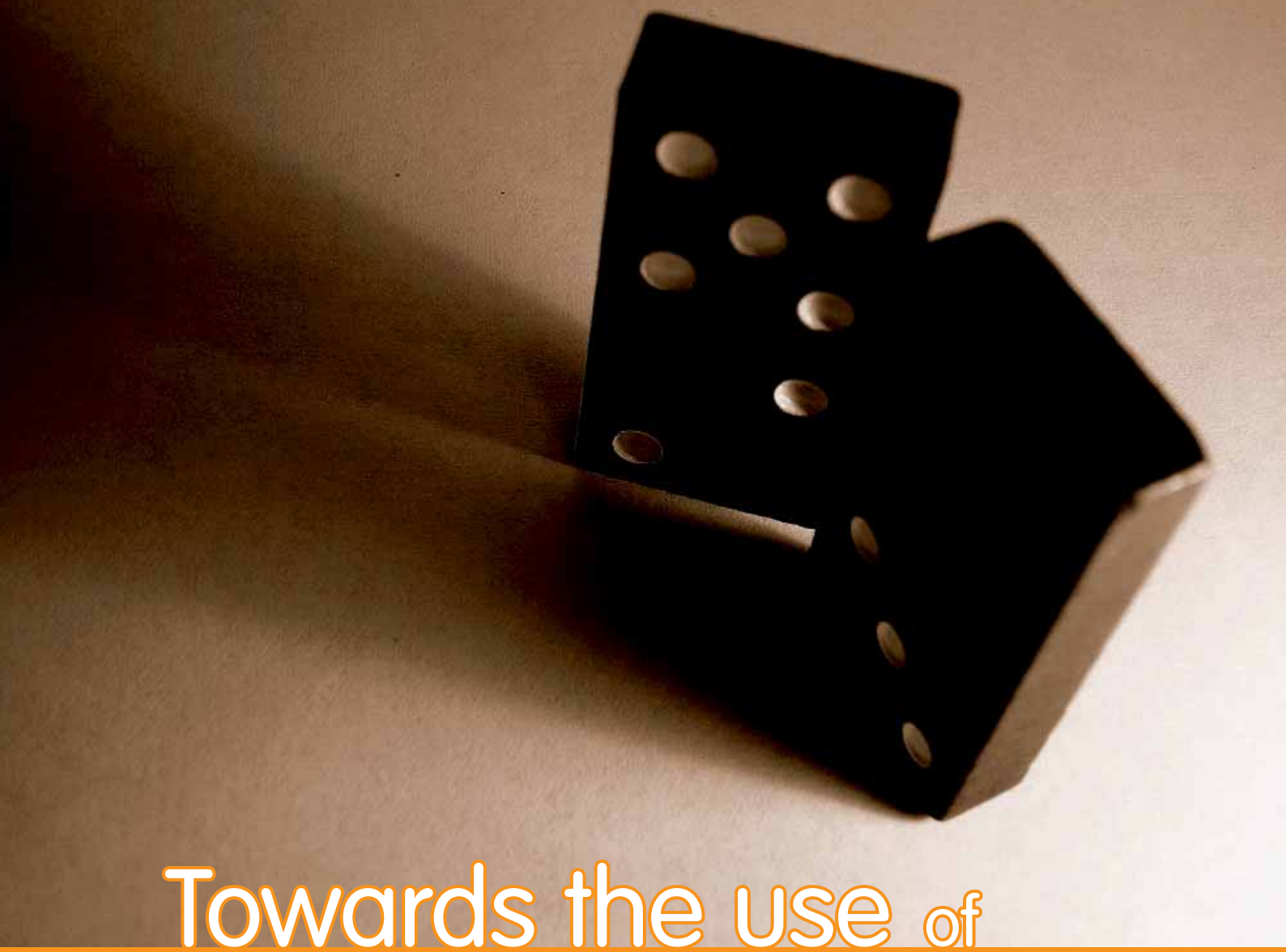
Would you like to know more?
For further information please contact:
Flanders Participation Company,
tel. 0032 3 290 21 00
www.pmv.eu.

New! The XL Fund

In collaboration with the GIMV investment corporation the Flemish Government has set up the so-called XL Fund. Both the founding partners are pumping 250 million euros into the scheme. The fund will make capital available to growing companies with an entrepreneurial value of between 75 and 750 million euros. The scheme is based on a long-term vision and each investment – which can run to a maximum of 100 million euros – is spread over a period of 7 to 10 years.

For further information, contact GIMV, +32-3-290.21.00.

4 www.vlaanderen.be/subsidiedatabank
5 EWI Review 1 (1): 32 – 33
6 Incubation financing allows (pre-)starters to examine the ways in which innovative concepts can be transformed into practical business activities.
7 Sowing capital finances the start and initial growth of an innovative company.
8 These three "F"s are the traditional source of finance for starting entrepreneurs.
9 www.fonds.org



Towards the use of evaluation as the cornerstone of strategic intelligence

All the different divisions within the EWI department carry out at least one evaluation review each year. Evaluation of the different forms of evaluation – the meta-evaluation – has shown that the amount of information relating to evaluation and evaluation techniques has increased dramatically during the past 15 to 20 years. This is not only true of the EWI policy domain, but is equally applicable to government policy in general.

All forms of evaluation are built on the same basic foundations: follow-up and monitoring. Although the definition is by no means unambiguous, evaluation is largely a question of gathering information about a particular programme, project or work instrument. This requires a planned and organised manner of approach. Both the theory and the practice of evaluation are evolving at a rapid pace. In countries with a strong evaluation culture – in other words, in countries where evaluation has been the norm for the past twenty years – there are three clearly identifiable trends.

Three trends in evaluation

First and foremost, it seems that the most important reasons for evaluation are changing. Whereas in the past evaluation was often used as a legitimisation of completed initiatives and a justification for the use of resources, these concepts are now making way for a better understanding of mechanisms and the formulation of recommendations for future policy.

Secondly, it is also evident that the scope of evaluations is widening. In the past, managers and administrators had a very narrow view of the economy and the efficiency of particular initiatives.This, too, has now changed. Today, we are more inclined to assess whether or not a particular policy instrument is appropriate to the policy which it is designed to achieve. Or how performance can be improved, and how this all fits into the broader framework of strategic development.

Finally, the general approach to evaluations has also undergone a sea change. At the end of the last century, the basic starting point for any evaluation was the principle of 'objective neutrality'. A number of independent evaluators would assess results (output) based on clear data and argumentation – but without making any (subjective) recommendations. Modern evaluators are more a kind of coordinator in an evaluation process which involves all possible interested parties. According to the tenets of this approach, evaluators are expected to offer advice, recommendations and independent analyses.

This has all resulted in the more flexible and experimental concept of policy portfolios and to the better definition of good practices for monitoring, evaluation and benchmarking. This means that evaluation and strategy now stand much closer to each other than ever before. Strategic intelligence is therefore a combination of comparative studies, forward-thinking technological experimentation (foresight), technology assessment and other tools[10].

Evaluation is a keyword

Nowadays, evaluations are conducted in respect of the most wide-ranging systems: from simple projects and sets of policy indicators, right up to all-embracing structures, such as a national innovation programme (which in turn forms part of a much larger social system). This complexity requires the continual refinement and adjustment of evaluation methodology.

It was during the 1970s that the first wave of evaluation techniques – both quantitative and qualitative – arrived in Europe from the United States, most of them courtesy of the World Bank and OESO. In the years which followed, many different evaluation cultures gradually developed, both in Europe and throughout the world. However, a common jargon and a generally accepted frame of reference mean that evaluation methodology can still be discussed within the international professional networks.

In Europe the growth of the EU was largely responsible for the creation of an evaluation culture. This culture may differ from country to country and will to a large extent be dependent upon the depth of its tradition in the prevailing administrative structure. Belgium and Flanders are not really in the top flight when it comes to the application of policy evaluations: we are more middle-of-the-table plodders.

Be that as it may, in the future all governments will have to face increasingly complicated evaluation problems with ever-dwindling financial resources. In the years ahead, assessing the results and the impact of implemented policies on our complex social structures is destined to become more and more important – especially if we consider the added pressures brought about by budgetary limitations, policy priorities, institutional change, increased political and economic competition, globalisation, etc. In this sense, it is no coincidence that evaluation is set to play a much greater role within the policy cycle. We can even put it more strongly: monitoring and evaluation are now the key words in modern policy-making.

Pierre Verdoodt,
Strategy and Co-ordination Division

The most common types of evaluation?

- Ex ante evaluation: planning evaluation, which assesses the cost and advantages of different policy options. A good example is the environmental impact report.
- Intermediary evaluation: assesses whether a policy in implementation is achieving its goals.
- Ex post evaluation: sometimes known as intermediary evaluation. Assesses whether a policy in implementation or already completed has achieved its pre-set objectives.

Would you like to know more?

If you would like to know more about policy evaluation, evaluation methods, evaluation in relation to research and development, evaluation in relation to innovation policy, etc., please see:

- Policy evaluation handbook[11] issued by the support unit for policy-relevant research – 'Flemish administration, policy and monitoring, 2007'. Part 1: evaluation design and management; part 2: policy monitoring; part 3: evolution techniques; part 4: practical techniques.
- RTD evaluation toolbox: assessing the socio-economic impact of RTD policies, 2002[12].
- The Paxis manual for innovation policy-makers and practitioners: analysis and transfer of innovation tools, methodologies and policy, by the EU DG Enterprise and Industry[13].

10 EWI Review 2 (1): 14 - 17
11 http://soc.kuleuven.be/sbov/ned/publicaties/detail/sn020520.htm
12 http://www.fteval.at/files/evstudien/epub.pdf
13 ftp://ftp.cordis.europa.eu/pub/paxis/docs/paxis_manual.pdf

The Flanders Evaluation Platform: knowledge & know-how

Policy evaluation: what is it exactly? How do you go about it? Where can you exchange ideas and experiences about governmental policy evaluation? What are indicators[14]? The answer to all these questions is simple: the Flanders Evaluation Platform (VEP).

The Flanders Evaluation Platform was launched to considerable interest in the Flemish Parliament at the beginning of 2007. The initiative was the brainchild of a broad group of organisations[15], and is open to everyone who is connected in any way with (government) policy. The platform aims to be an open network, which focuses on the organisation and improved exchange of ideas, experiences, knowledge and information between the different actors in the field of policy evaluation: the government, the academic world, consultants, midfield organisations, advisory councils, foundations, think tanks, etc. In this way it hopes to play a coordinating role which will overlap the various policy domains and policy levels.

In addition to the general development, strengthening and dissemination of an evaluation culture, the VEP seeks more specifically to enhance the evaluation capacity of the different actors, whilst at the same time focussing on an increase in evaluation quality. It has already made a number of international contacts in the fields of policy evaluation theory and practice, most notably with the European Evaluation Society[16].

What does the VEP do?

The VEP supports the networking process in the fields of policy evaluation theory and practice by organising breakfast sessions, workshops and study days[17]. Although only in its second year, the numbers of participants at these VEP activities is rising steadily. This growing interest is also reflected in the increased number of subscriptions to the electronic newsletter; in which – in addition to the announcement of forthcoming VEP events – details are given of related events organised by other groupings: congresses, seminars, workshops, training and education, etc. The website also now offers a range of evaluation documentation.

Who arranges all this?

The VEP works with a coordinating committee drawn from the worlds of politics, academia and the social midfield. An important aspect of the platform's organisational structure is the fact that membership is free – a deliberate choice intended to guarantee a low threshold and high participation. Fortunately, the Flemish Institute for Policy and Administration (VVBB) supports the field work of the VEP both financially and materially.

Pierre Verdoodt,
Strategy and Co-ordination Division
(and member of the VEP co-ordination committee)

14 See elsewhere in this edition: p. 40

15 The Flemish Institute for Policy and Administration (VVBB), the Government Institute (IO, Leuven University), the Higher Institute for Labour (HIVA, Leuven University), the Institute for Development Policy and Administration (IOB, Antwerp University), the Herman Deleeck Centre for Social Policy (CSB, Antwerp University), the Study Service of the Flemish Government, the National Audit Office, the Flanders Social-Economic Council (SERV), the MIRA team of the Flemish Environmental Agency (VMM) and the Administrative College of the Provincial Council of Flemish Brabant.

16 http://www.europeanevaluation.org/

17 For a summary, see http://www.evaluatieplatform.be

Tried and tested evaluation practice at EWI

Evaluation: an unavoidable part of our existence?

We are confronted with evaluations our whole life long. It even begins before we are born: the evolution of our foetus is carefully monitored and assessed. Mothers-to-be not only visit their GP or their gynaecologist on a regular basis, but are also subjected to a whole battery of tests to check on the development of the foetus: blood and urine tests, ultrasounds, susceptibility to Down syndrome, toxoplasmosis, etc.

And it doesn't stop once the baby is born: the new-born child has scarce emerged from its mother's womb before it is tested for its Apgar score[18]. The purpose? To get an overall impression of the baby's condition, based on a score between 1 and 10. (Less than 10 out of 10 is enough to make any young mother anxious!) This is followed by the heel test, blood analyses, weight monitoring – and all this during the first days of our lives, before we have even left the hospital!

And so the pattern is set. For the rest of our life our physical and mental condition will be subject to regular assessment and re-assessment. Who can forget school exams and school reports? Or the appraisal reviews of our performance at work? We will not even be aware of the very final evaluation – the one made by the doctor during the post mortem examination after our death...

In the beginning, there was... (almost) nothing

Within the framework of the wider reform of the Flemish administrative system – under the slogan 'Better Policy, Better Government' (BBB) – the Flemish Government decided to allocate policy preparation and policy evaluation as core tasks to the various government departments[19]. The purpose was to transform these departments into "centres of excellence in the[se] fields"[20]. The implementation of policy was entrusted to various government agencies (such as IWT, FWO, the Hercules Foundation, etc.[21]).

In the past, evaluations were carried out – in what now equates (at least in part) to the policy domain of the EWI – on an ad hoc basis, usually by the division that was responsible for the project or process being evaluated. However, BBB reaffirmed evaluation as an essential and important part of the policy cycle. At the beginning of 2007, the EWI department opted resolutely for the setting up of its own EWI evaluation unit. Initially, the word 'unit' could almost be taken literally: just a single member of staff was allocated to this new administrative entity[22]. The task of the evaluation unit was clearly stated: the initiation, implementation and follow-up of evaluations relating to institutions; projects, programmes, actions, policy tools, etc. within the policy domain of the EWI, with particular emphasis on high-quality and methodologically sound implementation. The evaluation unit is not involved with the day-to-day activities of the institutions, programmes or processes which need to be evaluated and is therefore not familiar with the detailed content of these activities. As a result, the unit will always have a 'neutral' approach to the subject under review.

By using evaluations in a constructive manner, the department hopes to make its own contribution to the wider process of policy learning. In other words, an evaluation should not be regarded as some kind of internal settling of accounts. It is rather an opportunity to improve and optimise the overall operation and performance of the evaluation subject. If the required tasks and obligations are correctly implemented, the evaluation will usually confirm this. However, there is nearly always room for improvement as well. When the evaluation objectives and the evaluation questions are properly drawn up, areas of relative weakness will always come to light.

Evaluation: a made-to-measure process

Knowledge of evaluation methodology and evaluation methods is not sufficient by itself to conduct a successful evaluation. The specific subject of the evaluation also plays an important role in determining the 'design' of the evaluation process. Some methodologies might be appropriate for this subject, but others may not. For this reason, a certain degree of contextual knowledge about the subject of the evaluation is both necessary and essential. This information can usually be obtained from the organisation/unit which is responsible for the (day-to-day) management of the subject of the evaluation.

When setting the objectives of the evaluation – for example, the evaluation questions and the desired results – this organisation/unit should make this contextual knowledge available to the EWI evaluation unit, so that the correct objectives can be set as accurately as possible. For this reason, it is important that a number of the evaluation processes should be framed in a manner which makes perfectly clear to all involved the role which they are expected to play in bringing the evaluation to a successful conclusion. These processes are elaborated below.

When? Whenever necessary!

Evaluation is not something that just happens. Often it has its origin in a legal document or text, such as a management agreement or a decree of the Flemish Government, which contains a specific provision detailing what must be evaluated and how. But this is not always the case. Sometimes the minister sends a request for an evaluation to the department, or the department may decide to initiate an evaluation on its own initiative. Evaluations falling under this latter category may include, for example, prior ('ex ante') evaluation of a draft policy plan or a strategic plan submitted by an institution as part of the application and approval procedure for a subsidy.

All different kinds of evaluation are conducted: ex-post[23], ex-ante and intermediary. They can be carried out in respect of programmes, institutions, policy instruments, actions, projects, etc. The evaluation unit is only involved in evaluations spanning a number of years. In practical terms, this means that the (annual) control and follow-up of the above-mentioned programmes, institutions, policy instruments, actions, projects, etc. is carried out by the content-wise 'internal' manager, and not by the 'external' evaluation unit.

Planning the approach

The division of tasks between the evaluation unit and the content-wise internal manager of the evaluation object must be clear and precise, so that there is no confusion with regard to what is expected: from whom, when, where and how. To make this possible, at the beginning of 2008 the evaluation unit created a detailed but generic framework for developing a plan of approach for each specific evaluation task. More importantly, applying this framework results in the compilation of a comprehensive evaluation schedule, which covers content, timing and methodology (see box). This is called the plan of approach. (for that specific evaluation). This is a necessary step since the mechanisms which initiate evaluations – whether they be official documents or a ministerial request – seldom define these matters in any great detail.

A plan of approach is developed in collaboration between the evaluation unit and the content manager. The following points must be covered: the reason for the evaluation (this is often a legal text or document), a description of the policy context (of the evaluation object), the objectives of the evaluation, the desired result, scope and boundaries, the evaluation questions, the components and methodology of the evaluation, information and communication (with the evaluation object), the method of implementation, the procedural process, and the use and distribution of the findings.

This has advantages and disadvantages. One of the advantages is that a rough description offers a degree of freedom with regard to the concrete details of the evaluation. A major disadvantage, however, is the fact that it gives the evaluation object very little idea of what is going on. This can lead to uncertainty and even a degree of apprehension about the content, implementation and possible consequences of the evaluation.

For this reason, it is important that the evaluation object should be kept fully informed about both content and process in advance. It is equally important to check that the planned approach is realistic and feasible. Clear arrangements regarding the timing and the contributions of all the various parties are also essential – and these things must all be included in the overall plan of approach. After its completion, this plan is submitted to the responsible political powers. Experience has shown that the insight which the department offers with regard to the evaluation – on the basis of the plan of approach – is much appreciated by those who are being evaluated. Their fear or apprehension about the evaluation is significantly reduced when there is open communication at all levels and when the content of the evaluation is made known and clarified.

Evaluation framework

By itself, a plan of approach is insufficient to carry out a proper evaluation. It is too specific to the subject under review and does not go deep enough into the broader evaluation framework which was formulated by the evaluation unit at the beginning of 2008 and which needs to be applied to every evaluation. These aspects also need to be explained and clarified to the evaluation object. In this respect, independence, confidentiality and the correct handling of the results are the most important basic principles of the evaluation framework.

- Independence

Every evaluation makes use of specific expertise. This will sometimes be available in-house (i.e. within the evaluation unit) but sometimes it will be necessary to turn to external sources. In this case, it may be advisable to appoint an outside consultant (via a tendering procedure) or to make use of a panel of international experts (a kind of peer review). The introduction of specific expertise guarantees in principle the independence of both the evaluator and the (implementation of) the evaluation.

Since the evaluation unit is not familiar with the content of individual cases, projects, programmes, etc., they are also independent from the subject of the evaluation ('one step removed'). In this sense, the evaluation unit can also be relied upon to carry out a 'fair' evaluation. This most frequently happens for cases with a limited budgetary impact. This reflects a more or less general rule that the resources allocated to an evaluation should be proportional to the budget allocated to the evaluation object. The EWI evaluation unit has already carried out a number of such evaluations[24]. In some cases, consultancy bureaus were engaged to question the target group[25], with the intention of checking whether the previously agreed objectives had been reached and/or whether the 'customers' were satisfied with the service offered.

There are different reasons for introducing outside expertise into an evaluation. One of these reasons is objectivity. Although the evaluation unit is independent, the report drawn up by the unit can be contested by the subject of the evaluation. It is also true

that the evaluation unit is a part of the EWI Department and will inevitably from time to time come into contact with the EWI unit responsible content-wise for managing the evaluation object. External expertise is also useful if the relevant knowledge to conduct the evaluation is not otherwise available in the evaluation unit. This applies equally when the scale of the evaluation and/or the limited timeframe in which it must be completed is beyond the capability of the evaluation unit.

In practice, external expertise is most frequently used (as previously mentioned) for matters where the policy or budgetary impact of the evaluation are likely to be (relatively) significant. This was the case in 2007, for example, with the evaluations of the Scientific Research Foundation – Flanders (FWO) and Flanders Technology International vzw (FTI vzw[26]), which (amongst other things) is responsible for the Technopolis 'do-centre'[27].

Independence is an indispensable requirement for any evaluation. As a result, any experts brought in from outside must also be allowed to work independently. In these circumstances, it is the task of the evaluation unit to check that the actual implementation of the evaluation conforms to the previously agreed implementation plan; that the policy context is being properly interpreted; that the previously agreed timing is being respected; and that the quality of the experts' work meets the standards set.

- Confidentiality

An evaluation must also be carried out in an atmosphere of openness and trust. This is achieved through information and consultation meetings with the evaluation object and by the drawing up of a transparent plan of approach. Confidence can only grow if there is certainty that confidential matters will be dealt with carefully and correctly. This is particularly important when external experts are used: it cannot be the intention that classified internal documents or sensitive commercial information is made public. For this reason, it is always necessary for external experts to sign a confidentiality or non-disclosure agreement. This allows the evaluation object to reveal (to the evaluators) with full confidence all information which the evaluators deem necessary and essential for the evaluation process.

Result evaluation

Evaluation reports are the responsibility of the evaluator, who must be able to carry out this task independently. The final report is usually preceded by a draft version. After the quality and content has been checked by the EWI, this draft report is forwarded to the subject of the evaluation, so that material or factual errors can be corrected. It is not the intention at this stage that the subject of the evaluation should comment or otherwise cast doubt on the conclusions and/or recommendations of the evaluator, but simply that he should check whether the information on which these conclusions and recommendations are based has been correctly used and interpreted.

Once the report has been finalised, all the parties involved in the evaluation process are issued with a copy. Such reports are just one of the elements which will be taken into consideration when deciding upon the future (development) of the evaluated object within the (department's) policy domain. Other relevant factors may include available budget, alternative policy options, etc.

As soon as the decision-making process has been completed, the results of the evaluation are published. The EWI-website[28] contains a summary of all recent reports and a short description of the evaluation process. Since the beginning of 2007 more than 15 evaluations have been carried out or supervised by the department's evaluation unit. This has provided a mine of useful information, not only in terms of evaluation reports but also in terms of valuable subsidiary material, such as the surveys of target groups and customers.

Conclusions so far

In addition to the streamlining of a number of processes relating to the initiation, monitoring and follow-up of evaluation projects, the evaluation unit will seek to further improve the transparency and efficiency of its operations. A well-targeted communications strategy – including the publication of results of evaluations on the EWI website – will help to promote this transparency. A prompter allocation of the various evaluation tasks will help to achieve the required efficiency.

A number of different evaluations are planned for 2009. Within the Economy policy domain, these include a review of the Flanders Starters' Day, Customer Day and the Company Open Day, while within the Science and Innovation policy domains the Flemish Marine Institute (VLIZ) and UNU-CRIS[29] will be evaluated. In addition, a study will be carried out aimed at the development of future scenarios for the popularising of science, technology and technological innovation, based in part on an assessment of past policy and actions.

Sabine Borrey,
Strategy and Co-ordination Division

18 Apgar score: a test which gives a basic insight into the condition of the baby based on five vital criteria: *Appearance, Grimace (reflexes), Pulse, Activity, Respiration.*

19 Note on the commentary clarifying the Framework Decree BBB (commentary on article 4, "Departement: task setting for policy support" – p. 29 & 30).

20 Decision of the Flemish Government dated 17/11/2000 - document "Better Policy, Better Government – instruments and mechanisms for the fine-tuning of policy-making and implementation", p. 10.

21 EWI Review 2 (1): 30 – 31 and also elsewhere in this edition: p. 24.

22 At the start of June 2008 a second person was appointed to the unit, so that it now has a total complement of two. The intention is to gradually expand its capacity.

23 Following completion of a project, programme or period of activity.

24 In 2007, for example, the matters evaluated internally were: the science olympics, the scientific associations 'Nature and Science' and 'Youth, Culture and Science' and the tv-programme 'Over Leven' (About Life). This was followed in 2008 by the Dream Project and the National Contact Point (NCP) function of the Flanders Contact Point Framework Programme (VCP).

25 The science olympics, the Dream Project and the NCP function.

26 http://nl.wikipedia.org/wiki/Flanders_Technology_International

27 http://www.technopolis.be/nl/

28 http://www.ewi-vlaanderen.be/beleidsevaluatie

29 United Nations University-Research and Training Programme on Comparative Regional Studies – EWI Review 2 (1): 20 and http://www.cris.unu.edu/

Policy learning:

the transfer of good knowledge transfer practices

On 11 December 2008, the Stockholm Region held its traditional Nobel lunch in Brussels[30]. This year the event coincided with the final conference of the KP6 OMC[31] net project 'Regions for Research'[32](R4R), where the keynote speech was given by the Flemish Minister of Economics, Science and Innovation. Policymakers, researchers and representatives of the private sector exchanged good practices of regional policy making with regard to technology and knowledge transfer. During the panel discussions the R4R implementation methodology – as it had been applied during the project – was further examined and explained. The contribution of inter-regional knowledge transfer to the development of a European research area was also discussed, with the feasibility of the Triple Helix cooperation[33] as a recurring theme.

The main aim of the R4R project was to develop a solid and reliable methodology for the transfer of 'best practices' between regions, whilst at the same time creating a sustainable platform for policymakers, which would allow them to follow up plans and policy recommendations related to this transfer process. Commitment, vision and pragmatism are regarded as the basic elements necessary to achieve better planning and stronger alliances between the regions.

Eight partners took part in the R4R consortium and each presented their own best practices. The regions involved were: Catalonia (Spain), North Brabant (The Netherlands), Flanders (Belgium), Mazovia (Poland), Slovenia (Slovenia), Stockholm (Sweden), Sofia City (Bulgaria) and Venice (Italy). The project consisted of seven different work packages, dedicated to project management, methodology, knowledge dissemination and training. Each partner was responsible for a work package. The Stockholm Region coordinated the project. On the basis of a theoretical background, Flanders – and, more particularly, the EWI – developed a methodology for data collection. The partners and the other regions that acted as observers collected 28 examples of good practices. Within the framework of the project, Flanders put forward the Holst Centre[34] as an example of a successful transfer of the IMEC model; Leuven R&D as a pioneer in technology transfer; the FLAMAC centre of excellence in materials research; the IWT's TETRA Fund; and STEVIN[35], a Dutch-Flemish research and stimulation programme in the field of Dutch language and speech technology, coordinated by the Dutch Language Union.

The R4R project devoted attention to a number of different regional initiatives: knowledge centres, technology parks, Triple Helix cooperation, innovation support services, educational initiatives and innovative tools. The Venice Region assessed the good working practices using quantitative measuring indicators, by clustering the practices within a usable typology.

The best practices and conditions for success put forward by the regions were grouped into three categories:
(1) organisational entities, sub-divided into research, open innovation and industry;
(2) the fostering of network linkages;
(3) the stimulation of private sector participation.

This typology served as a basis for the analysis of the success factors within their own regional context and in the different institutional environment of the adopting region. North Brabant investigated the best practice interests of all the participating regions. After these interests were matched, North Brabant brought all the complementary partners together at a workshop held in 's Hertogenbosch, where a start was made on the development of a practical approach to the concept of knowledge transferability. Six trans-regional teams[36] devised a series of transfer plans. A region proposed its best practice to the other interested partner regions. Working in consensus, the partners subsequently analysed its success and feasibility in their own region, as well as the necessary conditions for achieving a successful mutual cooperation and transfer of knowledge.

Interested local parties were also involved in the development of the transfer scenarios to discuss hurdles, opportunities and frame conditions. Site visits, meetings on the spot and trans-regional workshops led to deeper insights into best practices and provided inspiration for new initiatives and policy strategies. We would encourage all Flemish research and innovation actors to take part in such projects, since they enable us to proactively align our economic support and innovation tools on a European level. In this way we can contribute, along with other regions, to the development of the European research area.

Hilde Vermeulen,
Enterprise and Innovation Division

regions for research

VOKA[37] was one of the stakeholders in the team that studied 22@Barcelona, the ambitious conversion of a derelict industrial zone into a high-quality city model in a modern knowledge economy. The Flemish members of the team exchanged experiences with regard to possible cooperation models which would allow urban development around a number of innovative clusters to be optimally attuned to the requirements for economic growth. In the meantime, concrete steps have been taken to realise the plan to make Antwerp an attraction pole for multinationals by offering advantageous office-space conditions through the creation of Antwerp Headquarters vzw, a private- public partnership including several VOKA members and the City of Antwerp.

30 A Nobel lunch is a lunch (in imitation of the official lunch attended by the Nobel Prize winners, and usually organised on the same day as the 'real' Nobel Lunch) where deserving persons (scientists) are sometimes honoured and/or eminent speakers give lectures. As might be expected, the concept is particularly popular in Sweden.

31 FP6 (zesde kaderprogramma = 6th Framework Programme) OMC (Open Methods of Coordination) net projects are targetted at regional policy administrations engaged in (bottom-up) policy co-ordination activities, which are compatible with the (top-down) CREST OMC net projects. These latter projects represent a platform where EU members states can share their policy experiences. Countries can also use a CREST OMC net to develop a national policy which can help them to formulate initiatives which can be further coordinated at communal level in areas of common interest.

32 www.regions4research.com

33 The Triple Helix model is a collaborative model for open innovation (EWI Review 2 (2): 46 – 49) between three different types of actors: research actors, public sector actors and private sector actors.

34 EWI Review 2 (3): 26 – 27

35 EWI Review 2 (3): 30 – 32

36 The best practices which were investigated were 22@Barcelona, Leuven R&D, Veneto Nanotech, Slovenian cluster policy, Incubator 3+ and Kista Science City.

37 http://www.voka.be

The IWT to measure is to know

During recent years, transparency has become an increasing necessity for political governments and their administrations, both with regard to the manner in which they manage and use public resources, and the extent to which these investments create a socio-economic added value. The Institute for the Promotion of Innovation by Science and Technology in Flanders – happily known for short as the IWT – spends over 280 million euros each year on support for research and innovation projects in Flanders. Is this money being spent wisely? To answer this all-important question, the IWT is obliged to measure the results and effects of its various support programmes. To ensure continued levels of professionalism, follow-up and improved performance in both its services and its products, the IWT set up its own Monitoring and Analysis Unit.

The IWT has already conducted various studies into the effectiveness of government support to individual company projects designed to promote innovation, research and development. The results of the most recent study suggest that IWT subsidies are particularly important for the more adventurous, high-risk projects: the projects which choose to enter into collaboration with knowledge institutions.

Instituut voor de Aanmoediging van Innovatie door Wetenschap en Technologie in Vlaanderen

Concrete measuring of effects

In addition, during the period between 2006 and 2008 five programmes for collective research[38] and knowledge dissemination were subjected for the first time to a detailed analysis. The programmes in question were: the programme for basic strategic research; the TETRA Fund; and the sub-programmes for collective research, the thematic stimulation of innovation and the provision of technological services within the Flanders Innovation collaborative venture. The common factor shared by all five programmes was their collective nature.

During a first cycle of investment, some 360 million euro of support was made available for these different programmes. The completion of this first cycle was the ideal moment for the IWT to subject the various facets of the programmes to closer examination. To do this, the IWT opted to conduct an effect analysis, with an emphasis on the accurate measurement of the results and effects of the programmes' component elements.

Working in phases

Following a public tendering process, the implementation of the study exercise was entrusted to an independent research bureau. In a separate but related exercise, the measuring of the effects of the TETRA Fund was carried out by the associations of universities and university colleges, working in collaboration with the Flanders Chamber of Engineers (VIK).

In view of the fact that at this stage the IWT had very little experience of effect analysis, the implementing research bureaus were not obliged to use a particular type of methodology. Nevertheless, at the beginning of the exercise the IWT did formulate a very clear set of questions. And although each research bureau placed a slightly different emphasis, in practice their general approach displayed a number of marked similarities.

After a discussion of the research questions and the methodological framework, the effect assessment was started with a detailed portfolio analysis based on the administrative details already held by the IWT. At the beginning of the actual measuring process, a steering group was set up, consisting of all the relevant players and representatives of the IWT. The task of the steering group was to act as a sounding board during the measuring exercise and also to supervise its effective implementation. This first phase was also the subject of detailed discussions between the project manager and the appropriate IWT programme coordinator.

In a second phase, discussions were also held with various players who had been directly involved with the programmes (IWT advisers, project workers, external companies). To check the reliability of this information against a larger sample of those who had been connected with the programmes, a specific questionnaire was compiled for project workers and external companies who had been associated with the project at the request of the users group[39]. The focus of these questionnaires was concentrated on project content, project progress and the quantifying of the results and/or effects of individual projects. This last aspect was of great importance for most programmes, in view of the fact that in most cases project results and effects were not adequately or systematically recorded during project implementation. After the first conclusions based on the questionnaires and the interviews had been submitted to the steering group, the researchers wrote a detailed final report of their findings and recommendations.

And was the money well spent?

The results of the various effect measurements show that the different collective programmes for research and knowledge dissemination have a clear added value for the business community in Flanders. However, it is important to ensure that the expectations of the project workers do not differ too widely from the expectations of the business leaders. Company managers are constantly asking that the focus of projects should be placed more firmly on the acquisition of knowledge, whereas the knowledge institutions are inclined to question an over-emphasis on valorisation potential. Moreover, for some programmes and projects the measuring exercise came too early to be of full use, so that the conclusions were limited to an analysis of the project's progress and its direct results.

What have we learned?

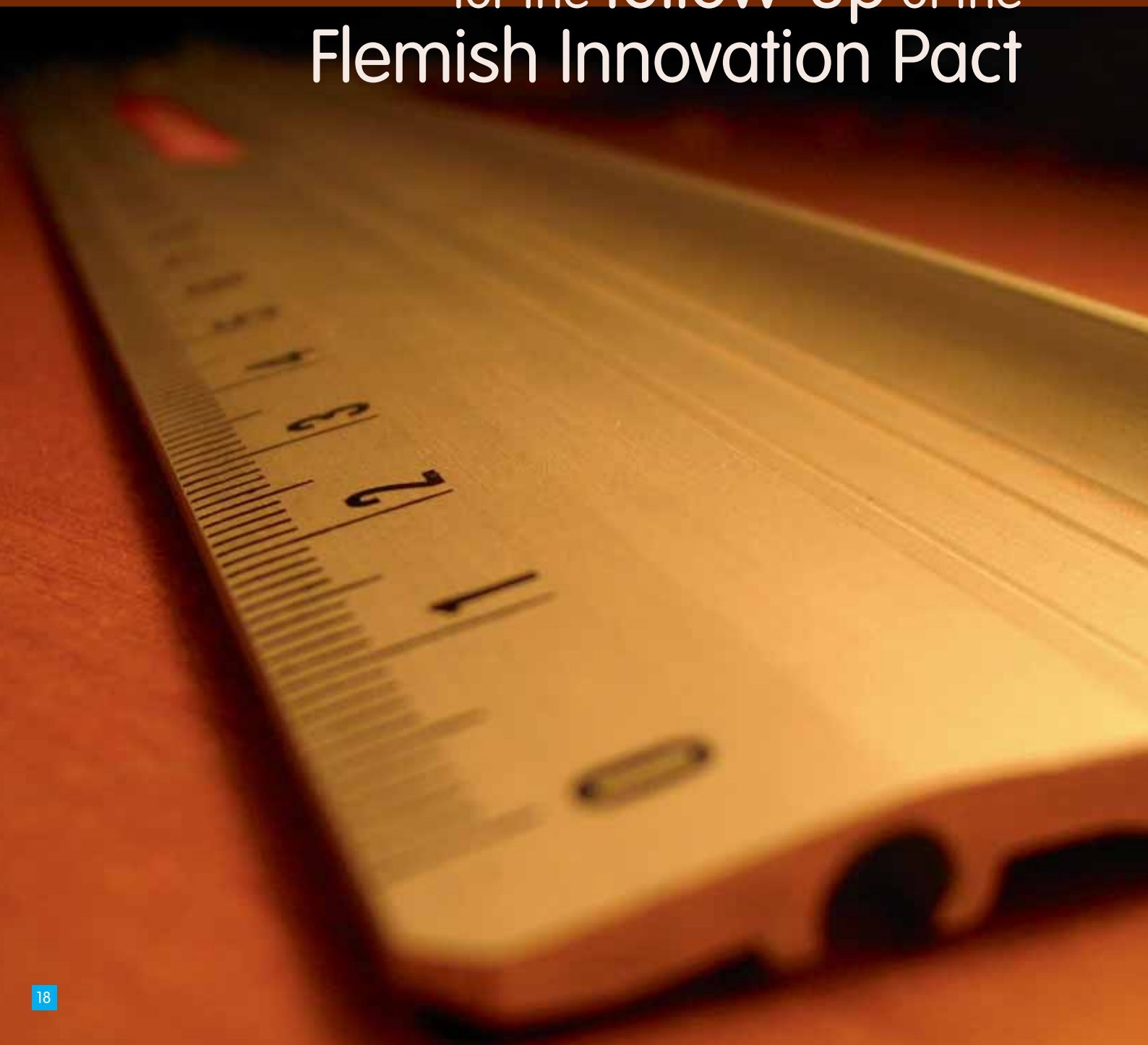
What actually happens with the results and recommendations? These are used by the IWT to adjust some of the procedures for its programmes in the fields of collective research and knowledge dissemination. The IWT can also draw a number of conclusions about its own role. The most important of these conclusions is that a more structured follow-up of project results and effects during the course of the project's implementation allows a simpler and more standardised assessment of the overall effects of these collective programmes. This is something that the IWT will be working on to improve in the near future.

Jeroen Fiers,
Institute for the Promotion of Innovation by Science and Technology in Flanders (IWT)

38 Collective research alludes to the development or dissemination of knowledge by knowledge centres to the benefit of a larger group of interested Flemish companies.

39 Representatives of interested companies or social profit organisations can become members of a group which acts as a sounding board for the researchers in matters relating to the possible industrial or social application of project results.

Getting the measure of things: VRWB – core indicators for the follow-up of the Flemish Innovation Pact



The Flemish Innovation Pact – concluded in 2003 between the government, the business community and the knowledge institutions – stipulates that by 2010 Flanders will invest 3% of its gross domestic product in research and development[40]. 1% of this amount must be provided by the government, with the remaining 2% coming from the business community. In order to monitor the progress of the Innovation Pact, the then Minister for Science Policy sought advice from the Flemish Science Policy Council (VRWB). In order to measure the efforts being made and to monitor the evolution of science and innovation in Flanders, the Council was asked to devise "a series of reference tools for quantitative evaluation".

How did the VRWB go about this task? The Council searched for indicators[41] which represented the main characteristics of the Flemish innovation system and which could be used to map out and monitor the strengths and weaknesses of innovation policy in Flanders.

The achieving of the 3% norm is obviously important, if we are serious about our intention to give shape to the knowledge economy. However, we must not overlook the fact that this 3% is a pure input norm, which simply determines the level of resources which we (must) invest in research and development. This norm says nothing about the results and benefits which we expect this investment to yield. So the task was not simply to find a way to monitor the 3% target, but also to devise a method which would allow the quantitative assessment of efforts being made in other areas, such as human capital, knowledge creation, knowledge diffusion, commercialisation, etc.

The VRWB indicators were grouped in relation to the different phases/aspects of the innovation pathway:
(1) input indicators (resources and people);
(2) indicators which measure activities (transfer/application of knowledge, risk capital);
(3) output/performance indicators (publications and patents, new products, etc.);
(4) indicators which examine effects and impact (employment, evolution GDP, export, etc.)

The extensive list of 60 or so indicators which resulted from this original exercise was eventually whittled down to a set of 11 priority core indicators which could be used with immediate effect in Flanders. These core indicators were first applied by the VRWB to the progress of the Innovation Pact in 2005, with the intention that they should thereafter be repeated biannually. The indicators will therefore be checked for a third time in 2009.

The use of these indicators means that Flanders has a measuring tool at its disposal which can provide a detailed picture of the region's innovation profile in comparison with other countries/regions. They allow a regular assessment to be made of the current state of health of the Flemish scientific and innovation landscape. However, as the VRWB has itself pointed out, this tool is not an absolute given. It is a dynamic process which can, if necessary, be adjusted or supplemented to reflect changes in the field.

Table 2: The 11 VRWB core indicators, according to type[42]

Input	
I	GERD: Gross Expenditure on R&D (% of GDP)
II	GBOARD: Government Budget Outlays or Appropriations on R&D(% of GDP)
III	Total R&D personnel (% of working population)
IV	New S&T graduates (‰ age group 20-29 years)
Activities/processes	
V	Total number of innovating companies (% of the number of companies in the industry and service sector)
VI	Investment of risk capital in high-tech sectors (% of GDP)
Output/performance	
VII	Number of applications for EPO patents with Flemish inventors / million inhabitants
VIII	New products (% of the total turnover for industrial and service companies)
Effects/impact	
IX	Level of employment (% total working population) - in medium high-tech and high-tech industry; - in high-tech services
X	Growth in gross domestic product by region (GDRP)
XI	Export share of the high-tech sector in Flanders

The tools of Flemish innovation policy must have as their purpose to increase the social and economic return of the government's investment in research and development. The knowledge which is created as a result of this investment must be transformed into wealth-creating innovations. The totality of these tools must be employed to create a maximum lever effect or to fill up possible gaps in the Flemish knowledge economy. In the past, the emphasis was placed on the input of resources and the development of the innovation instrumentarium. In the period which is now beginning – at least according to the VRWB outcome must now stand alongside the further input of major resources as a key factor. In short, we need to check the social and economic return on investment.

In other words, it is now necessary to devote more attention to the measuring of effects and to assess precisely what our (financial) investments have achieved. This means that there is a need for the correct selection and the constant follow-up of well-founded outcome indicators. "More resources, wisely, effectively and selectively used": that is one of the central messages in the VRWB memorandum 2009-2014 to the next Flemish government[43].

Kristien Vercoutere,
Flemish Science Policy Council

40 EWI Review 1 (1): 14 – 17 and EWI Review 2 (1): 32 – 37

41 Also see elsewhere in this edition: p. 40

42 There is also a twelfth indicator: the so-called beta-index – see EWI Review 3 (1): 35

43 http://www.vrwb.be/home/index.cfm?menu_id=240&content_id=50

Public research in Flanders: a core (re)actor with international allure

Human potential – both its presence and its quality – is an important element in knowledge development within our present-day global knowledge economy, in which innovation and economic growth stand central. After their basic education and training, many people start careers with companies or public research organisations, and so become active in the field of research and development (R&D)[44]. The private sector companies are a crucial component in the research landscape – a component which is regularly subjected to detailed analysis. The efforts of the public sector research organisations are less frequently investigated in such detail.

Every two years the Flemish Government's Department of Economy, Science and Innovation, working in collaboration with the Belgian Federal Science Policy Office[45], carries out a check on the R&D activities of the Flemish non-profit organisations in the public sector. This article will highlight a number of interesting statistics arising from this investigation of Flanders' non-profit research efforts[46]. The statistical data and a full analysis can be found in the Flemish Indicators Book for Science, Technology and Innovation (WTI) 2009[47].

Who takes part?

The non-profit sector in Flanders can be divided into three sub-sectors. The most important of these is higher education[48], a term which covers the universities, the independent university research centres (for example, the ITM[49]) and all university colleges. The other two sub-sectors are the public research centres located in the Flemish Region and the public and privately-run non-profit organisations in the Flemish Region.

The most prominent examples of public research centres are the four large research institutes – VIB[50], VITO[51], IMEC[52] and IBBT[53] – and the four scientific institutes[54] located in the Flemish Region. Federal research facilities located in the Flemish Region – such as the Royal Museum of Africa or the Nuclear Energy Research Centre – are also included under the public research centres for the purposes of the EWI assessment. Examples of Flemish public and privately-run non-profit organisations (PNP)[55] are the KMDA[56] or the VLIZ[57]. In short, the non-profit sector includes research institutions which have research as their core task, but also institutions which have very little to do with fundamental R&D activities.

Who spends whose money?

R&D expenditure for the non-profit sector (Figure 1) is the combined total of the expenditure for the three sub-sectors: GOVERD[58], HERD[59] and PNP[60]. If the regional approach is adopted[61], R&D expenditure for the non-profit sector rose during the period 2002 - 2007 by more than 339 million euros, to a total of 1,197 million euros (Table 4, Figure 1). Higher education and the public research centres were the greatest beneficiaries. In 2007 the four large research institutes spent a combined total of 107 million euros more than in 2002. The sharp rise in the availability of foreign research resources (contributed by private companies) for these four institutes is particularly noticeable. The lion's share of this foreign funding found its way to IMEC, in the form of contract research for non-domestic companies.

About 58% of the R&D budget in 2007 was spent on personnel costs. 32% of the budget was spent on equipment and working costs, while the remaining 10% was devoted to major investments. In other words, staff are the largest item of expenditure. Fiscal measures designed to stimulate the financing of research personnel could help to give the research centres some added breathing space.

The largest source of funding for R&D activities in the non-profit sector continues to be the government at different national levels (federal, regional, decentralised). Governments of various sorts were still good for 52% of the total budget in 2007. They were followed by foreign companies (23.5%) and domestic companies (13.4%). Notwithstanding these figures, it is clear that government financing is becoming relatively less important in the non-profit sector. The increasing share of foreign investment between 2002 and 2007 – mainly for the public research centres – shows that research activities are becoming more and more trans-national. The proportion of funding originating from the business community confirms that there is a strong interaction between the government and both foreign and domestic companies in an international knowledge economy. International collaboration is therefore not only important for knowledge dissemination but also for knowledge acquisition, in the form of research finance.

Applied scientists come from Mars, medical-social scientists are from Venus

In 2007 the non-profit sector employed some 13,900 full-time R&D units (Figure 2, VTE), which were spread between 23,500 different persons (head count). The number of R&D personnel in the sector has grown by almost a quarter during the past five years (Table 3). To give some idea of what this means in real terms, the non-profit R&D personnel employed in 2007 represent 38.7% of all R&D person-

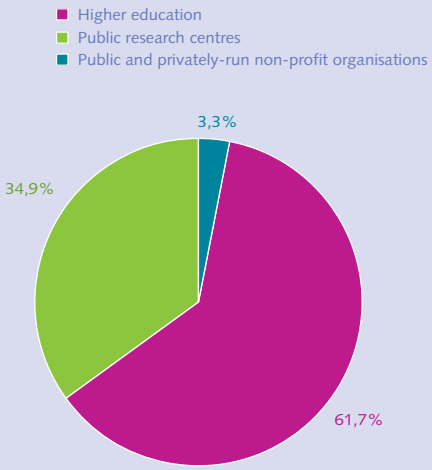


Figure 1: Distribution of R&D expenditure in the non-profit sector for 2007

Figure 2: Distribution of R&D personnel in the non-profit sector for 2007

Table 3: Evolution in the employment of R&D personnel in the non-profit sector between 1993 and 2007 (in FTE)

R&D personnel Flanders - non-profit	1993	1996	1999	2002	2005	2007	% growth 2002-2007
Public research centres (regional)	1.152,8	1.466,7	1.894,8	2.351,3	2.471,2	2.661,1	13,2%
Public and privately-run non-profit organisations (regional)	294,6	340,2	347,4	366,4	368,5	360,4	-1,7%
Higher education (regional)	5.975,3	5.603,0	7.458,5	8.279,6	9.987,3	10.894,6	31,6%
Total non-profit with higher education (regional)	7.422,6	7.409,8	9.700,7	10.997,3	12.827,0	13.916,0	26,5%
Total non-profit with higher education (community)	8.579,6	8.348,5	10.922,1	12.134,4	14.177,7	15.343,4	26,4%

Source: CFS/STAT – Belgian Science Policy Office and own calculations. FTE = full-time employees

nel in Flanders[62]. The male-female ratio in 2007 was approximately 56/44: a status-quo in comparison with 2005, following a period when the number of female R&D staff increased significantly each year. The best male-female ratios were achieved in higher education, but the number of women in the highest academic positions remains relatively small[63].

An analysis of gender and areas of scientific activity also confirms the 'traditional' patterns. Men in higher education tend to be more involved in the applied, natural and exact sciences, whereas women are more likely to be engaged in medical and social sciences. In the public research centres the men also tend to concentrate on the exact sciences, but here the women are better represented in the natural and exact sciences. Similar variations are found in respect of fields of activity. The largest areas of research in higher education in 2007 were the medical sciences, the natural sciences and the exact sciences. In contrast, the efforts of the public research centres were heavily focused on the applied sciences. This predominance of the applied sciences in the public research centres is marked. Three-quarters of all R&D spending is devoted to this field of study. In higher education, the medical sciences are the most important area of research, utilising about a third of the available budget.

R&D intensity

The European leaders have agreed to increase R&D intensity[64] to a level of 3% for every member state by the year 2010[40]. The progress towards this objective is monitored each year[65]. There is a further intention that the private sector should finance two-thirds of this budget, with the public sector contributing the remaining one-third. In 2007 R&D intensity in the non-profit sector stood at 0.63% according to the region-based approach or 0.66% according to the community-based approach[66]. Research in higher education (HERD) was responsible for the lion's share, with 0.39%, followed by the GOVERD institutions (0.22%) and the PNP centres (0.02%).

For the sake of completeness: the level of R&D intensity in the BERD[67] sub-sector amounted to 1.40% in 2007[68], so that the total R&D intensity for Flanders as a whole at the end of that year stood at 2.03%. The global R&D intensity for the non-profit sector can be divided between 0.17% of private funding and 0.46% of public funding. In other words, more than a quarter of all public research is now financed by the business community. This represents a significant increase in recent years.

However, we must be careful not to overstate the importance of current R&D intensity as a policy indicator. Between 2005 and 2007 expenditure on research did indeed increase by 112 million euros in absolute terms – a not inconsiderable amount. However, if we compare this increase to the increase in gross domestic product per region during the same period, and if we take into account the effects of the growing economy and rising inflation, it soon becomes apparent that this 112 million is barely sufficient to maintain the existing level of R&D intensity, let alone further increase it.

Scandinavia – an example to follow

The international comparison of public research centres (GOVERD) and higher education (HERD)[69] for the year 2007 reveals mixed results from a Flemish perspective. As far as R&D expenditure (expressed in PPP $)[70] in both sectors is concerned, Flanders – not withstanding its major financial effort – is failing to close the gap with the Scandinavian countries. On the brighter side, Flanders scores better when compared with the other reference countries (neighbouring countries and the EU-27 average)[71].

R&D intensity in the HERD institutions in Flanders (community-based approach) is higher than the EU-27 average and is approaching the level of neighbouring countries. However, the R&D intensity in Scandinavia is still much higher. With regard to the R&D intensity in the GOVERD sector, the Flemish figure (0.22%) is higher than Denmark and Sweden, but lower than the EU-27 average. Norway, Finland and our neighbouring countries again score significantly higher. Of course, every land has its own specific research landscape with specific characteristics and specific points of emphasis. For this reason, an analysis based solely on differences in the statistics needs to be approached with caution. Even so, Flanders is part of the general trend which has seen most countries fail to increase R&D intensity in both HERD and GOVERD.

Flanders scores much better in the international comparison for the financing of GOVERD and HERD institutions from private-sector sources. For HERD Flanders has the highest score of all: 15.3%. Only Germany has a comparable figure and most countries are lagging far behind, as is the EU-27 average (6.5%). The Flemish business community also scores well in the GOVERD sector, with its 11.2% contribution being significantly higher than the EU-27 average of 8.5%. This confirms that there is large-scale interaction in Flanders between the public sector and the world of business in the field of research activity – at least as far as funding is concerned. The statistics comparing the number of

Table 4: Evolution of R&D expenditure in the non-profit sector between 1993 and 2007 (x 1,000 EUR)

R&D expenditure Flanders – non-profit	1993	1996	1999	2002	2005	2007	% growth 2002-2007
GOVERD	95.691	146.113	220.056	280.883	379.713	417.890	48,8%
PNP	29.084	31.671	32.722	36.266	38.125	40.038	10,4%
HERD (regional)	311.321	367.428	460.294	540.688	667.078	739.171	36,7%
Total non-profit with HERD (regional)	436.096	545.212	713.072	857.837	1.084.915	1.197.099	39,5%
Total non-profit with HERD (community)	487.190	589.299	768.999	925.888	1.155.778	1.254.092	35,4%

Source: CFS/STAT - Belgian Science Policy Office and own calculations

female researchers (head count) in the HERD institutions also give Flanders a satisfactory report. At 38.3% this figure is still lower than for Finland, Sweden and Norway, but is higher than in other neighbouring countries. The GOVERD score for Flanders (30.1%) is also better than in neighbouring countries, but the difference is less clear-cut. Even so, it remains the case that the Flemish results still do not compare with the figures for the Scandinavian lands, who continue to give the lead, certainly in gender-related matters.

Room for improvement – across the board

Viewed in general terms, at international level Flanders is holding its own in comparison with its neighbouring countries and scores better in most areas than the EU-27 average. Nevertheless, this should not blind us to the fact that the evaluation statistics for public research throughout Europe show clearly that the Scandinavian lands still have a good lead for many of the assessed indicators. In international terms, this means that Flanders is not really in the European first division, but it can certainly be regarded as one of the leaders in the second division. Flanders in Action (VIA) and the recently proposed Pact 2020[72] must bring about a change in this situation: the aim must be to see Flanders become one of the top five European regions in research-related matters.

Peter Viaene,
Knowledge Management Division

44 Definition of R&D: research and experimental development is the creative work that systematically takes place to increase the supply of knowledge, including human, cultural and social knowledge, as well as the use of this supply of knowledge to develop new applications (OECD, 2002, Frascati Manual p.30).

45 The Federal Programming Service for Scientific Policy – also see EWI Review 3 (1): 8 – 10.

46 For the detailed figures, see: Flemish Indicators Book WTI 2009 – Chapter 5.

47 *Vlaams Indicatorenboek Wetenschap, Technology en Innovatie (WTI)*, published by the Centre of Expertise for R&D Monitoring [only in Dutch].

48 If viewed from a community perspective, the institutions of the Brussels Capital City Region should also be included, while this is not the case if matters are viewed from a regional perspective.

49 Institute for Tropical Medicine – EWI Review 3 (2): 13 – 15.

50 Flemish Institute for Bio-technology – EWI Review1 (1): 25 – 27.

51 Flemish Institute for Technological Research – EWI Review 2 (2): 23 – 25.

52 Inter-university Micro-electronica Centre – EWI Review 1 (1): 20 – 23.

53 Also see elsewhere in this edition: p.41.

54 Founded by a 1961 Royal Decree regulating the administration of scientific institutions. These institutions include, for example, the Institute for Agricultural and Fisheries Research (ILVO) and the Royal Museum of Fine Arts - Antwerp (KMSKA). The Institute for Nature and Forestry Research (INBO) and the Flemish Heritage Institute (VIOE) also fall under the provisions of this decree. These are both located in the Brussels Capital City Region and are therefore included in the Brussels figures, even though they are Flemish institutions.

55 International institutes (such as the Von Karman Institute, the JRC Institute for Reference Materials and Measurement (Geel)) are regarded as PNP's.

56 The Royal Zoological Society - better known as the Zoo – also see EWI Review 2 (1): 40 – 43.

57 Flemish Marine Institute.

58 GOVERD: Government Expenditure on R&D.

59 HERD: Higher Education Expenditure on R&D.

60 PNP: Non-Profit Expenditure on R&D.

61 See EWI Review 1 (1): 15 for the difference between a community-based and a regionally-based approach.

62 Expressed in full units for the private and public sectors combined.

63 he percentage of women listed as Independent Academic Personnel (IAP) is only about 20%.

64 R&D expenditure expressed as a percentage of GDP per region.

65 Also see elsewhere in this edition: p. 18.

66 The details for the institutions of higher education in the Brussels Capital City Region are also included.

67 BERD: Business Expenditure on R&D (companies).

68 Source: 3% note issued by the Centre of Expertise for R&D Monitoring.

69 This international comparison is carried out using Main Science Indicators (MSTI volume 2008/1).

70 PPP: Purchasing Power Parities (expressed in US $) – in economics, this is an alternative way of comparing the relative purchasing power of different countries.

71 The international comparison for Flanders is made with other countries and not with other regions, since all the relevant variables are not calculated for every region.

72 http://www.vlaandereninactie.be/nlapps/docs/default.asp?fid=179

Hercules finances

If you want to carry out high-quality research, then you need to have a state-of-the-art research infrastructure. In 2007 the Flemish Government created a structural funding channel to support investment in precisely this type of research facility: Hercules. Within the policy domain of the Department of Economy, Science and Innovation – in addition to the FWO Flanders (fundamental scientific research) and the IWT (strategic basic research and technological innovation) – this led to the setting up of the Hercules Foundation[73]. On 15 October 2008 the foundation's board of directors approved a first list of investment proposals.

At the present time, the Hercules Foundation has a budget of 15 million euros at its disposal, of which 10 million is allocated to medium-large infrastructure projects, the remaining 5 million euros being devoted to large-scale projects. The dividing line between 'medium-heavy' and 'heavy' is based on the level of investment required: namely, more or less than 1.5 million euros. Within the medium-large category, a further sub-division is made between Hercules-1 projects, with an investment cost between 150,000 and 600,000 euros (with a 100% subsidy) and Hercules-2 projects, with an investment cost of between 600,000 and 1,500,000 euros (for which subsidies of between 70% and 100% are available).

No half measures

The resources for medium-large research infrastructure are divided between the five university associations[74], who are responsible for organising the call and selecting projects. Part of the procedure also involves inter-association consultation with regard to possible collaborative ventures. These tasks have been delegated to the associations by the board of directors of the Hercules Foundation. However, the call and selection of proposals for large-scale infrastructure projects (Hercules-3) is carried out by the Hercules Foundation itself. In this latter respect, the target group of the universities and the colleges of higher education has been broadened by the inclusion of the strategic research centres - VIB[50], VITO[51], IMEC[52], en IBBT[75] - and by the institutions for post-initial education. The resources for 2007 and 2008 have been grouped together for both selection processes, so that 20 million euros is available for distribution between the associations for medium-large projects, with

research infrastructure

foundation of public utility

HERCULES STICHTING

a further 10 million allocated for large-scale projects. In other words: a serious investment.

Assessed and approved

Table 5 and Table 6 compare the results – both in terms of the number of proposals submitted and the amount of subsidy requested – of the first selection procedure for medium-heavy projects, and this in relation to the resources allocated. The first important conclusion to be drawn from these figures is the relatively high number of applications, set against the relatively low rate of success: just 23.41% of the projects were selected. This reflects an acute need for still greater financial resources for the funding of large-scale research infrastructure in Flemish higher education.

The selection procedure for large-scale infrastructure resulted in the submission of 10 proposals, with requests for subsidies of a combined total of 29.3 million euros. After an assessment of the basic proposals by an international panel of academic and scientific experts (Hercules Science Committee) and a similar analysis of the investment plans (Hercules Investment Committee), four of the proposals were approved for a total subsidy amount of 11.3 million euros.

Table 5: Number of requested and approved proposals (Hercules selection: medium-large 2008)

	requested H1	approved H1	requested H2	approved H2	total requested	total approved
AKUL	65	20	6	0	71	20
AUGE	33	8	8	4	41	12
AUHA	14	4	5	4	19	8
AUHL[76]	3	2	0	0	3	2
UABR	12	1	3	3	15	4
	127	**35**	**22**	**11**	**149**	**43** (of which 3 inter-association)

Table 6: Requested and approved subsidy (Hercules selection: medium-large 2008)

	requested H1	approved H1	requested H2	approved H2	total requested	total approved	success rate
AKUL	29.136,52	8.418,34	5.888,67	0,00	35.025,19	8.418,34	24.04%
AUGE	15.361,21	3.177,00	9.750,55	3.013,94	25.111,76	6.190,94	24,65%
AUHA	11.348,58	1117,07	2.222,93	1241,93	13.571,51	2.359,00	17,38%
AUHL	1.014,17	446,00	0,00	0,00	1.014,17	446,00	43,98%
UABR	5.821,47	535,00	3.249,34	1.665,00	9.070,81	2.200,00	24,25%
	62.681,95	**13.693,41**	**21.111,49**	**5.952,88**	**83.793,44**	**19.614,29**	**23,41%**

United we stand

One of the most important strategic objectives of the Hercules initiative is to strengthen collaboration between the different actors in the Flemish science and innovation system. With this aim in mind, the Hercules-2 and Hercules-3 subsidies are subject to the application of a sliding scale. The basic subsidy percentage of 70% is increased to 90% if the project is submitted by a research group containing members of more than one research institution, and can even be increased to 100% if at least a third of the investment cost is borne by a third party[77]. In addition, collaboration between universities, university colleges (both at inter-association and intra-association level), research institutions and the private sector was also used as a key selection criterion when assessing the various applications. This criterion weighed more heavily for some associations than others; for example, 10 of the 12 applications submitted by the Ghent University Association were collaborative ventures.

Table 7 and Table 8 show the various forms of collaboration, their percentage of the total number of applications and the number of projects approved per association. (The percentage totals exceed 100%, since various combinations are possible.) Of the 149 submitted requests for subsidy in the medium-large category, there were just 11 in which institutions from more than one association participated. Of these, three were selected as inter-association proposals (two between AKUL and AUHA, and one between AUGE and UABR).

Not just for heavy work

The definition of 'research infrastructure' was deliberately kept as broad as possible. The term was intended to cover not only 'classic' scientific infrastructure, but also collections, natural habitats, corpora, databanks (including digitalisation). This meant that in addition to the exact, applied and bio-medical sciences, it was also possible for groups working in the human and social sciences to apply for subsidies as well. Table 9 shows the distribution of projects per field of scientific expertise for the Ghent University Association (based on the results of the evaluation committee where the proposals were assessed) and for the Catholic University of Leuven Association (based on the group to which the promoter/spokesperson of the proposal belonged).

The list of approved proposals therefore contains research infrastructure of all different kinds, ranging from mass spectrometers, microscopes and cell sorters to the development or sale of databanks for historical, sociological, legal or economic research. The Ghent University even built an interactive, audio-visual research laboratory for use by theatre-makers, filmmakers, animators and media designers.

Selection procedure 2009

Hercules financing is structural financing: this means that the selection process will be repeated on a regular basis. The second selection procedure for medium-large infrastructure was launched by the associations in February 2009. The actual assessment and choice of projects for onward submission is currently being made. The second selection procedure for large-scale infrastructure will be initiated by the Hercules Foundation in the late spring of this year. All relevant information, conditions and application documents can be found on the Foundation's website[78].

Jeroen Vanden Berghe,
Research Policy Assistant,
Ghent University

Table 7: Level of collaboration (applications – Hercules selection: medium-large 2008)

Applications	AKUL	AUGE	AUHA	AUHL	UABR	total
without partner	58%	32%	37%	67%	47%	46%
with partners from within the association	14%	56%	21%	33%	20%	30%
with partners from another association	11%	12%	26%	0%	20%	12%
with third parties	24%	15%	26%	0%	20%	19%
Total number of applications	71	41	19	3	15	149

Table 8: Level of collaboration (applications – Hercules selection: medium-large 2008)

Applications	AKUL	AUGE	AUHA	AUHL	UABR	total
without partner	55%	17%	50%	50%	25%	44%
with partners from within the association	10%	75%	0%	50%	25%	30%
with partners from another association	10%	8%	25%	0%	25%	14%
with third parties	25%	8%	38%	0%	25%	23%
Total number of applications	20	12	8	2	4	43

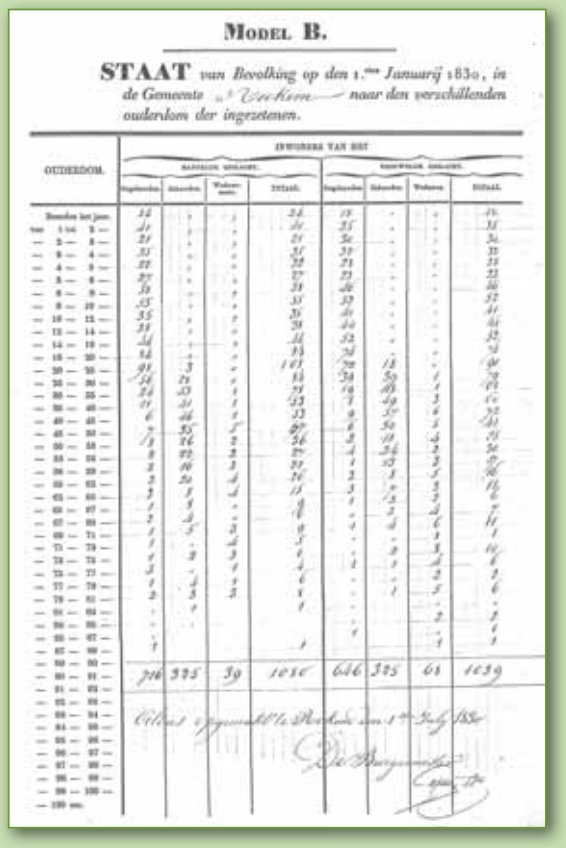
Table 9: Distribution of proposals over different scientific disciplines (Hercules: medium-large 2008)

applications / approvals	human and social sciences	exact and applied sciences	bio-medical sciences	arts	total
AUGE	4 / 2	22 / 7	14 / 2	1 / 1	41 / 12
AKUL	11 / 3	30 / 8	30 / 9	0 / 0	71 / 20

HISSTAT: the development of a central information bank for statistics from the 19th and 20th centuries, available at municipal and supra-communal levels

HISSTAT is an inter-disciplinary and inter-university consortium of research groups from the historical, social, political, geographical and demographic sciences at Ghent University (promoter, History Department), the Free University of Brussels (V.U.B.), the Catholic University of Leuven (U.C.L.) and the Central State Archive. HISSTAT aims to create a central information bank for Belgian historical statistics at local level from 1795 to the present day. This exceptional collection of Belgian historical data is a treasure trove of socially relevant information (Image 1). Current difficulties in accessing this material mean that it is little used. This project will ensure that our endangered statistical heritage is made more accessible and preserved for the future. In addition, the information bank will be integrated in a user-friendly information system and linked to a unique historical-geographical map programme.

Professor Eric Vanhaute,
History Department, Ghent University



MODEL B.

STAAT van Bevolking op den 1.ste Januarij 1830, in de Gemeente ... naar den verschillenden ouderdom der ingezetenen.

Image 1: the census of 1830

Quantum physics meets medicine: construction of an MRI hyper-polarisation generator for molecular image forming of the lungs

Magnetic resonance imaging (MRI) is a versatile, non-invasive medical image-making technique, which does not make use of ionised rays and has therefore become irreplaceable as a means of diagnosing a wide range of pathological conditions. The present challenge for MR research teams is to enhance image sensitivity, so that smaller concentrations of molecules can be detected. Researchers at Ghent University and Ghent University College joined forces to construct a machine which is capable of transforming the atomic core of xenon into a magnetic state, so that it can be detected with MRI. This technology will also allow the imaging of xenon gas, which in turn opens new perspectives for molecular image forming and diagnostic analysis for many kinds of lung condition.

Professor Yves De Deene,
Quantitative MRI in Medicine and Biology, Ghent University

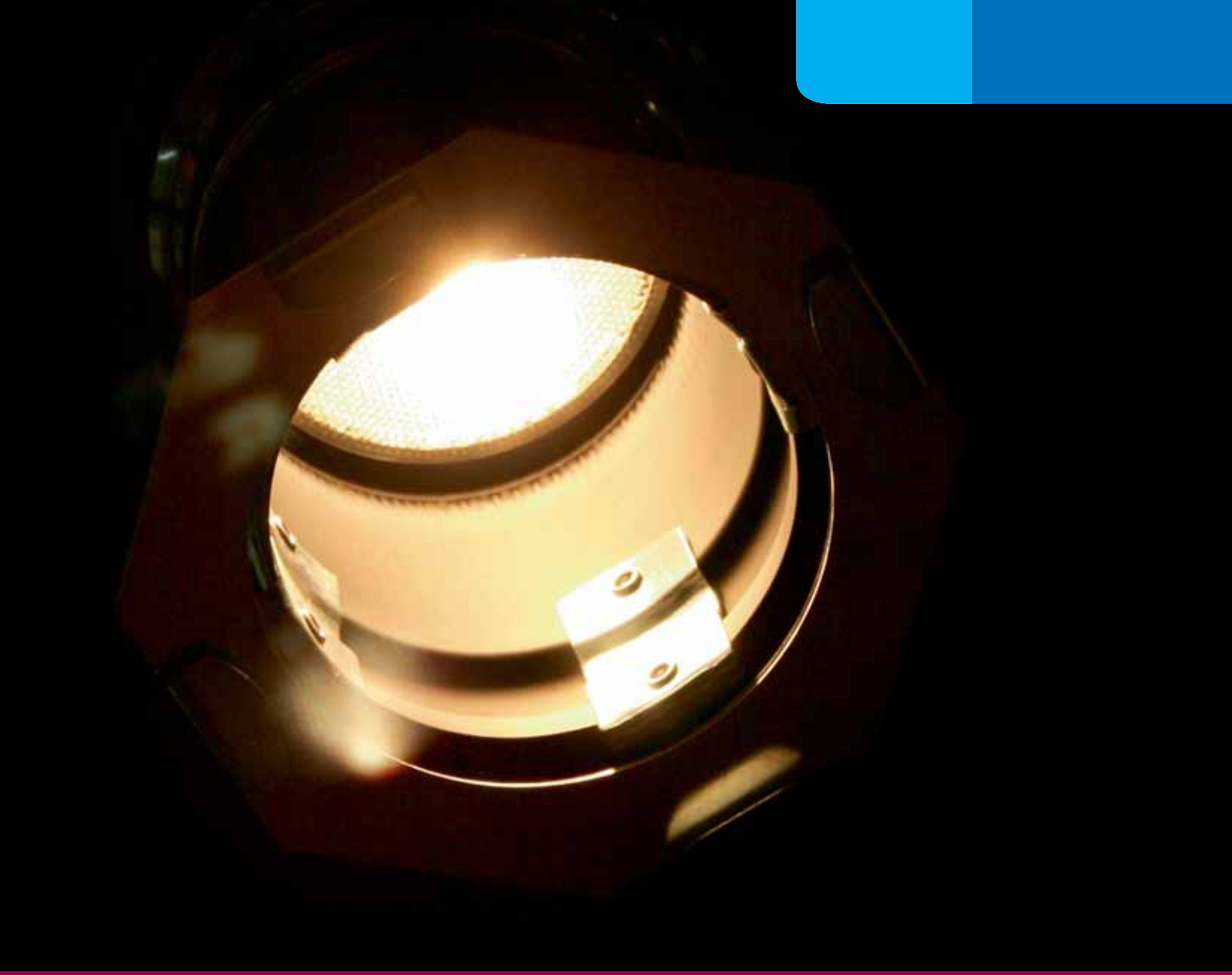
73 EWI Review 2 (1): 30 – 31.

74 AKUL: Association Catholic University of Leuven; AUGE: Association University of Ghent; AUHA: Association University and University Colleges Antwerp; AUHL: Association University and University Colleges Limburg; UABR: University Association Brussels.

75 Also see elsewhere in this edition: p. 41.

77 In this instance, third parties are institutions which are not eligible for subsidy themselves, but who may nonetheless be allowed to use the new infrastructure facilities in return for a significant financial contribution.

78 http://www.herculesstichting.be



Spotlight on the additionality of **innovation support!**

In discussions about the efficiency of government policy to promote research, development and innovation, use is frequently made of the terms 'additionality' and 'complimentarity'. Whereas complimentarity is generally understood to refer to the mutually supportive and strengthening nature of series of different incentive measures, there is more confusion about the precise meaning of additionality. In theory, it should provide the answer to the following question: "What added value do government support measures give to companies who are looking to innovate?" In this sense, additionality is also a crucial concept for the Institute for the Promotion of Innovation through Science and Technology (IWT).

In recent years the discussions surrounding the concept of additionality have witnessed a number of developments. As a result, there are now three variants of additionality currently in circulation: input additionality, output additionality and behavioural additionality.

Input: does support lead to extra investment?

During the early phases of the additionality debate, attention was mainly devoted to the question of the input additionality of R&D subsidies: an attempt was made to assess whether or not the granting of direct government subsidies for innovation had a positive effect on the research and innovation investments of the business community. Empirical investigations have been carried out to see if every euro of government support is matched by at least one euro of company funding in R&D. If the companies hardly increase their own research and development efforts, then the conclusion must be that public money simply takes the place of private money. This leads to a displacement effect, otherwise known as 'crowding out'.

The results of the many scientific studies into input additionality are neither conclusive nor convincing: some support the 'crowding out' hypothesis, whereas others reveal a genuine degree of additionality. Moreover, the value of the entire debate surrounding input additionality has been called into question: in view of the general assumption that there is a direct link between R&D input and R&D output (i.e., the development of practical applications), the input studies take no account of the crucial R&D success levels achieved by the companies.

Output: does support lead to innovative results?

As an answer to this criticism, some researchers have preferred to concentrate on the concept of output additionality to assess the true added value of direct innovation support. For output additionality the key research question is: "does a company create extra R&D output, which would not have been achieved without government investment." This extra R&D output can either be direct (patents, publications, new products, etc.) or indirect (growth in turnover, through the introduction of new products). In practice, however, it is extremely difficult to 'prove' a one-to-one relationship between R&D input and innovative output, in part because of knowledge spillovers[79] between companies, and in part because of the non-linear nature[80] of most innovation projects: a new product will usually be a result of the total research portfolio of the company in question.

Behaviour: does support lead to a different innovation approach?

In recent years, behavioural additionality has assumed an increasingly important role in the debate. Politicians and academics both believe that innovation subsidies can have a beneficial effect on the innovation processes, strategy and behaviour of the companies. This change in behaviour is stimulated by the contacts which automatically arise between the different actors within the framework of the supported project. For example, innovation subsidies may allow a company to better organise its internal innovation processes, or carry out different types of research, or collaborate more closely with external third parties. In order to quantify behavioural additionality, it is necessary to devise very specific questionnaires. This is in contrast to the input and output studies, which often rely on existing administrative details and research data.

The IWT: a trump card for Flemish innovation

Each year the IWT awards more than 100 million euros in subsidies to R&D innovation projects in Flanders. In accordance with European regulations, these subsidies can only be granted to projects which offer clear additionality benefits. For this reason, the IWT has recently begun to analyse project applications with a view to assessing the added value of its innovation support. Amongst other enquiries, applicants are now asked whether the award of an IWT subsidy will lead to a broadening of the project scope or whether the project will now become more far-reaching and/or ambitious than it would have been without the subsidy. This is a more systematic process than in the past, when specific additionality studies were carried out to demonstrate the effectiveness and added value of government support for companies.

One of these early studies, which concentrated exclusively on input additionality, confirmed that direct R&D support from the IWT did indeed have a stimulating effect on private sector R& D investment: the R&D budgets of supported companies increased to a significant degree.

Another more extensive study into behavioural additionality resulting from IWT subsidies tended to support this same positive conclusion. Enquires were made at 300 companies which had received IWT grants and at 100 companies which had received nothing. The study confirmed conclusively that individual subsidies do lead to behavioural changes in the companies which receive them. These companies – particularly the small and medium-sized ones – will engage in significantly higher levels of networking and collaboration. The study also revealed that these companies will find it easier to gain access to external centres of excellence. Moreover, the presence of added learning and absorption capacity within the companies also helps to stimulate behavioural additionality. In short, IWT subsidies really do make a difference.

Jeroen Fiers,
Institute for the Promotion of Innovation by Science and Technology (IWT)

For further information, please consult http://www.iwt.be/diensten/obs/publicaties

- IWT study 54: The impact of public funding in Flanders
- IWT study 56: A look into the Black Box. What difference do IWT R&D grants make for their clients?

79 Knowledge spillover is the unintended 'leaking' of company secrets or internal knowledge to outside parties.

80 Innovation projects are subject to considerable interactivity, external influences and cross-disciplinary combinations of knowledge and technology. This means that they are more 'unpredictable' than other more linear projects in the same field of endeavour.

Formulas for success?

Allocation formulas are useful tools for distributing research resources in a balanced manner. Under this method, the share of each subsidised partner in the total available subsidy is fixed on the basis of a pre-agreed set of parameters. The use of such formulas is becoming increasingly important in the world of research financing and now influences research policy at all levels.

A whole series of different resources are now allocated in this way: consider, for example, the resources of the Special Research Funds (BOF), the operational funding of the universities from the central education budget, the Hercules Funding, a number of the financial channels which are added to the BOF from the wider research budget, the Industrial Research Funds (IOF), the Odysseus resources, etc.

This trend of distributing resources on the basis of objective parameters runs parallel with the growing tendency for reporting and accountability, which has become fashionable – almost obsessively so - throughout the public sector in recent years. The use of public resources must now be linked to a system of reports and results – a system which is both measurable and open to objectification. Much the same thing now applies to the resources which are allocated to the research world. For example, in operational agreements with strategic research centres subsidies are often made dependent upon indicators of this kind.

Competition

The formula-allocated resources of the BOF and the IOF are part of the so-called secondary funding stream – i.e. research resources which are allocated on the basis of competition. Those who do well are rewarded and get a bigger share of the cake; those who fail to come up to the mark will see their slice of the pie diminish. In this sense, formulas serve to stimulate the search for quality: the better you do, the more you get. In this way, they also lead to an alternative form of 'evaluation'. In this respect, however, it is important to bear in mind the following comments.

As far as competition between different institutions is concerned, unless the 'pot' of available resources increases proportionally, there will not necessarily be a direct link between better quality and higher subsidies. You can improve your performance and still get less, simply because your competitors for the available funding have improved even more. Much the same is true when the share of each partner is increased by equal amounts: none of the partners is 'rewarded' with an increase of their percentage in the allocation formula. This can obviously have a negative effect on the motivation of an organisation to constantly achieve better results. However, for individual universities there is no alternative – because of the competitive element.

Moreover, it must also be asked to what extent research excellence is capable of being measured by quantitative indicators. Quantities do not tell us everything about quality. Input parameters such as 'the share of the annual operating budget' or 'the number of research personnel' tend to favour the largest and richest universities, rather than the best ones.

At a lower level, there is also competition between individual research groups – and even between individual researchers. This is a smaller-scale struggle for BOF and IOF resources, often fought out between colleagues at the same university (intra-university competition). In theory, this means that some of the better scientists might miss out on the funding they need, simply because they work for an institution which receives a smaller share of the available resources.

More disadvantages ...

Indicators also have a tendency to have an undue influence on the behaviour of the research institutions. The BOF and IOF parameters may be a factor in internal university policy-making. Rewarding research facilities simply for the number of publications and citations they clock up may lead to an over-concentration on research projects which can quickly be 'brought to press'. As a result, other crucial questions – the answers to which may only become apparent in the fullness of time – may be ignored. This can only lead to the impoverishment of the research community as a whole. Using 'the number of doctoral theses' as an indicator simply encourages universities to adopt a 'conveyor-belt' approach to the publication of doctoral

works. Surely this cannot be the intention – but it does highlight the problems which the research institutions face.

Moreover, we must also remember that the cost of the preparatory work associated with allocation formulas is uncomfortably high. In recent years, the regulations relating to BOF financing have become much more complex. Nobody would dispute the need for nuance and fine-tuning, but in the case of the BOF this has led to an almost impenetrable forest of rules, calculations, algorithms, etc. It is a typical example (to continue the analogy) of where you can no longer see the wood because of the trees. It would be unwise to allow this trend to continue indefinitely; otherwise an additional degree in cryptography will be needed to understand the rules. Transparency is supposed to be one of the main reasons for working with allocation formulas – but at the moment this transparency is not being achieved. Coordination and simplification of the BOF decree is an urgent necessity.

For all these reasons, it is important that sufficient resources are distributed on the basis of inter-university competition, in addition to the resources which are allocated on a fixed-formula basis. In this respect, we are thinking particularly of the resources of the Research Foundation Flanders (FWO) and the Institute for the Promotion of Innovation through Science and Technology (IWT). Individual researchers are able to submit their individual projects to these two bodies, where they are judged in competition with the projects of other academics and scientists from across Flanders.

But also some advantages …

All this being said, this does not mean that allocation formulas have no advantages to offer. The opening sentence of this article – *"Allocation formulas are useful tools for distributing research resources in a balanced manner"* – is perfectly true. The use of formulas and quantitative indicators does provide a workable solution for the fair and equitable distribution of subsidies.

The complexity of the BOF formula is the result of a hard and long negotiated compromise between the different interested parties: each university has its own strengths and weaknesses, and it is normal that they all wish to see their individual strong points reflected in the allocation process (see box).

Finally: because the allocations to the various institutions remain relatively stable, the supply of research funding also remains relatively stable. This helps to create a welcome level of certainty in the research world and allows the universities to plan their research policy for the long-term with a reasonable degree of confidence.

Balance and transparency

This article is certainly not a plea for the scrapping of allocation formulas: they indisputably play an important role in helping to ensure a constant stream of financing for research purposes – and for this we must all be grateful. Nevertheless, alongside the use of indicators and formulas there must be a place – both now and in the future – for the allocation of resources on the basis of inter-university competition, where the excellence of the researchers and the institutions will be the key selection criteria. Further efforts must be made towards greater transparency, particularly with regard to the BOF decree. It is also important not to lose sight of the differences between both types of financing and to ensure that a fair balance continues to be struck between them!

Karen Haegemans,
Research Division

Everything you ever wanted to know about parameters

The Special Research Funds (BOF) are internal university funds intended for basic research purposes. In 2008 the BOF had resources of 126,211 million euros available for allocation. The BOF allocation formula takes account of five key indicators (2008 weightings):

- proportion of bachelor and initial masters diplomas (25%);
- proportion (weighted) of doctorates (35%);
- proportion in the annual operational remittance/number of scientific personnel (transfer, 7.1%);
- a mobility and diversity parameter (1.4%);
- proportion of publications and citations (31.5%).

The Industrial Research Funds (IOF) are internal funds under the administration of the universities or the associations intended for strategic basic research and applied research. In 2008 the IOF had resources of 16,754 million euros available for allocation. A maximum of a further 11,799 million euros could be added through the so-called academic training resources of the associations. The IOF allocation formula takes account of seven key indicators (2008 weightings):

- proportion (weighted) of doctorates (25%);
- proportion of publications and citations (25%);
- proportion of income from the IWT (10%);
- proportion of income from the European Framework Programme (10%);
- proportion of university patents (10%);
- proportion of established spin-offs (10%);
- proportion of scientific personnel (10).%

Types: both input parameters (e.g. number of scientific personnel) and output parameters (e.g. the number of publications, citations and patents) are applied. The latter type is clearly more meaningful as an indicator for rewarding performance, without taking specific outcome indicators[81] into account. The allocation formulas take account of a broad spectrum of factors: for example, the mobility and diversity parameter operated by the BOF measures the level of dynamism within the personnel policy of the university in question. Whoever has appointed most women and most external staff during the reference period will reap the greatest reward – at least as far as this parameter is concerned.

Basis of calculation: until recently, only publications and citations which were recorded on the Web of Science were included in the calculation. This worked to the advantage of certain sciences – particularly the natural sciences, the life sciences and the basic disciplines of engineering science. This particular discrepancy has now been rectified by a new BOF decree, so that the human sciences and the social sciences – which had previously been disadvantaged – are now also taken into account.

Weighting: some parameters are given a heavier weighting – in other words, they count for more – than others. For example, in 2008 the IOF funding system regarded a single patent as being equivalent to 120 publications, while a single spin-off in turn equated to 10.13 patents. However, if income from publications and citations arising from BOF funding is taken into account, the situation changes completely. In these circumstances, 5.88 publications will now yield the same benefits as a patent.
This weighting reflects not only the importance attached to the different results, but also to the effort required to achieve these results. In general, the effort required to write an article for publication can scarcely be compared with the effort needed to set up a spin-off. Moreover, a publication and a spin-off represent two different types of science: the former relates to basic research, while the latter is an example of applied research. This being said, the universities can also make different weighting decisions of their own. For example, one university might well find it easier and/or more beneficial than another to set up a spin-off, rather than to devote its efforts to an additional publication. It must also be remembered that for the smaller universities every publication, patent or spin-off has much greater budgetary implications than for their larger colleagues.

Stijn Eeckhaut,
Research Division

81 Also see elsewhere in this edition: p. 46.

The university hit-parade

Under the impact of ever-greater democratisation and ever-greater globalisation, in recent times there has been an increasing tendency to compare universities on an international basis, according to certain rankings. To date, the Belgian universities have not figured prominently in the higher regions of these rankings. But is measuring the quality of a university an easily quantifiable task?

The rankings in question classify universities on the basis of a number of different performance criteria, relating to scientific and academic research. To this extent, research activities (at least according to the compilers of such rankings) are regarded as a reflection of a nation's intellectual capacity. This, in turn, is seen as being crucial for that nation's international competitiveness in the marketplace.

A well-known example of this type of ranking is the so-called Shanghai ranking[82]. This ranking is drawn up on the basis (amongst other things) of the number of Nobel prize-winners which the university has produced, together with the number of prestigious publications and citations. These indicators are seen as a yardstick for scientific excellence. But is it really as simple as that? Concepts such as 'research quality' and 'scientific excellence' are capable of many different interpretations. And herein lays the potential weakness of the ranking system.

Rankings and their shortcomings

A first possible objection against the Shanghai ranking is that the Nobel Prize is often awarded to researchers whose work is recognised in retrospect as having great importance and/or great inspirational value for others. In other words, the Nobel Prize often honours glorious past achievements, rather than reflecting the current situation in the world of scientific research. Moreover, the Nobel Prize in only awarded in a limited number of disciplines. This means that universities which specialise in human and social sciences are unlikely ever to score well in the Shanghai ranking. By extension, this also means that a university which can boast a Nobel prize-winner (or even two) will not necessarily have the same research strength-in-depth as many other universities. No university can ever be a trendsetter in every discipline. That being said, it is noticeable how universities such as Harvard, MIT, Cambridge and Oxford continue to occupy top positions in the Shanghai ranking year after year. Clearly, success breeds success, and a good reputation continually enhances itself.

American ascendancy

American universities are heavily overrepresented in the top 100 of the Shanghai ranking. Europe hardly gets a look-in: only Oxford and Cambridge are listed in the top 10 and the Belgian universities are nowhere to be seen. How can we explain this disparity?

American universities are able to set strict entrance criteria for the selection of their students, which leads to a better quality intake. Moreover, American universities are less dependent on state funding than their European counterparts: they have considerable amounts of private capital at their disposal, which allows them to invest more heavily in research. In addition, working practices are also much more flexible in the USA, so that it is that much easier to cream the world market in order to put together (and pay) a dream team of the very finest research minds. Nor should the role of language be underestimated: the most prestigious scientific reviews are still largely English-speaking and are dominated by Anglo-Saxon editorial teams.

It is also worth noting that the Shanghai ranking only assesses performance in the

field of basic research. This means that the ranking's criteria only apply to ground-breaking research and not to applied research – the kind of research which makes the wheels of the world economy turn. A ranking based on basic research performance will obviously produce different results than a ranking based on applied research performance. This in turn will lead to different judgements about the quality of the research carried out in the individual universities.

Different criteria, different rankings

If we draw up a ranking based on the participation and return of the European universities within the context of the 6th Framework Programme (2002-2006)[83], we get a very different set of results. This 6FP ranking gives a reliable and accurate impression of the true quality of applied research in Europe.

Why? Firstly, because the level of competition in Europe is that much greater. The chances of success for most thematic priorities of the Framework Programme are about 10% to 15%. In other words, whoever succeeds must – almost by definition – be good. Secondly, the projects are evaluated by panels of international experts qualified in specific disciplines, so that the standard of peer review is that much stricter. Thirdly, most projects involve cross-border collaboration, with different university groups. In other words, the number of participations says much about the level of respect and integration which a university enjoys within the international research community. Fourthly, universities can only score well in the 6FP ranking if their research performance in applied sciences is of exceptional quality across the board. This is above all the case for London, Oxford, Cambridge and Leuven. In this respect, there is also a marked budget differential between the top 7 (75 million euros or more) and the rest (less than 55 million euros)[84].

Leuven and Ghent – up there with the best

The University of Leuven – both in terms of the number of ascribed participations and the level of allocated budget – sits comfortably in the top 10 of European universities, but Ghent also scores very well. Another striking feature of the results is the excellent performance of the British universities, particularly in comparison with their German, French and Italian counterparts.

The results take no account of the size of the university, the number of students and the number of accredited researchers. Nevertheless, it is to be expected that the larger universities will have a higher degree of participation in the Framework Programme: the larger the university, the larger its research community. Yet this is not always the case. For example, La Sapienza – the giant university of Rome, with some 145,000 students – is conspicuous by its absence. In comparison, smaller and more specialised universities do just as well or better. This is the case with the technical universities in Zurich and Munich, and also with Karolinska, a medical university in Stockholm. The performance of these specialised universities is even more praiseworthy, if one considers that their specialisation means that they can only take part in a limited number of thematic priorities within the Framework Programme.

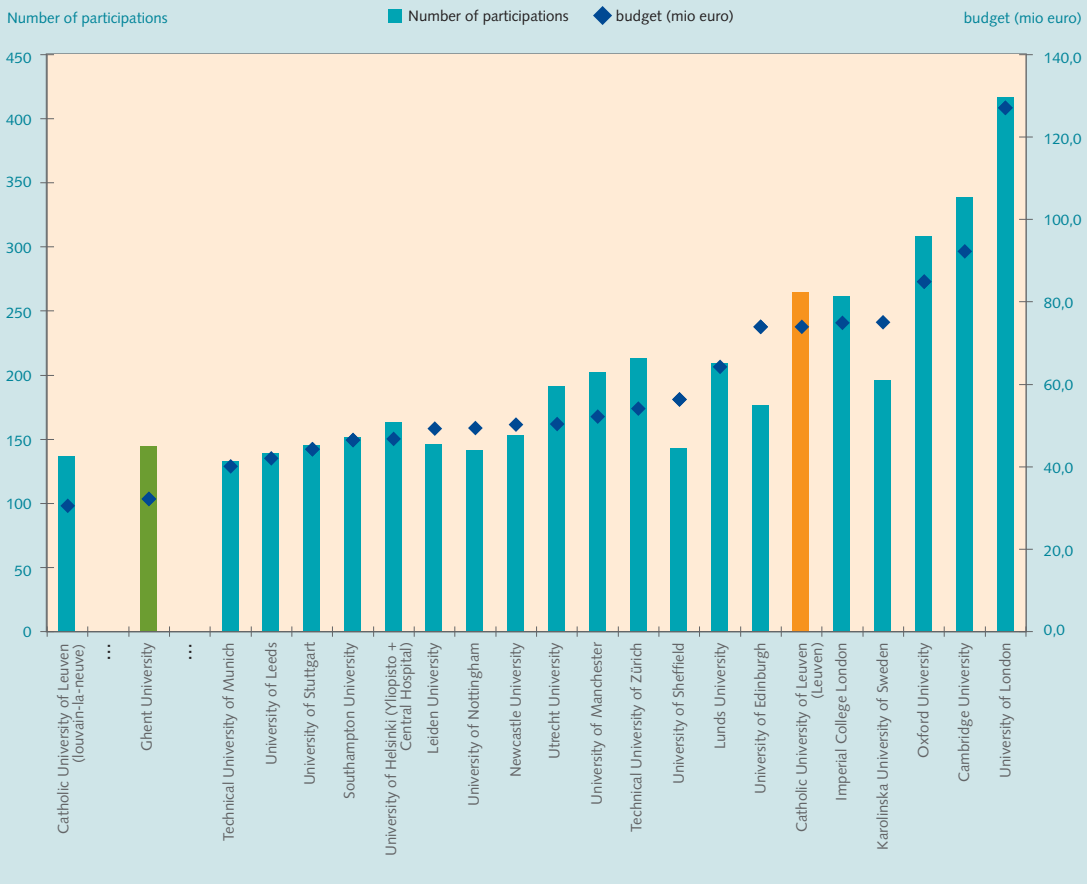
An examination of the size of the gap between the number of participations and the allocated budget gives us some idea of the efficiency of a university. The level of efficiency is higher to the extent that the budget is greater than the number of participations – as is clearly the case with Edinburgh and Karolinska.

University rankings – a proper perspective

If these various rankings prove one thing, it is simply that the evaluation of the quality of a university is by no means a straightforward task. Measurements of performance in the field of basic research use totally different criteria than measurements in the field of applied research. For this reason, it is important not to over-emphasise the importance of such rankings. The attention in the media for the publication of the Shanghai ranking and the annual complaints that the Belgian universities do not score well are both exaggerated and premature. Our universities score much better when compared on the basis of other criteria. Even so, one thing remains certain. The government must make the financing channels for university research as selective as possible. This is the only way to achieve the stimulating effect which we all wish to see.

Peter Bakema,
Research Division
(with thanks to Monica Van Langenhove, Knowledge Management Division)

Figure 3: participations and budgets of the European universities under the Sixth Framework Programme



82 You can find out more about the Shanghai ranking on http://www.arwu.org.

83 EWI Review 1(2): 34 - 36

84 In this respect, we should remember that the budgets are allocated for the five-year duration of 6FP. For Leuven, this equates to an annual sum of some 15 million euros. This is peanuts in comparsion with the overall financing for edcuation (ca. 250 million euros per year) and the resources available for basic research through the FWO Flanders and BOF (Special Research) funds (ca. 100 million euros per year).

Source: the details come from a databank which the European Commission has periodically issued on cd-rom at meetings of the *Horizontal Configuration of the Programme Committee of the 6FP Specific Programme: Integrating and Strengthening the ERA*. These final details relate to participation contracts signed on or before 2 June 2008, reflecting 95% of the total FP6 budget.

University of Oxford

"Innovation policy is the last area where you should be making cuts..."

An interview with Luke Georghiou

Luke Georghiou is an eminent researcher in the field of innovation policy. He is Professor of Science and Technology Policy & Management at the Manchester Business School. In addition, he is still actively engaged in research and offers policy advice at European level: as a member of various evaluation groups and steering committees, as the author of trend-setting reports, as a member of the editorial boards of various scientific magazines. We talked to him about the role of evaluation and technological foresight in innovation policy – and about the keys to economic success in a time of crisis.

EWI Review: Which recent conclusions in innovation policy literature could be useful to our policy-makers?

Luke Georghiou: We are currently going through an important transitional phase. Whereas in the past innovation was traditionally driven by consumer demand, nowadays we are seeing that innovation is being increasingly shaped by social requirements. The focus on the public good is becoming more and more pronounced. This evolution is partly the result of the present economic crisis, but there are indications that the trend had already set in at an earlier date.

EWI-Review: How should public policy react to this evolution?

Luke Georghiou: Scientific and technological breakthroughs continue to be of great importance. For this reason, innovation policy must continue to focus on new technologies and related fields of research, such as nano-technology, bio-technology and ICT. In addition, there is also a need for a number of large-scale programmes which can help to push through and apply the benefits of this technology to the most pressing social needs.

EWI-Review: When you speak of 'large-scale programmes', do you mean the so-called 'très grands projets', such as major industrial initiatives or global research strategies?

Luke Georghiou: We should really be talking about 'grand challenges'. The most important social problems facing us today – climate change, food safety, migration – all present serious challenges which can only be solved with a large-scale, coordinated approach. We certainly need to pool our resources at European level. This is the only way to achieve the scale of response which these problems require.

Stimulating market demand

EWI Review: You talk about coordination at high level and large-scale programmes. Can smaller countries and regions, such as Flanders, play a part in this grand scheme? Do they still carry any weight?

Luke Georghiou: Of course they do! Each challenge offers a wide variety of niche opportunities, where there is room for technological success on a smaller-scale. Moreover, each country has its own specific needs – the result of its geography, demography and tradition – which can best be met at local level. If we can also link the new technologies to these market needs, then we can truly speak of 'successful' innovation. In other words, we need to stimulate both market demand and technological diversity.

The key to success: applied research centres which meet local economic needs

EWI Review: A frequently asked question is whether it is better to invest in basic research or applied research to achieve this goal. Without long-term basic research it is difficult to maintain sustained applied research. And yet there is much talk about the 'innovation gap': the results of basic research are not being carried over to industry and society. What are your views on this subject? ?

Luke Georghiou: The dichotomy 'basic research versus applied research' is too narrow to define the research landscape. First of all, there is basic research which is only carried out because it is part of our cultural heritage. On the face of it, the rationale for subsidising the CERN[85] is no different from the rationale for subsidising a national orchestra or opera. There are several other important domains of strategic research where we do not yet know what the end application will be, but where we are convinced that the final result will be significant (e.g. nano-technology). In his well-known book Pasteur's Quadrant Donald Stokes[86] divided research into four broad categories (see Figure 4). There is clearly a need for applied research. Look at the evolution of almost every economically successful country (USA, Japan, Korea, Brazil, etc.): what they all have in common is the existence of applied research institutions which are capable of answering the economic needs of their nation. In the United States, these are largely agricultural institutions. Other countries have more technologically-based research facilities.

EWI-Review: What are the necessary conditions to achieve the correct balance between basic research and applied research?

Luke Georghiou: In the first instance, each country must decide to what extent resources will be devoted to basic research and in what fields of enquiry. Once this had been agreed, the most crucial deciding factor is 'excellence'. It is also important not to lose sight of the need to maintain a research community, i.e. to give sufficient young researchers the chance to develop. This becomes more crucial than ever during periods of economic crisis. If career opportunities are not created for today's graduates, there is a risk that a whole generation of researchers may be lost.

True economic recovery can only be achieved through innovation

EWI-Review: To what extent does innovation policy need to be amended during periods of economic crisis?

Luke Georghiou: There are both long-term and short-term considerations. In the short term, it is important that the government does everything possible to protect the research and innovation system. In times of crisis, industrial R&D quickly comes under pressure, because industrial leaders are inclined to cut costs by slashing their innovation budget. It is therefore crucial to support the companies financially, so that they can keep their research departments going. It can easily take a decade to build up a decent research capacity, but it only takes eighteen months to destroy it. The same priority also exists in the academic world: we must continue to create positions for the brightest young researchers. Our aim must be to ensure that they are still working in the research system in three years time, when the economic upturn begins.

The history of economic crises teaches us that recovery is always preceded by a new wave of innovation. This is the Schumpeter view, named after the great Austrian economist. Another famous economic theorist, the Russian Kondratiev (early 20th century), argued that the world economy moved in cyclic waves of roughly 50 years duration. In reality, the timeframe is unimportant. The crucial message is that innovation is essential for global economic recovery.

Evaluations and foresights as part of policy culture

EWI-Review: The United Kingdom has a rich tradition of evaluations and foresights[87]. How are these processes integrated into the policy-making cycle?

Luke Georghiou: The UK is making increasing use of foresight – forward-thinking technological research – in the planning of strategic decisions at national level. This is much more than a simple economic process. For example, a recent successful foresight project focused on the problem of obesity, and devised a clear and practical vision to tackle this problem in the long term. Perhaps even more well-known is the foresight project which studied the increase in flooding in the UK in the light of global climate change and examined the extent to which this new situation required a coordinated strategy.

Another type of foresight – known as 'horizon scanning' – attempts to assess subjects which may be of interest to the government and which can have a positive innovative effect on the future of society and/or the environment. Sometimes more than 200 topics at any one time can be the focus of a horizon scan, in various different fields: socio-economic, social, environmental, technological, etc. Foresight is a part of our culture. In fact, I would put it even stronger; the foresight culture is gradually permeating the whole social system. The university where I work is closely associated with scenario analyses which help to determine our future strategies.

> "We need to pool our resources at European level"

EWI-Review: How far into the future can a foresight be relevant? Or to put it another way: when does a foresight become a crystal ball?

Luke Georghiou: That depends on the subject. Often the timeframe of a foresight can extend ten or fifteen years into the future. The flooding foresight exercise covered a projected period of 50 to 100 years. It took account of areas which may be 'lost' during that period as a result of rising sea levels and changes in living patterns: processes which by their very nature are slow to evolve. If we are talking about faster moving fields of technological research or short-term policy requirements, a foresight might only have a life span of five years.

The world's largest evaluation exercise

EWI-Review: Can you give us some examples of foresights and evaluations that have influenced national policy?

Luke Georghiou: The flooding example had a significant impact, both on policy

formulation and public acceptance. Based on the information in the foresight, a website was created which allowed people – simply by typing in their post code – to check whether or not they were living in a flood-risk area. Depending on the level of risk, the website then suggested various possible scenarios. This made clear, for example, that the danger of serious flooding is much greater with high levels of consumption and growth than in a more sustainable social model. This foresight led to positive results: the policy in respect of town and country planning is much more integrated than ever before. The study results also showed that it is no longer economically viable to try and protect certain parts of the coastline: it is simply better to let nature have its way in these areas. This led to a significant adjustment in the government's coastal defence policy. The study was also of great value for the insurance companies – to the extent that they were even prepared to sponsor the project. In short, the flooding foresight is a perfect example of just how useful this tool can be.

As far as evaluations are concerned, we in the UK are currently organising what is probably the world's largest ever evaluation exercise: an assessment of the co-financing of university research. This project is nearing completion and it is intended to repeat it every five to seven years. It charts the tasks of every research department and every research subject on the basis of peer reviews and statistics. Each university is allocated a profile for each subject: what is the percentage of top researchers, is performance above or below the national quality average, etc. Budget is then awarded on the basis of the profile. It is a method of working which can make a real difference.

The most important thing for researchers? A favourable research environment

EWI-Review: Does this mean that the best researchers are 'bought in' before the start of the evaluation period, just like footballers?

Luke Georghiou: There is indeed a kind of a transfer market, with the biggest 'stars' moving from university to university. However, the big difference between researchers and footballers is that researchers take their 'goals' from the past with them. On the whole, it is a good thing. To make a researcher switch 'teams', a country needs to offer him a good deal. And this does not simply mean good pay – it is more a question of good research facilities. This realisation forces the universities to invest in research – which benefits us all. That being said, we have a very concentrated system: the top 10 universities, out of a total of some 130, represent about 50% of research funding, and an even higher proportion of research results and citations.

EWI-Review: This influx of new researchers has helped to make some universities truly world class. Does it not bother you that there are only a limited number of top universities?

Luke Georghiou: This competition forces us to seek continuing improvement at all levels. The UK is in a strong position, with five universities in the European top 10: this is a major competitive advantage.In addition to the crème de la crème, there are another 20 or so universities which engage in intensive research. But this does not mean that the remaining institutions are undeserving of funding. They, too, contribute to the educational process and the transfer of knowledge, in keeping with regional training requirements and often in collaboration with commercial companies.

> "There is clearly a need for applied research"

Increasing use of public tendering procedures

EWI-Review: How can innovation support best be attuned with research support?

Luke Georghiou: In the UK, innovation support was recently reassessed in the light of new insights. Innovation is not solely driven by technology. Innovation is also required in the service sector, which makes up 70% of our economy. In order to further stimulate innovation, in 2007 a new – or rather, a reformed – Technology Strategy Board was set up. This body manages a portfolio covering a wide range of projects. Some of these deal with major challenges at national level, in collaboration with the relevant government ministry and (of course) the companies. Others are more concerned with networking. We are also trying, as far as possible, to create a more demand-driven innovation policy, in particular through the increasing use of public tendering.

EWI-Review: Creativity, art and culture are also becoming increasingly prominent, since they now represent a much more potent economic force than in the past. Are there examples of innovation in this sector in the UK?

Luke Georghiou: This is indeed an important sector, and one which is close to my heart as dean for research in the social, economic and human sciences, which also covers the arts. In the UK we are currently trying to find better ways to measure the impact of these themes on society and the economy.

Innovation prizes and business models

EWI-Review: To what extent are there differences between the evaluation of service innovation and technological innovation? Do they need to be approached differently or is a generic policy feasible?

Luke Georghiou: Until now, the same policy instruments have been used for both sectors. We still need to learn how each sector individually can best be approached. But it is clear that the nature of innovation in the service sector is different. Innovation is approached much less systematically than in the industrial sector. There is no central R&D laboratory and R&D functions are not necessarily filled in the same way. Innovation takes place to a greater extent on the basis of projects, for which external teams are recruited. They then work together with the companies to search for new systems and ideas. But this carries the risk that the resulting knowledge may disappear from the company when the consultants leave.

EWI-Review: Does this mean that business models are becoming more important than product results?

Luke Georghiou: Two or three years ago I was speaker at the annual innovation awards organised by the magazine 'The Economist'. The winners of these prizes were nearly all projects relating to new business models, rather than technological breakthroughs.

EWI-Review: Do you think that service innovation is more difficult than techno-

> "Innovation isn't solely driven by technology"

"Innovation is the motor of recovery"

logical innovation? Are there common elements, which could form the basis for a set of general principles which the government might follow?

Luke Georghiou: Each sector has its own characteristics: innovation in the energy sector is completely different from innovation in the building sector, which in turn is scarcely comparable with innovation in the health sector. There is no 'golden key' for uniform policy-making in the service industries. Of course, most sectors have common elements relating to the application of knowledge, but it is more important to be aware of and to take account of the specific needs in the structure of the sector.

EWI-Review: Is an empirically-based science policy relevant in a time of economic crisis? Is there not a risk that such a policy will come under pressure if decisions need to be taken quickly?

Luke Georghiou: It is true that governments sometimes make impulsive decisions or react over-hastily in response to sudden political pressure. In these situations, communication is of great importance. For example, if the government provides financial support to industry at the expense of other lands, this 'nationalist' approach must be openly discussed and explained. On the other hand, a crisis also offers a number of opportunities: in particular, it encourages smoother and more efficient policy-making. You can compare it with a wartime situation.

Investing in innovation: the best remedy for recovery

EWI-Review: In conclusion, is there a particular message you would like to send to Flanders?

Luke Georghiou: Flanders has a good reputation in the field of innovation policy. Hopefully, that will continue to be the case. The message for all governments must be the same: keep hold of the trump cards that you already hold in your hand. Innovation policy is the very last area where you should be looking to make cuts. It is the motor of recovery and is crucial for all our futures.

Hilde Vermeulen,
Enterprise and Innovation Division

Peter Spyns,
Strategy and Co-ordination Division

cv

Luke Georghiou B.Sc., PhD. is Professor of Science and Technology Policy and Management at the Manchester Institute of Innovation Research[88] (formerly PREST) in Manchester Business School at the University of Manchester and has been on its staff since 1977. His research interests include evaluation of R&D and innovation policy (particularly in relation to the demand–side), foresight, national and international science policy, and management of innovation. He has chaired committees and provided high level advice to several foreign governments including those of Japan, Germany and Finland. He is an invited member of the European Industrial Research Management Association. He recently chaired the Annual Impact Report Panel of the EUREKA Initiative. He was rapporteur of the influential Aho Group report to European leaders *Creating an Innovative Europe* and in 2007/8 chaired the EC's Expert Group on ERA Rationales, presented to the European Competitiveness Council in July 2008. Most recently he was a panellist and chair of the expert sub-group of the Glover Committee *Accelerating the SME Economic Engine*, published with the Pre-Budget Report. He is an elected member of the Board of Governors of the University of Manchester and a member of the Board of Directors of Manchester Science Park Limited.

85 Pasteur's Quadrant details research activities which seek to discover fundamental insights, but are also 'prepared' to be guided by the possible applications of those insights.

86 http://www.cspo.org/products/conferences/bush/Stokes.pdf

87 EWI Review 2 (1): 14 – 17

88 http://www.mbs.ac.uk/research/innovation

A European methodology in sight

In keeping with the 'open method of coordination', the Department of Economy, Science and Innovation is participating in CIA 4 OPM, a project which forms part of the European Union's Seventh Framework Programme for Research, Technological Development and Demonstration. CIA 4 OPM wants to develop a methodology for assessing the (socio)-economic impact of public financing on research, development (R&D) and innovation.

Fifteen – above all, public – organisations from eleven different countries are involved in this two-year project. The aim is to offer the partners an open learning platform, which will allow them to exchange experiences and to search jointly for good examples of 'best practice' in the project field.

Step-by-step plan

The participants will first sketch a general methodological framework for the impact analysis of public financing. Thereafter, closer attention will be given to the specific methodologies necessary for the impact analysis of public financing in respect of (i) the stimulation of private sector research; (ii); the promotion of public sector – private sector collaboration in R&D and innovation; and (iii) the better management of (semi-) public research institutions and the universities.

The sub-themes which will be examined are:

(i) the (socio-economic) objectives of public financing: the stimulation of (endogenous) growth, the source of dynamism, etc.
(ii) the different levels of analysis: micro, meso & macro.
(iii) the different challenges: the measurability of certain effects, the ability to arrogate certain effects to specific actions, etc.

In addition, extra attention will be paid to the question of indicators (see box).

The project hopes to formulate a series of concrete recommendations for policy organisations and governments. Attempts will also be made to develop a general approach which will work across the national borders of the member states. To avoid unnecessary overlap, the related efforts of organisations such as OESO will be given due consideration. The project will also work closely with a number of external experts.

Maximum visibility

Various 'publicity' actions will ensure that these efforts not only benefit the participating partners, but also result in wider attention for the broad general theme of impact analysis. The current chair-land of the European Union (the Czech Republic) and the following three chair-lands (Sweden, Spain and Belgium) are all involved in the project. This will guarantee maximum political visibility. Moreover, within the framework of the project a separate programme will be devoted to the widespread distribution of the final results: via internet, newsletters, the publication of a final report, etc.

Is the project a step in the right direction? Will it lead to a genuine European methodology? We'll let you know in two years time!

Stijn Eeckhaut,
Research Division

About indicators

In order to check whether a project or institution has achieved its previously agreed objectives, it is standard practice to make use of indicators. An indicator provides information relating to input, output and outcome (results and effects).
Input indicators measure the actual use of resources to achieve the pre-set objectives. Output indicators measure what has been achieved by the use of this input. Outcome indicators are a combination of result indicators (which measure the direct and immediate effects) and effect indicators (which measure the indirect impact over a longer period).
An indicator provides both qualitative and quantitative information. They are therefore useful for evaluation objectives and providing a rationale for policy decisions.

Peter Viaene,
Knowledge Management Division

Measuring real impact

All too often the impact of government subsidies is measured on the basis of the immediate flow-back of financial resources. Money is, of course, an objective criterion, but there is a case for arguing that the government should dare to look beyond simple fiscal implications, in order to check the social and economic impact of its investments. Does financial support from the state help our universities, research institutes and companies to achieve concrete results which yield benefits for the environment, public health or employment?

In the OMC-net project the various partners place their own work instruments and experiences at the disposal of the group, in the hope that together they can find an efficient and workable method to measure real impact.

Mieke Houwen,
Enterprise and Innovation Division

Building bridges between the research world, industry and the government

The Interdisciplinary Institute for Broadband Technology (IBBT)

By further expanding existing knowledge potential, Flanders wants to become one of the front-runners in the European knowledge economy. Amongst the most important actors in the innovation landscape are the four strategic research centres: IMEC (nano-electronics[40]), VIB (bio-technology[38]), VITO (energy, materials and environment[39]) and IBBT (broadband communication[89]). Together with the universities and university colleges, these centres play a key role in ensuring our region's place at the heart of the global knowledge economy. The Department of Economy, Science and Technology (EWI) is responsible for the administration and monitoring of these strategic research centres. In this article, we will turn the spotlight on the Interdisciplinary Institute for Broadband Technology (IBBT).

IBBT
exploring the information society

Any government is capable of giving economic development a serious helping hand. In the past, this usually happened through investment in infrastructure: roads, railways, harbours, industrial estates. Today, there is a new and equally important form of infrastructure which is deserving of state support: knowledge infrastructure.

IBBT in a nutshell

The Interdisciplinary Institute for Broadband Technology – known as the IBBT – is in essence a 'virtual' research facility, through which the services of other existing research groups can be accessed. In this manner, local research capacity can be transformed into a coherent whole, which is capable of working around specific themes. By grouping knowledge in this way, the IBBT has become a centre of excellence which offers a clear added value to local actors.

Various analyses have shown that a great deal of excellent research work is being carried out in Europe, but that there are still problems surrounding the question of valorisation: the so-called Triple Helix problem. It is with this problem in mind that the IBBT wants to build bridges between the research world, the business community and the government. An active collaboration with all relevant actors is essential if we wish to valorise the results of our research activities.

ICT applications can give new impulses to the economic fabric of a region. Moreover, they also make an important contribution in key social fields, such as health and age care, transport and mobility, safety, and the interaction between government and citizen. IBBT research attempts to provide solutions to these complex issues, allowing us to be better prepared for future challen-

ges. The IBBT's strength – and its uniqueness – lies in its interdisciplinary approach: attention is paid to the technical, social and legal aspects of ICT applications. In short, IBBT research encompasses all the elements which make the development and exploitation of broadband technology feasible.

Research at the IBBT

IBBT assists companies and organisations with the research and development of ICT services and applications in five different domains: eHealth, New Media, Mobility & Logistics, eGovernment and Support technologies. Within this framework, there is a clear preference for research which is related to current social and economic themes. The aims of the partners determine the best form of collaboration for each specific project. An integrated approach to the problem is a central feature in almost every case. At the moment, there are 17 different research groups affiliated to the IBBT. This means that the institute has the services of more than 600 researchers from various knowledge fields at its disposal. Since 2008 the IBBT has strengthened its focus on the cultural sector, with the setting-up of its Art&D programme. This programme supports innovative projects with artistic potential, which are expressly designed to encourage interaction between the artist and the researcher. In 2009 the IBBT's efforts in this field will be further expanded with a second programme which will be specifically targeted at the cultural sector and the games industry.

As has already been mentioned, the work of the IBBT is based on demand-driven programming. In particular, the institute concentrates on two different types of research activity:

- *Interdisciplinary strategic basic research (ISBR):* this is long-term research of an interdisciplinary nature. The research groups develop joint project proposals with a horizon of three to five years. They look for interested (clusters of) companies or other actors who wish to join the venture. The decisions to award ISBR projects are based on the criterion of international excellence. An ISBR project is eligible for 100% financing from the IBBT.

- *Interdisciplinary cooperative research (ICR):* This is pre-competitive research which combines the joint efforts of research groups, organisations, companies and the government. At least 50% of the total cost price of an ICR project must be contributed by the associate partners (companies, clusters of companies, state administrations, social profit organisations). ICR projects are result-oriented and usually require a demonstrator as 'proof of concept'.

In addition, the IBBT also carries out contract research on behalf of individual companies, organisations or government departments.

The research facilities

The adage "measuring is knowing" also applies in the IBBT's fields of research. The IBBT possesses state-of-the-art laboratory facilities for the testing of prototypes, using the full range of broadband platforms. This institute is active at all levels in the innovation chain, from project concept to large-scale user testing.

In essence, the IBBT has access to three complementary test centres operated by its research partners:

- *iLab.o (open innovation):* this laboratory sets up trial projects, which allows a large group of users to test the application over a long period in a day-to-day environment.

- *iLab.t (technology centre):* this laboratory possesses infrastructure which can evaluate the technical feasibility, performance and service quality of an application.

- *iLab.u (user experience and design):* this laboratory tests the user-friendliness of the application and allows the reactions and experiences of future users to be measured.

This experimental infrastructure therefore offers participating partners the opportunity to test their products and services in terms of both technical suitability and user response.

IBBT and the social actors

The IBBT is the sole contact point in Flanders for research in the field of ICT, with specific reference to broadband technology. The institute works closely with companies, service providers, the government, sectoral representatives, the other Flemish knowledge centres, national and international networks. It differs from the other three major strategic research centres in the demand-driven nature of its research activities: the research agenda is defined by the participating social actors (companies, non-profit organisations, government, etc.). It is an approach which has proven its value. Since its foundation in 2004, more than 180 organisations have been actively involved in IBBT projects.
Right from the start, the IBBT formed close links with regional ICT companies (Alcatel Lucent, Barco, Agfa, Televic, etc.). But many other actors have also jumped on the IBBT bandwagon. For example, the R&D group of the VRT (the Flemish television and radio service) was one of the initial IBBT research groups, and still participates in IBBT projects[90] on a regular basis. This applies equally to other major organisations from the cultural sector (the 'Vooruit' Arts Centre, the Flemish Regional Opera, 'De Singel' Cultural Centre, the Flanders Ballet Company, etc.) and from the Flemish government (Flanders Heritage, Flanders Tourism, the Flanders Traffic Centre, the Flanders Employment Agency, etc.).

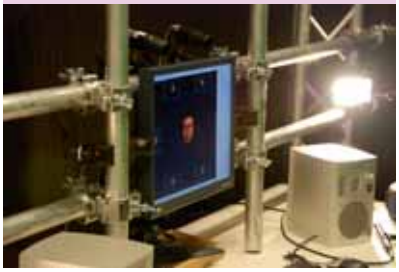
The IBBT also seeks to strengthen its networks by organising regular workshops and conferences. The participating partners are given the opportunity to follow training or attend seminars in matters relating to relevant technological, social, economic and business topics.

To provide still further support to the ICT industry, the IBBT was involved – together with the East Flanders Provincial Development Company and the Flemish Participation Company – in the setting up of an incubation centre for ICT starter companies:[91] iCubes. This centre aims to bring together a group of complementary ICT companies, in the hope that this will eventually result in a fruitful cross-fertilisation of ideas which might lead to new innovations. Proximity alone is no guarantee that this fertilisation process will take place, and so the IBBT plays an active role as a bridge-builder,

developing new projects in collaboration with these young businesses.

Facing the future with confidence

The foundation of the Interdisciplinary Institute for Broadband Technology in 2004 shows that Flanders is on the right track in its efforts to find its own niche in the modern information society of the 21st century. The current agreement between the Flemish Government and the IBBT covers the period 2007 to 2011. For 2009 the sum of 23.7 million euros will be made available for investment. This funding is in line with the requirements of the most pressing research themes. In particular, the previously mentioned theme 'New Media' will be expanded to become 'Culture and Media'. In a parallel development, a new and shorter type of research project will be introduced, which should lead to a quicker valorisation of project results.



The IBBT is a relatively young research centre which is gradually building a reputation as an international centre of excellence for broadband technology, which constantly seeks to respond to new dynamics in the ICT domain. This dual approach – excellence and responsiveness – will ensure that in the future the IBBT will be able to play a crucial role at both regional and supra-regional levels. The foundation of the IBBT was a first important step along the road towards a multi-discipline approach in the field of ICT research. It is now up to the other actors (researchers, companies and organisations) to take this process a step further.

Karel Goossens,
Research Division

PokuMOn: Podium arts and multimedia accessibility

Innovation is a transversal process which overlaps the boundaries of various fields of research. There is, for example, close collaboration between science, innovation and the cultural sector. The IBBT PokuMOn project focuses on the problems of the online distribution and archiving of multimedia in respect of the podium arts and (classical) music. Recent advances in the fields of copyright, metadata and audio & visual compression have been combined, with a view to providing pragmatic solutions for the producers and the repositories. PokuMOn seeks the active participation of the cultural sector, with the aim of making the multimedia recordings of a performance/concert of an actor/musician available to the public through various external channels. In addition to archiving and accessing these productions, attention is also being devoted to the archiving and accessing of accompanying introductions (interviews, programmes, reviews, etc.). Different forms of digital participation and the latest podium art trends will also be investigated through the use of demo's.
Also see: http://www.ibbt.be/nl/project/pokumon-0

IFIP: Independent Films In Progress

As a public broadcasting company, the VRT has been set the task of monitoring technological developments (e-media) and researching possible applications in Flanders. The digital storage of the VRT archive – and making it more widely available to the public – is also a priority.
The IFIP project was set up to support the audio-visual sector in its realisation of independent productions. IFIP wishes to create a platform which works as a virtual co-operative, where producers can put forward their ideas and concrete project results. By means of transparent procedures, the platform will assist every film project with the so-called 'commissioning process', through which potential end-users are able to take out a participation in the project. In this manner, a kind of virtual co-operative is formed, which will allow different prototypes and genres to be charted and fined-tuned to the preferences of a particular target public. This in turn will help filmmakers to build up a network of interested companies (B2B) and end-users (B2C) and encourage them to search proactively for the necessary budget, production facilities, distribution channels, etc.
Also see: http://www.ibbt.be/nl/project/ifip-0

89 Also see p.8 in this edition

90 Such as: IFIP (Independent Films In Progress), CUPIDO (Cultural Profile and Information Database), FIPA (File-based Integrated Production Architecture), IPEA (Innovative Platform on Electronic Archiving) and MCDP (Multimedia Content Distribution Platform) – see http://www.ibbt.be/nl/projecten.

91 Also see elsewhere in this edition: p. 8.

The STeR shines brightly in various fields of research

The STeR (Flemish Policy Research Centre for Tourism Policy Studies) is – literally – a second generation policy research centre. At the end of 2006 the Flemish Government gave the go-ahead for this successor to the earlier Policy Research Centre for Tourism, Recreation and Foreign Policy. What is the STeR's mission? To become the knowledge centre for the tourist industry and to promote an integrated and sustainable tourism policy in Flanders.

So far this policy research centre has concentrated on the creation of a knowledge network, working to develop databases and a digital platform for the collection of basic tourist information. The further build-up of a coherent data system will be a constant element in the work of the centre (as it was in the work of its predecessor). In addition, the STeR carries out research relevant to tourism and the economy; to the further shaping of the image of Flanders as a tourist destination; and to a sustainable tourism policy for the future.

Given its function as a contact point for a wide range of interested parties, the STeR's 'reflection platform' is a key focal point in the centre's day-to-day operations. The intention is to involve the tourist sector and all relevant (policy) actors more closely in the research activities which will help to determine the next generation of tourism policy. The platform helps to link official organisations and private sector actors, who are active in the frontline of tourism and recreation, policy and research. It also acts as a learning network and has already proved its value as a means of bringing the various tourism and recreation players closer together.

Measuring our … professionalism

The STeR develops and implements data systems. It also creates new tools and feedback systems for the public and the tourism actors: policy-makers, departments, agencies, sectors, companies and the provincial tourist boards. Some of these actors are also involved in the data system projects, in particular the Flanders Tourism Agency and the Provincial Tourism Organisation (PTO). The provinces play an intermediary role in respect of their policy competencies relating to domestic tourism.

In the long-term, it is important that the measuring systems are able to survive independently of the policy research centre, so that the continuity of reliable data is guaranteed after the end of the initial research period. For this reason, a transition pathway has been devised which will facilitate the integration of the data collection system into the operations of existing tourism organisations, such as the Flanders Tourism Agency.

In essence, the STeR works with two different types of statistics: supply statistics and demand statistics. Accurate (and validated) supply statistics give an annual picture of the availability of the different attractions and types of accommodation: hotels, camping sites, group-specific accommodation, bed & breakfasts, holiday homes, holiday parks.

To assess demand statistics, the centre has developed a barometer system, which is currently used for attractions, hotels and camping sites. The participating owners of the hotels and camping sites register their number of overnight stays each month and forward these details to the STeR. This can either be done automatically – via a software tool or online registration – or with the assistance of a provincial tourism assistant. Participants in the barometer system are given visual and statistical feedback with regard to the performance of their hotel or camp site, which they can then compare with the details for their colleagues in the same sector.

The level of response is currently 34% for hotels, 76% for attractions and about 20% camp sites. In view of the fact that participation is not compulsory, these are reasonable figures. Further investments are being made in the hope of encouraging a still better response rate.

The barometer system has a double purpose. In the first place, it is designed to increase the level of professionalism within the sector. This is a crucial factor. Owners who have reliable statistics for their levels of room occupancy, income and market segment will be able to run their businesses much more efficiently. Equally important, the availability of relevant sectoral details allows all the tourism actors – including the government – to respond more quickly and effectively to changing circumstances. For the future, it will also be useful if the data systems in Flanders can also assess the situation across the border. With this aim in mind, at the end of 2008 an international benchmark study was carried out[92].

Tourism: what is it worth?

Tourism and recreation generate considerable income and have a significant economic impact. In view of the population's increasing amounts of free time and given the expectation that personal incomes will continue to rise, it seems reasonable to assume that the importance of the sector will increase concomitantly.

However, the accurate measuring and assessment of this economic impact is no easy matter. In contrast (to say) the car industry, the sector 'tourism and recreation' is very difficult to pin down. It is spread over many different activities, including catering and transport. There is also the added problem of differentiating 'domestic' and 'foreign' tourism, which is particularly difficult in a federal country such as Belgium.

The policy research centre (as with its predecessor) has devoted considerable resources to its attempt to chart this economic aspect. For example, a recent survey[93] concluded that for every euro a visitor spends during a visit to an attraction, he will spend an additional two euros away from the attraction site. The 'fall-out' effect of tourist attractions is therefore appreciable.

Further investment has also been made for the setting up of a Tourism Satellite Account (TSA)[94]. This methodology has been devised at international level (UNWTO, OESO, Eurostat, IMF). TSA's are satellite accounts of the global national accounts: they give a clearer picture of the tourist sector as a whole and the inter-relationship between the different sub-sectors. A study of the minimal TSA suggests that 1% of the added value in Flanders is generated by tourism. On the basis of a positioning of the Flemish economy against comparable economies in other regions, this figure is probably 1 - 1.5% lower than the actual contribution of tourism to the added value. In its policy conclusions[95] the STeR judged that Flanders, in light of existing and future EU obligations, should profile itself as a pioneer region.

Finally, until 2011 the STeR wishes to invest in the development of a tourism impact model, as a result of which innovative methods will be explored and realised, with the aim of assessing more accurately the economic impact of tourism at local or regional level.

steunpunt beleidsrelevant onderzoek 2007-2011

buitenlands beleid, toerisme en recreatie

Name: Policy Research Centre for Foreign Policy, Tourism and Recreation - Tourism Policy wing
Promotor-coördinator: Professor Peter Cabus
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Competent minister: Minister-President of the Flemish Government and the Flemish Minister of Institutional Reform, Administrative Affairs, Foreign Policy, Media, Tourism, Harbours, Agriculture, Fisheries and Rural Affairs
Budget: 457.500 euros

Branding Flanders

Another important policy line within the STeR domain is the investigation of the Flanders image: what is the region's desired, projected and perceived identity? At the start of 2009 two complementary qualitative studies were completed of groups who play a key role in helping to mould the 'Flemish image', but who generally operate outside the traditional channels of destination marketing.

The first study concentrated on guides and other 'storytellers', whose anecdotal accounts – both great and small – given a wide variety of different impressions to tourists about 'Flanders' and 'Flemishness'. The focus was set on the 'narrative tourist industry', with a clear emphasis on cultural tourism. Particular attention was paid to the origins of these 'stories' and the reasons for their telling; to story trends at local, regional and global level; and to the question of how policy in respect of these matters can be developed in a qualitative manner.

The second study examined how 'expats' (including European bureaucrats) play a role in shaping the image of 'destination Flanders'. This large and growing group – whose members are generally well-educated and well paid – have an important tourist potential. Many of them spend considerable time and money on travel, and they wish to utilise their leisure time in Belgium in the best possible manner, visiting and experiencing as many different attractions as possible. This makes them an interesting target group for Flemish tourism. Equally important is their role in moulding 'foreign' opinion. The expats usually have wide-ranging personal networks, close contacts with their home countries and are frequently transferred from one place to another for professional reasons. This makes them potentially ideal subjects for the wider dissemination of the brand name 'Flanders'. As such, an investigation into the holiday behaviour of this group, as well as their perception of Flanders as a tourist product, brand and image, is highly relevant. For this reason, the study focused on the 'message' which expats will spread about Flanders in other countries they visit. In addition, their tourist potential, networks, sources and channels were also analysed and mapped.

Finally, the STeR wishes to investigate the way in which information technology can influence the image-forming process of Flanders as a tourist destination. A research programme will be started in 2009 which will look at 'user generated content'. It will attempt to chart the significance of consumer meaning for the image development of tourist destinations. Particular attention will be paid to the manner in which public and private actors relate to this user generated content. How do they evaluate it? What specific trends (such as the increased use of high-tech portable guides) can be detected? What role can policy play in these matters?

Sustainable tourism: a closer look

During the STeR's investigations into the development of sustainable tourism, close attention is paid to studies which highlight the physical, spatial and social effects of tourist policy. Whereas the previous policy research centre concentrated on an exploration of the relationship between spatial matters and tourism, the focus has now shifted towards the social dimension.

A key theme in this respect is the question of diversity and target group policy: the analysis of the thresholds and stimuli which are experienced by underprivileged visitors to Flanders. This broad research base can then be used to elaborate further study programmes. By means of anthropological fieldwork into the expectations and behaviour of four well-defined, socially vulnerable groups, it is hoped to obtain a better understanding of this difficult and sensitive material, with a view to formulating crucial policy recommendations.

A second theme – the subject of a doctoral thesis – will examine the quality of life in urban public spaces from a tourism perspective. The study will focus on the way in which tourists use public spaces in built-up urban environments. In particular, investigations will be made into the implications of 'co-consumption' for local residents, as well as transport and movement patterns within the urban environment and the 'value' of the tourist experience in such settings. Current Flemish policy relating to these matters will be analysed in detail, to assess both its strengths and weaknesses, and its opportunities and risks.

Last but not least, the STeR will continue to monitor new trends. For example, in recent years there has been growing interest for a new segment in the accommodation sector: the so-called 'informal lodging', which is organised in local networks (mainly online). These 'hospitality clubs' – such as CouchSurfing, Servas, etc. – also operate in Flanders and are bringing together travellers and accommodation providers in rapidly growing numbers. The motives of those who use this new system can perhaps best be summarised under the nebulous headings of "durable intercultural relationships" and "warm personal experiences". The STeR will now apply qualitative research techniques to the workings of this system, to assess the extent to which its activities may have consequences for the more traditional accommodation outlets. As always, the ultimate aim is to formulate a vision which will allow the policy-makers to approach the subject in the most constructive manner.

Peter Cabus and Jeroen Bryon,
Flemish Policy research centre for Tourism Policy Studies

92 Bryon J., Derre L., 2009, *Basic tourism data in Flanders in an international context, a benchmark study.*

93 Cabus P., Govers R., Lievois E., Van Keulen A., (2005), *The significance of attractions in Flanders. A varied social activity with an important economic impact. Tourism Research Paper, no 9.*, p.123, Support Centre for Tourism and Recreation.

94 Bilsen V., Jans G., 2007, *The compilation of TSA-R tables 1, 2 and 4, and the integration of tourist facilities in Flanders.* Commissioned by the Support Centre for Foreign Policy, Tourism and Recreation.

95 Cabus P., Bryon J., Bilsen V., Govers R. & Van Praet J. (2008) *Policy recommendations resulting from the setting up of the 'minimal' regional TSA (TSA-R), 4 June 2008.*

Making dreams come true: Flanders strengthens it creative industry through the Programme for Innovative Media (PIM)

The creative industries include the audio-visual industry, the music industry and the printed media. In turn, the audio-visual industry is made up of various sub-sectors, which are typified by a specific value chain: film, new media, radio/tv & gaming. The support of innovative projects in these digitally creative industries is just one of the ways in which European culture – and in particular the Dutch language culture of Flanders – can hold its own in an increasingly digitalised world which is strengthening the grip of Anglo-Saxon culture on all our lives.

This important cultural mission justifies a substantial budget –7.066 million euros – for the support of innovative projects in the media industry, in which information and communication technology play a prominent role. Projects which are preparatory to participation in one of the European programmes or follow-up studies relating to these EU programmes are also eligible for consideration[96]. In principal, all the actors[97] who are actively involved in one of the value chains of the creative industries listed above are qualified to apply for additional support.

The Programme for Innovative Media seeks to help the sector by gathering information about technological possibilities, relevant social and cultural developments and successful media innovations elsewhere in the world. It is also prepared to give assistance to implement this knowledge in practice, in order to gain a better insight into the manner in which companies translate their innovative ideas into marketable models in the international arena.

The advantages of participation in the Programme for Innovative Media, in comparison with ordinary support programmes, are:
- a permanently open channel for projects involving collective research;
- the possibility that the consortium submitting the application can also act as the implementer of projects for collective research;
- a broadening of acceptable research activities (research into standards and absorption capacity in the sector);
- no (budgetary) competition with projects from other fields;
- a policy bonus of 10% for cooperative projects (in addition to the 10% allowance for collaborative ventures).

PIM subsidises and supports:
- collective research which yields results and knowledge as a consequence of a dynamic collaborative venture, which must also organise the sharing of this knowledge with all participating actors and members, taking due account of their intellectual, financial and material contribution.

Two main categories of applicant-implementer must be distinguished. In one case the applying consortium will implement the project itself. In the other case, a knowledge centre will act as implementer, as defined in the VIS decree[98]. All applicants must comply with the conditions required of a VIS consortium.
- cooperative research, which within the context of this programme involves collaboration between at least three small or medium-sized companies, possibly in partnership with research institutions from the relevant sector; the applying companies must bear the full cost of the collaboration and any resulting intellectual property rights will remain for practical purposes in private hands. These co-operative projects will be dealt with on the basis of 'first come, first served'.

Would you like to know more?
For further information and relevant conditions, please consult the IWT website: www.iwt.be, and the Programme for Innovative Media handbook. Applications should be submitted to IWT, fao Programme for Innovative Media, Bischoffsheimlaan 25, B-1000 Brussels (pim@iwt.be).

96 See also www.mediadesk-vlaanderen.be, www.europrogs.be/EUREKA and www.iwt.be/loket/eureka.

97 The public braodcasting company VRTcan participate as a partner, but is not entitled to claim subsidies.

98 The VIS decree (Flemish Collaborative Ventures in Innovation) arranges support for projects related to innovation stimulation, technological advice and collective research – for more information see www.iwt.be/steun/steunpro/vis .

Scientific communication ONLINE

Since the 1990s, general science and technology innovation policy has devoted considerable attention to the popularising of science, technique, technology and innovation (STTI). But to what strategic purpose? The answer is simple: to strengthen the social basis for STTI as a key element in a society which is rapidly evolving in the direction of a knowledge society.

The importance which is attached to this popularisation of STTI in Flanders is reflected in the compilation of an annual Science Communication Action Plan. This plan embraces a wide range of initiatives aimed at several different target groups[99]. The Flemish Government invests approximately 9 million euros each year in the implementation of this action plan. The most 'valued' target groups are (school-going) children, young people, teachers, students and the general public.

During the last 10 years considerable expertise has been built up in the field of STTI popularisation in Flanders. The government can count on the support of many different actors for the realisation of this plan and the implementation (at least in part) of the related policy objectives. In total, no fewer than 28 separate organisations are regarded as being 'structural partners'. Within the framework of the action plan, regular appeals are launched for projects which can encourage understanding of or interest in science-related issues. In this article, we will highlight a number of initiatives which attempt to improve scientific communication online.

The win-win situation of WIN

The Flemish Government wishes to underpin the expertise which has already been built up, in part by the further extension of the existing collaboration between the government and the STTI actors. One of the means by which this can be achieved is the further development of the Science Information Network (WIN in Dutch). This network seeks to promote the exchange of information and expertise, not only between the actors but also with government departments. To facilitate this process, WIN is supported by an electronic platform: www.wetenschapsinformatienetwerk.be, which is administered by the EWI Department. This platform has been operational since 2006 and following an initial evaluation was revised in 2007, in order to better meet the needs of the members.

The WIN site allows all the actors involved in the popularising of STTI to publicise their activities and to exchange experiences and ideas with other interested parties. The groups concerned need to register as 'members' of the site, but this membership is free. A monthly newsletter keeps members fully informed about the activities on the site. At the present time, WIN has 277 members from 142 different organisations. Non-members can also access all the information on the site, but are unable to add input of their own.

Does the sun make a noise? Do fish get thirsty? How old were the Old Belgians?

The answers to these and many other 'scientific' questions can be found on www.ikhebeenvraag.be. This website is a kind of interactive encyclopaedia: a cyber-location where members of the ordinary public can go with all their questions about 'science' in the widest sense of the word. Scientists and academics from 32 different Flemish and federal research institutions, universities and university colleges will attempt to answer the queries of young and old alike. The website wishes to inform the public in an objective manner about scientific issues; improve communication between ordinary citizens and the scientific community; and stimulate interest amongst young people in scientific matters. The site is not intended to do your children's homework or to take the place of your family doctor (no medical diagnoses!) but it will try and solve all your other amusing scientific teasers.

The project is coordinated by the Royal Belgian Institute for the Natural Sciences and forms a part of the Science Communication Action Plan. Since the site went online in May 2008 some 837 scientists and academics have agreed to answer the public's questions – and just as well: the number of questions received currently stands at 7,854! The website has already clocked up a total of 281,383 unique visitors – and these statistics are increasing every month.

What is there in the pipeline? The start of the Flemish portal site for science and technology?

At the recommendation[100] of the Flemish Science Policy Council (VRWB) – the advisory body of the Flemish parliament and Flemish government in matters relating to science and technology policy – the EWI Department is investigating possible options for the creation of a science and technology portal site, which will be specifically aimed at the wider general public. This portal site is seen as a multimedia website where

young people and teachers can obtain reliable information about science and technology, possible courses of study, scientific reports (particularly by young scientists), etc. It is comparable with the existing Dutch site 'Kennislink' (Knowledge Link)[101].

It is clear that the digitalisation of society offers a wide range of new possibilities for the communication of scientific matters. It almost goes without saying that the EWI Department will be applying the best of these new methods to improve communication between scientists, and between scientists and the general public.

Liselotte De Vos,
Research Division

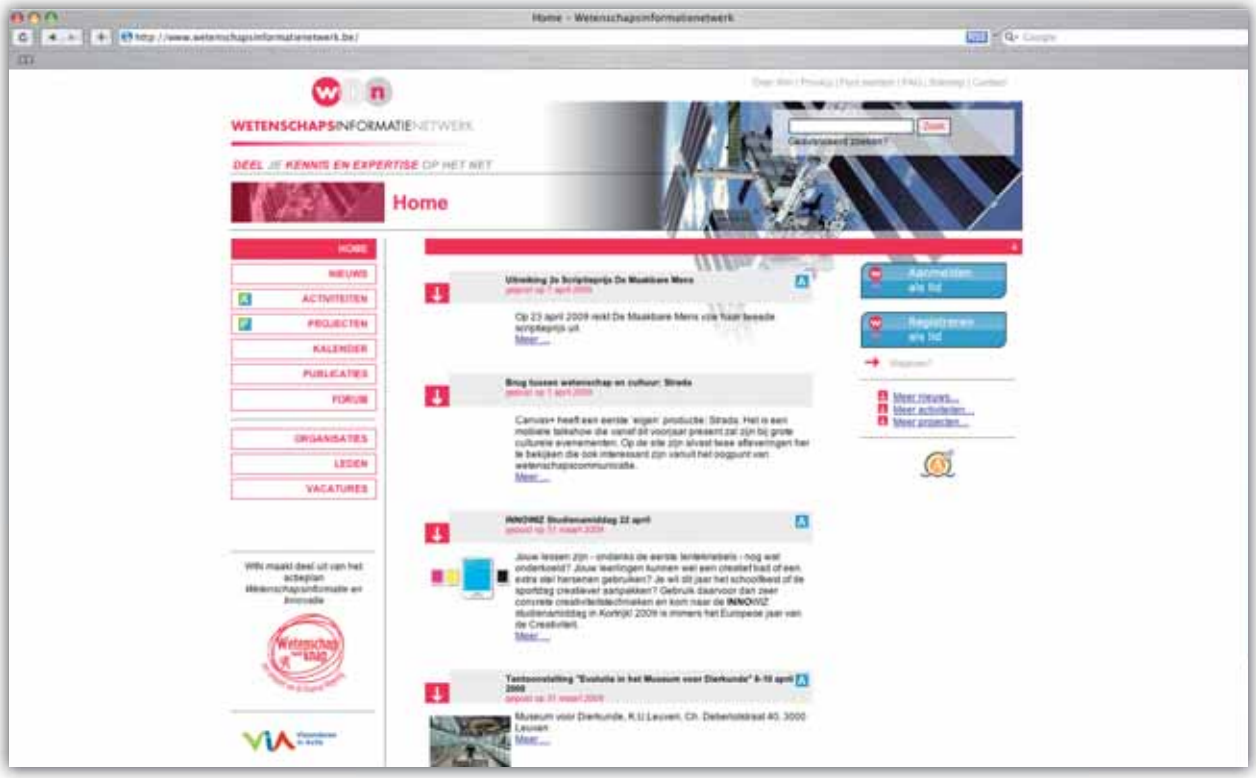
99 www.wetenschapmaaktknap.be.

100 Recommendation 31:Communication relating to science, technology and innovation via the media and Recommendation 33, 'Portal site for communication relating to science, technology and communication: see http://www.vrwb.be/home/index.cfm?menu_id=240&content_id=40

101 www.kennislink.nl

Figure 5: www.ikhebeenvraag.be

Figure 6: www.wetenschapsinformatienetwerk.be



Know what you want to know

It is an indisputable fact that the world is becoming more and more scientifically minded. An increasing number of decisions in government and in the business community are being taken on the basis of scientific – or at least so-called 'objective' - information.

Our department is largely concerned with policy preparation and policy evaluation. But how exactly do you evaluate a policy? How can you assess the effects of a particular policy measure? During a recent information session about budgetary matters we heard the following – almost old-fashioned sounding – definition of a subsidy: "a financial incentive to influence the behaviour of the population or a specific group in a manner desired by the government of the day."

This gave us pause for thought. How can you evaluate whether behaviour is moving in the direction "desired by the government of the day"? The Flemish Government grants subsidies for initiatives which stimulate enterprise or public interest in science and technology. The resulting events – symposia, publicity actions, tv programmes, educational packages and multifarious other activities – are all closely evaluated. It goes without saying that a strict methodology is applied. Use is made of the external expertise of recognised statistical bureaus. Management agreements and protocols contain carefully compiled question lists to encourage self-evaluation. Guidelines for the communication strategy relating to evaluations and evaluation reports are set down in vision statements. In short, every activity is evaluated – and thoroughly evaluated. Our colleagues in the evaluation division certainly do not believe in half measures!

Yet when all is said and done, the basic question remains the same. How do we know if we have achieved the necessary influence on "the behaviour of the population or a specific group in a manner desired by the government of the day"? The Science Festival[102] was a great popular success: people had a good time and were happy with what they saw. Those questioned afterwards declared that they had learned a lot and that their mental image of scientists had changed for the better. But what does this prove? It is no different to the euphoria which exists amongst the crowd after a successful concert or a thrilling football match. But does it mean that the interest of a particular sub-group of the population in science and technology has been influenced in the way the government wishes?

The methodological problems of evaluation are not dissimilar to the problems of science itself. Some of these problems are empirical (What do we measure? How do we measure it?). And the solutions require the application of mathematics and logic. Objectivity is also necessary – or at least an inter-subjective approach. After all, we are searching for the Truth – if such a thing exists. Opinions on this subject – 'scientific philosophy, as it is known – are divided. Which do you prefer? The empirical approach? Or the critical rationalism of Popper[103]?

And even if we can untangle these complex issues, there is still another problem waiting in the wings: the significance analysis – which is essentially a problem of language. Moreover, it is a problem which arises even before our choice of questions and observable phenomena has been made. Before our choice of a score between 1 and 10. Before our final assessment of unsatisfactory, satisfactory, good or very good. "Measuring is knowing". But what precisely are we measuring? And what exactly do we know? How should we refer to this knowledge? What should we call it? The definition of a problem always begins with words, with all their explicit and implicit meanings – and herein lays the danger. Notwithstanding the production of a glossy final report, liberally sprinkled with colourful pie-charts and padded out with plentiful annexes, the end conclusions will be interpreted by people in words, and not in figures. And words are capable of many different interpretations…

Quite often, the effect of a measure is broken down into different pieces even before the application of the well-constructed, methodologically-correct analysis has begun. This is frequently where things begin to go wrong, since it requires a good deal of abstract thinking. As a result, the first choice of 'subjects for evaluation' is based on a mass of unproven, implicit suppositions.

If we are evaluating universities, we want to know how good these universities are. But what is a good university? We can look at how many students apply. We can analyse what courses they follow. We can monitor how long this takes. We can check how many graduate with success. A graduate degree is supposed to be a guarantee of quality – and so the more degrees a university can deliver, the better it must be. Mustn't it? Or is there perhaps in these circumstances a tendency to award degrees too easily, so that some universities become little more than degree factories? Measuring the quality of fundamental research is no easy task! We can hardly count up the number of brilliant ideas and then subject them to complex statistical analysis. Besides, who would decide what constitutes a brilliant idea? For this reason, analyses of this kind are usually based on the number of publications: in other words, an idea or a research project is only of value if it is published in a 'top' scientific journal (see box). Talk about an implicit assumption! For example, it is perfectly possible to argue that prestige periodicals implicitly favour mainstream thinking. Someone with a radical new view – no matter how brilliant – may still find it difficult to get his (or her) work into print. And there are various other subjective factors which can also play a role. And so our problems continue.

The use of sound methodology for the collection of empirical data and the application of correct mathematical principles during its analysis are crucial elements in any good policy evaluation. The employment of formal rules and agreements is second nature to any self-respecting public servant. This is important – but it is even more important to occasionally step back a little, in order to view matters from a different perspective. Preferably a bird's-eye perspective. Try to think clearly and abstractly, with sensitivity for the nuance of language and respect for the complexity of reality. Measuring is knowing. And we know what we have measured. But do we really know what we wanted to know?

Bart Dumolyn,
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Publishing in a scientific journal

Scientific journals usually target a particular field of research or a research community. Any self-respecting scientific magazine wants to become the source for its own particular research speciality, the reference point which reflects the current state of the art in that specific domain. It is to this type of 'top' magazine that the researchers are keen to submit their articles. Other experts or researchers in the same field (sitting on an editorial board of reviewers) will then judge these articles. Top magazines try to get top people from the key fields in their domain to sit on their editorial committees. The submitter of the article does not know who will be reviewing his/her text (blind review). Sometimes the reviewer does not know the name of the author (double blind review). The joint opinion of the experts (usually three in number) must ensure the objectivity of the review process. The experts will usually highlight elements in the text which they think need improving. If the author is sufficiently responsive to these 'suggestions', he may get published. Otherwise, he will not.

102 EWI-Review 1 (1): 47 – 49
103 http://nl.wikipedia.org/wiki/Karl_Popper#Kritisch_rationalisme.

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