



Workshop: New strategies for the commercialisation of public research

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Food for Thought¹

Public research – i.e. research primarily funded with public resources and carried out by public research institutions (PRIs) and research universities – plays an extremely important role in national innovation systems. Its sphere of influence touches education, training, skills development, problem solving, creation and diffusion of knowledge, development of new instrumentation, and the storage and transmission of knowledge. But public research has also been the source of significant scientific and technological breakthroughs that have become major innovations, sometimes as by-products of basic scientific research goals and sometimes with no vision of any direct application to a valuable commercial activity. Well-known examples include recombinant DNA techniques, the Global Positioning System (GPS) and the MP3 technology to Apple's Siri voice recognition technology.



Awareness of the substantial economic benefits from public research – and demands by governments to reap those benefits – has changed the rationale for supporting PRIs and universities in particular. This has led to increased efforts – and a growing number of approaches and strategies – toward more direct engagement in downstream commercialisation activities.

In addition, globalisation, budgetary pressure, competition for human resources and funding, greater openness in accessing research data are also driving forces for the increased focus on the commercialisation of public research results.

There are several channels for enhancing the transfer and commercialisation of knowledge generated by academic research. While patents, licenses and spin-offs remain important channels for some institutions, other channels such as collaborative research (e.g. public-private partnerships), student and faculty mobility, as well as contract research and faculty consulting appear to be increasing in importance, but solid data is lacking.



Technological progress in ICTs, combined with greater openness in public research and business innovation are also broadening the channels for commercialisation. A key driver is the push by science funding agencies for greater access to publicly funding research results and data.

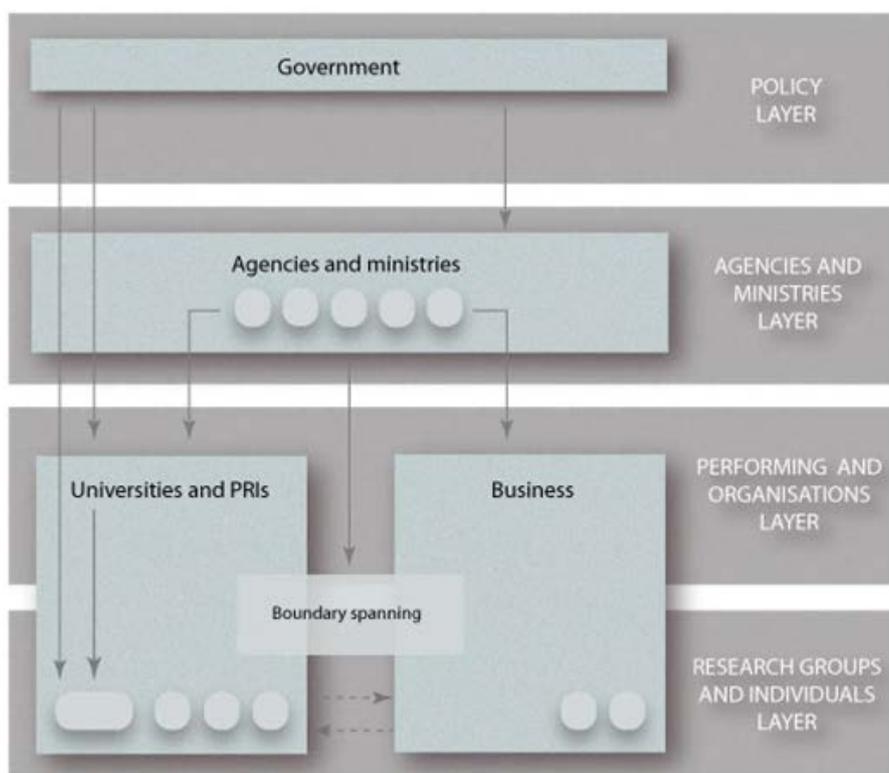
Technology licensing and transfer offices (TTOs), which have long been central to university and government efforts to commercialise research, are also evolving in the search for more effective operational models.

Using the recent findings from OECD work on *Commercialising Public Research: New Trends and Strategies* and following an OECD/European Patent Office/Technische Universität München (TUM) conference On *Creating Markets*

1. Please note that this document is inspired by OECD (forthcoming), *Commercialising Public Research: New Trends and Strategies*, OECD Publishing, Paris and material from the conference on *Creating Markets from Research Results*, 6-7 May 2013, organised by the European Patent Office (EPO), the Organisation for Economic Co-operation and Development (OECD) and the Technical University of Munich (TUM), www.epo.org/learning-events/events/conferences/2013/markets.html.

from *Research Results*, this workshop will present an overview of the subject in OECD countries and will look at ways to improve universities practices in the domain.

A policy maker's view on promoting knowledge transfer and commercialisation



Source: OECD (forthcoming), *Commercialising Public Research: New Trends and Strategies*, OECD Publishing, Paris.

The conference will focus on 5 themes, namely:

- university intellectual property (IP) management and policies
- university-industry collaboration
- new forms and models of TTOs
- open access and data
- entrepreneurship in universities
- university intellectual property (IP) management and policies

Over the past decade, universities have been required and encouraged by policymakers and legislators to commercialise their work via patenting, licensing and spin-offs. But IP policies and management practices vary from country to country, even if efforts have been made to harmonise university policies, for example by issuing guidelines for IP management.

During the course of the 2000s, universities doubled the number of their patent applications. However, the follow-up was less impressive as the number of licences and spin-outs rose much less quickly. On the other hand, licensing income as a percentage of research expenditures has remained relatively stable in selected OECD countries and regions; however, only a small number of universities account for the bulk of total licensing income. In Europe, 10% of universities accounted for approximately 85% of total licensing income.

The slowdown of key performance indicators has raised concern among policy makers and practitioners about the effectiveness of commercialisation policies relying solely on patents.

Universities exchange and use a variety of different forms of IP rights not limited to patents, but extending to copyrights and trade secrets. These other forms of IP rights have an important impact on how other channels, such as contract and collaborative research, operate and function.

Few universities give a clear policy mandate to IP and commercialisation strategies that recognise different pathways, although university policies and rules have pronounced effects on how TTOs, researchers and students engage in these practices. As universities develop their IP and commercialisation strategies, they face a series of dilemmas:

- How to serve best a wide range of goals and interests?
- How to allow for the potential of commercialisation while retaining the fundamental integrity of universities?
- Which actions could improve IP awareness at universities?

This session will present approaches and management practices at universities and will discuss them in detail.

University-Industry collaboration

Interactions between universities and industry are one of the key elements of national innovation systems.

In general, university-industry co-operation has clearly intensified in recent years due to the complexity of technological innovations and the limited ability of internal corporate R&D capacities.

However, firms in some countries do not see universities as a primary source of knowledge for their business and innovation activities while in some others, universities provide the necessary capabilities to firms to remain competitive in global markets by integrating fundamental scientific knowledge.

In this fast moving environment, some universities are exploring how they can package knowledge more effectively for the market and how they can offer the expertise that business expects.

A constant evolution is taking place in the terms of which universities and companies are engaging with each other. Besides conventional forms of co-operation, such as contract research and research partnerships, a number of universities and firms have experimented with new ways of leveraging innovation investments and activities.

This session will discuss how governments, universities and business can strengthen more sustainable long-term university-industry collaboration. It will discuss questions such as:

- What collaborative interactions with industry (e.g. contract research, consulting, staff secondments, etc.) work best to create an ecosystem of innovation in universities?
- What can universities do better to market their expertise to industry?
- How can universities organise their (existing) relationships with industry more effectively?

New forms and models of Technology Transfer Offices (TTO)

A range of intermediary and bridging organisations have been institutionalised to lower the cultural distance and search costs between actors involved in knowledge transfer and commercialisation. As a result, universities have built up an extensive infrastructure of intermediaries in the form of TTOs.

The most common goals and missions associated with TTOs are the enhancement of licensing revenues; the maintenance or expansion of industrial research support; faculty retention; technology transfer; and, to a lesser extent, regional development. Anecdotal evidence suggests that a large number of TTOs have expanded their activities from administrating technology transfer (invention disclosures, filing patents) to a wide range of IP management and supporting activities (e.g. patent scouts, consulting), marketing non-patent services, administering proof-of-concept (PoC) and seed funds for entrepreneurial activities, as well as promoting an innovation culture.

However, there is still much variety in the missions and models of TTOs, as well as in the nature of the institution they serve. This is mainly due to variations in resource and infrastructure endowments among institutions, the scale and focus of research efforts, and experience in technology transfer. Despite the various missions and activities of TTOs, evidence indicates a convergence across countries towards a common set of organisational and financial models for TTOs.

As the role of TTOs is evolving rapidly, this session will look at existing and new TTO models and will address questions on the applicability of these to different university characteristics and environments. The session will also explore how to manage a commercial culture and relationships to industry in the absence of formal TTO structures.

Open access and data

Information and communications technologies (ICTs) are impacting on the scientific enterprise in ways that few scientists, funding agencies, universities, businesses, policy makers or publishers would have anticipated.

Fuelled by these advances in ICT technologies, access to public research results has become a key issue, reflecting increasing interest in improving the accessibility of scientific research findings in general and in particular the results

of publicly funded research, which institutional and private users often have to pay for separately in order to secure access.

In addition, university researchers have been encouraged to work together, share data and disseminate new knowledge quickly in order to foster scientific progress, meet major challenges and maximise the impact of their research.

This trend has several implications on the range of open science initiatives and the adoption of requirements by funding organisations concerning the access to the outputs of research.

This session will explore how universities can cope and better manage open access and data requirements and will examine the impact of the open access and data model on the daily work of researchers.

Entrepreneurship in universities

Entrepreneurship is a key driver of economic growth and job creation. Universities are therefore important incubators for creating the next class of entrepreneurs and the future start-ups and spin-offs.

If entrepreneurship in universities has received substantial attention from policymakers and higher university management, it requires a large amount of input to be successful. One of the most important is to create awareness of and skills for entrepreneurship. Nevertheless the importance of skills to successful entrepreneurship is generally poorly recognised and responded to in current training and university entrepreneurship policies.

But there are numerous initiatives and approaches to create a favourable eco-system for start-ups at individual institutions. A number of universities are investing in new educational programmes that engage a much wider cross-section of the university population to create awareness of and skills for entrepreneurship. It can also be done, for example, by providing a systems approach to nurturing the university or by taking steps to alleviate the financing gap.

A relatively unexplored domain of analysis is the role of current and former students as key actors in the exploitation and possible commercialisation of knowledge generated, in particular in universities. Acknowledging this role and understanding what drives it and what the main barriers are could prove a particularly fruitful area for entrepreneurial activities at universities.

This session will discuss what policy makers, entrepreneurs and universities can realistically do to nurture entrepreneurship in all its forms. It will look at what works well and what the common challenges are.

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