

|the| technopolitan

The newsletter of Technopolis^{group}

A European research business focusing on the evaluation and development of policy in the fields of research and innovation

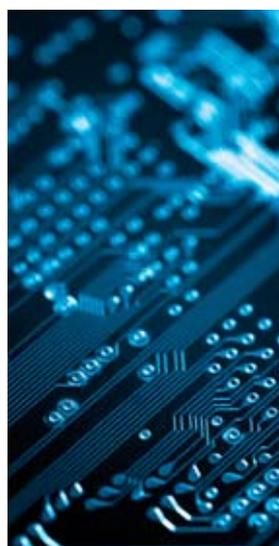
February 2011 - N° 06



Editorial

A Challenging time for Science, Technology and Innovation

Read more on page 2



A new UK-Government Technology Initiative and Returns to R&D 3

Developing an evaluation framework for the Biobanking and Biomolecular Resources Research Infrastructure (BBMRI) 4

Higher Education Landscape in Europe 6

The Wider Economic Potential of the Space Sector 7

International Audit of Research, Development & Innovation in the Czech Republic 8

Improving the Diets of Older People in Germany 9

European Research & Technology Organisations: A Neglected Resource 10

Supporting Science and Research in Bosnia and Herzegovina 11

Policy Studies and Evaluations Launched in the Recent Past 12

The ERAWATCH Network 15

An Evaluation of Turkey's National Portfolio of Business Support Programmes for SMEs and Entrepreneurs 15

Technopolis Opens its 9th Office, in Germany 16



2011 will be a challenging year for science, technology and innovation (ST&I), with an evident need for increased commitment on the part of governments across the Union at a point in time when domestic pressures threaten retrenchment rather than expansion.

The European Commission's Europe 2020 Flagship Initiative: Innovation Union is prompting debate across Member States as regards the most practicable and affordable ways in which to bring about a sea change in Europe's innovation performance. The communiqué includes numerous proposals where EU-level actions hold out the promise of significant additional potency, to complement member state initiatives, ranging from increasing international cooperation with third countries on a range of global challenges from climate change to food security or the aggregation of public support for venture funds.

Technopolis studies have informed the Commission's responses in several of these domains, such as cooperation with third countries. Moreover, we have current assignments relevant to each of the core proposals, for example the more determined and creative use of public procurement to drive innovation or the evolution of the European standards system to better serve the needs of the service sectors. Innovation Union also calls for better framework conditions, whether that is in respect to researcher careers or more effective intellectual property regimes, and again, I am pleased to report that the company is actively involved in studies in each of these areas.

These studies reveal a new policy challenge, with several notable innovation champions cutting public support for innovation in the face of the financial crisis, while a minority has increased investment, proclaiming ST&I investments as a cornerstone of their future economic competitiveness. On a positive note, budgetary pressures at the member state level might give a welcome boost to EU-level efforts to strengthen coordination in key areas and programmes, linking up interests across national and regional borders. In addition closer synergies between ST&I policy and 'Grand Challenges' such as climate change and ageing population ask for better policy governance and coordination.

Our policy monitoring services, ERAWATCH and TrendChart, with their 6-monthly updates, will provide officials across the Union with a valuable window onto these important national and regional trends.

Financial pressures might also fire Europe's interest in the modernisation of Higher Education, and possibly force the

pace of this vital Europe-wide project, adding questions about system-wide efficiency and expanding the debates on quality, consistency and fairness. Our work with employers on HE questions underlines the acute interest in the ability of institutions to equip people with the right education and skills for the future.

We see equally fascinating developments within health and social care and the twin ambitions of improved care and outcomes, which demand organisational innovations on the one hand and new treatments on the other. Research into novel delivery models or new therapeutics holds out the promise of real social gains and should also provide a platform for European businesses to exploit those novel services and drugs in key markets around the world. Our evaluation of the potential benefits arising from the FP7-supported network of 260 European biobanks suggests that EU-level actions could produce quite dramatic gains in researcher productivity, quickly and economically.

I am pleased to report that our German office has been in business for a good year now and has successfully completed assignments for various federal and regional clients on topics ranging from good practice in the provision of innovation finance to the development of an internationalisation strategy for a leading technology centre. We are looking forward to expanding our activities in Germany in the future.

Another delightful event is the recent appointment of our chairman and founder, Dr Erik Arnold, as Professor of International Innovation Policy at the University of Twente, which he will combine with his work at Technopolis. We are keen to have such close ties with academia to keep abreast of newest insights in innovation theory, while at the same time constantly upgrading our experience with policy practice.

Lastly, I should like to congratulate our colleague, Sirin Elci, founder and director of Technopolis Group Turkey, who was chosen for the US Presidential Entrepreneurship Summit, from among a field of eminent candidates from around the world, as a pioneer in the field. Since then she has participated in various initiatives launched by the Summit and is particularly heavily involved in the Leadership Circle of the Global Innovation through Science and Technology (GIST) programme, which is being funded initially by the US Department of State to advance innovative collaboration between the US, Middle East, North Africa and Muslim Asia.

Patrics Boekholt
Group Managing Director
patrics.boekholt@technopolis-group.com

A new UK-Government Technology Initiative and Returns to R&D

Technopolis regularly undertakes evaluations of the economic and social impacts of R&D programmes, and the new Technology and Innovation Centres initiative raises value-for-money issues in the light of current economic circumstances

In October 2010 the UK government announced its intention to invest more than £200m in a network of Technology and Innovation Centres (TICs), with the objective of boosting British involvement in key technological advances and the resultant commercial and economic benefits that flow from a more preeminent position in the world's major high-tech industries. The TICs will be business-led, translational research organisations, with annual budgets of up to £30M and staff of several hundred scientists and engineers. They will receive long-term core funding from government at around £5M - £10M a year, reviewed every five years and will be eligible to bid for Research Council grants as well as commercial contracts. While they will have close ties with leading universities, often being co-located, they will be run as Research and Technology Organisations, the impact of which we recently evaluated at the European level (see the article 'European Research and Technology Organisations' in this issue of the Technopolitan).

The initiative follows the publication of reports by Hermann Hauser¹ and James Dyson² recommending the establishment of such centres. Hauser, in particular, argues for the establishment of a national network of business-focused centres of international significance launched in selected areas of existing UK technological strength.

While we cannot know in advance the impact of the TICs in particular, there is a substantial body of evidence from both macro and micro-analyses on returns to R&D which are indicative and which provide a baseline against which the impact of any new R&D initiative might be compared. Macro-level work is exemplified by the econometric analyses of, for example, Guellec and van Pottelsberghe (GvP)³ who have carried out trans-national econometric analyses designed to assess the overall impact of public and private research on national productivity and GDP.

Technopolis has applied this work to estimate returns for the UK from the EU Framework programme, using GvP's estimated elasticities of total factor productivity with respect to business, public and foreign R&D capital, respectively. While uncertainties are large, this suggests a contribution to the UK's GDP of some ten times its Framework income. This analysis was followed up by Niels Schultze, of the EU Joint Research Centre at ISPRA, at the European level.

While stressing the 'debatable assumptions' surrounding the analysis, he found a similar 'mark-up' of about tenfold across the EU as a whole. We have also found multiple returns when the technique is applied to UK national R&D programmes.

At the micro level, the objective is to identify individual innovations within a larger pool of investment and estimate the stream of future returns from their commercialisation, and then generalise from the results of a number of such studies. Our evaluations of national and international technology programmes (for example, that of the BNSC civil space programme) have shown huge disparities between returns to different projects, but with overall returns considerably exceeding R&D outlays. Micro-level work on R&D impacts has a long history, with seminal early work by Griliches on agricultural products and Mansfield on manufacturing-industry innovations. The latter author found a median private rate of return (to the innovator) of 25%, and a median social rate of return (to the innovator and the rest of society) of 56%, figures similar to those found by other authors. 'Discounting the future' at conventional rates shows that this figure is equivalent to an eight-fold return on the original investment over 20 years.

This suggests that the micro and macro studies are not conflicting, both supporting the notion of very high returns to R&D. So high are estimated returns that Griliches has been prompted to suggest that they may strain credibility, and raised the possibility that there may be a 'publication bias', whereby researchers obtaining lower estimates for returns might be reluctant to publish on the grounds that they were out of line with the mainstream. However, commenting on the 'surprisingly uniform' estimates, he concluded that 'while one must worry whether this is not just the result of self-imposed publication filters, my own involvement in this work and my acquaintance with many of the other researchers in this area leads me to believe in the overall reality of such findings'.

These analyses provide an encouraging background to the launch of the TICs, although we may be at risk of seeing diminishing returns to further R&D, or perhaps the biggest returns are more likely to come from R&D investment in universities or business, as suggested, for example, by David Hughes⁴. We really do not know, particularly as RTOs are a poorly-documented 'sector' which has yet to be fully recognised as a distinguishable and important part of the innovation system.

The contribution of the RTOs (and the new TICs) should be informed by a stronger evidence base than is currently available. Macro-level analyses should continue to be used to provide a baseline for expected returns to R&D, complemented with micro-level case studies designed to show whether, and why, particular projects/programmes are above or below 'par'. In practical terms, it is to be hoped that the Technology Strategy Board will require

the newly formed centres to immediately develop robust monitoring and evaluation plans, with appropriate intermediate objectives and baseline statistics, to help directors and governing bodies to steer the best course, as the centres progress through the early / middle years of their lifecycle. While the ultimate objective might be more ARM Technologies or Dysons, such laudable ambition does not offer very much in the way of practical advice. The need for good leadership and clear interim goals is all the more pressing, given the weight of expectation and the proposal to review each centre five yearly, in order to determine whether progress warrants a continuation of core funding.

1. Hermann Hauser,(2010), 'The Current and Future Role of Technology and Innovation Centres in the UK'
2. James Dyson (2010), 'Ingenious Britain', March
3. Dominique Guellec and Bruno van Pottelsberghe de la Potterie, (2004) 'From R&D to Productivity Growth: Do the institutional settings and the source of funds of R&D matter?', Review of Economics and Statistics, 66(3), 353-378
4. Hughes, David (2010), 'Hauser, Dyson and Technology', Research Fortnight, 16 June

For more information or a copy of the report, please contact paul.simmonds@technopolis-group.com



Developing an evaluation framework for the Biobanking and Biomolecular Resources Research Infrastructure (BBMRI)

Technopolis was commissioned to develop an evaluation strategy and framework to guide the development of a new, multinational research facility: the Biobanking and Biomolecular Resources Research Infrastructure (BBMRI) that is building a coordinated, large-scale pan-European biobanking system, initially based on existing sample collections and expertise and linked to clinical and epidemiological information

Biobanks collect, store and manage access to biological materials and the data associated with those materials, and take a variety of organisational forms, whether that is a stand-alone organisation or a facility within a research institution or biotechnology company. It is generally recognised that these facilities are an increasingly critical part of the infrastructure underpinning life sciences and biotechnology.

They are a 'sine qua non' for translational medicine, thereby greatly improving the speed and efficiency at which new knowledge is being transformed into practical therapeutics

and medical devices. They help improve our understanding of the interactions among genes, the environment, lifestyle and disease, and then help translate this knowledge into clinical practice through innovative diagnostics, therapeutics and preventive treatment strategies. Biobanks will be crucial to our ability to respond economically and effectively to the changing disease patterns resulting from Europe's ageing population. Complex and multifactorial diseases are now responsible for 77% of the disease burden and 86% of premature deaths across Europe showing the large economic and social costs, statistics that are expected to continue to worsen in the future. The quest to identify the genetic variants underlying multifactorial disorders (e.g. diabetes, cardiovascular disease, dementia), to better manage these diseases, is becoming more urgent.

In Europe, there are numerous biobanks, ranging from fairly small patient cohorts retained within research institutes to larger, population-based national biobanks. However, even the largest individual facilities are somewhat limited in size and scope, which constrains specific research questions. The BBMRI will address these limitations directly, connecting more than 260 biobanks and research institutions, from 30 countries, to quickly and dramatically expand the effective scale and scope of Europe's biological resources, while reducing duplication and saving costs at the same time.

The BBMRI preparatory phase, funded by FP7, aims to provide the basis for the actual operational infrastructure, developing a networking strategy including, among other things, harmonisation of access rules and ethical, legal and societal (ELSI) frameworks.

Technopolis' study identified a diversity of biobanks, operational practices and funding mechanisms. Their origins often lay in individual or small groups of researchers building their own repositories in response to their own research needs. Yet, overtime a need emerged among researchers to access larger collections, driven mainly by the need to achieve greater statistical power to address both genetic and environmental factors in multifactorial diseases. There is also a parallel economic logic towards larger or networked collections: it makes sense to distribute the substantial costs of managing and maintaining collections across larger sample-sets. Finally, the regulatory, legal and ethical requirements for translational research are so tight that single biobanks will not be able to comply. The emerging response to these needs is the creation of larger centralised repositories or networking of existing facilities in fields such as cancer, rare diseases, and common complex diseases. BBMRI is a key driver in setting up such complex collaborative structures and channelling the pressure for increased collaboration. BBMRI will set up national nodes in all EU countries that will foster the organisation of national networks reducing diversity that characterised single repositories and early stage biobanking.

Our analysis found that the transition from small, isolated biobanks to large single or networked infrastructures requires new forms of governance and organisation. We identified three different stages of transition concerning outreach, management and funding:

- A transition from internal orientation to external strategies as exemplified by access given to external users and distribution of samples, outreach to industrial and social (patients & health professionals) stakeholders, acknowledgement in scientific publications of research based on biobanks, etc.
- A transition from ad hoc research-based biobank activities to professional biobanking, with significant standardisation & harmonisation of operational procedures, certified facilities & biobank professionals and quality of IT-platforms
- A transition in funding of biobanks from short-term grants, via mixed funding models, to sustainable, long-term funding from governmental or other sources, including new business models

In the report for BBMRI, we outlined this landscape and the different phases of a biobank's life cycle and the prerequisites, related to management, funding, and outreach, on how to turn biobanking into an international connected infrastructure. Driven by scientific and economic factors, in the process of transition, we are likely to witness a reduction in diversity in biobanking. Eventually, professional research infrastructures for big science, biobanks will have a central role to play in an ever more complex world and need to

ensure accountable, transparent management procedures. In the report we provide recommendations to BBMRI on how to set up the future monitoring and evaluation strategies that are applicable to biobanks and networks of biobanks in all stages of maturity.

While it is difficult to quantify the additional economic or health gains likely to derive from this enhancement of Europe's medical research infrastructure, there is confidence that successful integration will produce strongly positive benefits in research, healthcare and economic terms. The BBMRI ought to yield a number of immediate research gains as compared with the alternative (continuing organic growth of individual repositories), from larger, virtual, linked data sets to improved data tagging and new high-speed analytical tools. Such improvements should accelerate progress in the diagnosis and treatment of important diseases, and possibly provide new commercial opportunities for European pharma and even help to square the circle of rising health costs and tightening public finances. Of course, the ultimate goal is to benefit the health of European citizens and people more generally.

For more information or a copy of the report, please contact ingeborg.meijer@technopolis-group.com



Higher Education Landscape in Europe

Technopolis Consultants continue to play a key role in a range of studies, which contribute, to the European Higher Education agenda. Policy makers are seeking to unify Europe's higher education system to provide more accessibility and mobility among higher education institutions, an initiative known as the Bologna Process.

The purpose of the Bologna Process is to create a European Higher Education Area by creating a frame of reference for academic degrees, making qualifications more comparable and compatible. In 1999, 29 European Countries signed up to it and by 2010 there were 47 signatories. The various ministerial meetings since 1999 have broadened the agenda of Bologna, and many other policy initiatives are supporting the general modernisation of Higher Education in Europe.

The 'EU2020' Strategy, the successor to the Lisbon Strategy, highlights education as a key policy area where collaboration between the EU and Member States can deliver positive results for jobs and growth.

Technopolis has worked on a number of studies looking at the Modernisation Agenda and following its progress. This article gives an insight into some of the research and projects which we have been involved in and how they have helped shape the policy making process.

University Business Cooperation – the University Business Forum

The university business forum is a platform for higher education institutions, companies, business associations, intermediaries and public authorities, enabling them to exchange good practice, discuss common problems and build closer working relationships. The focus of the university business forum is on relations in education rather than research.

- Since 2008, Technopolis has provided background papers and conference reports covering curriculum development, knowledge transfer governance, entrepreneurship and lifelong learning
- Technopolis is currently producing a number of institutional case studies which showcase particular successful approaches to engaging with businesses in education

The Cluster/Thematic Working Group for the Modernisation of Higher Education

The activities of the cluster focus around identification and dissemination of areas of good practice with respect to higher education on Modernisation of Higher Education quality, governance and funding.

- Technopolis has been supporting the peer learning activities of the cluster since 2007. This includes the production of a compendium of good practices in the modernisation of higher education, thematic reports and key policy conclusions summaries on themes identified as of particular interest for peer learning

Progress in Higher Education Reforms in Europe

Technopolis, in cooperation with CHEPs (The Netherlands) and the Institute of Education in London collaborated on a recent study looking at the progress in Higher Education Funding Reforms in Europe.

- The study explored the state of implementation of funding reforms undertaken in the 33 European higher education systems and the rates of return. It also looked at the impact of the funding reforms on the performance of the 33 European higher education systems. Finally it explored what lessons can be learnt in the run up to 2020

For more information or copies of reports, please contact rebecca.allinson@technopolis-group.com

Recent & Key policy documents for Higher Education Reform

An Agenda for new skills and jobs: A European contribution towards full employment Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (November 2010)

Youth on the Move initiative – an integrated approach in response to the challenges young people face Conclusions of the Council (November 2010)

Commission Communication “A new partnership for the modernisation of universities: the EU Forum for University Business Dialogue”, COM(2009) 158 final, 2 April 2009

Modernising universities for Europe's competitiveness in a global knowledge economy Council Resolution (November 2007)

Modernising education and training: a vital contribution to prosperity and social cohesion in Europe 2006 Joint Interim Report of the Council and the Commission on progress under the “Education & Training 2010 work programme” (February 2006)

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

The Wider Economic Potential of the Space Sector

Technopolis has carried out a number of studies related to the space sector over the last decade or so, the most recent being an assessment for the European Union on the contribution of space exploration to innovation. Here we discuss some findings from our work

Technopolis has recently completed a study for the European Commission on the impact of space exploration defined as robotic and human missions to extra-terrestrial environments (such as the Moon and Mars) on innovation in the wider European economy, and the resulting economic, social and environmental impact of such innovation. Two perspectives on the relationship between space exploration and innovation were considered:

- A historical perspective, focussing on 'spin-off' technologies from past investments
- A forward look at the impacts that might arise from a more pro-active approach involving closer collaboration in space and non-space R&D activity to meet challenges from both sectors, so-called 'common R&D'

For the historical perspective, the study involved a literature review and an analysis of databases compiled, respectively, by the European Space Agency (ESA) and NASA. The ESA data comprised a set of 183 'spin-offs', of which we identified 37 as originating from 'space exploration'. This corresponds to an average of 3 spin-offs per year between 1997 and 2008, for an annual space exploration budget of €0.6bn. By contrast, the NASA database yielded an average of 16 spin-offs a year from an annual space exploration budget of €7bn. For the ESA spin-offs, we carried out detailed case studies, from which we estimated a cost-benefit ratio of 1.4:1; this contrasts with a ratio of 6:1 found in an American study of NASA life-science spin-offs. This figure is based on the estimated contribution of these spin-offs to the US economy as a proportion of the R&D invested by NASA and the private-sector developer(s) combined.

The returns to ESA investments thus seem relatively low, both in relation to R&D generally (see article on returns to R&D in this Technopolitan) and in comparison to NASA spin-offs. That it should represent low returns compared with R&D generally is unsurprising, since the primary objective of space exploration is to extend scientific knowledge and understanding rather than to achieve commercial gains. The higher returns to the NASA spin-offs may reflect the restriction of that study to the (possibly disproportionately)

life-science sector, and the high-profile of NASA, possibly enabling it more readily to reach potential non-space users of its technologies.

Regarding the forward perspective of the study, there is as yet little experience of common R&D on which to base an assessment of its future potential, although widespread consultation with technology and commercial experts across non-space sectors revealed a number of areas of synergies in the technology challenges faced by space and non-space sectors. Four areas were identified where space exploration requirements align with significant global challenges – renewable energy (to limit climate change), healthcare for an ageing population, high quality water supplies, and secure access to oil and gas resources.

Given the lack of a track record of common R&D, we propose a cautious approach to its development, initially involving pilot programmes with modest budgets supporting the four identified themes. Support should be reviewed in the light of the degree of success of this initiative.

The above study was preceded by a review of the economic impact of the civil space programmes in the UK, by the (then) British National Space Centre (BNSC). This work was concerned particularly with the direct returns to space R&D, i.e. the benefits accruing to the companies receiving financial assistance from the BNSC, although wider societal impacts were considered qualitatively. We differentiated between 'scientific', 'strategic' and 'commercial' objectives of the government sponsors of space activity, and in each of sixteen case studies we estimated the proportionate weighting appropriate to each of these categories. As is generally the case, we found wide variations in impact between the cases, but our best overall estimate was that BNSC investments for commercial purposes contribute some 2-3 times their value to GDP.

Technopolis' portfolio of space work also includes a recent evaluation of the EU Bureau administering the Global Monitoring for Environment and Security (GMES) programme, and an interim evaluation of space activity in the Seventh Framework Programme.

For more information or a copy of the report, please contact paula.knee@technopolis-group.com



International Audit of Research, Development & Innovation in the Czech Republic

Technopolis is leading a team of internationally-renowned European science policy analysts in conducting the first comprehensive, national assessment of the research and innovation system in the Czech Republic, on behalf of that country's Ministry of Education, Youth and Sports

The 20-month exercise will conclude in December 2011, providing a rigorous international audit of research and innovation policies and performance that is intended to serve as a source of insight and learning for the refinement of the R&D system in the Czech Republic. The results will also be used for the completion of a comprehensive R&D evaluation system.

In 2010, during the preparatory phase, the international consortium has been working with the Czech Republic's national R&D Council and the national research community to develop its understanding of prevailing conditions, establish baseline performance data and design the overall assessment process.

Early work involved consideration of the national research and innovation system, and in particular the overarching policy framework, governance arrangements and contributions of key groups of actors. The national research and innovation system has been in a state of transition over the past two decades, with notable changes including the creation of a binary research-funding system wherein institutional block grants are complemented by targeted funds, which award individual grants on a competitive basis, through response-mode or strategic programmes. This dual funding strategy is generally believed to be the most conducive means by which to encourage excellent research, while also permitting researchers to lead or track the evolution in frontier research, and facilitating institution's autonomy and sustainability. There has also been a gradual expansion in the share of national support for research carried out in the higher education sector, in order to strengthen links between higher education and research. Lastly, targeted funds have increasingly been used to focus a greater share of total investment on user-oriented research and also to build more and better relationships between the business and research communities.

This is a familiar journey for many Central European countries, with a transition from what one might describe as a top-down, politically directed system to one where research

institutions have much greater autonomy and where policy makers signal their aspirations through targeted funding that can influence the types of research being funded while also supporting individual scientists in expressing their personal ambitions.

In addition, there has been much progress in reforming research governance and there are evident improvements in coordination and integration across the system, both hierarchically and horizontally. Inevitably in a system in rapid transition, there are gaps between intention and execution and there are still some issues to be settled and specific roles to be clarified. An important issue identified in this first phase of the study was the need to establish ex post evaluation processes at least at the level of programmes (and preferably also at the level of policies and institutions) that enable policymakers to make judgements about the efficiency of their interventions.

In parallel with this orientation work, Technopolis has prepared a preliminary description of the size and health of the Czech Republic's national research system, using typical science and technology metrics for the most part common to other member states and reported annually by Eurostat and, internationally, the OECD.

The basic statistics confirm numerous early successes and show for example that there has been a tripling of national expenditure on R&D since 2000, which is notable in an era of low inflation and compares very favourably with the GERD statistics for other EU27 member states and reveals that the Czech Republic has achieved one of the highest rates of growth in R&D expenditure and R&D intensity in Europe.

A significant proportion of the additional investment has been concentrated on more fundamental research while the balance between basic research and applied research has shifted in favour of the latter in the past decade. The universities are expanding their research activities across the spectrum and helping to forge closer links with business and expand the flow of appropriately qualified scientists and engineers.

Bibliometric analyses show steady growth in the proportion of research output being published in high-impact, international journals, albeit from a lowish base, as well as increasing international co-authorship. There have been particular improvements in the metrics for medicine and life sciences. Overall, research productivity (publications per capita) has improved faster than other smaller EU27 economies, like Hungary and Slovenia, although quite reasonably there remains some distance between the country's current quality performance, using international, field-specific citation statistics at least, and that of smaller, leading scientific nations elsewhere in Europe, such as Denmark, the Netherlands or Sweden.



Bea Mahieu, Erik Arnold (both Technopolis) and Jitka Moravcová (Czech Ministry of Youth, Education and Sports) during the final discussion at the conference in Brno, September 2010

Turning to design process, the national R&D evaluation methodology is being developed in light of both national circumstances, and in particular the arrangements introduced in 2004 that monitor the volume of research outputs / publications and that were intended to form the basis for a performance-based research funding system to be implemented as of 2011, and the experiences of other national research assessment exercises that have been in operation for some time, from Australia to the UK.

The first results led to the conclusion that while the research assessment exercise had the valid intention of reallocating resources towards those who perform best, implementation in its original form posed major risks. Both the scope and the method needed to be refined significantly if the Republic was to avoid unintentionally damaging significant and high-quality research resources. The Ministry and the national research community were particularly grateful for this early and critical feedback and immediately began work on an improved methodology, based on a mix of qualitative and quantitative criteria.

Overall, progress with the development of the R&D evaluation methodology, and the interim statistics and bibliometrics, point to a national research system that is increasingly dynamic as well as a clear political commitment to invest further in research excellence in order to further enhance the flow of cultural and economic benefits.

The outcomes of the preliminary analyses were presented during a conference held in Brno (Czech Republic) in September 2010 and discussed with more than 150 participants, including the Vice-Minister for R&D, members of the R&D Council, rectors of universities and heads of research institutes.

For more information, please contact
bea.mahieu@technopolis-group.com

Improving the Diets of Older People in Germany

Technopolis Germany is carrying out an evaluation of a national health campaign in Germany, which is designed to persuade nursing homes and caterers to improve the nutritional quality of their menus and the eating experience within homes for the elderly. The evaluation is seeking to establish how effective the programme has been and how its benefits might be sustained

Technopolis is providing evaluation services for a national project, 'Fit in Old Age,' that aims to improve the quality of food and food services, as well as the eating atmosphere, in nursing homes throughout Germany. The ultimate objective is to improve the diet of nursing home residents, and thereby improve their health and Quality of Life more generally.

'Fit in Old Age' is one of several projects being carried out as part of the German National Action Plan, 'In Form: Germany's Initiative for a Healthy Diet and more physical activity.' This is a nationwide initiative to improve the health of all German citizens through improved diets and nutrition and increased exercise. The national action plan is based on a resolution passed by the German Federal Parliament and is being overseen by the German Federal Ministry of Health and the Federal Ministry of Food, Agriculture and Consumer Protection. The 'Fit in Old Age' project is being implemented by the German Nutrition Society, a not-for-profit organisation.

Technopolis, together with its partners, has been commissioned to find out how stakeholders and professionals in nursing homes and at catering services perceive the 'Fit in Old Age' campaign. Therefore the focus of this formative evaluation is on the utility, practicability and benefits of the materials provided as part of the campaign. Given limited resources for prevention, it is of great importance for public policy to establish how target groups can best be reached and what makes preventative campaigns effective, in order to maximise their utility. Technopolis is well equipped to provide this kind of insight with its comprehensive knowledge of evaluation methodologies and consultants with a background in public health.

For more information, please contact
thomas.fischer@technopolis-group.com

European Research & Technology Organisations: A Neglected Resource

Technopolis was commissioned by the European Association of RTOs (EARTO) to carry out a study of the social and economic impacts of European RTOs. To the best of our knowledge, no such study has been carried out before, although there have been studies of RTO systems in individual European countries, in particular the UK

Research and Technology Organisations (RTOs) are recognised to be major players in the European innovation System. Their work is generally thought of as intermediate between the basic research activities of universities and the close-to-market R&D carried out in private companies, and covers a diverse range of activities including research across the basic-to-applied spectrum, consultancy and training.

RTOs are diverse in terms of their origins, customer bases and modes of financing. This very diversity partly explains the lack of an agreed definition of an RTO, or of the boundaries of the RTO 'sector', which is not represented as a separate entity in systems of national accounts. This, in turn, means that RTOs (unlike universities) are scarcely represented in official discussions of research policy – according to a study of their role in the US innovation system, they are the 'neglected stepchild of public policy'.

Our first task was to estimate the size of the European RTO sector, which requires a working definition of what is and is not an RTO. EARTO defines RTOs broadly, as organisations which 'as their predominant activity provide research and development, technology and innovation services to enterprises, governments and other clients'. This 'wider' definition takes no account of organisations' sources of funding, whether they seek to be profitable, or whether their principal customers are from the public or private sectors. A narrower definition would restrict RTOs to publicly subsidised institutes developing technical capacities for use in de-risking and expediting industrial innovation, and excludes private-sector organisations which function primarily as government laboratories.

We decided to estimate the size of the RTO sector according to each of these definitions. Three main sources were used to compile our lists of RTOs: members of EARTO; participants in the EU's Framework Programme (FP7); and a survey of EARTO members, where respondents were asked to name three other RTOs in their country. This resulted in a set of 275 organisations under the wider definition, and 205 under the narrower definition. In terms of turnover, we estimated a

total size of the European RTO sector as €18.5bn under the narrower definition, and €23bn under the broad definition.

The main contributions by country are from France and Germany, respectively, who together account for roughly 50% of total European turnover on the 'wide' definition, and 60% under the 'narrow' definition; differences between the two definitions stem largely from the case of the UK, which has the third largest RTO sector under the wide definition but do not feature at all under the narrow definition – their RTOs are typically for-profit organisations (dominated by Qinetiq) or not-for-profit unsubsidised organisations.

To gain further information on the scale and scope of RTO activity, we undertook a detailed literature search and review, a survey of RTOs, and case studies of particular projects/activities. In addition, we analysed economic impact using a simple framework based largely on previous work by Oxford Economics. The following were among the findings.

In terms of scale:

- The direct contribution of European RTOs to GDP (value added) is of the order of €10-12bn annually, but inclusion of indirect effects (such as the dependence of upstream suppliers on RTOs and 'multiplier' effects) conservatively suggests an overall short-term return of around three times this figure
- While uncertainties are great, the dynamic effects of R&D on economic growth would indicate a long term return of at least €100bn from each year's activity, on the basis of published estimates of the private and social returns to R&D from specific projects and from overall econometric estimations

In terms of scope:

- Around one-half of RTO activity comprises basic and applied research, the extent of the latter far exceeding that of the former
- While research is regarded by EARTO members as their most important activity, they also have key roles in experimental development, related S&T activities, and education and training
- While universities and RTOs have quite distinct roles in the innovation system, the overlap is increasing, in particular with respect to ties with universities

The Technopolis report concludes with a discussion of trends within the RTO sector, and proposals for more closely aligning the RTO sector and its environment with the needs of EU policy. It confirmed that RTOs are a critical element in the European innovation system in terms of both scale and scope, and highlighted the insufficient awareness of, and policy interest in, their activities.

For more information or a copy of the report, please contact john.clark@technopolis-group.com

Supporting Science and Research in Bosnia and Herzegovina

Technopolis is expanding its provision of technical assistance to research and innovation agencies in many parts of Europe and extending its geographical reach more generally bringing its long experience of research and innovation policy to the new member states and accession countries. As a case in point, a Technopolis-led consortium recently completed a year-long, EU-funded project "Institutional strengthening and capacity building of science and research in Bosnia and Herzegovina"

With the ongoing global economic crisis one of the most important matters for Bosnia and Herzegovina (BiH) to address is the issue of future economic growth. While the period between 1997-2007 witnessed substantial industrial restructuring, it is widely accepted that BiH will be unlikely to achieve long-term, sustainable growth without addressing the issue of national innovativeness, as well as a quality adaptation to and use of international technologies.

BiH inherited a strong scientific and technological tradition from Yugoslavia, however its research system is in transition and not yet in a position to provide a robust platform sufficient to drive regional competitiveness and economic growth. Core challenges include the need for increased provision of human and financial resources, strengthened institutions and cooperation within the unique multi-level governance framework in BiH, further integration into the European Research Area and establishment of systems for collecting statistical data and monitoring scientific activities.

Technopolis led an international consortium in this assistance project, with the team carrying out a range of support actions, including a baseline exercise to review the state of the research and innovation system, institutional capacity build-

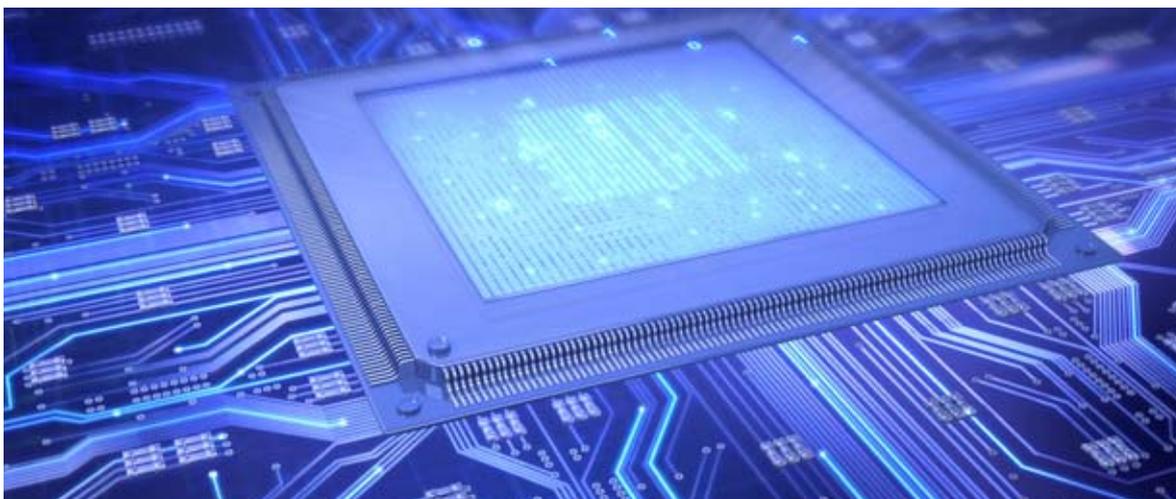
ing and the development of a proposal for the collection and reporting of system-level performance on standard international metrics.

The baseline study was comprehensive, following the European Commission's ERAWATCH approach, with the results for all parts of the study being published on the Commission's ERAWATCH (<http://cordis.europa.eu/erawatch/index.cfm>) and CORDIS (<http://cordis.europa.eu>) websites. Organisational profiles of the key actors were also published, significantly improving the visibility of research and innovation in Bosnia.

Institutional capacity-building included various activities such as international conferences on RTDI policy-making and financing and national contact point (NCP) systems, study visits to the European Commission services, EUROSTAT and relevant Belgian governmental authorities, and extensive training programmes for more than 110+ government officials and university management personnel and researchers have been organised. The existing NCP system has been reinforced by developing services focused particularly on the EU-funded programmes of FP7, COST and EUREKA.

In preparation for the introduction of a set of science, technology and innovation (STI) statistical indicators, in accordance with international practice, and establishment of the foundations of a new knowledge and information management system, a detailed assessment of the current situation was undertaken and a Manual on STI statistics was developed. The Manual (www.technopolis-group.com/site/downloads), a unique document as it has not been developed for other countries to date, represents an important step towards introducing an STI-statistics monitoring system in BiH, which is one of the prerequisites for the approximation to EU standards in this area.

For more information or a copy of the report, please contact michael.kilcommons@technopolis-group.com



Policy Studies and Evaluations Launched in the Recent Past

The following selection of recently commissioned studies reveal a number of interesting trends. Firstly, we see a growing interest across Europe in the independent evaluation - from both scientific and economic perspectives - of major research institutes. We also see an increase in the amount of ex ante impact assessments being undertaken, and increasing commitment to the careful and evidence-based consideration of the full range of policy options. There is similarly interest in better understanding international researcher mobility as well as the potential for the public sector to play a bigger role in driving innovation through its purchasing power and indeed in public services themselves

Evaluation of the Feodor Lynen Fellowship Programme, for the Alexander von Humboldt Foundation

The Feodor Lynen Programme sponsors up to 150 new fellowships each year, and is available to both German post-doctoral researchers and experienced researchers. It part-finances long-term visits (6-18 months) to carry out a joint research project with an academic host, based in any country outside Germany. The academic must have been a Humboldt visiting fellow previously and the host institution must be prepared to co-finance the project. Technopolis has evaluated several other AvH researcher mobility schemes, and this project will address a set of classic evaluation questions about efficiency and effectiveness, but with a particular emphasis on detailing the impact of the programme on the careers of award holders and subsequent international links.

Katharina Warta, warta@technopolis-group.com

Monitoring of implementation of integrated science, studies and business centres (Valleys) and joint research programmes (JRPs) in Lithuania

In this 3.5-year project, Technopolis, along with Ernst & Young Baltic, has been contracted by the national Research and Higher Education Monitoring and Analysis Centre to monitor funds allocated to the national R&D infrastructure system, monitor the Valleys and JRPs, develop various management and coordination models and undertake institutional strengthening activities.

michael.kilcommons@technopolis-group.com

Evaluation of the ICREA programme to attract leading research scientists to Spain

ICREA, the Catalan Institution for Research and Advanced Studies, is a foundation supported by the Catalan Government established to strengthen the research system in Catalunya. It's main activity is the recruitment of top researchers, who are able to lead new research groups and set up new areas of research. ICREA is approaching its 10th anniversary and has commissioned Technopolis to undertake an evaluation of its achievements to date. The evaluation will review the quality of the researchers attracted into Catalunya, identifying and explaining their contribution to improving the Catalan research system, as a means by which to identify opportunities to improve the Institute's effectiveness and operations.

paula.knee@technopolis-group.com

Evaluation of Study Destination Sweden (SDS)

Study Destination Sweden is a collaborative project involving the Swedish Institute and 29 Swedish HEIs to create a platform for the coordination of efforts to market Sweden internationally as a study destination. In 2009, the Swedish government passed a new bill to facilitate the internationalisation of higher education in Sweden, and also signalled the critical need to do more to raise the country's profile globally, amongst prospective students, researchers and teachers. The SDS project is concerned with students rather than staff, which is considered to be particularly important at this time, given the planned introduction of tuition fees for students from countries outside the EU/EEA in 2011/12. The evaluation will assess the success of the collaboration between the Institute and universities on the one hand, and, on the other, the nature and extent of the achievements that have resulted from the new, collaborative marketing platform. The evaluation will have a strong formative quality too, exploring options and making recommendations regarding future enhancements to the collaboration.

lars.geschwind@technopolis-group.com

Evaluation of the Austrian "Innovation voucher" programme, for the Austrian Research Agency (FFG)

Technopolis is evaluating the national Austrian Innovation Voucher scheme, which was launched in 2007 and offers a €5K voucher that SME recipients can use to purchase research and technology services from Austrian universities research institutes. The evaluation will explore the set-up phase and delivery arrangements as well as detailing knowledge transfer benefits. The work will test the extent to which the vouchers have increased innovation activity across the SME community, and will include selected international comparisons, as a basis for making recommendations about the evolution of the scheme going forwards.

barbara.good@technopolis-group.com

Mid-Term Reviews of the Centre for Society and Genomics (CSG) and the Cancer Genomics Centre (CGC)

Technopolis is providing evaluation support to the mid-term review and evaluation of two of the 16 national centres of excellence that have been financed in part by the Netherlands Genomics Initiative (NGI). In the first case, Technopolis will assist the Centre for Society and Genomics in carrying out a self-evaluation exercise the results of which will be a centrepiece in the evidence considered by an independent, high-level committee carrying out the programmed, mid-term review. The centre is principally concerned with studying and improving the relationship between society and genomics researchers, tackling the full spectrum of societal questions from risk to ethics to education. This collaborative approach to what will be a theory-based evaluation will begin with Technopolis updating the centre's logic model and adding practical specificity to its evaluation plan, advising the centre on relevant metrics and data collection tactics. Technopolis will provide ad hoc support to the centre too, and will ultimately draft the final evaluation report based on the conclusions and recommendations of the independent review panel and following the directions of the panel chairperson. In the second case, Technopolis will assist the Cancer Genomics Centre with their self-evaluation, providing analytical support to the centre's senior management team while also providing analytical support to the international panel that will assess the scientific achievements and wider benefits of the work of the Centre, culminating in our drafting of the final report of the external assessment, in conjunction with the Panel Chair.

frank.zuijdama@technopolis-group.com



Evaluation of IMEC-Leuven

Technopolis is leading an international evaluation of IMEC in Leuven, one of the world's leading research centres in the area of micro- and nano-electronics. The 6-month evaluation will review and judge the strategic management of the centre, its scientific standing internationally and the economic impacts that have arisen as a result of its activities over the past 30 years. The evaluation will also look at how the government's decision in 1983 to set up this international centre of excellence, with a staff of more than 1,000 scientists and engineers, has had an impact on the Flemish research and innovation system, and whether the approach of setting up such an applied research centre can be considered as successful in policy terms. The study will be both summative and formative, including a forward look into the challenges in the scientific and technological domains related to IMEC present and future research portfolio. The study includes desk research, interviews, an international peer review panel and extensive bibliometrics analysis.

patries.boekholt@technopolis-group.com

Evaluation of the Flanders Institute for Biotechnology (VIB)

VIB is one of the Flemish government's strategic research initiatives, and brings together more than 850 biotechnologists from four leading universities to create a centre of excellence of international scale and which has produced scientific breakthroughs across many of the sub-disciplines of biotechnology, as well as underpinning new therapeutic developments and commercial operations. Technopolis has been commissioned to carry out an independent evaluation of the Institute, encompassing management, scientific and economic aspects. The evaluation will also look at how the government's decision in 1995 to set up this centre has had an impact on the Flemish research and innovation system and whether the approach of setting up such an applied research centre can be considered as successful in policy terms. The study will also have a forward look into the challenges in the scientific and technological domains related to VIB present and future research portfolio. The study includes desk research, interviews, a peer review panel and bibliometrics analysis.

geert.vanderveen@technopolis-group.com

How Public Procurement can stimulate Innovative Services

The use of public procurement in innovation policy is widely discussed in all Nordic countries, as well as in the EU. A majority of studies and pilots has been concerned with the development of novel products, and there has been rather less work done on the feasibility of using public procurement to drive innovation in services. To that end, Technopolis is carrying out a pre-study to support the Nordic Innovation Centre develop a comprehensive proposal for a pan-regional, public-procurement pilot exercise related to services innovation.

peter.stern@technopolis-group.com

A study to assess the potential for an EU-scheme to support innovation through public procurement

Technopolis has been commissioned by the Commission Services to carry out a feasibility study to explore the options for an EU scheme to support the procurement of innovation, including pre-commercial procurement. The study will assess the benefits for procurement authorities from EU actions and what potential barriers might need to be removed to achieve these benefits. The study also examines how EU added value could be maximised.

jasper.deuten@technopolis-group.com

Study to market test a proposal for an EU-wide Environmental Technology Verification (ETV) scheme

Within the proposed ETV scheme, vendors of new environmental technologies can have their products tested by independent centres in order to obtain an objective measurement of functional and environmental performance. It is believed that this facility – independent provenance – should reassure prospective purchasers and facilitate the development of markets for solutions with intrinsically higher environmental performance as compared with incumbent technologies. In this project, Technopolis and its partners will assess the demand for a European ETV scheme and its likely cost-effectiveness. This study will feed into the ex ante Impact Assessment for a EU ETV scheme.

philippe.larrue@technopolis-group.com

Realistic evaluation for energy research

In support of the International Energy Agency's (IEA) preparation of a publication on 'Successful Strategies for Energy Technology RD&D', Technopolis is to synthesise lessons learned and the positive and negative aspects of various impact measurement approaches and provide conclusions on best practices, along with recommendations for areas of further research.

isabelle.collins@technopolis-group.com

An international comparative analysis of research and innovation policy in Norway

Technopolis is to write a paper summarising the development of Norwegian research and innovation policy over the past 20-40 years, with a particular focus on the last decade and the current situation. The study will compare Norwegian policy with that in a several other countries, aiming to provide inspiration for learning and change. The client, Tekna, the society for science and technology professionals, is one of a select group of representative organisations that has played an active role in the evolution of national research and innovation policy in Norway.

erik.arnold@technopolis-group.com

A review of the state of the art in evaluation methods as applied to regional innovation

This study will feed into DG REGIO's guidance on evaluation ahead of the next programming period for Cohesion Policy. It will review the state of the art amongst the 300 or so ERDF Managing Authorities, providing an analysis of the advantages and limitations of available methodologies for assessing different kinds of innovation activities, preparing in-depth case studies of best practice evaluation, and draft guidance for managing authorities to support their evaluation activities. The draft conclusions and guidance document will be discussed during a one-day workshop to be held in Brussels towards the end of the contract.

alasdair.reid@technopolis-group.com



Innovation in the Baltic-Sea Region

Technopolis has been contracted by DG REGIO to provide an overview of existing national and regional innovation strategies of the eight Member States and relevant regions covered by the European Union Strategy for the Baltic-Sea Region. The study will also identify and list key stakeholders, analyse transnational cooperation, analyse the contribution of ERDF to national and regional innovation policies and examine good practice within the region.

michael.kilcommons@technopolis-group.com

Future Opportunities for Miniaturised Systems beyond 2015, a foresight study

DG INFSO has asked Technopolis and its partners SEOR and VDI/VDE-IT to help prepare for FP8 with regard to the competencies and technologies needed to realise future miniaturised systems, reflecting the conviction that that micro- and nano-electronics deserve immediate policy action given the global competition and current economic crisis. The study will help identify visionary thinking about future applications and their potential enablers. The team will engage in a literature review, hold expert meetings and conduct surveys to assess the developments in science and technology, application markets and regarding societal challenges that shape the need for scientific and technological solutions.

wieneke.vullings@technopolis-group.com

Thematic evaluation of information and communication activities towards member states in EU enlargement, for DG Information Society

Technopolis is providing support to the European Commission in the evaluation of its communication activities across the organisation. The three tasks include supporting the development of the intervention logic, a screening of existing evaluation practice and support to the definition of common evaluation guidelines.

rebecca.allinson@technopolis-group.com

The ERAWATCH Network

Technopolis Group continues to play a pivotal role in the expanding ERAWATCH network, supporting evidence-based policy making in Europe

Technopolis has established a strong presence in European policy-monitoring services and is operating observatories in a range of policy domains. The company was a founding member of ERAWATCH, a global network of national experts, submitting periodical reports on national and regional research policies, programmes and actors.

The success of the ERAWATCH policy monitoring service in its research policy activities has led to its successive expansion and extension in both geographic and thematic terms, and its emergence as a key reference for European policymakers in the research and innovation realm. At the start of 2011 it has embarked on further projects for both DG Research (DG RTD) and DG Enterprise and Industry (DG ENTR) in addition to an extension to its research inventory activities for DG Research.

The Research Inventory and Country reports' coverage is now extended with an additional 14 countries added, to encompass all European Member States, members of the European Economic Area, Accession Countries and third countries where the EU has an international S&T agree-

ment (from Australia, to Mexico to the US).

In 2011, ERAWATCH's scope was extended explicitly to include actors and activities related to the Social Sciences and Humanities, in line with the ambitions of DG RTD. This project is the follow up to the recently completed METRIS project, Monitoring European Trends in Social Sciences and Humanities. Viola Peter, Senior Consultant at Technopolis is leading this project for ERAWATCH.

The service has also been expanded recently to encompass innovation policy and practice, taking over the monitoring and reporting that had previously been carried out for DG ENTR through a parallel information service, TrendChart. Alasdair Reid, Director of the Technopolis office in Brussels will lead the project. Consultants from across Technopolis Group will cover 11 of the 48 countries whose approach to innovation policy is being monitored and collated. The project will run until the end of 2012.

As a result of the expanded activities, ERAWATCH has now grown to cover over 50 countries in total: 27 EU Member States, countries associated with the European Community's Research Framework Programme and main trading partners of the EU.

For more information, please contact

viola.peter@technopolis-group.com

alasdair.reid@technopolis-group.com

ERAWATCH network website: www.erawatch-network.com

An Evaluation of Turkey's National Portfolio of Business Support Programmes for SMEs and Entrepreneurs

In December 2010, the Technopolis office in Turkey completed the evaluation of the SME and entrepreneurship programmes of the Small and Medium Enterprise Development Agency (KOSGEB) of Turkey. Established in 1990 as an affiliate to the Ministry of Industry and Trade, KOSGEB is the principal national agency responsible for the design and implementation of SME and entrepreneurship policies and programmes across Turkey

The KOSGEB evaluation conducted by Technopolis is the first independent evaluation in Turkey launched by a government agency, and realised using international norms as regards evaluation methods and reporting.

The significance of this development is evident in the level of engagement with the evaluation process, which was well received by all stakeholder groups. SMEs showed great interest and very substantial numbers voluntarily took an active role in the various aspects of the study. For example, 5,149 SMEs throughout the country completed the on-line survey, over 500 SMEs participated in in-depth interviews and more than 400 SMEs and other stakeholders took part in the focus groups. Both SMEs and KOSGEB stakeholders, which mainly includes regional and sectoral non-governmental organisations, and academia, say that it is the first time their opinions had been sought by policymakers in such a comprehensive manner and with a commitment to use the feedback in order to refine strategies and improve programmes.

KOSGEB has adopted the evaluation report already and immediately started to take steps towards improving its programmes and processes. It has made public its ambition to better address the needs of SMEs and entrepreneurs, the dynamism of which it deems to be of critical importance to the growth and future international competitiveness of SMEs in Turkey.

For more information, please contact

sirin.elci@technopolis-group.com

Technopolis Opens its 9th Office, in Germany

Technopolis has been active in the German market for over ten years prior to the opening of our office in Frankfurt. Numerous projects for clients from the German Federal Government and the Lander (Regional) Governments have been completed focusing on research, innovation and science policy. The Technopolis office in Germany was established in 2009. It is situated in Frankfurt am Main.

The main strengths of the German office lie in the financing of innovation, research and cluster evaluation, the application of strategic policy intelligence tools including sectoral and territorial foresight as well as public policy support for innovation and innovation management. In addition, the activity in Health related science and technology, health services and demographic adaptation challenges are an increasing part of our portfolio.

The team based in Germany have a varied professional background.



Thomas Heimer is the scientific head. He is a member of the advisory board of Kompetenznetze Deutschland of the Ministry of Economics and Technology (BMWi). He is the head of the accreditation commission of the Foundation for International Business Administration Accreditation (FIBAA) and is also a professor for Innovation Management at Hochschule RheinMain, a university of Applied Sciences.

Thomas Fischer's background is in the health sector. He gained his PhD in Nursing Science from Charité – Universitätsmedizin Berlin where he also worked as a researcher.

Thomas established a research group with a focus on health services research. In 2009 the research group was awarded the Max-Rubner award for innovators for a project to bridge the gap between new knowledge from research and clinical practice.



Helena Acheson has worked in public innovation policy for over 25 years. Prior to joining Technopolis, she held senior roles at Forfás, the national policy advisory organisation to the Irish Government, where she was Head of Division for Enterprise & Regional Policy (March'08 – August'10) and prior to that, Head of Division for Science, Technology & Innovation Policy.

Information

Subscription

To subscribe to the technopolitan, please send an email to subscription@technopolis-group.com.

Contact

www.technopolis-group.com

Amsterdam |NL|

Technopolis BV
Herengracht 141
1015 BH Amsterdam
T +31 20 535 2244
F +31 20 428 9656
info.nl@technopolis-group.com

Paris |FR|

Technopolis France S.A.R.L.
55 rue des Petites Ecuries
75010 Paris
T +33 1 49 49 09 20
F +33 1 49 49 09 29
info.fr@technopolis-group.com

Ankara |TR|

Technopolis Turkey
Soy Altin Sitesi,
Kutup Yildizi Sokagi
No. 8, Beytepe, Ankara
T +90 312 299 2077
F +90 312 299 2099
info.tr@technopolis-group.com

Stockholm |SE|

Faugert & Co Utvärdering AB
Grevgatan 15, 1 tr
114 53 Stockholm
T +46 8 55 11 81 00
F +46 8 55 11 81 01
info@faugert.se

Brighton |UK|

Technopolis Ltd
3 Pavilion Buildings
Brighton BN1 1EE
T +44 1273 204320
F +44 1273 747299
info@technopolis-group.com

Tallinn |EE|

Technopolis Group Estonia
Harju 6-411
10130 Tallinn
T/F +37 2 631 0525
info.ee@technopolis-group.com

Brussels |BE|

Technopolis Belgium
Avenue de Tervuren, 12
B-1040 Brussels
T +32 2 737 74 40
F +32 2 737 74 49
info.be@technopolis-group.com

Vienna |AT|

Technopolis Austria GmbH
Rudolfplatz 12/11
A-1010, Vienna
T +43 1 503 9592 - 13/14/17
F +43 1 503 9592 11
info.at@technopolis-group.com

Frankfurt/Main |DE|

Technopolis Deutschland GmbH
Martin-Luther-Straße 11A
DE-60316 Frankfurt am Main
T +49 69 4800 5265
F +49 69 4800 5270
info.de@technopolis-group.com

