

European Commission - DG RTD

**'Diversified Funding streams for University-based research:
Impact of external project-based research funding on financial management in
Universities'**

**Expert Group Report
chaired by Sabine Herlitschka**

2008

Introduction

“Europe needs universities able to build on their own strengths and differentiate their activities on the basis of these strengths.”

With this statement the Modernisation Agenda¹ makes the importance and role of universities very clear while at the same time pointing out the specific need for further development in order to ensure that they contribute fully to the implementation of the European Research Area and to the Lisbon Agenda.

The recent consultations on the future of the European Research Area (ERA) stressed the need for Europe to have fully autonomous, accountable, well managed and performing universities, and recalled the current context of insufficient funding for higher education institutions in Europe.

Terms of Reference of the Expert Group:

The structure of funding both at European and national level tends increasingly towards project-based funding. As a consequence, universities face the challenge of diversifying their funding streams in order to support fully their research activities, of moving towards full recovery of research costs, of fostering their financial management of research activities driving their own strategies, and of adapting themselves to competitive project-based research funding.

In this context, the Expert Group was tasked to:

- a. Provide a broad overview of the characteristics of external project-based funding mechanisms across EU 27, with a focus on their financial and accounting requirements and conditions;
- b. Identify the impact of these external funding requirements and conditions on the development of financial management capacity in universities;
- c. Assess universities' different experiences and needs with the aim of informing further design of future funding schemes;

¹ Communication from the Commission to the Council and the European Parliament: 'Delivering on the modernisation agenda for universities: education, research and innovation' COM (2006) 208, 10 May 2006

- d. Consider the degree to which the conditions of external funding can assist the move towards full recovery of research costs as a major component of sustainability of university-based research;
- e. Identify recommendations of appropriate action at European and national level.

The Experts Group's Focus on the Funders' Perspective

The subject of this Expert Group Report 'Impact of external project-based funding on the financial management of universities' might appear to be very technical at first sight. However, it relates directly to the subject of financial sustainability, which is a core condition for European universities to contribute fully to the ERA.

Over the last couple of years, with reforms implemented in several countries, there has been a lot of reflection on various issues and aspects related to the financing of universities that has been summarised in respective studies and reports.

What has received less attention is the role and perspective of funders. Funders play an important role, since the funding provided is always linked to specific conditions and requirements with respect to the type of activities they support as well as in legal and financial terms. Consequently, these funding conditions and requirements develop significant influence and are closely interconnected with universities' management approaches in general and financial management in particular.

In focussing on the funders' perspective, the expert group included in its discussions national funding agencies, the European Commission, companies and to some extent foundations.

Based on the Terms of Reference the Expert Group concentrated its reflections on three aspects:

- Research activities of universities – education and training are not covered
- External project-based research at universities, with internal or core funding being addressed as far as it relates to external project-based funding
- Research universities – the entire higher education sector is not covered despite the fact that several points will be relevant to it.

Two Key Principles: Financial Sustainability and Research Management

There are two underlying principles that substantially influenced the work of the Expert Group.

Financial sustainability is essential

‘Although universities are not primarily businesses and should focus particularly on their academic teaching, learning and research, they must also be business-like in the way that they use their financial, physical and human resources. This responsibility is increased because they employ considerable public funds’².

The need for universities to become sustainable cannot be in question and it is their responsibility to ensure that they achieve the right level of research funding, and the right balance between core and external funding appropriate to their circumstances. Financial sustainability is essential but it cannot be achieved unless universities have the necessary autonomy, and appropriate management practices and systems, to make those decisions and act in a business-like way.

Excellence in research and research management go hand in hand

In our world of ever increasing complexity, research needs pro-active research management. The Expert Group is convinced that the ambition for excellence in research applies equally as strongly to research management.

EURAB in its report on research management summarized it as follows³

“Without excellent research management, Europe’s RTD will simply not deliver the benefits expected and needed. Excellence in research management is also an essential enabler of the ambitions in the European Commission’s recent Green Paper on the future of the ERA.

² Joint Pricing and Steering Group ‘Transparent Approach to Costing: an overview’ June 2005³
Research Management in the European Research Area: Education, Communication and Exploitation,
EURAB 07.007, European Research Advisory Board, May 2007

Research management excellence is needed both at a strategic level – doing the right things – and at an operational level – doing things right; research management is about far more than just financial reporting. Excellence is needed at all stages of the research process, from basic to applied research as well as in collaboration and partnership with the business community as part of research and innovation ecosystems within non-linear complex innovation processes.”

Structure of the Report

The Expert Group’s Report is structured along the following main chapters:

Introduction of the members of the Expert Group

Executive Summary and Recommendations

Definitions and Terminology used in the report

Overview of the characteristics of external project-based research funding mechanisms across Europe and comparative countries

Universities' different experiences and needs: Identification of the impact of external funding requirements and conditions and assessment of universities experiences and needs

The way forward: the sustainability of university-based research

Annexes including the list of references, the questionnaire used and the list of contributors to the discussions of the Expert Group

Evidence for this Report

The discussions of the Expert Group have been built on the evidence set out below.

The members of the Expert Group themselves cover a broad range of expertise including university management, national funding organisations for basic and applied research, as well as research management and services at institutional, national and European level.

A questionnaire to all EU member states and some comparative countries provided for the broad overview on external project-based research funding. Two specific questionnaires for selected universities and funding agencies respectively helped in gathering specific input.

An overview table of major national public funding organisation, their budgets, orientation and funding requirements & conditions was produced with the help of input from experts in each EU member state, Switzerland and Turkey.

Detailed interviews with several funding agencies, companies, universities, associations and representatives of the European Commission.

Each Expert Group member produced a country overview in order to be able to specifically describe the funding conditions for universities in their country.

Introduction of the members of the Expert Group

Chairperson:

Sabine HERLITSCHKA

Austrian Research Promotion Agency (FFG), Director of the Division of European & International Programmes, Austria

Educated as biotechnologist, the professional background of Sabine Herlitschka includes research in international biotech industry, international RTD cooperation at BIT-Bureau for International Research and Technology Cooperation, Internship at the National Science Foundation, AAAS (American Association for the Advancement of Science) and cooperation with the first Science Advisor in the US Department of State. Before joining FFG, she was founding Vice-Rector for Research Management and International Cooperation at the newly set up Medical University of Graz/Austria. Since 1996 she has been frequently involved in EU project development, coordination and proposal evaluation, as well as engagement in European and international expert groups. She has been nominated Austrian Coordinating National Contact Point for the 7th EU Framework Programme.

Rapporteur:

Pierre ESPINASSE

Oxford University, Head Research Services (Science Area) & Associate Director Knowledge Exchange, United Kingdom

A graduate in Languages and Economics, Pierre has over 20 years' experience of working in research management and funding, initially with the UK Research Councils and subsequently at the University of Oxford Research Services. Pierre was closely involved in the development of full economic cost in the UK and has been an active contributor to the development of research and knowledge exchange policy in the UK and Europe.

Expert assisting the Rapporteur:

Willem WOLTERS

Wageningen University and Research Centre, Head of Wageningen International Helpdesk, The Netherlands

He has almost 25 years' experience of supporting participations in EU research programmes, with national and international public and private organisations. Wageningen University and Research Centre has a long tradition of participating in the successive Framework Programmes. As head of Wageningen International Helpdesk Willem Wolters supports researchers developing proposals and executing projects and guided transitions towards the full costing system. As President of UNITE (Universities International Team of Experts), advisor of VSNU (Dutch Association of Universities) and member of the EUA working group on the Seventh Framework Programme he is involved in a wide range of EU-affairs.

Olivier KÜTTEL

Director of Euresearch, Switzerland

Olivier Küttel has a PhD in plasma physics and worked many years in the field of nanotechnology and surface science. From own experience he knows the different national and European research initiatives. He worked as a patent expert for the Swiss federal institute of IPR and joined the Swiss information network for European R&D Euresearch as its director in fall 2000.

Gülsün SAGLAMER

İstanbul Technical University, Turkey

Former Rector of Istanbul Technical University (1996-2004). She is a Board Member of EUA and Executive Committee Member of IAUP. She is currently the President of the Council for Technology and Technoparks in Turkey and a Board Member of ITU's Technology Park and Incubation Centre, ARI Tecnocity (the Advanced Research and Innovation). She is a Member of the Board of Trustees of Kadir Has University. Gülsün Sağlamer is a professor of architecture. She has been a visiting scholar at Cambridge

University and a visiting professor at Queen's University in Belfast. She is a member of the editorial board of three international scientific journals. She was awarded Honoris Causa by Carleton University, Canada (2001) and Universitatea de Nord Din Baia Mare University, Romania (2002). The American Institute of Architects (AIA) awarded her "Honorary Fellowship (Hon FAIA) in 2006, SEFI awarded her "Leonardo da Vinci Medal" in 2005-2006.

Thomas A. H. SCHÖCK

Chancellor of the University of Erlangen-Nuremberg, Germany

Born in 1948, he earned degrees in law and economics at the University of Erlangen-Nuremberg. Having been scientific assistant in tax law at the same University he took up a career in the Bavarian State Government with the Ministry of Finance and the State Chancellery. In 1988, he became chancellor of the University of Erlangen-Nuremberg, i.e. head of administration, chief financial and staff officer and member of the governing board. From 1996 – 1999 he served as chairman of the chancellors of the Bavarian universities, from 1999 – 2000 as deputy chairman and from 2000 – 2003 as chairman of the chancellors of the German universities. Since 2004 he is spokesman of the German chancellors' working group for Intellectual Property Rights, third party funding and European affairs. He served as a member of the European Universities Association's Institutional Experts Subgroup on Transparent Costing. In 2008, he has been awarded the order of merit of the Federal Republic of Germany.

Erika SZENDRAK

Hungarian Academy of Sciences, Deputy Head of the R&D and Innovation Department at the HAS Secretariat, Hungary

With her background as biotechnologist and as science policy expert she provides EU science policy and EU level funding advice for the Academy's scientific community. Since April 2006 she is the founding director of HunASCO, the Academy's contact office based in Brussels. Before her current assignment at Hungarian Academy of Sciences, she worked at Brussels at EC DG Research as a research policy expert for four years and at the University of Nebraska-Lincoln in the US as a university lecturer and research associate. She is also Programme Committee expert and National Contact

Point of ERC/IDEAS in 7th EU Framework Programme as well as member of the Team Europe Network as an appointed expert by the Commission Representation in Hungary.

Tiina VIHMA-PUROVAARA

Academy of Finland, Manager for EU Affairs at the International Relations Unit,
Finland

With a background at the Institute for Art Research at the University of Helsinki, Tiina Vihma-Purovaara is deputy director of the International Affairs unit in the Academy of Finland responsible for coordinating EU -and Latin American activities in the Academy. She is a member of the National Science and Technology Section under the Committee for EU Affairs, chaired by the Ministry of Trade and Industry. She is also the Committee member and National Contact Point of INCO in 7th EU Framework Programme as well as an expert member of the Specific Programme Committee Cooperation.

Jacques VOIRON

Joseph Fourier University Grenoble, France

He holds a degree in engineering, a PhD Thesis in Computer Science and is Professor in Computer Science at the Université Joseph Fourier Grenoble France. Successively he has been Dean of the Department of Computer Science & Applied Maths, Director of IMAG Research Laboratory in Computer Sciences and Technologies & Applied Maths, Vice-Rector for Research, and then Vice-Rector for industrial relations and the research transfer at Université Joseph Fourier. Furthermore, he has served as European affairs advisor for the CPU (the French conference of university rectors) and is Member of the French ICT National Contact Point consortium for the 7th EU Framework Programme.

Observer:

Thomas ESTERMANN

European University Association (EUA), Senior Programme Manager, Brussels

Thomas Estermann is a Senior Programme Manager at EUA. He is responsible for funding and finance, governance and autonomy issues in higher education and research. Before joining EUA, he was Deputy Head of the Department of Strategic Development and Deputy Head of Administration at the University of Music and Performing Arts, Vienna. He was involved in implementing new cost accounting systems in the Austrian universities and adapting the university to conform to the last reforms in higher education. Before entering the University he pursued a career as a lawyer. He is a member of the Executive Committee of HUMANE (Heads of University Administration in Europe) and founding chairman of WSAN. He is member of the editorial board of the UK-based Higher Education journal "Perspectives". He holds a masters degree in law from the University of Vienna.

On behalf of the European Commission:

Anne ROUAULT

European Commission, Directorate General Research, National-seconded Expert, Brussels

Anne Rouault is one of the policy officers in charge of the implementation of the Modernisation Agenda for Universities (Unit C4- Universities and Researchers). Before joining the European Commission in Sept 2007, she has been working in the French Ministry of Higher Education and Research, in the respective departments of higher education, research, and finance. As a last position she was head of unit 'research policies of universities' in the departement of higher education and university based research. She was thus responsible for preparing the performance agreements concluded between the State and the universities regarding their respective research portfolios (agreement on the universities' strategic objectives / agreement on the volume of the core funding for research). She holds a master degree in Geography, and a permanent position in the french administration of education and research.

Chapter 1

Executive Summary and Recommendations

The structure of funding both at European and national level tends increasingly towards project-based funding. As a consequence, universities face the challenge of diversifying their funding streams in order to support fully their research activities, of moving towards full recovery of research costs, of fostering their financial management of research activities driving their own strategies, and of adapting themselves to competitive project-based research funding.

Funders play an important role in this since their funding conditions and requirements influence and are closely interconnected with universities' management and in particular financial management, hence the focus by the Expert Group on the funders' role and perspective.

Drivers for change

Two underlying drivers substantially influenced the work of the Expert Group: financial sustainability of universities is essential but cannot be achieved unless universities have the necessary autonomy and appropriate management practices and systems to make those decisions and act in a business-like way; and, in our world of ever increasing complexity, research needs pro-active management. The Expert Group is convinced that the ambition for excellence in research applies equally as strongly to research management.

This report seeks to highlight those areas of strategic development which are essential if universities and their research are to remain sustainable and competitive, and those issues which need to be explored in greater depth. The report, and the work undertaken in producing it, demonstrated that it represents just one step in a long and complex process.

Two key issues emerged in undertaking the review. The first was that, as highlighted by the findings of the EUA report on financially sustainable universities,⁴ there is a need to establish clear definitions for many of the terms relating to sustainability, autonomy and full costing. The second was that there are severe limitations as to the availability of data on the characteristics of external project-based research funding and, where data are available, there is considerable variance as to the way they are collated and

⁴ "Financially Sustainable Universities : Towards Full Costing in European Universities", European University Association, EUA Publications 2008, pp17-19

interpreted. In addition, the Expert Group found it difficult to engage funders' associations in discussion over the role and views of their members on the questions raised.

Characteristics of external project-based funding

Expenditure on university-based research is a significant element of public funding on higher education, with direct national or regional government acting as the principal source of funding. Where project-based funding is received, there is little consistency between external funders on conditions and requirements and universities in most countries are having to adapt their financial management systems to meet the requirements of their principal funding organisations. There does appear to be a clear trend across Europe towards universities needing to adopt full costing as well as a more strategic approach to the management of research and the internal allocation of resources to support their research. National funding agencies play an important role in providing external project-based funding for universities and, through their conditions and requirements, have a significant influence on universities' financial management although very few of these agencies yet recognise or are prepared to cover the full costs of research.

Assessment of universities' experience and the impact of external funding

Universities' experiences and successes in external project-based funding on the one hand heavily depend on the management approach they apply and the degree of institutional strategic perspective they are willing and able to implement. On the other hand, external project-based funding itself influences the development of universities' management approaches. These two factors of external project-based funding and institutional management are closely inter-related and influenced by each other. They represent a significant positive feed-back loop to be considered by universities and funders alike, although the manner in which universities react to this is closely related to the degree of autonomy they enjoy.

The ability to know the full costs of institutional operation is an essential prerequisite in order to develop a sustainable basis for a university that intends to pro-actively manage its future opportunities. Doing so not only has to do with technicalities of accounting but also with funders' perceptions towards universities and consequently cultures that need to be changed or adapted. However, changes in university acts already implemented or currently under preparation in many European countries show clear moves towards greater autonomy for universities and thus the development of full costing approaches within them. Therefore, the issue is high on the political agenda and

plays a major role in discussions on the European Research Area and the modernisation agenda for European universities.

The Expert Group believes that full transparency is the best possible way to ensure clear understanding of costs by all actors involved. As a consequence, and in order to substantiate the credibility of universities needs in terms of sustainable funding, similar exercises like the “Transparent Approach to Costing” (TRAC) in the UK would be necessary in most countries. What is necessary is a good balance of funding agencies and organisations that work along the same principles and procedures, while at the same time keeping the diversity in terms of the different objectives they pursue thus strengthening the competition between funding organisations for the best research projects with respect to their funding portfolio.

The catalytic role of Framework Programme 7 (FP7)

Due to its specific nature and regulations, the FP generally and FP7 in particular does have a strong catalytic role on universities, in the sense that it stimulates awareness of full costing. It can be said that, from the point of view of fostering and incentivising the development towards full costing and an increased awareness as regards the necessity of sustainable funding for universities, the rules as set up for FP7 in relation to abolishing cost models and allowing the opportunity of using a simplified method of identifying indirect costs were a move in the right direction.

The fact that FP7 reimburses indirect costs at a significant level clearly had an educating effect on university leadership and researchers across most of Europe and has raised awareness of indirect costs. For the university leadership - in many cases - it was an “eye-opening” experience to see the dimension of real indirect costs at their institution after the first rough estimations or calculations. This experience resulted in an increased awareness not only towards direct, but also towards indirect costs and thus a real sustainable funding approach. This will again come up high on the agenda with the mid-term evaluation of FP7 and the 60% transitional flat rate of indirect costs.

It is clear that FP7, with its approach to funding based on full costs and recognition of indirect costs, has had a very obvious direct as well as more indirect impact on funding organisations at national level in many countries. In more direct terms, information gathered by the Expert Group suggests that, influenced by their experiences with FP funding rates for direct and indirect costs, universities are increasingly starting to request similar approaches from national funding agencies.

The sustainability of university-based research

External funding and accountability

There is a trend across Europe towards a mixed economy model whereby many universities are shifting from a model where they have significant 'internal' resources which they are able to allocate as they see fit and support research in line with their own strategic goals, to a model where they are more dependent on competing for funds and thus increasingly influenced by research priorities set by funders. External funders, therefore, have a key role to play in assisting universities in developing improved management and accountability systems and in achieving sustainability through identifying and recognising the full cost of their research activity.

'Core' versus 'external' funding

There appears to be little empirical evidence to show what the 'right' balance is between core funding allocated at institutional level, which allows the university to set its own priorities, and external project funding. While it is clear that there are benefits to be derived from the increased move towards external funding, university research cannot be fully dependent on such external funding. A university's ability to develop its strategic research activities with respect to its profile and objectives can be restricted by an over-reliance on competitive funding sources. Thus, if universities are to maintain a degree of flexibility to develop strategic research models and to successfully target competitive research funding, it is important that they retain an element of 'internal' core funding from the State which they are free, subject to accounting for outcomes, to allocate as they see fit. While 'external' funding of research is very important for ensuring quality, it is also clear that core funding is essential to support long term strategic planning by universities.

The need for clarity

A critical aspect of core funding relates to the maintenance and updating of existing infrastructure. It is important to recognise that part of the cost of making EU universities globally competitive is ensuring that buildings and facilities are brought up to date and are maintained. It is critical, therefore, that where core funding is provided to universities, the extent to which it is expected to meet *current* maintenance costs and/or to invest in updating infrastructure to a competitive level is clearly agreed between all partners.

Responsibility for financial sustainability and reasonable accountability

While each university must take responsibility for its own long term sustainability, the Expert Group's view is that Member States (through their national and regional funding schemes) and the European Commission together have a responsibility to maintain the sustainability of university-based research at sector level. However, it is clear that this is often not reflected in the strategies adopted for the funding of research programmes. There can be tensions between the goals expressed by EU and national public funders in terms of how they see university-based research developing and the controls and regulations that are then imposed around individual project grants. There are also indications that accountability requirements in funding schemes can be too complex and that there is a real risk of rules and procedures limiting university autonomy or leading to complex bureaucratic reporting procedures. It is important, therefore, that sponsors of research recognise this and, by entering into a dialogue with universities, explore ways in which these impacts can be lessened.

A key area which can cause confusion and concern and which can lead to overly burdensome reporting requirements is that of the methodologies used to record time spent on certain activities to support cost allocations. The diversity of European universities, both in terms of their legal and administrative structures and their remits and objectives, means that no single model exists and a variety of methodologies, all equally robust, are evolving to suit particular national or functional circumstances. The Expert Group concurs with the comments made by EUA that any certification process at a European level should remain 'light touch' and allow for the different methodologies for time and activity allocation that are being developed at a national or sector level. The Group further believes that this is consistent with the fact that research is a unique activity which cannot be treated in the same way as the procurement of goods and that, therefore, the financial and audit requirements may need to be adapted to take this into account.

Sharing best practice

The principal funders of university-based research have the means to coordinate their conditions and requirements to lessen the burden on universities and support the simplification process. The Commission is in a unique position to act as a moderator and catalyst in this area and to facilitate a discussion to identify a degree of commonality around best practice. It should work with the national funding agencies to share experiences and collect information on good practice for external funding terms and conditions, with the aim of identifying best practice at a European and national level.

Full costing as a tool for sustainability

The sustainability of university-based research requires universities to be able to identify their full costs and, more importantly, cover these costs from internal or external sources. Universities' experiences and successes in external project-based funding heavily depend on the management approach they apply and the degree of institutional strategic perspective they are willing and able to implement.

Strong, autonomous universities have responsibility for their own sustainability and therefore need to have robust management structures and systems in place to support their decision-making. Full costing is a key tool in this regard as universities cannot plan strategically and decide what areas to develop and support if they do not know the real long-term cost of their activities. The ability of a university to identify robustly the true cost of a particular research project allows it to identify which sources of funding are appropriate to its activity and sector.

While it is important that the modernisation agenda be managed so as not to destabilise European universities through too rapid changes, the Expert Group's view is that the majority of European universities are not developing fast enough. If universities are to compete at an international level and ensure the sustainability of their research it is essential, if they have not done so already, that they engage now in the process to identify the full costs of their activities.

Acceptance of full costing

The ability to identify ones true costs comes with a responsibility to manage them strategically. However, this can only be achieved if all the actors involved, including the funders of research (whether through core funding or competitive, project-based funding) understand and accept the principles involved and recognise the need for universities to recover the full costs of their activities. FP7 is a key driver in the move towards sustainability and in encouraging universities to adopt full costing methodologies appropriate to their national legal situation. Using FP7 as a tool to reward good practice can encourage the move from using the flat rate for indirect cost recovery to the use of actual indirect rates or the simplified methodology, as long as the benefits of doing so are not outweighed by disincentives, such as overly burdensome auditing requirements which exceed nationally agreed methodologies, or the application of standard 'procurement' type conditions on research activities.

Encouraging the move to full costs

Recent evidence suggests that the majority of European universities, particularly those in the new Member States, will not be in a position to identify the full costs of their research in the next few years in a way which would allow them to improve their cost recovery without strong incentives and the support of their national funding agencies. It is important, therefore, that the Commission take the opportunity presented by the mid-term review of FP7 to encourage Member States to support the move to full costing, whether through providing financial assistance or incentives or through other support mechanisms. The Commission should also take account of the preparedness of universities to move to full costing when considering the level of the default indirect cost flat rate under FP7 and be mindful of the need to encourage rather than force any move towards full costing. A reduced default rate could be a useful tool in the move towards incentivising universities but should not, in itself, be the driver.

Excellent research needs excellent management

It needs to be recognised that, as well as the ability to identify the full costs of their research, it is important that universities have the management and administrative infrastructure necessary to manage their internal resources so as to support the strategic co financing of their research in a sustainable way. In other words, the move towards full costing is not an end in itself: it simply provides the essential tool which universities require for identifying and understanding their true costs and through which they can move towards sustainability.

The current state of university infrastructure

The additional challenge for universities, once they are able to identify their real costs, is being in a position to make good past underinvestment in their human and physical infrastructure as well as to make strategic decisions on future investments. In many cases, the level of investment required to bring infrastructure up to a globally competitive level is unknown and is likely to be substantial. Full costing and recovery of real costs, while of prime importance, are not sufficient in themselves if a university's human and physical infrastructure is not at a competitive level and if there is no awareness, at a national level, of the level of investment required to bring them up to a suitable standard.

Recommendations

Responsibility at university level

Recommendation for Strategic Development:

Universities must recognise that excellence in research requires sound and pro-active management practices.

Excellence in research and management go hand in hand, financial management is a condition for informed, strategic decision-making, in an environment where universities are expected to develop long term excellent research activities in line with their strategic profile.

Full costing is an essential component of appropriate financial management of research in this context.

Recommendation for Action: Universities need to adopt full costing methodologies appropriate to their national legal requirements as a key tool for sustainable development.

Shared roles and responsibilities for Member States and the European Commission

Recommendation for Strategic Development:

Member States have a responsibility to contribute to the sustainability of the university-based research sector together with the European Commission supporting this process at EU level. Both should, therefore, ensure that this objective be one of the principles underpinning all the research programmes they fund.

Recommendation for Action: Member States, working with the principal national funding agencies in the first instance, but involving other research funders in time, together with the European Commission should consider drawing up Good Practice Guidelines for External Funding Terms and Conditions in consultation with universities.

Role and responsibility at National level

Recommendations for Strategic Development:

The financing of university infrastructure underpins universities' ability to maintain research excellence and competitiveness.

In allocating core funding, Member States need to be clear about the purpose of that funding and recognise the cost of maintaining existing infrastructures as well as that of bringing them up to a globally competitive standard.

Recommendation for Action: Where such an exercise has not yet been undertaken an assessment of the current state and competitiveness of university research infrastructure (both human and physical) in individual Member States will be necessary so as to identify priority areas for investment.

Responsibility at European level

Recommendation for Strategic Development:

Research activities shall not be supported like procurement, as there are fundamental differences between funded research and procured activities. Where procurement requires the definition of all kinds of detailed input descriptions and reporting, research activities should be supported and funded by focusing on their contribution to the “production” of knowledge. Thus, consideration should be given to the financial regulations which surround research funding to ensure that they are suited to the nature of research activities, in terms of reporting requirements and expected accountability.

The Commission should reward best practice and encourage the adoption of full costing while ensuring that those universities which do so are not placed at a disadvantage when competing for funds.

The FP 7 transitional flat rate can be used as major external driver towards full costing implementation but shall not be considered in isolation. Appropriate support at national level has to be provided to universities to facilitate their transition to full costing implementation.

Recommendations for Action: As part of the mid-term review of Framework Programme 7, the Commission and the Member States should review the state of play across EU 27 on the ability of universities to identify the true costs of their research as well as the national support mechanisms available to them to do so, and should promote the sharing of best practice and mutual learning while taking into account national legal and structural constraints.

Chapter 2

Definitions and Terminology Used in the Report

In undertaking this review, it became clear to the Expert Group that there was a need to establish clear definitions for many of the terms used as often, both during discussions within the Group and with other organisations, many of the terms were interpreted quite differently by the interlocutors. For the purposes of the report, therefore, the following definitions have been used.

Full Costing: an accounting methodology used to identify and calculate all the direct and indirect costs incurred in undertaking a project or an activity.

Direct costs: costs directly attributable to an activity.

Indirect costs (sometimes referred to as 'overheads'): costs that relate to an activity but which cannot be identified and charged at the level of the activity.

Sustainability: the ability at institutional or sector level to maintain an activity into the future without loss of quality and with the appropriate resources.

Autonomy: a fully autonomous university will be able to set its own programmes of teaching and research, have full budgetary freedom and control of its own finances (subject to normal auditing rules), freedom to recruit faculty members and set salary levels, and freedom to allocate resources as it sees fit and engage in new activities of its choosing.

Accountability: for the purposes of this report, the accountability of a university to an appropriate national or regional authority for the use of public funds and for the outcomes of its actions and decisions.

Core funding: funding allocated to a university by national or regional government or public agency as part of an annual budgeting round for the support of the university's general teaching and/or research activities.

External project-based funding: funding received from an external party, whether public or private, in many cases based on competition by peer review, to undertake a defined programme of research.

Funders: for the purposes of this report, a diverse group of possible funding sources including national or regional public funding either directly through government or funding agencies, national private funding from different sources and international public and private funding.

Sponsor: the external party providing the funding for a defined programme of research

Infrastructure: the resources within a university needed to undertake teaching or research activities. For the purposes of this report this includes both physical (buildings, major facilities, systems) as well as human (academic and support posts, working conditions, remuneration levels) resources.

TRAC (TRansparent Approach to Costing): the activity based accounting methodology introduced in all UK universities for costing their main activities (Teaching, Research, and Other activities)

Chapter 3

Overview of the characteristics of external project-based research funding mechanisms across Europe and comparative countries

As part of its review, the Expert Group undertook a survey consisting of a questionnaire (see Annex 1) and the development of an overview on conditions and requirements of the major national funding organisations in Europe.

The intention was twofold:

- to obtain **broad indicators and an overview of the characteristics** of external research project-based funding mechanisms across Europe and comparative countries,
- to identify **recent trends** in order to assess their **impact on the development of financial management capacity in universities** and the move towards full recovery of research costs.

Broad interest – but substantial limitations of available data

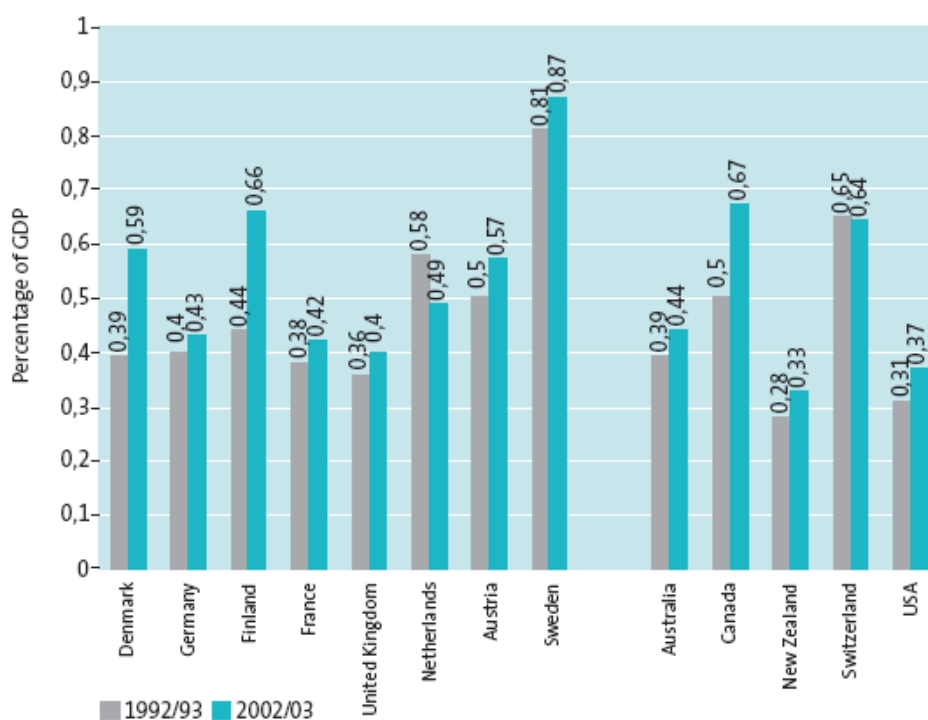
Although many of the organisations and individuals approached were very interested in the information being sought in the questionnaire, it became apparent that there are severe limitations as to the availability of such data across Member States and that, where data are available, there is considerable variance as to the way they are collated and interpreted. Nevertheless, the Group was able to identify some broad indicators which provide useful background to the subject of this review.

General characteristics of research funding across Europe

While, for the reasons set out above, it is difficult to obtain comparable figures, it is clear that **expenditure on university based research is a significant element of public funding on higher education** accounting, as it does, for between 30% and 50% of that funding in most countries and that it is growing.

This indicator links in with other sources of data showing over time increasing expenditure on academic research in some Member States and comparator countries (see Fig. 1).

Figure 1: Expenditure on academic research as a proportion of GDP, 1992/93 vs. 2002/03 (Source Austrian Research and Technology Report 2007)



Source: OECD (MSTI); tip calculations.

Direct National or Regional government remain the principal source of funding for university-based research across most of Europe as well as comparative countries. It would appear, however, that in newer Member States and in those countries which have yet to adopt a more strategic approach to the management and funding of universities, this source of funding accounts for a greater proportion than in other countries which have a more diversified funding base and where national funding agencies have significantly more importance. For example, while national government accounts for 70% to 80% of research funding in the Czech Republic, Poland, Estonia, Latvia and Hungary, in the UK and Switzerland it is national agencies which are the primary funders. European funding varies in importance across countries but is a major contributor in some (such as Portugal, Netherlands, Poland and Switzerland) while, perhaps surprisingly, industry or other profit-making organisations appear as the third major source of funding in a significant but diversified number of Member States, including Germany, Portugal, Spain and Ireland.

In the majority of countries national or regional government **core funding appears to be awarded on a formula basis to universities**, usually using past performance

metrics or, in a small number of cases, using current volumes or metrics. For the most part, universities are free to use these funds as they see fit but with explicit reporting requirements, although in a few countries, mainly newer Member States but also France and Spain, they have to be allocated to specific activities.

Where project-based funding is received, accountability for expenditure at project level and activity reports on the outcome of research are universally required. In some cases, there are explicit requirements for match funding by the university although, given the fact that very few sponsors will meet the full economic cost of the research (the exception being the UK where Government departments and profit-making bodies are expected to do so), the requirement for match funding is implicit even if not recognised as such by the players involved. There appear to be wide variations in the requirements or expectations for co-funding with no clear pattern across Europe or across funders suggesting that, with the exception of Framework programmes, the reasons for co-funding may not have been fully thought through by the organisations involved.

The Group was also interested in seeing what **consistency** there might be **at national level between sponsors and what impact sponsor conditions had on universities**. While there does appear to be a move towards consistency between the rules and conditions imposed on awards for project-based research by national agencies in half the countries surveyed, where there are a number of agencies involved there is little evidence, other than in the UK, of much strategic thinking behind this. This is borne out by a brief review of some research universities across Europe with very different funding profiles who all reported that the conditions and requirements of their external project-based funding differed between funders⁵. Overall, therefore there is **little consistency when all external funders are considered** and there are clear indications that **universities in most countries are having to adapt their financial management systems to meet the requirement of their principal funding organisations**. In some cases, European funding is acting as the driver, for instance in Spain where the EC accountability requirements have been an important factor behind the pressure for the introduction of analytical accounting in the Spanish university system.

There is also little evidence of any trend by the primary funders of project-based research to streamline their financial reporting requirements (indeed, where there is a stated aim to simplify such requirements, there appear to be doubts at university level of the efficacy of such simplification or, as one respondent commented: ‘simplification remains a challenge’). In many cases, there remains significant diversity and the accountability and reporting requirements are described as remaining burdensome. For

⁵ See Annex 4 for questions to universities

example, while there has been much focus in the UK on reducing the burden on institutions, the extent to which that burden has decreased is questionable.

There are, however, clear indications that **funders are moving to change their criteria for awarding funding**: greater accountability is being sought to justify funding; greater use of competitive funding is seen as a way to improve quality of project proposals; and there is increased pressure to introduce performance indicators. Competitive-based research funding is being introduced in Lithuania while, in Ireland, all major funders have moved to full international peer review as a way of increasing national research excellence. These indications are borne out by a recent review⁶ which found that many OECD countries had extended their competitive research funding with the aim of improving the effectiveness and efficiency of their scientific research through focussing on performance and competition. The study concluded, however, that **there appeared to be no fundamental superiority of any specific type of funding over another**.

When asked about identifying the primary obstacles or problems faced by research sponsors in awarding funding to universities, weaknesses in financial reporting and project management were identified. However, it was commented that sponsors sometimes failed to understand universities' internal procedures and the need to adapt their systems to meet sponsor requirements. The impact of low success rates was also mentioned as having a detrimental effect on universities' interactions with sponsors.

There does also appear to be a **clear trend across Europe towards universities needing to adopt full costing as well as a more strategic approach to the management of research and the internal allocation of resources to support their research**. The implementation of such moves seems, however, to be quite fragmented in practice. UK universities are required to manage their research portfolios in a sustainable way and are therefore becoming more strategic in how they manage research funding, while universities in Finland, Estonia, Germany and Switzerland are moving to changing their accounting systems to identify the full costs of their research. In Sweden, there are instances of sponsors looking to universities to have identified priority strategic research areas before funding new research centres.

Public Funding Agencies at National level

In contrast to the General University Funds (GUF) for ensuring the core funding of universities, project-based research funding is most frequently provided by governmental agencies, in exceptional cases directly by Ministries. In most European countries this external project-based funding at national level accounts for an important

⁶ by Dr K H Leitner reported in Austrian Research & Technology Report 2007, p 125

share of the university research budget and can exceed 50% in some countries. Thus, **national funding agencies play an important role in providing external project-based research funding for universities.**

As indicated above, in many cases national funding agencies have recently undergone or are in the process of changing their methodologies as well as their funding conditions & requirements. Examples of such changes include restructuring/consolidation of funding organisations (Czech Republic, Hungary, Estonia, France), or changes of funding mechanisms (Switzerland, Finland, Austria).

In providing project-based research funding, **agencies through their conditions and requirements do have a significant influence on the financial management of universities.** It can be said that it is useful that there is a broader spectrum of funding opportunities offered at national level with the various agencies developing their specific profiles, eg focussing on basic or applied research, innovation or specific structures of research projects (cooperation with industry, centres of competence, etc.). However, these opportunities tend to be linked to a **substantial diversity in funding models and mechanisms applied.**

Particularly with respect to discussions in the context of “Joint Programming”⁷ it is important to see that funding agencies work with very different conditions and requirements not only in the respective countries but also all over Europe. This diversity is not related to the type of research (basic or applied) or specific country groups (new or old member states).

The Expert Group’s overview of the main funding agencies across Europe showed that over half those surveyed covered either the full direct costs of the research together with a nominal fixed contribution towards the indirect costs (typically 20%), or the ‘additional costs’ of the project and a flat rate indirect cost (using the FP 6 ‘additional cost’ model). In a few countries project-based research is supported by lump sum payments, including either no or very limited reimbursement on indirect costs. Outside of the UK, **very few national agencies yet recognise or are prepared to cover the full costs of university research.** The exceptions appear to be FFG in Austria, and the Academy of Finland and Tekes in Finland who have indicated that they will do so where a university is able to show the full cost of their research.

⁷ ‘Towards Joint Programming in Research: Working together to tackle common challenges more effectively’, CEC Communication COM92008)468 July 2008⁸ Activities of EU Member States with regard to the reform of the public research base, Framework Service Contract Nr.-150176-2005-F1SC-BE, Technopolis Ltd⁹ Interviews with Emil Aarts/Philips Research; Uwe Hermann/Siemens; Andrew Dearing/EIRMA¹⁰ Overview on universities in signed grant agreements from the start of FP7 to Oct 2008, Source: European Commission

Example Hungary: Hungarian Scientific Research Fund (OTKA)

The Hungarian Scientific Research Fund (OTKA) provides financial support for basic research, international cooperation, research infrastructure development and fellowships to young scientists. OTKA supports Hungarian researchers in the life sciences, the natural sciences and engineering, and the social sciences, with a distribution of roughly 40/40/20. Universities are the main beneficiaries with a share of some 60 to 65%, while HAS institutes account for 25 to 30% of OTKA's funding. OTKA's budget in 2007 was 20,7 Mio Euro.

There is an impact of external project based funding, such as OTKA, on universities' financial management, but only for those which are successfully competing for grants. From the 71 HE institutes at Hungary only about 10% are among the main clients of OTKA beside the research institutes of HAS, so in fact most of the 60% budget of OTKA goes to those few universities. Obviously for these universities OTKA is a mayor provider, and thus OTKA's reporting system is well integrated into the overall financial management. Another interesting phenomenon, that OTKA has different effect even inside one university depending on the faculty/department. This very much depends on the type of disciplinary area, the faculty/department engaged. Those who are not among the typical clients of OTKA, one group of HEI is still rather active in obtaining competitive funds, but more from sources labelled for applied research (like NKTH/KPI type of funds) or from grant schemes administered by sectorial ministries (Ministry of Agriculture or Ministry of Transport, Ministry of Environment, Ministry of Health, etc.). Others in fact not really performing research, they mainly engaged only in education.

Another issue is the introduction of co-financing in the national and international grant systems and its growing importance. As core funding is extremely limited, and thus the budget which could be presented as co-financing - unless having income from industry co-operations - universities even with high scientific potential face problems in applying for competitive funds. At the moment OTKA has no co-financing requirements (focussing mainly on basic research), but this is usually not the case with other competitive funding schemes in Hungary.

Hungarian HE institutions (and other public research performers) are perfectly equipped to do analytical accounting and estimate their full costs. This is in fact a legal requirement which goes back several decades. To maintain operations from such limited financing analytical accounting is a must. OTKA requests in its reporting system an analytical approach and there were no complaints from any organisations for doing so. External funding – either national or EU – through their rules and reporting requirements clearly push universities (or certain departments/faculties) to adapt to a different approach both in terms of planning and recording. It is also forcing all institutional players to spend the available funds on what they were originally provided for. The difficulty is that, in the case of universities, the different activity types compete unevenly: education, as public mission and obligation has to be the first one to be covered and financed; however to remain amongst the best, high research performance also needs to be presented.

Example Germany: the German Research Foundation (DFG)

The DFG is a registered association according to German Civil Law. Its members are legal entities according to public law (universities and Academies) as well as civil law (research organisations). The DFG as an institution is funded jointly by the federal and state governments. Additionally, the DFG receives project-based funding for specific purposes from the federal and state governments. Due to the fact that 99% of the DFG's funding is financed from public sources, it has to follow the rules of public budget law. The DFG received a total of approximately €2.1 billion for the year 2008 from the federal and state governments, which was used to fund research at universities and public research organisations. Particular attention is devoted to the promotion of young researchers and equal opportunity measures.

Despite the fact that the DFG is funded by public sources, its administration is scientifically self governed, i.e. the thematic orientation of the DFG's research funding is not influenced by the federal or state governments.

In providing funding for universities, how do you experience the relation between external project-based funding and its impact on the universities' financial management? Is there any impact?

The degree of project-based funding as compared to institutional funding at universities has been increasing and has led to decentralised financial controlling and more responsibility. From the DFG's point of view this development is the natural consequence of project-based funding and its disadvantages for the recipients (e.g. time limitations of funding).

With respect to project-based funding and financial management it is important to be aware of the following:

- project-based funding binds institutional funding,
- provides important aspects for performance-based funding and thus
- promotes the development of an entrepreneurial orientation of the financial system.

Do you expect changes in behaviour from the increasing number of autonomous universities in Europe? What is your perception of fully autonomous universities, particularly in terms of strategic research development and financial management issues?

Strengthening the autonomy of universities is one of the most important elements for the development of modern financial management. Independence of governmental micromanagement requires that universities take their own decisions on how to use their resources – particularly with respect to the profile they want to develop as well as decentralised budgeting. This development is ultimately linked to an increased awareness towards the financial responsibility at all levels in the university. Universities become more entrepreneurial, which results in an increased orientation of the financial management along the strategies of universities.

In the context of the Modernisation Agenda, autonomous, increasingly entrepreneurial and thus financially sustainable universities are high on the political agenda. To what extent can the conditions of external funding assist the move towards full recovery of research costs as a major component of sustainability of university-based research?

In principle external funding requirements with specific rules towards the financial management are well suited to launch a process of increased transparency of resource allocation in research. In order to support the development of sustainable financial management, these rules must not interfere too much with the internal processes at universities. Requirements in the sense of

adequate accountability on the funders' side and the needs of research organisations must be balanced. This critical balance has not been set up in a satisfactory way for all funding organisations. Furthermore, it is problematic in that the funders have different funding requirements and rules.

What is your position towards supporting overhead costs at universities? Under which conditions and to what extent are overheads funded? Is there a long-term strategy and, if so, what is it like?

The DFG currently awards an overhead allowance of 20% of actual direct project costs for DFG-funded projects. Funding of these indirect costs is not linked to any requirements on cost-performance calculation or usage guidelines. However, the DFG has noticed that the availability of this part of the funding and how it is intended to be used has caused a new cost awareness and interest in cost calculations.

We believe that it is more useful to waive detailed requirements in order to achieve acceptance of modern and sustainable controlling and steering tools instead of defining and enforcing strict accountability conditions.

Example: Austria

FFG – the Austrian Research Promotion Agency is one of three major funding organisations in Austria focused on supporting applied research for individual companies and cooperative research projects and initiatives. FFG funding is provided by the government, in the year 2007 at a level of 586 Mio Euro.

In providing funding for universities, how do you experience the relation between external project based funding and its impact on universities financial management? Is there any impact?

External project based funding conditions generate an increasing impact, eg through its regulations of funding rates (new Community rules) as well as overheads.

There is also an impact on the financial management due to the continuing trend of an increasing proportion of cooperative funding programmes within FFG, thus linking universities with industry in joint projects. Nowadays cooperative programmes necessitate a strong involvement of the knowledge base represented by universities. For an agency like FFG this development is of interest since it helps to generate real additionality of its funding devoted to companies. On the other hand, FFG tries to avoid a potential inclination of universities being involved in projects as alibi partners.

In order to be able to generate this impact, FFG is interested in offering suitable and attractive programmes with adequate characteristics and matching evaluation procedures.

Do you expect changes in behaviour from the increasing number of autonomous universities in Europe? What is your perception of fully autonomous universities, particularly in terms of strategic research development and financial management issues?

Autonomous universities develop a stronger entrepreneurial attitude in hopefully all fields of activities. In principle, they are also supposed to demonstrate a strategic research development (e.g. systematically developing their strong fields of research from an institutional point of view) linked with respective financial management approaches. However, so far, this tendency has not yet been observed in the case of Austrian universities. At the same time, this kind of development would be highly desirable for FFG since it would increase the accuracy of FFG funding.

In the context of the Modernisation Agenda, autonomous, increasingly entrepreneurial and thus financially sustainable universities are high on the political agenda. To what extent do you think can the conditions of external funding assist the move towards full recovery of research costs as a major component of sustainability of university-based research?

It needs an open and comprehensive discussion on the real cost structure of universities. Currently, Austria works with a mixed system of GUF funding, external project based funding and overhead coverage. These elements have to be sorted out and structured in a complementary way.

What is your position towards supporting overhead costs of universities? Under which conditions and to what extent are overheads funded by FFG? Is there a long term strategy, if yes, what is it like?

FFG has a clear picture of its overhead regulation which is currently in the stage of being discussed and further developed with the responsible Austrian Ministries. In general, FFG pays a lump sum of 20% overheads on personnel costs. If universities are able to prove their entire full costs incl. overheads, FFG would be ready to provide funding for the entire overheads. This

strategy will depend on the general direction of the Austrian government and the respective provision of funds to FFG.

FWF – the Austrian Science Fund is one of the three major funding organisations in Austria with focus on supporting basic research for individual researchers and networks of researchers, and - as one of the significant new funding lines – clusters of excellence. FWF funding is provided by the government, in the year 2007 at a level of 163 Mio Euro.

In the context of the Modernisation Agenda, autonomous, increasingly entrepreneurial and thus financially sustainable universities are high on the political agenda. To what extent do you think can the conditions of external funding assist the move towards full recovery of research costs as a major component of sustainability of university-based research?

External project based funding stimulates the discussion on the relationship between core and external project based funding at national level. Also in the European context, national funding organisations are more and more aware of the issue of sustainable research funding for universities. As a consequence, FWF recently started to reimburse 20% of overheads on its newly awarded projects. The higher the rate, the more relevant it will get for universities, which will increase their level of awareness and related activities towards full recovery of research costs. As important as it is for universities to know their real costs, they will need to consider carefully the extent of cost monitoring procedures (particularly time monitoring) they put in place. What happens to all the data that is being generated at the cost of researchers' efforts and time? Alternative approaches have to be considered.

What is your position towards supporting overhead costs of universities? Under which conditions and to what extent are overheads funded? Is there a long term strategy, if yes, what is it like?

FWF recently started to reimburse 20% of overheads on its newly awarded projects. This rate represents the starting point, most likely a 50% overhead rate will be feasible in the near future.

In the long run, it will be necessary to find a coordinated approach about the contribution of core funding (GUF – General University Fund) at Austrian universities. Currently we have a mixed model of funding a range of university activities. In principle, costs for basic infrastructure and personnel should be covered by the government. Thus, overheads for external projects should be fully covered by the core funding. A way to handle this issue in organisational terms could be to transfer the specific amount of overheads linked to external projects in the performance agreements of each university with the responsible Ministry. In order to keep the monitoring efforts low, overheads could be reimbursed according to lump sum categories. Each university could negotiate its category in the course of the discussions on the performance agreements every 3 years. Thus, FWF would provide exclusively for the direct costs.

Example Finland: Tekes:

In providing funding for universities, how do you experience the relation between external project based funding and its impact on universities financial management? Is there any impact?

Dealing with external funding will certainly have impacts on university financial management.

1) Universities are expected to calculate the costs of different functions/activities as a whole (e.g. research vs. education, economic vs. non-economic activities) as well as the total costs of separately funded research projects.

Community framework for state aid for research and development and innovation (2006/C 323/01) states, that

“ if the same entity carries out activities of both economic and non-economic nature, in order to avoid cross-subsidisation of the economic activity, the public funding of the non-economic activities will not fall under Article 87(1) of the EC Treaty, if the two kinds of activities and their costs and funding can be clearly separated. Evidence that the costs have been allocated correctly can consist of annual financial statements of the universities and research organisations.”

In practise this means that universities must have reliable accounting system to report project costs on a full cost basis. In Finland universities have in last few years actually made a lot of effort to develop their accounting systems in order to fulfil these requirements.

2) In research projects, the maximum Tekes contribution is usually 60 – 70 % of the total costs. In addition to that, Tekes also expects beneficiaries to obtain some contribution (5 – 15 %) from companies to show that the project has also utilisation potential in the Finnish economy.

In collaboration with companies, universities must be even more aware of state aid regulation and full costing to avoid transferring project results to companies below cost.

In the context of the Modernisation Agenda, autonomous, increasingly entrepreneurial and thus financially sustainable universities are high on the political agenda. To what extent do you think can the conditions of external funding assist the move towards full recovery of research costs as a major component of sustainability of university-based research?

Tekes is prepared to fund all the research costs (direct and indirect) that are incurred in research projects. However, this doesn't mean that Tekes should fund 100 % of total costs of the project. If universities received 100 %, there might be a danger that they would take part in research projects they are not really committed to. That is, at no risk to them, as all the money will come from external funding organisations.

From this point of view universities should always have a real interest (money) of their own in research projects. However, in order to do that in Finland research in universities should also be funded in the State budget, particularly because research is one of universities statutory functions.

All Tekes research beneficiaries (universities and other research organisations) will report with full cost model from 1.1.2009. In the full cost model Tekes accepts all indirect costs (overheads) that are incurred in research function, provided that costs are determined according to the usual accounting and management principles and practices of the beneficiary. So any indirect costs related, for instance only with education are not eligible. Indirect costs are covered to the same extent as the rest of the project costs (60 – 70 %).

Example Turkey: State Planning Organisation (DPT):

Do you expect changes in behaviour from the increasing number of autonomous universities in Europe? What is your perception of fully autonomous universities, particularly in terms of strategic research development and financial management issues?

In Turkey, universities are autonomous in their financial management. Some of the well established universities have sound financial systems run by their strong administrative staff while the new ones are still trying to establish such systems. This asymmetric higher education space creates many problems especially for internationally funded R&D projects. The State Planning Organization has been trying to help universities to create awareness about the new developments and to establish modern financial management systems such as “full cost model” which has become one of the main issues on the agenda for universities across Europe.

In the context of the Modernisation Agenda, autonomous, increasingly entrepreneurial and thus financially sustainable universities are high on the political agenda. To what extent do you think can the conditions of external funding assist the move towards full recovery of research costs as a major component of sustainability of university-based research?

Financial resources which are provided by national programmes or EC Framework programmes are project-based programmes. Therefore, universities should be able to calculate the real cost (full cost) of their activities and infrastructure costs and the other costs related to their specific research project. Otherwise sustainable funding cannot be achieved. We believe that full recovery of research cost has great potential to achieve sustainability in university based research. As it has been mentioned before, in Turkey we are still in the process of creating awareness of the issue. There are 3 or 4 universities which have already started to work on “full recovery of research cost” as they have more EU funded projects than the others.

What is your position towards supporting overhead costs of universities? Under which conditions and to what extent are overheads funded? Is there a long term strategy, if yes, what is it like?

In each project there is no detailed description of “overheads” specified by the universities in their application forms. In fact this is partly the result of the existing funding model in Turkey. The Investment Budget is defined and allocated by the State Planning Organization while current expenditures are defined and allocated by the Ministry of Finance. Consequently, the projects funded by DPT can only include project related expenditures but not overheads. The expenses which can be classified under “overheads” such as salaries, maintenance, running costs of buildings are provided by the Ministry of Finance under the regular university budgets.

Although there is coordination between DPT, Ministry of Finance and the university at the point of allocation of resources, this is not maintained on a very continuous manner within the year to monitor and synchronise R&D activities. So sometimes problems are faced within the implementation processes. When the regular current expenditures budget is not sufficient to cover the running costs there are always delays in the completion process of the projects funded by DPT or TUBITAK in universities.

In order to solve this problem the State Planning Organization asks the universities to guarantee the overheads which are necessary for the projects funded by DPT. In the long term we are aiming to put into practice the “full recovery of research cost” model in universities. We are establishing working groups between stakeholders to design and implement this model in the nearest future.

Chapter 4

Universities' different experiences and needs: Identification of the impact of external funding requirements and conditions and assessment of universities experiences and needs

The variety of some 4000 European universities as well as funding organisations naturally leads to a broad spectrum of universities' different experiences. This chapter summarises the major aspects based on the experts' experiences, national questionnaires, questionnaires to selected universities and input provided in the course of interviews done by the Expert Group. Furthermore, a limited number of illustrative examples are given that demonstrate practically the key messages.

Universities' experiences with external project-based funding for research are significantly related to and depend on their legal framework and opportunities (autonomy versus no autonomy), their mission as well as objectives, and are influenced by the management approach they apply.

Autonomy of universities high on the political agenda: government responsibilities, entrepreneurship and external project-based funding

In many European countries major reforms related to the autonomy of universities have recently been implemented⁸, are currently on the way or are under preparation. It is important to get the right understanding of universities' autonomy in the various reforms: typically autonomy is understood and limited to financial autonomy, whereas autonomy in the wider sense includes the opportunities of universities to define their own objectives and strategies.

Amongst others, autonomy of universities raises the question of governments' responsibilities for sustainable university funding based on full costing. The answer depends on the objectives defined for universities in each country and all stakeholders must have a clear picture of it. At the same time, governments have to ensure funding for universities and allow them to fulfil their tasks in teaching and take advantage of the freedom of research which is necessary in order to be competitive for external project-based funding.

Real autonomy is always related to the development of entrepreneurship, understood here as entrepreneurial thinking at all levels within the university, which has a significant impact on the behaviour towards external project-based funding. This does not mean that universities are expected to behave like companies, but rather that they

react proactively to opportunities and use external project-based funding as a key tool to support their further development.

Therefore, it can be said that universities act differently with respect to external project-based funding depending on whether or not they are legally autonomous.

The inflationary demand for excellence – universities’ role as world leaders as well as regional centres of “gravity”

Despite the importance of the Lisbon objectives and modernisation agenda, it may be legitimate to question the expectation that all 4000 European universities should become world leading centres of excellence.

Considering universities’ main objectives of teaching and research - according to Humboldt’s model – European universities certainly should strive for world class excellence. No matter what the detailed criteria of rankings such as Shanghai or Times Higher are, they are important and European universities have to improve their positions towards the top, develop their profiles and thus strengthen their competitiveness.

However, not all European universities can or should become world leaders. In line with their objectives, universities have different roles in the various countries and specific importance in the regional context that does not necessarily demand the claim of world class excellence. Particularly in teaching, educating future employees and engineers for the knowledge-based economy is a task of utmost importance ensuring regional development.

Universities’ experiences with external project-based funding and the different types of funding organisations vary a lot with the objectives and related claims – be it world class excellence or focus on regional impact – universities themselves or states define.

Consequently, the individual university orientation is also reflected in its financial structure and its behaviour towards external project-based funding.

University management: institutional approaches combining bottom-up and top-down

Successful research and its conditions need pro-active management with institutional perspective and orientation. This is true not only for companies but also academic institutions. It is the key task of the institutional leadership together with its administration to provide the framework of adequate institutional management, to set the conditions that facilitate creativity and allow the university to grow and flourish.

Successful management at universities, particularly with respect to research, needs a number of essential elements:

- shared vision of the future development of the university
- clear and coordinated objectives at institutional level that allow the development of a competitive, visible institutional profile
- strategic perspective and an appropriate action plan on how to implement defined objectives
- framework and a culture that enable a “healthy” balance of bottom-up and top-down approaches
- commitment, focus, flexibility and speed in implementation
- strong and pertinent communication targeted inside and outside the academic institution

Universities’ experiences and successes in external project-based funding on the one hand heavily depend on the management approach they apply and the degree of institutional strategic perspective they are willing and able to implement. On the other hand, external project-based funding itself influences the development of universities’ management approaches. These two factors of external project-based funding and institutional management are closely inter-related and influenced by each other. They represent a significant positive feed-back loop to be considered by universities and funders alike.

Institutional objectives and strategies and their translation into management

Institutional objectives and strategies not only set the framework for universities’ experiences with external project based funding, they are also influenced by the results of external project based funding through, for example, the acquisition of highly prestigious awards and grants such as the European Research Council (ERC) or similar projects that certainly have an impact on thematic priority development.

The majority of universities in Europe have very general objectives. Those countries where university reforms towards autonomy have taken place have typically introduced tools that help in specifying university objectives. Examples include developmental

plans, intellectual capital reports for universities, etc. However, it is an additional challenge in itself to translate these objectives into strategies and related actions. This is an important process since it defines a university's approach towards external project-based funding.

In order to generate the necessary sustainability, objectives and strategies have to be developed in a "healthy" balance of top-down and bottom-up exchange, including all actors at the university, to create a joint vision and shared ownership communicated among the members of the university.

Institutional objectives and strategies of each university should provide the framework for activities related to obtaining external project-based funding which, as a consequence, define the respective profile and success of the acquisition of project-based funding. At the same time, external project-based funding can play the role of a compass with respect to quality assurance of research activities and the definition of institutional thematic focus areas. Thus, a balanced approach is needed between fully strategic and opportunistic behaviour, while at the same time elaborate ways to interpret the results of project-based funding need to be set up.

Dealing with external project-based funding by industry is a particularly interesting field if perceived with the perspective of strategic partnership development. Despite the fact that few European universities behave like typical US universities in terms of proactively marketing their research results, indications are that industry is getting more interested in cooperation with universities with a strategic mid- to long-term vision. This will become even more relevant as European universities put forward proposals for collaboration with industry based on full costs and with clearer interests in the ownership and exploitation of arising intellectual property. Thus, funding by industry does not only play a role in financial terms but also can have a substantial impact with respect to strategic cooperation management on both sides between universities and industry⁹.

Interview with EIRMA

EIRMA is Europe's premier membership association for companies involved in research, development and innovation in support of their business activities. EIRMA is an independent, not-for-profit organisation. Its aim is to help companies to improve the performance of their R&D and enhance innovation. Its unique features are the networking and personal contact that the Financial Times recommends. EIRMA deals with the effective management and organisation of business R&D. EIRMA does this through a topical programme of round tables and other activities, supported by extensive on-line information and focussed public outreach.

In cooperating with European universities, how do your members experience the relation between external project based funding and its impact on universities financial management? Is there any impact?

Some companies are moving towards more strategic partnerships with universities, which require more professional management of significant partnerships. The ability to manage and run activities well on a project base, where the project is defined outside the university, is a key skill which these companies tend to appreciate.

At the same time, quite a number of people find it difficult to accept the accompanying consequences of, for example, 'full costing'. They have been used to setting up relatively informal arrangements with universities, and may consider that subsidised access to public research is justified because of the contributions that companies make through taxation to enabling universities to operate. This is down to differing interpretations of universities' roles in society.

Problems also arise, e.g., when there is a mismatch between the reforms that a university is trying to implement and the quality with which it is able to implement what it is doing. Like the rest of us, they find that significant changes in approach require time to implement well and develop new skills and new attitudes. Oftentimes, delivered quality may be patchy in the early stages of a reform, yet the nature of the relationship has changed so everyone is disappointed. So the challenge is to ensure rapid learning, both within university and within partner organisations, of how to deal well with the new world.

Do you expect changes in behaviour from the increasing number of autonomous universities in Europe? What is your perception of fully autonomous universities, particularly in terms of strategic research development and financial management issues?

Autonomy and the accompanying factors such as greater responsibility are an inevitable and very desirable step towards enabling European universities to raise standards and differentiate themselves in the face of what is evidently much greater competition. In the process, some will fail. This is inevitable. People and institutes need to be helped, but they should not be indefinitely protected. However, many more should succeed. I have heard good examples of European universities which have been able to establish significant strategic partnerships with industry precisely because their reforms have enabled them to bring together the extensive multi-disciplinary approaches required by external sponsors.

I hope that universities will use the opportunity to express clear local priorities in terms of core subjects, inter-disciplinary, balance between research, teaching and third-mission activities with the rest of society, governance, etc. I hope that this will be based on a strong engagement with the relevant stakeholders, so that the strategic plans are established based on understanding the

contribution that the university is able to make (rather than the one that people inside think they should make), and strong stakeholder support for their actions. But I think we expect that (e.g.) governments will provide clear terms of reference setting out the continuing purpose and mandate of universities. Governments can, in their enthusiasm for greater 'innovation', tend to believe that there are no conflicts between, e.g. becoming more entrepreneurial and sustaining the required long-term service to society. Universities are in my view among society's key guardians of knowledge, searchers for new knowledge in defined areas, and educators. This is view widely shared in industry, and there is no enthusiasm to see the universities aiming to become, e.g., surrogate companies focusing on short-term contract research. There are others who will do that job much better, e.g. our RTOs.

In the context of the Modernisation Agenda, autonomous, increasingly entrepreneurial and thus financially sustainable universities are high on the political agenda. How do you think do universities efforts towards financial sustainability impact the cooperation with industry?

It is important to learn from others, without believing that the context is necessarily the same. For example, the conclusions from recent activities of the US Government-Industry-University-Research-Round Table (GUIRR) are useful and contain some salutary warnings. From 1972-2000, the fastest growing source of university income in the US was industry's sponsorship of university research. It grew, as I recall, to 8% or so. It has since declined quite precipitously, to around 5%, and quite a number of observers on both industry and university sides believe that the growing attention to a particular sort of third-mission income (i.e. licensing) has been responsible for harming the much-more-important collaborative activities. Certain well-known institutes bear a disproportionate share of opprobrium.

What kind of responsibility of industry do you see in contributing to the financial sustainability of universities?

It is a shared responsibility, as we set out in Responsible Partnering. Industry needs strong universities, mainly because of their need for skilled people. Universities need strong industry, not least because this makes a region more prosperous and hence able to fund good public services.

To what extent do you think can the conditions of external funding assist the move towards full recovery of research costs as a major component of sustainability of university-based research? In this context, what would be important from the industry perspective?

Industry includes "multinationals" and smaller high tech companies (including university spin outs) and smaller medium tech companies. Perspectives differ, and this is often not well understood. A university's ability to sustain local small firms can be very important. In the higher-tech area, it may be important for the university to understand and accommodate the nature of the value chains in which the target firms are operating, particularly if the intention is to move towards participation in larger, longer-term collaborative activities.

Research collaborations are always set up in order to address specific company/institutional objectives and are not an end in themselves. It is important to develop a mindset of defining and meeting the partner's project objectives rather than seeing projects as a way of getting funding for already-defined work. At the same time, the intuitional mindset must also remain clear - 'why are we entering into this contract at all and what is our special contribution'.

How do you experience a professional attitude of universities with regard to building and maintaining partnerships and contract management?

I see growing professionalism in many universities. But the problems which were articulated in the past (e.g. in an EIRMA study in 1969) are still with us.

There is an inevitable tension between organisations which exist to address fundamentally different missions, but there is substantial evidence that these tensions can be overcome with good will. Again, we set out the prerequisites in Responsible Partnering - strategic understanding of the role of partnership in addressing own mission; development of the right professional skills to address that strategy; an intent to treat each partnership so that it can help establish a basis for long-term collaboration based on mutual trust (without expecting that this will be made contractual).

Capabilities of universities in organisational terms

The ability to know the full costs of institutional operation is an essential prerequisite in order to develop a sustainable basis for a university that intends to pro-actively manage its future opportunities. The EUA Report provides a first mapping of the status of full costing development in European Universities, where the typology of situations is usefully presented with regards to the national mechanisms and drivers playing for such an implementation. Beyond the diversity of full costing developments across EU 27 highlighted by this mapping exercise, this report brings useful indications on reforms implemented or currently being initiated in some Member States, namely UK, Netherlands, Austria, Ireland, Bavaria, Spain, Sweden, Flanders. However, in a majority of Members States, trends of reforms seem to remain at a starting stage, or without consistent national coordination.

Taking FP7 as an indicator, currently very few universities in Europe – 6% of universities in signed grant agreements¹⁰ - work on a real full cost basis substantiated by analytical data, whereas around 84% of universities in signed contracts work on the basis of the transitional 60% flat rate indirect costs.

Doing so not only has to do with technicalities of accounting but also with funders' perceptions towards universities and consequently cultures that need to be changed or adapted.

The UK and the Netherlands are exceptions. Since the introduction of the “Transparent Approach to Costing” (TRAC) in the year 2000, all UK universities use TRAC as standard methodology for costing their main activities in teaching, research and other core objectives. Pending certification of the TRAC methodology adapted for use in FP7, UK universities are not yet using real full costs for EU projects. In the Netherlands a different approach was chosen, with universities developing their own full costing systems while exchanging best practices. FP7 played a major catalytic role in this and it is expected that all Dutch universities will operate FC real indirect costs before 2010 when participating in FP7 projects.

However, changes in university acts already implemented or currently under preparation in many European countries¹¹ show clear moves towards greater autonomy for universities and thus the development of full costing approaches within them. Therefore, the issue is high on the political agenda and plays a major role in discussions on the European Research Area and the modernisation agenda for European universities.

¹¹ Activities of EU Member States with regard to the reform of the public research base, Framework Service Contract Nr.-150176-2005-F1SC-BE, Technopolis Ltd

Full costing attitude: getting to know the real full costs

Universities' experiences with implementing and/or working on a full cost basis are manifold. The most extensive and systematic experiences are available at UK universities due to the introduction of TRAC 8 years ago.

It needs to be said that misunderstandings with respect to full costing typically influence discussions as there seems to be a lack of definitions or at least there exist different definitions and terminology when full costing is being discussed.

The implementation of full costing at a university at all levels is, as evidenced the experience in the UK, a heavy task that should not be underestimated. Beyond the technical aspects, the introduction of full costing immediately touches upon a cultural issue due to the necessity of time recording. Researchers in the academic setting perceive it as deep change of their role with respect to the freedom of research. However, again the TRAC exercise and Dutch examples demonstrate that there are alternatives for time recording other than detailed time sheets.

Full costing is also seen as a way to consider fairly true costs with respect to joint research projects involving heterogeneous consortia with teams from academia and business. Increased awareness towards full costing at universities has to do with the entire budget structure, thus being related to the issue of core funding and the share of core versus external funding. Currently, the rates for core funding at European universities depend on the situation in the specific countries but typically vary between 90 – 60%. Generally speaking, there is a trend to reduce the share of core funding as compared to external project-based funding.

The Expert Group believes that full transparency is the best possible way to ensure clear understanding of costs by all actors involved. As a consequence, and in order to substantiate the credibility of universities needs in terms of sustainable funding, similar exercises like the “Transparent Approach to Costing” (TRAC) in the UK would be necessary in most countries.

Funding organisations and agencies play an important role not just because they provide funding, but also due to the funding requirements and conditions that are linked to this funding and which have obvious steering effects within universities. However, universities are confronted with very heterogeneous sets of requirements depending on the different types and roles of funders at national and European level, ranging from classical additional cost or lump sum models to schemes supporting the full costing approaches at universities. It is clear that these conditions not only make it difficult for

universities to develop their own coherent systems, but often force them to develop and maintain multiple systems based on different approaches and cultures.

What is necessary is a good balance of funding agencies and organisations that work along the same principles and procedures, while at the same time keeping the diversity in terms of the different objectives they pursue thus strengthening the competition between funding organisations for the best research projects with respect to their funding portfolio.

Managing indirect costs

Together with direct costs, indirect costs are an integral part of the full costing approach. Having a clear picture of their indirect and direct costs is a must and not an option if universities are to plan for sustainable development.

To date, the majority of universities have only a rough estimation rather than a clear idea based on comprehensive data as far as their indirect costs are concerned. By and large, the UK again is an exception. The specific challenge in identifying realistic indirect costs – in addition to technical aspects that might be relevant – is the allocation of time and resources to the key activities of universities, primarily research and teaching. This point is closely related to the issue of time recording and associated concerns and perceptions of researchers.

With the increased awareness and knowledge about full costing in general and indirect costs in particular, three key questions regularly come up at universities:

To whom do indirect costs belong to in the universities?

There can be misunderstandings on this issue amongst researchers within a university. In many cases researchers are inclined to think that since they have been the ones who successfully acquired externally funded research projects, they should receive the entire funding, including the indirect costs. In an academic setting it can be difficult to convey a joint institutional understand where researchers and non-researchers jointly work on achieving common objectives.

Whose job is it to care about sustainable funding of universities including reimbursement of indirect costs?

Funding organisations such as national agencies, industry and foundations tend to raise this point by mentioning that they want to fund “the real research and not administration”. However, this attitude is changing and more and more funding organisations are starting to understand that funding has to be provided on a sustainable basis. On the other hand, the reimbursement of indirect costs is certainly closely linked to the definition and dimension of core funding universities receive from the government. For industry, the primary consideration is that of value for money. However, one of the differentiating elements can be the type of projects they fund. If industry cooperates with universities in the field of applied research, there is stronger acceptance of funding on the basis of full costs, which is limited in the case of basic research oriented projects.

Can universities decide on how to use the indirect costs acquired?

There is a danger that universities might perceive the reimbursement of indirect costs as “extra money” and not as contribution to their full cost calculation. Indeed, there are many instances of universities having set up varying strategies on how to “use” the indirect costs received rather than taking them in order to cover their indirect costs. One unsatisfactory consideration in many cases is the use of indirect costs as “compensation” in addition to the 75% funding rate for research activities in FP7. Several universities have developed specific incentive programmes that foresee defined distributions of indirect costs between researchers and the university.

Impact of European funding, particularly FP7 and future Framework Programmes (FPs)

At first glance, one could question any impact of European funding since the FP contributes a relatively small percentage to the overall budget of the majority of European universities. Comparing, however, the share of FP project funding with other competitive funding received by universities the result can be very different. Adding the amount received per FP project, FP7 is of greater financial significance for many institutions.

The move towards full costing: the catalytic role of FP7 on universities

Due to its specific nature and regulations, the FP generally and FP7 in particular does have a strong catalytic role on universities in the sense that it stimulates awareness of full costing.

Already in FP6 discussions started on whether or not universities should calculate their costs based on full instead of additional costs. Few universities in FP6 moved to full costing. However, a number did undertake a rough comparison of FP6 project-related costs according to full versus additional costing. So FP6 did influence some universities to consider their way of cost calculation. This effect was substantially reinforced under FP7 through the abolishment of cost models and introduction of full costing for all participating organisation linked with the opportunity of using the “simplified method”.

This method in FP7 allows universities without an accounting system enabling a detailed cost allocation to declare their real indirect costs for research projects, as long as the method used is in accordance with their usual accounting and management principles and practices and is based on actual costs derived from the financial accounts. For the allocation of the legal entity’s indirect costs to individual projects they are required to use a fair “driver” such as total productive hours.

It can be said that, from the point of view of fostering and incentivising the development towards full costing and an increased awareness as regards the necessity of sustainable funding for universities, the rules as set up for FP7 were a move in the right direction.

Indirect costs

The catalytic role of FP7 is particularly obvious in the case of indirect costs. With FP7 universities not only get 75% of full costs for research. Within this, they can either claim the transitional flat rate for indirect costs of 60% or, based on full documentation, get reimbursement based on their entire indirect costs.

In principle, the opportunity of getting funding for FP7 projects based on the entire indirect costs is intended to be an incentive for universities towards the development of full cost awareness including indirect costs. At least it is an incentive to do estimations and get an idea of whether or not the respective university is above or below the 60% flat rate indirect costs.

This discussion will again come up high on the agenda with the mid-term evaluation of FP7 and the 60% transitional flat rate of indirect costs due by January 2010 when the flat rate will again be fixed (with the lowest possible level of 40% predefined). If there

is evidence that the reimbursement of flat rate indirect costs is a key stimulus towards strengthening full cost awareness linked to the application of real indirect costs, it could be argued that the Commission should consider reducing the transitional indirect cost flat rate to the lowest possible level of 40%.

The fact that FP7 reimburses indirect costs at a significant level clearly had an educating effect on university leadership and researchers across most of Europe and has raised awareness of indirect costs. For the university leadership - in many cases - it was an “eye-opening” experience to see the dimension of real indirect costs at their institution after the first rough estimations or calculations. This experience resulted in an increased awareness not only towards direct, but also towards indirect costs and thus a real sustainable funding approach. Although it has to be said that the definition of indirect costs as regards the type of expenses covered is rather variable across Europe

Very few universities though use the reimbursement of indirect costs to really cover their indirect costs. Instead, many of them have set up internal rules resulting in a part or entire transfer of these indirect costs to the researchers involved in FP7 projects, although sometimes this has been in order to cover the balance of the direct costs of the projects not funded by the Commission.

The wider impact on funding organisations at national level

FP7, with its approach to funding based on full costs and recognition of indirect costs has had a very obvious direct as well as more indirect impact on funding organisations at national level in many countries.

In more direct terms, information gathered by the Expert Group suggests that, influenced by their experiences with FP funding rates for direct and indirect costs, universities are increasingly starting to request similar approaches from national funding agencies. Based on the Austrian example these efforts of universities resulted in an increased awareness of funding agencies towards the issue of indirect costs, and consequently in a discussion on the adaptation of the funding regimes of the two major Austrian funding agencies:

FFG-the Austrian Research Promotion Agency providing funding for applied research already supports 20% of indirect costs on personnel as a lump sum. As a new development, FFG is in discussion with the government for the precise guidelines and budgets in order to propose to go further in supporting indirect costs. This new regime would be understood as incentive for universities to apply a true full costing approach which is in line with the new legal framework for Austrian universities following the introduction of the University Act 2002 in

the year 2004¹². FWF-the Austrian Science Fund in charge of supporting basic research - has started to reimburse 20% of indirect costs for newly submitted projects as of the year 2007, with a clear intention to increase the reimbursement rate for indirect costs to 50%.¹³

Example Finland:

Academy of Finland:

In 2007 a working group led by the Ministry of Finance finalised its report on general guidelines for methods and cost accounting of jointly financed activities in Finland. The working group recommended that all government agencies that grant, intermediate or use budget funds for jointly financed activities should use a total cost model.

The focal feature of the model is coverage of overhead costs as part of the total cost of jointly financed activities.

Currently a lump sum (12.5 per cent) overhead cost is applied to almost all funding instruments of the Academy. The Academy of Finland has been charged by the Ministry of Education to apply the total cost model to all of its research funding from 1.1.2009 onwards, and hence, The Academy will support overhead costs of the universities through its funding.

The working group report defines the general principles and requirements applied to total cost accounting in organisations using joint financing. The Academy of Finland takes the definitions of the report as the minimum standard. According to the model the responsibility of the organisations using joint financing is to put forward an application based on the concept of total cost, and including a ratio for the overhead costs based on cost accounting of the organisation. (The ratio can be organisation or department specific).

The Academy will assess the funding applications and apply a predetermined financing ratio to the accepted projects. The financing ratio will be the same for overhead cost and other cost, thus increasing the relative share of overhead costs compared to the current system of 12.5 per cent lump sum overhead cost.

The working group set certification of the cost accounting in organisations using joint financing as the prerequisite to the application of the model. Whether a national certification project will be carried out is still under discussion.

Academy of Finland is planning to apply total cost model to all of its funding from 1.1.2009 onwards. Delays in certification of the cost accounting in organisations using joint financing, may have an impact on the time table.

Financing overhead costs – as a part of the application of total cost model – is in line with the strategy of Academy of Finland. Academy is in support of the model in a long term.

Dutch public funders, in particular the national agency SenterNovem¹⁴, consult users before introducing new funding schemes or conditions. This approach strengthens

¹² Interview with FFG/Pseiner, Binder¹³ Interview with FWF/ Kratky

¹⁴ Interview with SenterNovem/ Janse, Kruihof

effectiveness, commitment and user-friendliness. Guided by their association, Dutch universities enter into a Single Information - Single Audit system to reduce the number of audits, for national funding in particular. This system assumes mutual trust, and a move towards responsible partnering.

More indirectly, related effects touch upon the issue of the budget structure of universities, in particular the ratio of core funding to project-based funding. Particularly in countries with high rates of governmental core funding, it has to be assumed that many of the indirect costs are covered by the core funding. Therefore the question arises as to whether or not project-based funding provided by national funding agencies should cover indirect costs and thus introduce the risk of double funding.

As a consequence, and in order to substantiate the credibility of universities' needs in terms of sustainable funding, a similar exercise like the "Transparent Approach to Costing" (TRAC) in the UK could be necessary in other countries.

Dealing with different funding conditions and requirements

In the process of moving towards implementing full costing, universities find themselves confronted with a huge variety of different funding conditions and requirements. An overview of the major funding organizations at national level starkly illustrates this as has been described in the previous chapter.

These varying funding conditions at national and European level might contribute to the development of two different speeds: one for the participation in FP7 where full costing is encouraged and possible while keeping a different system for national funding. This issue will be explored further in the following chapter.

Joint Costing and Pricing Steering Group

"Transparent approach to costing" - An Overview of TRAC

June 2005

Since 2000, TRAC has been the standard methodology used by the 165 higher education institutions (HEIs) in the UK for costing their main activities (Teaching, Research, and Other core activity), and it is increasingly informing the public funding of higher education.

While it followed naturally from work done in the higher education sector in the 1990s, introducing TRAC was a government requirement. It was developed in 1999 as part of the Government's Transparency Review. It was piloted during academic year 1999-2000, and implemented, progressively, from 2000-01. The dual-support reform of Research funding in 2003-04 has given further impetus (and new costing requirements) to TRAC, and further implementation work now in hand by institutions will continue for several years (until about 2008).

TRAC is not a single costing method, nor does it involve prescriptive standard requirements. HEIs in the UK are very diverse, as are the activities to be costed, and the uses of such cost information. Much academic activity poses inherent challenges for costing – think, for example, of defining the differences between research and scholarship and teaching; or the complexities of costing heritage buildings; or of knock-for-knock arrangements with the NHS in medical schools.

The strength of TRAC is that it is broad and flexible enough to accommodate all these challenges, and that it allows HEIs a good deal of discretion about the precise methods they use. Crucially, it does not require a much greater administrative burden, which ‘full commercial costing systems’ could, nor does it require academic staff to complete timesheets. At the same time, TRAC has been accepted by Government and the major public funders of Research and Teaching (chiefly the Funding Councils and Research Councils) as an appropriate and robust method for costing in higher education. Much of the funding of research is now based on TRAC costs (known as full economic costs – fEC).

TRAC could also be seen as collaboration between HEIs and their principal stakeholders and public-funding bodies. The success of the sector in implementing TRAC, and the support of the Treasury for TRAC has benefited all institutions both directly in terms of their funding, and indirectly through the confidence it has engendered in Government.

The information which TRAC has provided on the full long-term costs to institutions of their main publicly-funded activity has informed the funding of research, with over £1bn of additional funding being provided by the Government to make the UK’s research base sustainable (that is, to make existing volumes of research more secure, not to increase volumes). Notably, from 2005, the Research Councils will fund research projects at 80% of the TRAC full economic cost and this is significantly higher funding for the same work than the previous basis of ‘direct costs plus 46%’.

More generally, TRAC has contributed to the current policy interest in the sustainability of higher education, especially by highlighting the inadequate investments being made in infrastructure for Teaching and Research. The Government has provided extra capital funding, and all institutions are now required to take account of the full costs of their activities in their planning and management. Better cost information is of benefit to management decision-making, not least by informing price negotiations.

TRAC has introduced some new processes and activities in institutions that sit alongside existing accounting and project management systems. The most notable (from an academic’s perspective) are the requirements to allocate academic staff time, and to build up the cost of research projects on a full economic cost basis.

Time allocation has been the most contentious issue, but is essential if HEIs are to know where their academic staff effort is being directed, and if they are to plan how these costs can be funded. The TRAC time allocation approach offers alternative options to HEIs, and does not require the use of timesheets. The process of costing research project grants has built on previous Research Council requirements, and the new procedures should not, if efficiently organised, prove onerous. However, academic principal investigators will need additional support and training in the early days of the new system.

Chapter 5

The way forward: the sustainability of university-based research

Universities need real autonomy with accountability

In its Communication on ‘Delivering on the Modernisation Agenda for Universities: Education Research and Innovation’¹⁵, the European Commission identified universities as key players in Europe’s future and for the successful transition to a knowledge-based economy. However, it also noted that this potential could not be realised without real autonomy and accountability as, without such conditions, universities could not be innovative and responsive to change. This was confirmed in the recent consultation on the future of the European Research Area (ERA)¹⁶ when, in their replies, public authorities and stakeholders stressed the need for Europe to have autonomous, accountable and well-managed universities and that ensuring their financial sustainability is an important condition for them to contribute fully to the ERA. European universities are becoming increasingly dependent on external project-based funding. The conditions attached to that external funding has a major impact on their financial management. External funders, therefore, have a key role to play in assisting universities in developing improved management and accountability systems and in achieving sustainability through identifying and recognising the full cost of their research activity.

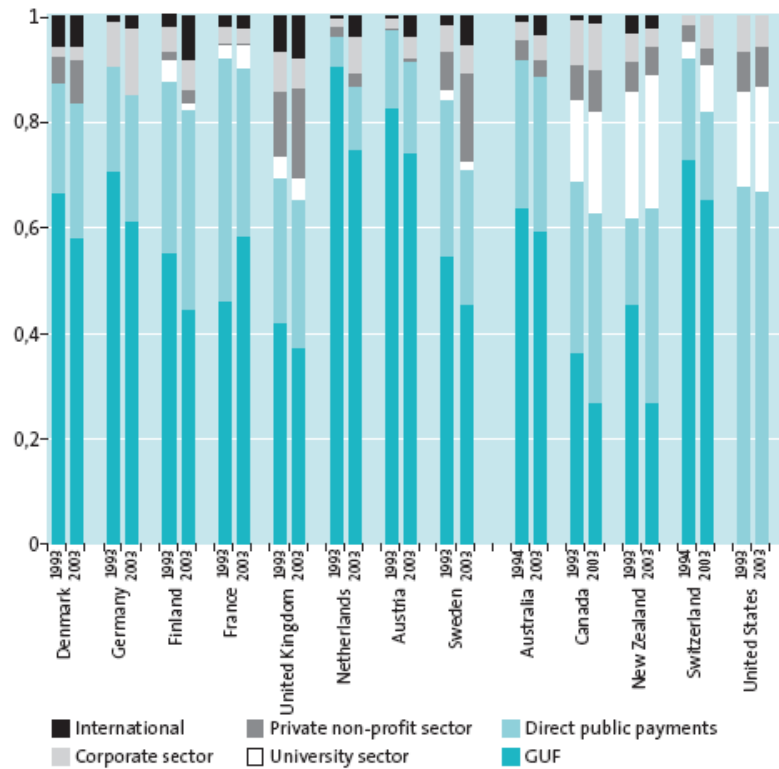
While some countries, such as the UK, have long had a mixed economy model of funding for university based research, with core funding provided by Government and project funding provided by public and private organisations, historically universities in many countries have relied on core Government funding for most of their research activities. There is, however, a trend across Europe towards the mixed economy model. For example, German universities have had, as a legal objective within the last 10 to 15 years, a requirement to attract third party funding while most of the post-communist New Member States which relied solely on the State funding system in the past and played a lesser role in the research arena, are now developing their research capacity and moving very rapidly ahead with a mixed system, often with governmental pressure

¹⁵ Communication from the Commission to the Council and the European Parliament: ‘Delivering on the modernisation agenda for universities: education, research and innovation’ COM (2006) 208, 10 May 2006

¹⁶ Green Paper ‘The European Research Area: New Perspectives’ COM (2007) 161, 4 April 2007¹⁷ quoted in Austrian Research and Technology Report 2007 p.123¹⁸ ‘Financially Sustainable Universities: Towards Full Costing in European Universities’, European University Association, EUA Publications 2008,p72.

to obtain more competitive funds. These moves mean that many universities are shifting from a model where they have significant ‘internal’ resources which they are able to allocate as they see fit and support research in line with their own strategic goals, to a model where they are more dependent on competing for funds and thus increasingly influenced by research priorities set by funders.

Figure 2: Financing structure of expenditure on academic research, 1993/94 vs. 2002/2003 (Source: Austrian RTD Report 2007)



Source: OECD (Research and Development Statistics); tip calculations.

The trend from core to external funding

External funding as a driving force

While there is evidence that a diversified funding model is good, there appears to be little empirical evidence to show what the ‘right’ balance is between core funding allocated at institutional level which allows the university to set its own priorities, and external project funding. Indeed, a recent review¹⁷ found no significant differences in performance between universities in Switzerland, the Netherlands, the UK, Sweden and Finland - countries with very different ratios of general, or core, university funds and external funding. However, while there may still be a discussion to be had over the balance between externally and internally driven research priorities, it is clear that there are benefits to be derived from the increased move towards external funding. External funding becomes a driving force and provides a focus for greater synergies and collaboration between research institutions. It also helps improve research management and robustness of management systems through greater accountability requirements and the introduction of commonly understood terminology and methodologies. The greatest benefit is, arguably, the value of competitive bidding which introduces a benchmark of excellence for that research which is funded, in other words that it has been judged to be of excellent quality in open, peer-reviewed competition. In addition, much collaborative research which arises from external funding provides valuable opportunities for knowledge transfer and the exploitation of results. External funding therefore has the potential to have a higher impact than internal funding.

University-based research cannot be fully dependent on external funding

However, it is clear from the various funding models across Europe, that university research cannot be fully dependent on external funding as, even with the move towards full costing, so far not all funders would be able or willing to cover the real full cost of research and many require evidence of co-financing. For example, most private foundations will not cover indirect cost. In the UK, the charity sector has recognised the full cost methodology as providing a reasonable indication of the real cost of research but has publicly stated its opposition to funding general indirect costs or any infrastructure costs which do not relate directly to the research funded, seeing this as the role of the State.

In addition, as highlighted by EUA, in its recent report ‘Towards Full Costing in European Universities’¹⁸, a university’s ability to develop its strategic research activities with respect to its profile and objectives can be restricted by an over-reliance on competitive funding sources. Thus, if universities are to maintain a degree of flexibility to develop strategic research models and to successfully target competitive research funding, it is important that they retain an element of ‘internal’ core funding from the

State which they are free, subject to accounting for outcomes, to allocate as they see fit. While ‘external’ funding of research is, as we have seen, very important for ensuring quality, it is also clear that core funding is essential both to allow universities to provide the co-financing required by many sponsors but also to support long term strategic planning. Core funding allows universities to cover the ‘unfunded’ aspects of externally funded research (primarily resources and personnel costs) and to develop new areas and infrastructures, both physical and human.

Recommendation: The financing of university infrastructure underpins universities' ability to maintain research excellence and competitiveness.

The need for clarity in the purpose of core funding

A critical aspect of core funding relates to the maintenance and updating of existing infrastructure. It is important to recognise that part of the cost of making EU universities globally competitive is ensuring that buildings and facilities are brought up to date and are maintained in a status equal to that of the “rising stars” (or “awakening tigers”) especially in the Far East. This requires, firstly, recognition by national authorities that there may be a significant ‘one off’ cost to bring the infrastructure up to date and, secondly, the ability of universities to identify and recover the real full cost of maintaining their physical and human infrastructure. It is critical, therefore, that where core funding is provided to universities, the extent to which it is expected to meet *current* maintenance costs and/or to invest in updating infrastructure to a competitive level is clearly agreed between all partners.

Recommendation: In allocating core funding, Member States need to be clear about the purpose of that funding and recognise the cost of maintaining existing infrastructures as well as that of bringing them up to a globally competitive standard.

The impact of funders' strategy on universities' development

Funders of research have diverse objectives

In funding research, different funders have fundamentally different aims. Private charities and foundations will have different objectives, ranging from societal impact to cures for major diseases or the alleviation of poverty. Industry funders will have clear commercial goals around maintaining their own competitive advantage and will have an interest in paying for a research activity rather than funding research capability. The EU and national funders have a strategic aim of funding the best research to benefit society and the economy and to maintain and/or enhance economic and innovative competitiveness. However, as recognised by the European Commission and many Member States, increasing moves towards competitive project-based funding allied with greater autonomy and accountability for universities mean that, unless the need to ensure the financial sustainability of universities is recognised, the public research base will not be in a position to undertake globally-competitive research in the future or to recruit the best students and researchers from across the globe. Thus, while for public funders the continued competitiveness and sustainability of universities must be strategic objectives in themselves, for other funders university-based research is a means to an end. The impact on universities of the various objectives of research funders can hardly be overestimated. For most European universities the predominance of national and regional funding means that their management and financial structures are geared primarily to the requirements of these funding streams. However, an overview of national funding agencies shows little evidence of any commonality between the various funding streams, whether national or at a European level, in terms of funding strategies and financial management requirements. In particular, expectations on co-financing strategies vary significantly.

The responsibility of national funders and the European Commission towards the financial sustainability of university-based research

While each university must take responsibility for its own long term sustainability, the Expert Group's view, for reasons stated above, is that Member States (through their national and regional funding schemes) supported by the European Commission have a responsibility to maintain the sustainability of university-based research at sector level. However, it is clear that this is often not reflected in the strategies adopted for the funding of research programmes with many national funders failing to fund other than the marginal costs of research projects and having little regard for the associated longer term infrastructure costs. Even where there is recognition by the sponsor of the real costs of project-based research, there can be inconsistencies in the way this is reflected in the various funding schemes it supports. As an example, while the European

Commission is effectively supporting the sustainability of university-based research by recognising the real costs of projects funded under Framework Programme 7 (and contributing 75% of those costs), the same rules do not apply to all instruments and thus this principle of sustainability does not flow through all programmes.

Recommendation: Member States have a responsibility to contribute to the sustainability of the university-based research sector together with the European Commission supporting this process at EU level. Both should, therefore, ensure that this objective be one of the principles underpinning all the research programmes they fund.

As universities become more dependent on external funding for their research, they face a number of challenges. The nature of competitive external project funding has in the past led to a short-term, reactive approach by universities often driven by the need to take advantage of whatever funding opportunity is available and securing the minimum funds needed to carry out the project, without regard to the real cost involved. The way many of the funding schemes offered by both EU and public bodies work (typically 3 year funding with detailed accountability on inputs) does not always allow universities to adopt a coherent approach to supporting their research strategies.

The need for a balance between accountability and complexity

There can also be tensions between the goals expressed by EU and national public funders in terms of how they see university-based research developing and the controls and regulations that are then imposed around individual project grants, for example the European Commission has a clear objective of introducing simplification in both the range of funding opportunities offered and the burden of compliance faced by universities. There is a clear danger, however, that the audit requirements imposed on the applying universities can undermine the original aim of simplification. Thus the question arises as to whether the implementation of funders' strategies takes account of the real needs of universities. EUA, in its recent report, found indications that accountability requirements in funding schemes can be too complex and that there was a real risk of rules and procedures limiting university autonomy or leading to complex bureaucratic reporting procedures.

There is no doubt that funders are in a position to impose co-financing and financial reporting models onto universities and that these, while showing evidence of flexibility in responding to such conditions, are faced with having to develop multiple management and reporting systems to meet the various requirements imposed by funders. Co-financing requirements and cost eligibility can vary from funder to funder and the evidence collected by the Expert Group suggests that these have a significant impact on universities' ability to manage and support their research infrastructure. It is

important, therefore, that sponsors of research recognise this and, by entering into a dialogue with universities, explore ways in which these impacts can be lessened.

Time recording – the need to accept diversity

A key area which can cause confusion and concern, both at university and sponsor level, and which can lead to overly burdensome reporting requirements is that of the methodologies used to record time spent on certain activities to support cost allocations. There are concerns at university level that full timesheets by individuals that record all research and academic activity are incompatible with normal academic practice (and, in reality, may be almost impossible given the overlaps and interrelationships between activities, be they teaching or research). Indeed, there are views that the use of full timesheets for both recording time on particular projects and as a basis for overall time allocation is far from ideal. The diversity of European universities, both in terms of their legal and administrative structures and their remits and objectives, means that no single model exists and a variety of methodologies, all equally robust, are evolving to suit particular national or functional circumstances. It is interesting to note, in this context, that the recent EUA report found that the differing methods used by the universities it surveyed produced similar results. The Expert Group concurs with the comments made by EUA that any certification process at a European level should remain ‘light touch’ and allow for the different methodologies for time and activity allocation that are being developed at a national or sector level. The Group further believes that this is consistent with the fact that research is a unique activity which cannot be treated in the same way as the procurement of goods and that, therefore, the financial and audit requirements may need to be adapted to take this into account. The Commission, in the context of State Aid rules, can steer this process through a review of the Financial Regulations and the rules for participation in Framework Programmes.

Recommendation: Research activities shall not be supported like procurement, as there are fundamental differences between funded research and procured activities. Where procurement requires the definition of all kinds of detailed input descriptions and reporting, research activities should be supported and funded by focusing on their contribution to the production of knowledge. Thus, consideration should be given to the financial regulations which surround research funding to ensure that they are suited to the nature of research activities, in terms of reporting requirements and expected accountability.

Sharing best practice – the European Commission as a catalyst

Both the EU and national public funders, as the principal funders of university-based research have the means to coordinate their conditions and expectations around accounting, co financing, time recording and reporting to lessen the burden on universities and support the simplification process. It is also important to recognise that these issues apply in much the same way to public research institutes and that the impact is, therefore, wider than just the university sector. The Commission is in a unique position to act as a moderator and catalyst in this area and to facilitate a discussion to identify a degree of commonality around best practice for co financing, cost reporting and accountability requirements. Much as it has done through the Charter on Intellectual Property, implemented through the Code of Practice for universities and other public research organisations on the management of IP, the Commission should work with the national funding agencies to share experiences and collect information on good practice for external funding terms and conditions, with the aim of identifying best practice at a European and national level. Such Good Practice Guidelines should promote best practice and minimum reasonable reporting and accountability requirements, identify reasonable time recording methodologies, highlight areas for greater commonality between funders, both at national and European level, and explore potential ways of minimising the bureaucratic burden placed on universities. Such an initiative will be of particular relevance to current discussions on Joint Programming activities.

Recommendation: Member States have a responsibility to contribute to the sustainability of the university-based research sector together with the European Commission supporting this process at EU level. Both should, therefore, ensure that this objective be one of the principles underpinning all the research programmes they fund. Member States, working with the principal national funding agencies in the first instance, but involving other research funders in time, together with the European Commission should consider drawing up Good Practice Guidelines for External Funding Terms and Conditions in consultation with universities.

Full costing as an essential tool for informed strategic decision making by universities

Moving away from additional cost recovery towards sustainability

Historically, whether funded from internal resources or from external grants, university-based research has been supported on a marginal cost basis without proper regard, either by universities or funders of the real long term full cost of research. The sustainability of university-based research requires universities to be able to identify their full costs and, more importantly, cover these costs from internal or external sources. Universities'

experiences and successes in external project-based funding heavily depend on the one hand on the management approach they apply and the degree of institutional strategic perspective they are willing and able to implement. On the other hand, external project-based funding itself influences the development of universities' management approaches. Strong, autonomous universities have responsibility for their own sustainability and therefore need to have robust management structures and systems in place to support their decision-making. Full costing is a key tool in this regard as universities cannot plan strategically and decide what areas to develop and support if they don't know the real long term cost of their activities. At the same time as providing a tool for more strategic decision-making and internal resource allocation, full costing allows universities to benchmark themselves against similar institutions and provides them with a greater capacity to negotiate and price their research activities which, in turn helps improve cost recovery and thus contribute to their sustainability. It is important, in this context, to recognise that costing and pricing are two separate but interrelated activities. The ability of a university to identify robustly the true cost of a particular research project allows it to identify which sources of funding are appropriate to its activity and sector. It also puts it in a better position to establish collaborations with industry and with other partners and to price its research competitively or at a level which matches the expectations of non-industrial sponsors. State Aid rules have to be considered and will be also a driver in this context.

The World is changing rapidly

While it is important that the modernisation agenda be managed so as not to destabilise European universities through too rapid changes, it is important to note that, looking beyond Europe, the world is changing quickly and emerging economies such as India and China are developing rapidly. The question arises therefore as to whether European universities are fast enough in their modernisation process to support the building up and fostering of their international competitiveness. The Expert Group's view is that the majority of European universities are not developing fast enough and that this is reflected in many ranking tables where there are too few European universities amongst the top positions. What is needed is a modernisation process taken seriously and high on the political agenda, with the necessary speed at all levels for the implementation of further reforms. If, therefore, universities are to compete at an international level and ensure the sustainability of their research it is essential, if they have not done so already, that they engage now in the process to identify the full costs of their activities.

Recommendation: Universities need to adopt full costing methodologies appropriate to their national legal requirements as a key tool for sustainable development.

Investing for success

While universities should, in practice, have the ability to adopt a full costing methodology and identify the real cost of their research at project level, this will require substantial investment on their part. It is clear that the benefits to be derived from such an investment can only be achieved if the funders of that research recognise the value of full costing and support the development of suitable accounting methodologies.

The development of the TRAC methodology in the UK and the move towards full cost accounting at project level was undertaken in partnership between the university sector, at a national level, and Government. The cost of implementation was estimated to be €700k for a medium sized, research-intensive university. The incentive for universities to make such an investment was the clear undertaking by Government to recognise the outcome and a commitment to fund a greater proportion of the cost of research, thus allowing them to recover far more than the initial investment.

Excellent research needs excellent management

The conditions of external funding are therefore a determinant driver in assisting universities to move towards full recovery of research costs. However, as outlined above, not all sponsors of research will recognise, as their primary objective, the ongoing sustainability of research. The European Commission, with the funding models under FP 7, is in a strong position to engage with Member States to support the sustainability of universities as a strategic objective at national level. In doing so, the EU and Member States will need to recognise that, as well as the ability to identify the full costs of their research, it is important that universities have the management and administrative infrastructure necessary to manage their internal resources so as to support the strategic co-financing of their research in a sustainable way. In other words, the move towards full costing is not an end in itself: it simply provides the essential tool which universities require identifying and understanding their true costs and through which they can move towards sustainability. As highlighted by a EURAB report¹⁹, good research management is about far more than just financial reporting and is vital for Europe's economic and social prosperity: *'research management tasks are becoming more and more demanding, as those who invest in research expect ever greater accountability and performance. In addition, the growth of research partnering and open innovation is creating fresh challenges, as research managers increasingly have to operate on a truly global basis and deal with teams whose members come from multiple organisations, nationalities and cultures'*

¹⁹ EURAB 07.007 'Research Management in the European Research Area' May 2007

Recommendation: Universities must recognise that excellence in research requires sound and pro-active management practices. Excellence in research and management go hand in hand, financial management is a condition for informed, strategic decision-making in an environment where universities are expected to develop long term excellent research activities in line with their strategic profile. Full costing is an essential component of appropriate financial management of research in this context.

All funders need to recognise and encourage full costing – whether or not they then cover those costs

The ability to identify one's true costs comes with a responsibility to manage them strategically. However, this can only be achieved if all the actors involved, including the funders of research (whether through core funding or competitive, project-based funding) understand and accept the principles involved and recognise the need for universities to recover the full costs of their activities. This includes allowing universities to participate in research programmes on the basis of their own costs rather than through the allocation of 'lump sum' funding established on the basis of notional or 'average' sector costs.

Framework Programme 7 (FP7) is a key driver in the move towards sustainability and in encouraging universities to adopt full costing methodologies appropriate to their national legal situation. Using FP7 as a tool to reward good practice can encourage the move from using the flat rate for indirect cost recovery to the use of actual indirect rates or the simplified methodology, as long as the benefits of doing so are not outweighed by disincentives. Such disincentives could include overly burdensome auditing requirements which exceed nationally agreed methodologies or which apply standard 'procurement' type conditions on research activities. They can also include situations arising whereby those universities which have adopted full costing, and are therefore aware of the real cost of the research, find themselves at a disadvantage in consortia involving universities which have not identified the full costs of their participation: in such situations the former can be deemed 'too expensive' by the consortium and either excluded or required to reduce their 'price' and/or their input to bring them inline with other members.

Recommendation: The Commission should reward best practice and encourage the adoption of full costing while ensuring that those universities which do so are not placed at a disadvantage when competing for funds. The FP 7 transitional flat rate can be used as major external driver towards full costing implementation but shall not be considered in isolation. Appropriate support at national level has to be provided to universities to facilitate their transition to full costing implementation.

The importance of encouraging the move to full costing

The recent EUA report suggests that the majority of European universities, particularly those in the new Member States, will not be in a position to identify the full costs of their research in the next few years in a way which would allow them to improve their cost recovery from EU or national funding programmes without strong incentives and the support of their national funding agencies. It is important, therefore, that the Commission take the opportunity presented by the mid-term review of FP7 to encourage Member States to support the move to full costing, whether through providing financial assistance or incentives or through other support mechanisms. It is also important that the Commission take account of the preparedness of universities to move to full costing when considering the level of the default indirect cost flat rate under FP7 and that it be mindful of the need to encourage rather than force any move towards full costing. A reduced default rate could be a useful tool in the move towards incentivising universities but should not, in itself, be the driver.

Recommendation: As part of the mid-term review of Framework Programme 7, the Commission and the Member States should review the state of play across EU 27 on the ability of universities to identify the true costs of their research as well as the national support mechanisms available to them to do so, and should promote the sharing of best practice and mutual learning while taking into account national legal and structural constraints.

Is current university infrastructure fit for purpose?

The additional challenge for universities, once they are able to identify their real costs, is being in a position to make good past underinvestment in their human and physical infrastructure as well as to make strategic decisions on future investments. In many cases, the level of investment required to bring infrastructure up to a globally competitive level is unknown and is likely to be substantial. Full costing and recovery of real costs, while of prime importance, are not sufficient in themselves if a university's human and physical infrastructure is not at a competitive level and if there is no awareness, at a national level, of the level of investment required to bring them up to a suitable standard.

Recommendation: Where such an exercise has not yet been undertaken an assessment of the current state and competitiveness of university research infrastructure (both human and physical) in individual Member States will be necessary so as to identify priority areas for investment.

Chapter 6: Annexes

Annex 1: Research Funding Indicators and Characteristics Questionnaire

Indicators (provide estimates if detailed data not readily available)

1. What is the proportion (expressed as a % of GDP) of expenditure on Higher Education:

.....% (indicate year this relates to: 20...)

2. What proportion (value in Euros and % of total) of higher education public funding is spent on university-based research:Euros (....% of total public funding)

3. What are, in order of importance, the three principal types of funding organisations for university-based research (indicate 1, 2, 3 and, if possible, the proportion as a % of overall university-based research each accounts for – eg ‘Regional Government are 1st source of funding and account for, on average, 52% of total expenditure for university based research). Note: if national or regional funding is available in both core funding and as competitive funding then enter each as a separate type of funding.

Rank & %

- | | | |
|------|-------|---|
| |% | a. National Government |
| |% | b. Regional Government |
| |% | c. National, publicly-funded government agency |
| |% | d. European Commission |
| |% | e. Not-for-profit organisations (charity, foundations, learned societies) |
| |% | f. Industry or other for-profit organisations |
| |% | g. Overseas Governmental agencies |
| |% | h. Other (please indicate:) |

4. For each of these top three categories of funding organisation, indicate the primary co-funding model used (tick one model for each funder only):

Co-funding model	1st Funder	2nd	3rd
a. Formula-based core funding	___	___	___
b. Competitive-based funding	___	___	___
If Competitive, how is funding awarded			
i. 100% of <u>all</u> costs of research	___	___	___
ii 100% of <u>direct</u> costs only of research	___	___	___
iii. Direct costs plus set overhead (indicate %)	___	___	___
iv. % of research costs	___	___	___

12. Are the principal funders of research (as indicated under Question 3 above) planning to change, or have they recently changed, their methodology or their criteria for awarding funds? If yes, what are they and what are the drivers?
13. Is there a general trend by the primary funders of project-based research to simplify their procedures and/or to streamline their financial reporting requirements?
14. Is there a general trend by universities to change their financial management systems and, if so, what are the drivers and intended outcomes?
15. Are universities adopting, or being required to adopt, a strategic approach to the management of research and the internal allocation of resources to support their research?

Annex 2: Overview on Contributors to this report

Country	Name of Organisation	Name of Contributor	Position
Austria	ARC	Karl-Heinz Leitner	Expert
	FFG	Michael Binder	Head of Strategy Unit
	FFG	Klaus Pseiner	General Manager
	FWF	Christoph Kratky	President
	Rectors Conference	Heribert Wulz	Secretary General
	University Vienna	Lottelis Moser	Head of Research Services
	University Linz	Franz Wurm	Vice-Rector for Finance
Belgium	IWT	Alain Deleener	Co-ordinator European programmes
Cyprus	Research Promotion Foundation	Kalypto Sepou	Head of Unit, European Research Programmes and International Collaboration
Czech Republic	Technology Center of the Academy of Sciences	Vladimir Albrecht	Deputy Director
Denmark	Aarhus University	Lauritz B. Holm-Nielsen	Rector
Estonia	Archimedes Foundation	Ülle Must	NCP Coordinator
	Research Policy Department, Ministry of Education and Research	Rein Kaarli	Adviser
Finland	Tekes	Marita Virtanen	Chief Adviser
	Academy of Finland	Mervi Taalas	Director Financial Unit
	Helsinki University	Marja Nykänen	Head of Strategic Planning & Development
	Rectors Council	Liisa Savunen	Secretary General
	Ministry of Education, Department for Education and Science Policy, Division for Higher Education and Science/Research	Kauppinen Petteri	Senior Adviser
France	University Lyon 1	Lionel Collet	Rector
Germany	Volkswagenstiftung	Wilhelm Krull	Secretary General
Germany	Siemens AG	Uwe Hermann	Chief Technology Office – Cooperation Management Corporate Technology
Greece	PRAXI / HELP-FORWARD Network	Epaminondas Christofilopoulos	Technology Transfer Consultant
Hungary	Hungarian Scientific Research Fund (OTKA)	Gabor Makara	President
Iceland	RANNIS	Magnus Lyngdal Magnusson	Senior Advisor

Ireland	Enterprise Ireland	Imelda Lambkin	National Director for FP7
	Higher Education Authority	Sarah Dunne	Research Programmes Expert
	Irish Universities Association	Conor O'Carroll	Head of Research Office
Israel	ISERD	Yael Gilead	Expert
Latvia	Latvian Academy of Science	Dace Tirzite	Expert
Lithuania	Agency for International Science and Technology development Programmes	Aiste Vilkanauskyte	NCP Coordinator
	Ministry of Education and Science of the Republic of Lithuania, Division of International Research Programmes at Department of Science and Technology	Kristina Babelyte	
Netherlands	Philips Research	Emil Aarts	Vice President Scientific Program Manager
	SenterNovem	Lisette Janse	Manager knowledge infrastructure
	SenterNovem	Hans Kruithof	Senior Advisor
Norway	Research Council of Norway - Norwegian Liaison Office for EU RTD	Gudrun Langthaler	Head of Office
Poland	PolSCA - Polish Science Contact Agency	Jan Krzysztof Frackowiak	Director
Romania	National Authority for Scientific Research	Viorel Vulturescu	NCP Coordinator
Slovak Republic	Slovak Research and Development Agency Department for International Cooperation	Peter Beno	NCP Coordinator
Slovenia	Ministry of Higher Education, Science and Technology	Bojan Jenko	NCP Coordinator
Spain	CDTI	Serafin de la Concha	Head of Division, European Community Programmes
	Universitat Autònoma de Barcelona	Ramon Noguera i Hancock	Research Park Business Manager
Sweden	Swedish Agency for Innovation Systems (VINNOVA), International	Gunnar Sandberg	NCP Health, Ideas, Regions

	Collaboration and Networks		
	Vetenskapsrådet Sweden, Department: Research Policy	Johan Fröberg	Analyst
Switzerland	Swiss national science foundation	Danièle Rod	Head International Affairs
	CTI KTI Innovation Promotion Agency	Ingrid Kissling	Head
Turkey	State Planning Organisation (DPT)	Halil Ibrahim Akca	Under Secretary
	State Planning Organisation (DPT)	Bilgehan Ozbaylanli	Expert
United Kingdom	UK Research Office in Brussels	Amanda Crowfoot	Director
	Universities UK	Chris Hale	Policy Advisor
	Research Councils UK	Helen Thorne	Head
United States	Jefferson University	Sam Taylor	Programme Manager
	Office of Science & Technology, Embassy of Austria	Philipp Marxgut	Director & Attaché for Science and Technology
Associations			
	EUA – European University Association	John Smith	Deputy Secretary General
	EUA – European University Association	Thomas Estermann	Senior Programme Manager
	EFPIA - European Federation of Pharmaceutical Industries and Associations	Karen Strandgaard	Research Director's Group
	EIRMA – European Industrial Research Management Association	Andrew Dearing	Secretary General
European Commission			
		Megan Richards	DG RTD B, Director, "Resource Management", Joint Research Centre
		Giorgio Clarotti	DG RTD B1, Policy Officer
		Philippe Coenjaarts	DG RTD A5, HoU Certification Policy
		Irene Norstedt	DG RTD, Head of Sector IMU JU
		William Cannell	DG RTD S1, Head of Unit
		Robert-Jan Smits	DG RTD B, Director
		Walter Schwarzenbrunner	DG INFSO S, Director
ERC – Scientific Council		Helga Nowotny	Vice-President

Contributions from the following associations were invited, however no input received:

TAFTIE - The Association for Technology Implementation in Europe

ESF – European Science Foundation

EUROHORCs - European Heads Of Research Councils

Annex 3: Questionnaire to selected funding agencies

- In providing funding for universities, how do you experience the relation between external project based funding and its impact on universities financial management? Is there any impact?

- do you expect changes in behaviour from the increasing number of autonomous universities in Europe? What is your perception of fully autonomous universities, particularly in terms of strategic research development and financial management issues?

- In the context of the Modernisation Agenda, autonomous, increasingly entrepreneurial and thus financially sustainable universities are high on the political agenda. To what extend do you think can the conditions of external funding assist the move towards full recovery of research costs as a major component of sustainability of university-based research?

- What is your position towards supporting overhead costs of universities? Under which conditions and to what extend are overheads funded? Is there a long term strategy, if yes, what is it like?

Annex 4: Questionnaire to selected universities

1. Do you have core funding entitled for research?

2. Do you have external project-based funding for research?

Please provide a breakdown by category:

% (or amounts in Euro) per national funding organisation/agency,

% (or amounts in Euro) European Framework Programme?

% (or amounts in Euro) other international programmes?

% (or amounts in Euro) industry?

% (or amounts in Euro) foundations or non-profit sources?

% (or amounts in Euro) others?

3. What is the ratio of core to external project-based funding at your university?

4. What is the total budget of your university?

5. Are the conditions & requirements of external project based funding different? Y/N

6. Please describe the major differences and challenges of funding conditions & requirements, and how you deal with it with respect to the financial management and potentially its implications on the strategic decision making.

7. Do you have a specific unit at the university assisting in the preparation and management of external project based funding? Do you think this unit can meet researchers requirements adequately? If there are any what kind of changes would you think could be necessary in the coming years?

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