

## Knowledge transfer between research institutions and industry – Frequently asked questions

*The European Commission has today set out its views on improving knowledge transfer between businesses and research organisations (see [IP/07/469](#)). The Commission Communication, entitled "Improving knowledge transfer between research institutions and industry across Europe" is a starting point for discussions on a common European framework for knowledge transfer. The Commission has also proposed voluntary guidelines to help universities and other research institutions improve their links with industry across Europe.*

### What is knowledge transfer, and what role does it play in the European Research Area ?

Knowledge Transfer consists of the range of activities which aim to capture and transmit knowledge (either explicit, such as in patents, or tacit such as know-how), skills and competence from those who generate them to those who will **transform them into economic outcomes**. It includes both commercial and non-commercial activities such as research collaborations, consultancy, licensing, spin-off creation, researcher mobility and publication.

Knowledge transfer is a wider concept than "technology transfer": it includes other transfer channels, such as mobility of staff or publications.

Knowledge transfer is beneficial to all categories of stakeholders, which include universities, public research centres and industry. Effective knowledge transfer constitutes a key mechanism of the European Research Area and ensures that publicly-funded research exerts an effective impact on EU competitiveness.

### Why should universities engage in knowledge transfer?

This fundamental question has been addressed in the past by the Commission, which has said that "*many European universities still underestimate the potential benefits of sharing knowledge with the economy and society*"<sup>1</sup>.

The benefits of knowledge transfer – in other words, the exploitation of research - go beyond simple financial return. In fact, even in the US, where knowledge transfer is more developed, only a fraction of such activities generate net profit. The benefit also lies in a number of other, less tangible benefits for research institutions, for industry and for the society as a whole, such as helping research institutions focus their research on the wider needs of society and industry.

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<sup>1</sup> In particular in its Communication "*Delivering on the modernisation agenda for universities: education, research and innovation*" (COM(2006)208),

### **Benefits for industry**

More effective and systematic knowledge transfer in Europe would improve the ability of industry to tap into the knowledge developed by the public science base. Such links can for example be developed through collaborative and contract research. The development of long-term partnerships between industry and research institutions, with priorities jointly agreed and implemented will build trust, improve the contribution of the research organisation and result in a better alignment of interests and benefits.

### **Benefits for society**

There are also benefits for public authorities who increasingly need to ensure that their investments in research have an optimal socio-economic impact, e.g. new products on the market (pharmaceuticals, etc.), new jobs and new companies. Moreover, knowledge transfer at the national or regional level potentially has a strong impact on local development.

### **How does Europe perform in comparison with the US in this field ?**

Two surveys on knowledge transfer in Europe were recently carried out by ProTon and ASTP, two leading European knowledge transfer professional associations. By comparing their results with those of the AUTM survey in the US, it is possible to make a first analysis of knowledge transfer in Europe and North America<sup>2</sup>.

Even though these surveys do not cover all European research institutions, they offer a useful basis of comparison and show that the surveyed European institutions lag behind their North America counterparts regarding invention disclosures (by 25%), patent applications (by 53%) and patent grants (by 36%). This suggests that Europe has been less successful at commercialising its R&D results.

On the other hand, European research institutions perform better than North Americans' in terms of the number of start-ups established (by 45%). This suggests that despite less effort, Europe is relatively successful in promoting actual use of public R&D results by the business sector. It is however important to note that the revenue generated by the licenses is less than in the US.

### **What measures have already been taken in Europe to facilitate knowledge transfer ?**

In recent years, many Member States have undertaken measures to improve university-industry relations and in particular to facilitate knowledge transfer. Their aim is to promote the use of publicly-funded R&D results at national level in order to reap the associated socio-economic benefits.

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[http://www.protoneurope.org/news/2006/art2006/artjanmar06/2asfy2004/attachment\\_download/file](http://www.protoneurope.org/news/2006/art2006/artjanmar06/2asfy2004/attachment_download/file),  
[http://www.merit.unu.edu/publications/docs/200605\\_ASTP.pdf](http://www.merit.unu.edu/publications/docs/200605_ASTP.pdf)  
<http://www.autm.net/events/File/FY04%20Licensing%20Survey/04AUTM-USLicSrvy-public.pdf>

Such initiatives include :

- The development and implementation of **guidelines** or **model contracts** at a national level, e.g. the Irish "[National Code of Practice for managing intellectual property from publicly funded research](#)"<sup>3</sup> (and "Code of practice for managing and commercialising IP from public-private collaborative research"<sup>4</sup>), the UK "Lambert agreements"<sup>5</sup> or the Danish document on "Contacts, contracts and codices"<sup>6</sup>. Such common principles and model contracts are intended to reduce the "transaction costs" of university-industry relations, by offering an accurate starting point for negotiation, etc.
- Changes in **national legislation**, including in particular the abolition of the "professor's privilege" regime in several countries (including Germany in 2002). As a consequence of these changes, the ownership of publicly-funded research results, in most EU Member States, now resides with institutions instead of researchers/professors, which provides for more effective management and exploitation. This is a good example of "spontaneous" convergence of regulatory frameworks in different Member States.
- The creation of a UK "*Institute of Knowledge Transfer*"<sup>7</sup>, whose mission is to improve the skills and competencies of the growing knowledge transfer practitioner community. It will provide a structured career path for those working in the sector and contribute to the professionalisation of the Knowledge Transfer sector.
- A coherent national network of technology/knowledge transfer offices has been set up in Germany ("PVAs" – *Patentverwertungsagenturen* – Patent exploitation agencies) and is planned in Sweden<sup>8</sup>.

However, these initiatives were usually designed in a **purely national perspective**, without addressing the trans-national dimension of knowledge transfer. Therefore, they do not remedy the discrepancies between the national regimes and practices.

### **What are the main shortcomings which remain to be addressed ?**

While barriers hampering knowledge transfer at national level are being gradually removed - such as the prohibition for public-sector researchers to be involved in the creation of a spin-off, which existed in certain countries - significant **discrepancies** still exist between the different national knowledge transfer legal contexts and practices. This includes institutional and cultural differences among public research organisations, some of which consider that all publicly-funded R&D results – even those partly funded by industry - should be placed in the public domain and that research institutions should not get involved in their "exploitation" and market uptake.

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<sup>3</sup> See <http://www.forfas.ie/icsti/statements/icsti040407/index.html>

<sup>4</sup> See [http://www.sciencecouncil.ie/reports/acsti051125/acsti051125\\_ip\\_code\\_of\\_practice\\_webopt.pdf](http://www.sciencecouncil.ie/reports/acsti051125/acsti051125_ip_code_of_practice_webopt.pdf)

<sup>5</sup> See <http://www.innovation.gov.uk/lambertagreements>

<sup>6</sup> See <http://billed.di.dk/wimpfiles/lores/image.asp?objno=/686201.pdf>

<sup>7</sup> See <http://www.ikt.org.uk>

<sup>8</sup> From *ResearchResearch* : "Sweden's 14 university technology transfer offices should be restructured along common lines to increase their efficiency. And this should be funded by a 60 million kronor (6.6m euro) reserve already earmarked for the purpose, says Peter Nygårds, industrialist and former trade and industry minister, who was asked to review Sweden's technology transfer office system for the Ministry of Education and Research."

In order to promote a more entrepreneurial culture amongst academics, it would be beneficial to consider "innovation-related" activities such as patenting, licensing or spin-off creation, in their career appraisals. This would also promote cross-sectoral mobility of researchers between the academic world and industry.

Such discrepancies hinder the development and management of trans-national knowledge transfer activities, which lie at the core of a well-functioning European Research Area.

In addition, many existing European research and knowledge transfer offices suffer from a **lack of critical mass**. Most of them have fewer than ten full-time staff and only generate on average three licensing deals and three spin-offs per year<sup>9</sup>.

Furthermore, the current legal frameworks regarding mobility of researchers (e.g. their social security entitlements) and intellectual property (e.g. the lack of a single ownership regime) continues to limit the flow of information between research organisations and industry.

As a consequence of these different factors, the exploitation of publicly-funded results in Europe is sub-optimal, thereby lowering its potential impact on EU competitiveness.

### **How does this Communication contribute to addressing the remaining European deficiencies ?**

Against this backdrop, there is a **clear need for EU-wide action** to reduce the discrepancies between national knowledge transfer legal systems and practices.

Certain initiatives have been taken to this end, such as the "*Responsible Partnering*" initiative<sup>10</sup> aiming to streamline university-industry R&D relations by defining common principles on which they should rely across Europe<sup>11</sup>.

Moreover, Member States and other interested parties should make full use of the opportunities offered by the Structural Funds, the new *Community R&D and innovation State aid framework*, and the forthcoming *European Institute of Technology*. As the latter will place equal emphasis on research, education and innovation, and integrate both public-sector and private-sector partners, it should also, beyond the direct impact of its activities, serve as a model for European research institutions. A true leap step would also require coherent and effective action by public authorities, to promote closer links between research institutions and industry, not only at a national level but also trans-nationally.

This is precisely the objective of the new **Communication** on "*Promoting Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation – implementing the Lisbon agenda*", which puts forward a number of **policy orientations** and constitutes a starting point for discussions on a common European Framework for knowledge transfer across Europe. These policy orientations are meant to be implemented by Member States and stakeholders, taking into account their national context, in order to create in Europe more opportunities and a more coherent landscape for exploiting publicly-funded research results.

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<sup>9</sup> 2<sup>nd</sup> Annual Survey by ProTon, 2004

<sup>10</sup> See <http://www.responsible-partnering.org>

<sup>11</sup> This initiative was jointly launched by four European associations representing various stakeholder groups – universities (EUA), industry (EIRMA), public research organisation technology transfer offices (ProTon) and research and technology organisations (EARTO).

The accompanying *"Voluntary guidelines for universities and other research institutions to improve their links with industry across Europe"* intend to highlight good practices to European universities, research & technology organisations and other publicly-funded R&D bodies, regarding the management and transfer of knowledge and intellectual property ("IPR") in the context of both publicly-funded R&D and delivery of collaborative research.

These two documents were developed on the basis on existing material and sources of inspiration, including the national guidelines and other initiatives mentioned above, as well as a public consultation carried out by DG Research in 2006<sup>12</sup>.

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<sup>12</sup> See [http://ec.europa.eu/invest-in-research/pdf/download\\_en/consult\\_report.pdf](http://ec.europa.eu/invest-in-research/pdf/download_en/consult_report.pdf)