



# Workshop on “Assessing the Impacts of Public Research Systems”

Location: Paris, OECD Headquarters

Date: 2-3 May 2016

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## About the workshop

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The TIP workshop of 2-3 May 2016 on “Assessing the Impacts of Public Research Systems” brought together TIP delegates and experts from Austria, the Czech Republic, Denmark, Estonia, Finland, France, Ireland, Italy, Japan, Portugal, the Russian Federation, Sweden, the UK and Turkey, as well as academic experts, to exchange on national experiences across two themes:

(1) **critical factors driving the impact of public research and its policies on innovation;** and

(2) **approaches adopted to conduct national studies on the impacts of public research and its policies.**

The discussions also focused on future **needs as well as priorities for the work of impact module** of the Knowledge Triangle project by December 2016.

The workshop was organised in the context of the “impact assessment” module of the TIP/CSTP Knowledge Triangle Project.



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## Summary of main outcomes

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### *How has the innovation performance of European countries and their innovation policies evolved?*

**Reinhilde Veugelers** (KU Leuven) provided an overview of the EU innovation context based on data from the Innovation Union Scoreboard (IUS). Ms Veugelers concluded the following:

- The EU's overall innovation performance has weakened with a growing innovation divide among its Member States since 2010.
- Increasing disparities in terms of R&I public spending relative to GDP and the deployment of insufficiently country-context-adjusted policy mixes might have aggravated the divide.
- Regarding policy differences, the IUS data point to the larger use of instruments to support public-private linkages among countries with stronger innovation profiles.


She emphasised the need for further evidence gathering, as the IUS data only cover differences in policy approaches by using data on quantity and type of public spending. In this sense, better data and indicators for monitoring and evaluation are crucial. Workshop participants agreed with this conclusion and emphasised the need for further cross-country evidence on these questions.

### *What role has governance played in enhancing the impacts of public research on innovation across different countries?*

**Göran Marklund** (Vinnova, Sweden) highlighted that history and the policy context are relevant to understand the functions of each of the bodies engaged in R&D policy decision-making. Several critical post-war public investments helped Sweden build its STI system. A critical decision that set adequate incentives for universities involved establishing by law three core university missions: i) education, ii) research, and iii) co-operation with the rest of society. Giving universities greater autonomy also had substantial impacts on incentives. Current debates regard setting adequate funding schemes for public research as developed in the OECD Innovation Policy Review of Sweden.

Sweden's innovation agency, Vinnova, has been critically involved in supporting the better articulation of STI policy, including with regards to universities' roles. Evaluation and assessment schemes in place have proven critical in governance of research policy as they set the incentive structure for actors in STI. Behavioural factors add to the core variables that need policy attention to keep Sweden's research environment attractive for innovation.

**Tiago Santos Pereira** (Portuguese Foundation for Science and Technology, FCT) noted that Portugal's Smart Specialisation Strategy, implemented in the context of the EU's 2020 Strategy,



has allowed for greater coordination of STI strategies across institutions. The high level of heterogeneity across institutions in terms of their organisation requires a strong system of incentives that allows for better coordination among them, as provided by performance evaluation and monitoring schemes using well-defined systems of indicators.

**Frédérique Sachwald** (Ministère de l'Enseignement supérieur et de la Recherche, France) pointed out that performance measurement using country-context specific indicators is necessary for well-articulated research and innovation strategies, and that countries differ in terms of how well they articulate their strategies. In France, generic innovation policies such as tax credits have been succeeded by policies targeted at some priority areas for research and innovation, such as support for public-private centres in a given field, innovation prizes and procurement schemes focused on strategic areas. She also pointed to the critical role of impact evaluation for policy impact. Well-known challenges need to be overcome for adequate evaluations, such as taking into account the long-term effects of research, the complex and intangible nature of public research and the lack of good indicators in a number of domains.


**Gerhard Schadler** (Federal Ministry of Science, Research and Economy, Austria) emphasised that in Austria performance contracts between government and HEIs play an important role in the governance of public research. These contracts set out specific quantitative or qualitative targets that institutions need to achieve over a 3-year time horizon. Fulfilling targets in turn determines the institutional funding institutions receive. He also stressed the need for performance criteria that take into account universities' third mission as well as other emerging challenges, such as the importance of connecting to international research.

**Jane Bjorn Vedel** (Copenhagen Business School and Innovation Fund Denmark) explained that the Danish government provides support services to firms to facilitate their interaction with public research institutions. Such support, she emphasised, has proven critical to improve industry-science relations. She also pointed out that the thorough assessment of publicly-funded projects is critical in improving public support's impacts on innovation. She concluded that better evaluation tools are needed for stronger policy impact.

***What characteristics of university systems matter for universities' successful contributions to research, education and innovation?***

**Andrea Bonaccorsi** (University of Pisa) provided statistical evidence on the impact of national university characteristics on research outcomes. He concluded the following:

- Faculties' research outcomes are positively related to the internationalisation of university PhD programmes and to universities' research excellence, measured by universities' share of top publications.
- The size of a university as measured by number of students and number of overall academic staff does not seem to be systematically related to research outcomes. That is, there is no evidence of economies of scale with regards to research. Small- to medium-



sized academic faculties - as measured by number of academic staff - perform better in terms of average number of citations and publications per capita than larger faculties.

- There are no differences in research outcomes between public and private universities. The public-private governance dimension does not seem to be critical.
- The generalist university model seems more successful than the specialised university model. Universities that are specialised in many academic disciplines as measured by their publications track record perform better than universities that are specialised in a handful of pockets of research excellence.

**Kazuyuki Motohashi** (University of Tokyo) provided new statistical evidence on the contributions of science to industry in Japan; findings are based on newly combined databases on publications, patents, HEIs/PRIs and firms. He concluded the following:


- Industrial patenting in Japan is increasingly science-based, partly as a result of strong policy support for more university-industry collaborations. Academic patenting has also increased.
- Science-industry linkages are more complex than the linear model of science-industry contributions would suggest. Consequently, corporate research centres within universities that facilitate researchers' collaboration with industry should be supported. Public support should also promote university-based entrepreneurship.

***What industry-university linkages matter most for enhancing the impacts of public research? What are the challenges faced in different national contexts?***

**Philippe Larédo** (Université Paris-Est and University of Manchester) presented his perspectives on the policies that support interactions between academic research and society at large. He discussed how this relationship has evolved over time. Today successful industry-science interactions arise mostly from direct interaction of researchers with industry (e.g. labour mobility, research collaboration, etc.) and the provision of consultancy services. These types of relations are much more important than others, including the commercialisation of research results. These are only relevant for a few outstanding institutions, which should not be selected as role models for all other universities. Rather, it is more important to consider more broadly the contributions of universities to regional and national innovation systems, including their role as providers of human capital, technology advice and research.

Several country presentations provided national perspectives on the key enablers and challenges to industry-university linkages:

- Reflecting on the experience of the UK, **Mike King** (National Physical Laboratory, UK) pointed out that the transfer of know-how and tacit knowledge constitutes a key mechanism through which research contributes to innovation. Thus, spin-offs and open




access to research results and data are particularly important means to foster collaboration.

- **Lucie Nunez Tayupanta** (Ministry of Education, Youth and Sports, Czech Republic) concluded, based on a study conducted in the context of the Czech Republic, that a main challenge for better knowledge transfer across HEIs/PRI and industry is that industry often requires different research support from the expertise universities could offer. Insufficient demand for applied R&D by industry due to firms' weak innovation capacities also constitutes a challenge for establishing better science-industry linkages.
- **Kai Husso** (Research and Innovation Council of Finland) pointed out that too strong a focus on scientific merits and publishing and the lack of commercialisation, business and technology expertise have hold back more effective science-industry linkages in Finland.
- **Ian Hughes** (Department of Jobs, Enterprise & Innovation, Ireland) raised two core questions for policy aimed at support industry-science relations further: i) what is the scope of the third mission of universities (and what are its limitations)?; and ii) what institutional model is most appropriate, a centralised institution for knowledge transfer or distributing this activity across a wide range of institutions?
- **Fulvio Esposito** (Ministry of Education, University and Research, Italy) pointed out that HEIs recruit good researchers and teachers, but not entrepreneurs. It is the researchers that need to have the right incentives for the "third mission" to be successful. Entrepreneurship support may be particularly valuable.

### ***What policies can best support universities "third mission"?***

The following policies were pointed to as supportive of improving universities' "third mission":

- **Ian Hughes** (Department of Jobs, Enterprise & Innovation, Ireland) suggested that specific intermediary institutions with the mission to connect research to industry, and vice versa, can play a critical role in ensuring more successful technology transfer, as is the case in Ireland.
- **Ursula Tubli** (Ministry of Education and Research, Estonia) emphasised the advantage of fostering the mobility of PhD students and skilled personnel from universities to the private sector. In Estonia, the forthcoming reforms in the R&D funding system require HEIs to obtain a higher share of revenues from industry. Higher education funding will also be increasingly performance-based, where co-operation with industry criteria is among the performance measures.
- **Lucie Nunez Tayupanta** (Ministry of Education, Youth and Sports, Czech Republic) pointed to performance agreements between the government and HEIs that would set clear targets regarding industry-science relations. In order to incentivise HEIs to reach



out more to industry, HEIs are legally required to formulate a knowledge transfer strategy and establish corresponding procedures.

- **Kai Husso** (Research and Innovation Council of Finland) referred to Finland's University reform in 2010 and the HEI Invention Law reform in 2007 as examples of reforms that had raised researchers' incentives to engage in technology transfer and commercialisation activities. The law led to a new financial model of universities, new metrics and transparent quantitative reporting including communication of outcomes and successes, and the establishment of a commercialisation fund.
- **Dirk Meissner** (Research Lab for Science and Technology Studies, Russia) argued that coherence of STI policy initiatives is crucial for countries to take advantage of the full potential of their research and industry base. He concluded by explaining that evaluation schemes of public STI should be more based on thinking in terms of opportunities than of building ideal systems.
- **Jane Bjorn Vedel** (Copenhagen Business School and Innovation Fund Denmark) discussed how Innovation Fund Denmark, a government funding agency, has increased attention devoted to the evaluation of the impact of funding provided to orient further investment support. Regarding impact evaluation, **Tiago Santos Pereira** (Portuguese Foundation for Science and Technology, FCT) provided evidence from an impact assessment exercise aimed at assessing the alignment between Portugal's research base, as measured by the publications across disciplines, and priority industrial sectors for improved innovation performance.
- **Hande Alpaslan** (Department of Science, Technology and Innovation Policy, TÜBİTAK, Turkey) introduced Turkey's governance arrangements, pointing to national STI targets for 2023, the establishment of a Supreme Council for Science and Technology to lead R&D policy, and core funding mechanisms that aim to support industry-science linkages for better innovation performance. These funding mechanisms include: i) mission-oriented approaches and programmes, based on a call system that prioritises technology topics in line with the national STI strategy; ii) support to entrepreneurship and technology transfer (e.g., university-industry collaboration grant programme); and iii) performance-based approaches (e.g. awards for higher quality research, support to centres of excellence).
- **Frédérique Sachwald** (Ministère de l'Enseignement supérieur et de la Recherche, France) highlighted that in France instruments aimed at promoting technology diffusion to SMEs have gained in importance compared to generic instruments. Targeted policies aimed at supporting specific research fields and sectors are also used.



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## Agenda

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Monday, 2 May 2016

### *9h00 – 9h30: Introductions, Presentation of the Agenda*

- **Dominique Guellec** and **Caroline Paunov**: Introduction to the Workshop

### *9h30 – 11h00: National Approaches to Public Research Policy and Evidence on What Matters for Impact*

#### *Presentations*

- **Reinhilde Veugelers**, Professor, KU Leuven: Mixing and Matching Research and Innovation Policies in EU Countries
- **Caroline Paunov**: Overview of the Mapping Exercise on Policy Indicators - Update on the Current Project Status

#### *Open discussion*

### *11h30 – 13h00: Governance of Public Research and Impacts on Innovation*


The session provided cross-country evidence from the policy mapping exercise on governance aspects of public research policies, focusing on the four main dimensions of research policy outlined in the figure below. Country presentations reflected on their national indicators and commented on governance and other policy dimensions of core relevance for the impacts of public research.

- **Martin Borowiecki**: *Presentation of the cross-country evidence on governance aspects of public research policies*

#### *Country perspectives*

- **Göran Marklund**, Deputy Director General External Matters, Vinnova, Sweden
- **Tiago Santos Pereira**, Coordinator, Studies and Strategy Office, Portuguese Foundation for Science and Technology (FCT)
- **Frédérique Sachwald**, Deputy Head, Division Innovation, Technology Transfer and Regional Action (Adjointe, Service de l'innovation, du transfert de technologie et de l'action régionale), Ministère de l'Enseignement supérieur et de la Recherche, France
- **Gerhard Schadler**, Bundesministerium für Wissenschaft, Forschung und Wirtschaft, Federal Ministry of Science, Research and Economy, Austria

#### *Open discussion*



**14h30 – 16h00: What institutional characteristics matter for research, education and quality success**

- **Richard Scott and Caroline Paunov:** Evidence on the diversity of research systems
- **Andrea Bonaccorsi**, Professor, Università di Pisa: Policy insights from analysing European universities
- **Kazuyuki Motohashi**, Professor, University of Tokyo: Perspectives from research on research-innovation interactions in Japan

***Open discussion***

**16h30 – 18h00: Industry-University Interactions**

The session provided cross-country evidence from the policy mapping exercise on the legal aspects of industry-university interactions, covering the core dimensions outlined the figure below. Country presentations reflected on their national indicators and commented on critical dimensions of industry-university linkages and other policy dimensions of core relevance for the impacts of public research.

- **Sandra Planes Satorra:** *Presentation of the cross-country evidence on the legal aspects of industry-university interactions*

***Country perspectives***

- **Ian Hughes**, Senior Policy Advisor, Department of Jobs, Enterprise & Innovation, Ireland
- **Ursula Tubli**, Chief Expert of Research Policy Department, Ministry of Education and Research, Estonia
- **Mike King**, National Physical Laboratory, UK
- **Lucie Nunez Tayupanta**, Department of Research and Development, Ministry of Education, Youth and Sports (MSMT), Czech Republic
- **Kai Husso**, Chief Planning Officer, Research and Innovation Council of Finland

***Open discussion***





Tuesday, 3 May 2016

**9h00 – 9h30: Update of the Knowledge Triangle Project**

- **Mario Cervantes**, Update on the Activities of the Knowledge Triangle Project and the September High-Level Conference

**Open discussion**

**9h30 – 11h30: Industry-Science Linkages: Evidence and Policy Approaches**

**Presentations**

- **Sandra Planes Satorra, Tadanori Moriguchi and Caroline Paunov**, Evidence on the changing role of scientific disciplines for industry?
- **Philippe Larédo**, Université Paris-Est (Ecole des Ponts, IFRIS, Institut Francilien, Recherche, Innovation et Société) and University of Manchester (MBS, Manchester Institute of Innovation Research): What are policy priorities for efficient science-industry linkages?

**Policy Approaches at Targeted Policies**

- **Dirk Meissner**, Deputy Head, Research Lab for Science and Technology Studies, Russia
- **Jane Bjorn Vedel**, Assistant Professor at Copenhagen Business School and Advisor to Innovation Fund Denmark: Approaches to support industry-science linkages within specific scientific disciplines and industries
- **Tiago Santos Pereira**, Coordinator, Studies and Strategy Office, Portuguese Foundation for Science and Technology (FCT)
- **Hande Alpaslan**, Department of Science, Technology and Innovation Policy, TÜBİTAK, Turkey
- **Frédérique Sachwald**, Deputy Head, Division Innovation, Technology Transfer and Regional Action (Adjointe, Service de l'innovation, du transfert de technologie et de l'action régionale), Ministère de l'Enseignement supérieur et de la Recherche, France

**Open discussion**

**11h30 – 12h30: Next Steps for Finalising the Impact Analysis**

**Open discussion**



### Further information

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Project website: <http://www.oecd.org/sti/inno/impact-assessment-public.htm>

IPP project space: <https://www.innovationpolicyplatform.org/impact-assessment-innovation-policy-oecd-project>