

Policy instruments for technology transfer and IPR frameworks

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About Technopolis

Our aim is to make Technopolis Group synonymous with innovative thinking and being. Technopolitans take pride in providing consulting and research services that are ...

Independent
Evidence-based
Professional
Transparent
Expertise driven
Client oriented
Innovative



... in order to support policy-makers and organisations in putting the right policies into good practice.

For 25 years, Technopolis Group has been a leader in generating and using knowledge about research and innovation. Our Group wide portfolio is particularly strong in international evaluations and other studies on research, development and innovation across a large number of domains.

About Technopolis

- 10 offices in Europe and South America
- About 100 staff
- All sorts of innovation studies and evaluations of support programmes
- Track record in the field of IPR
 - *Evaluating, benchmarking and development of IPR support services for SMEs*
 - *PATLICE (2013) – Patent licensing study for European Commission*
 - *Yearly valuations of nominations for the European Inventor Award of the EPO*
 - *Country reviews for WIPO (in- and outside of Europe) and national ministries/IP offices (CZ, CH)*
 - *Study on actual costs of a patent (for EPO)*
 - *Study on Utility Models in Europe (for EC)*
 - *Support in developing national of IP strategies (WIPO, Austria, Ireland)*

This session will focus on:

- Myths about IPR and technology transfer – true or not true?
- Basics of IPR – what it can do and what it cannot do
- Technology transfer in practice
- Wrap-up

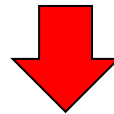
1. Myths about IPR and technology transfer

Questions about the main myths...

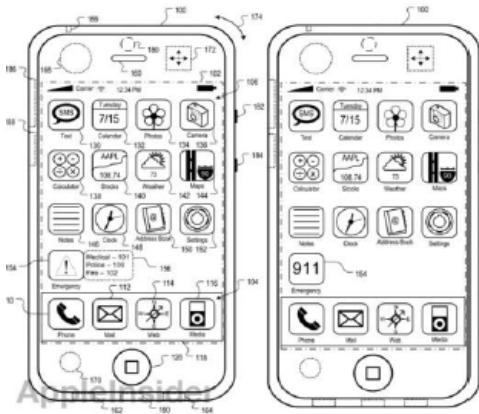
- Are patents and IPR more or less the same thing?
- Does IPR hamper or foster innovation?
- Is IPR hard to obtain, other than for big Western businesses?
- Is IPR very costly?
- Is all IPR valid?
- Are patents and licensing the most important means of university-industry technology transfer?
- Does Eastern Europe even stand a chance in the global IPR battle?

01. Myths about PR and technology transfer

Patents are the most important form of intellectual property rights (IPR)



Intellectual Property is **NOT** just Patents



iphone
(2000)
Gradiente Eletrônica, S.A.

iPhone
(2007)
Apple, Inc.

Source: AppleInsider

01. Myths about IPR and technology transfer

Do IPRs restrict the flow of ideas or not?



Answer to the question is 'yes'.

- IPRs are necessary to protect and exploit products, processes, and expression of ideas.
 - In some cases, IPR really inhibits innovation.
- Counter-factual analysis difficult to make, because the IPR system is there
 - Need to find balances between right holders and third parties!

01. Myths about PR

Getting the IPR is the hard part and only big business can do it



→ It is, in fact, quite easy to apply for patents and trademarks and results can often be surprising

01. Myths about IPR

IPR costs a lot



- Costs can be mainly a concern for international patent applications
- Costs for an EP patent: €30k to € 100k over the entire life of the patent (20 years)
- More often than not, a simple (not granted application) may be enough
 - IPR investment decision, rather than a cost aspect

01. Myths about IPR

All registered IPRs are valid



- No, they have to stand up in a court of law.
 - Think about Utility Models...
 - IPR as weapons of mass destruction....

01. Myths about IPR

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01. Myths about IPR

Patents and licensing are very important and modern means for income generation of universities...



- Two sides of the coin
 - *Licensing income for universities only about 3% of academic budgets*
 - *High concentration with top universities, but based on few inventions that came more out of chance and only in certain technologies (biotech, ICT)*
 - *„The direct economic impact of technology licensing has been relatively small – a surprise to many who believe that royalties could compensate for declining federal support of research. Because of the high costs of patenting, most university licensing offices barely break even.“ (Lita Nelson, MIT technology transfer office)*
 - But then there are really success stories and other reasons to use patents...
-

01. Myths about IPR

In Eastern Europe we do not stand a chance...



- There have been indeed a number of gold nuggets
 - *Otto Wichterle (CSSR): Soft contact lens in the 1960s*
 - *Antonin Holy – Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences (CZ):*
 - Many of the best HIV drugs in the world
 - Licensing income: € 46 million, 13.2% of overall Academy budget
 - *Ivars Kalvin/ Latvian Institute of Organic Synthesis/Grindeks (LV):*
 - Mildronate and Meldonium as anti-ischemic drug against angina pectoris
 - Is 0.6% of Latvian exports
 - *You know about Skype (EE)?*
 - Founded in 2003, sold in 2005 to ebay for US\$ 3.1 billion
 - *Pliva (CR): Azithromycin antibiotic in 1980*

01. Myths about PR

Some facts about IPR...

IPR is an advantage to the market, leading to job creation, higher wages and enhanced trade if used wisely.

IPR-intensive industries contribute 26% of employment and 39% of GDP in the EU and have a Wage premium of more than 40%

IPR-intensive industries	Employment (direct)	Employment (indirect)	Employment (direct+indirect)
Trade mark-intensive	45.508.046	17.600.397	63.108.443
Design-intensive	26.657.617	12.121.817	38.779.434
Patent-intensive	22.446.133	12.738.237	35.184.370
Copyright-intensive	7.049.405	2.331.390	9.380.795
GI-intensive	n/a	n/a	374.345
All IPR-intensive	56.493.661	20.109.003	76.602.664

Source: IPR intensive industries: contribution to economic performance and employment in the European Union

01. Myths about PR

Intellectual Property: refers to the creations of the human mind. Intellectual Property Rights (IPR) protect the interests of creators by giving them property rights over their creations. (Source: WIPO)

Again,
Intellectual Property is **NOT** just Patents



Source: WTC - Kansas City

02. Basics of Intellectual Property Rights

02. Basics of Intellectual Property Rights

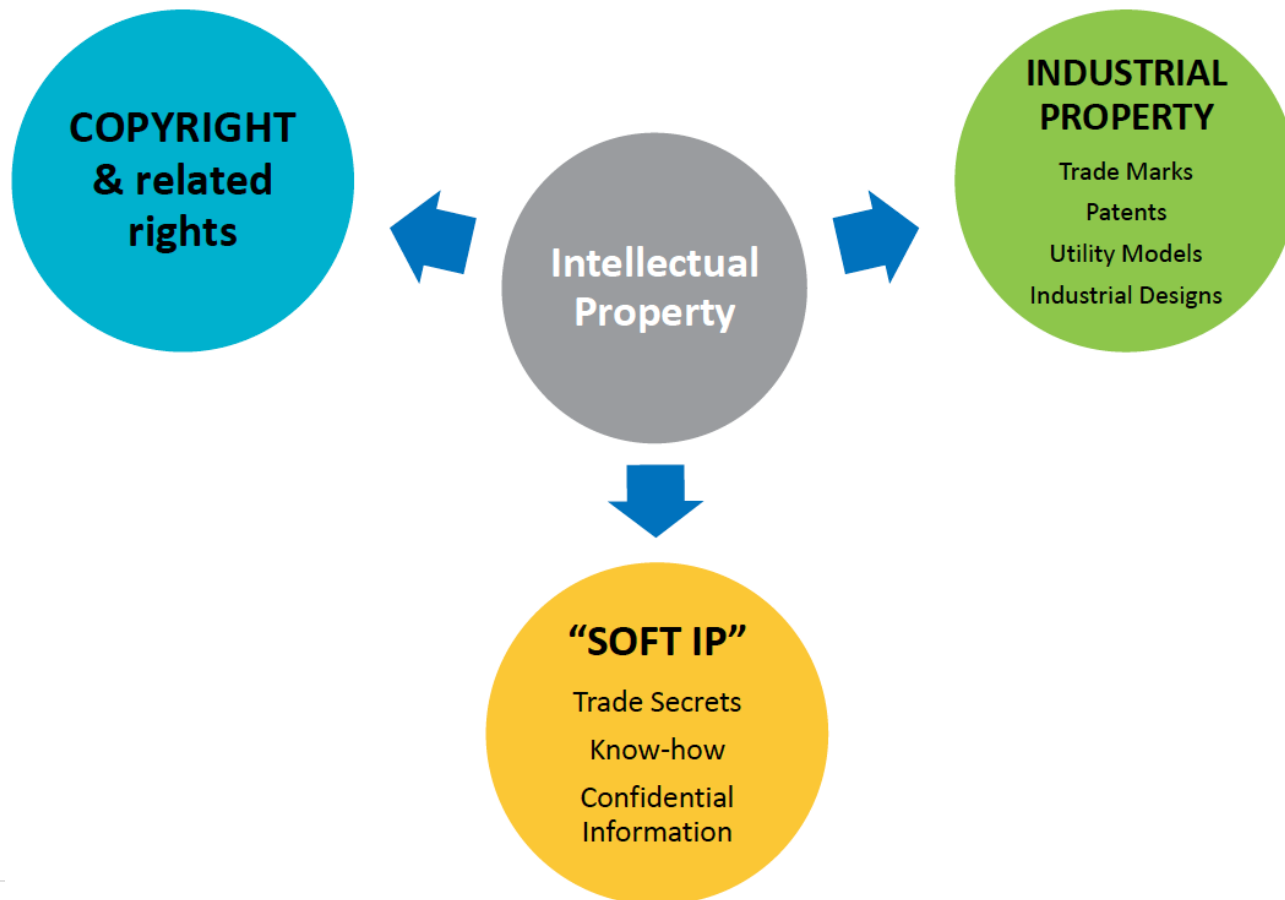
Relevance of Intellectual Property

Regardless of the product or service provided, an **organization usually creates IP.**

Intellectual Property is available in almost every product or services used during our daily life.

Examples: Website? List of customers? Innovative methodologies? Inventions? Brands?

02. Basics of Intellectual Property Rights



02. Basics of Intellectual Property Rights

Intellectual Property Protection Tools

Industrial Property: According to the definition from the Paris Convention for the Protection of Industrial Property:

Industrial property shall be understood in the broadest sense and shall apply not only to industry and commerce proper, but likewise to agricultural and extractive industries and to all manufactured or natural products, for example, wines, grain, tobacco leaf, fruit, cattle, minerals, mineral waters, beer, flowers, and flour.

Patents and Utility
Models

Trademarks

Industrial Designs

02. Basics of Intellectual Property Rights

Intellectual Property Protection Tools

Patents, also referred to as patents for invention, are the most widespread means of protecting the rights of inventors. A patent is the right granted to an inventor by a State, or by a regional office acting for several States, which allows the inventor to exclude anyone else from commercially exploiting his invention for a limited period, generally 20 years.

02. Basics of Intellectual Property Rights

Intellectual Property Protection Tools

Utility models are also used to protect inventions.

Utility model is a name given to a title of protection for certain inventions of lower inventive step, such as inventions in the mechanical field. Utility models are usually sought for technically less complex inventions or for inventions that have a short commercial life.

02. Basics of Intellectual Property Rights

Intellectual Property Protection Tools

Trademarks

A **trademark** is a sign, or a combination of signs, which distinguishes the goods or services of different enterprises. These may use words, letters, numbers, pictures, shapes and colors. An increasing number of countries also allow for the registration of less traditional forms of trademark, such as three-dimensional signs (like the Coca-Cola bottle or Toblerone chocolate bar), audible signs (sounds, such as the roar of the lion that precedes films produced by MGM), or olfactory signs (smells, such as perfumes).

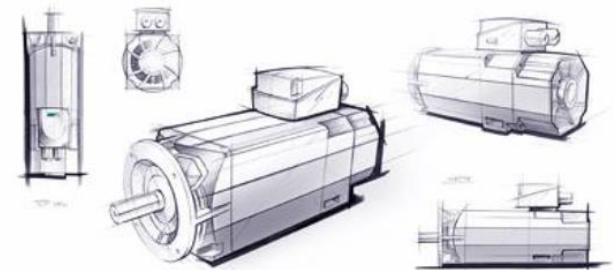


02. Basics of Intellectual Property Rights *Intellectual Property Protection Tools*

Industrial Designs

An **industrial design** is the ornamental or aesthetic aspect of a useful article. This aspect may depend on the shape, pattern or color of the article. The design must have visual appeal and perform its intended function efficiently. It must be able to be reproduced by industrial means: this is the essential purpose of the design, and why it is called industrial.

Source: Siemens



02. Basics of Intellectual Property Rights

Intellectual Property Protection Tools

Copyright

Copyright relates to artistic creations such as poems, novels, music, paintings, and cinematographic works. In most European languages other than English, copyright is known as author's rights. The expression copyright refers to the main act which, in respect of literary and artistic creations, may be made only by the author or with his authorization.



02. Basics of Intellectual Property Rights

Intellectual Property Protection Tools

Copyright

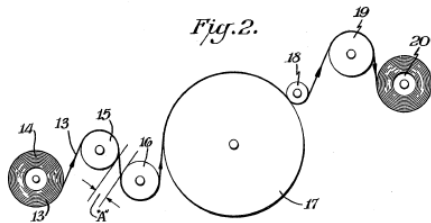
Protectable by copyright	Not protectable by copyright
Books, journal articles, short stories, poems, song lyrics	Names, titles, short phrases, slogans, etc.
Songs, musical scores, notated music, other music, sound recordings	Ideas, principles, concepts
Plays, television programs, radio and film scripts, dance, acrobatics, choreography,	Ideas, concepts, processing methods, algorithms, operational designs and methods
Drawings, illustrations, images, photographs, paintings, calligraphy, sculpture	Underlying news content of factual happenings or government publications
Computer programs, games, software, websites, emails	Pre-existing material
Original aspects of industrial designs, architectural drawings, models, architectural buildings and structures	Content already in the public domain
Databases as to the selection of content	
Original expressions, layouts and compilations of select news articles or government publications	

Source: China SME IPR Helpdesk

02. Basics of Intellectual Property Rights

Intellectual Property Protection Tools

- Soft IP is very (!) important
- Trade secrets
 - *Information that is not generally known or easily discovered*
 - *has a business, commercial or economic value (actual or potential) because the information is not generally known*
 - *is subject to reasonable efforts to maintain secrecy*
- Unlimited life, provided the information does not become public knowledge.
- Is an IPR tool (protection against industrial espionage!)



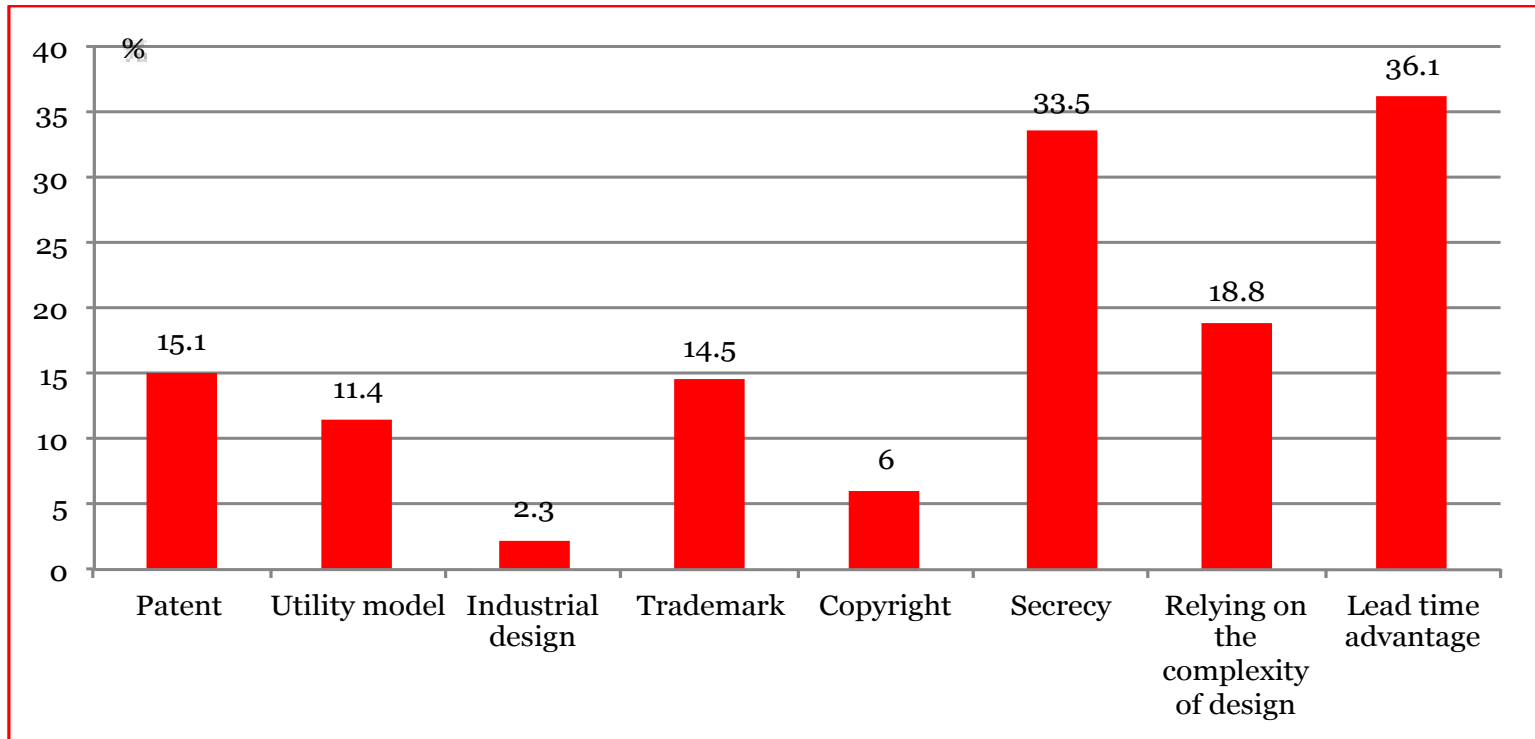
Products/processes where reverse engineering is difficult

02. Basics of Intellectual Property Rights Intellectual Property Protection Tools

- Other important soft IP
 - *Staying in the lead*
 - *Relying on complexity of design*
 - *Doing nothing....*

02. Basics of Intellectual Property Rights

- Usage rate of IPR by German innovative SMEs



02. Basics of Intellectual Property Rights

- IP management is very important
- It is the skill to understand and use the various IPR instruments in business-specific contexts, i.e. to find the right combinations of tools
- Can reach far into business model
- Should be treated at executive level

02. Basics of Intellectual Property Rights

- Elements of an IP strategy
 - *Base strategy*
 - Offensive/defensive
 - Internationalisation
 - Kind of exploitation: licensing or own use
 - *Patent and IP information*
 - Keep abreast of technology
 - Avoid infringing other IP
 - Understand the competitive landscape
 - *Communication*
 - Compile evidence on value
 - Inform stakeholders (investors, clients)
 - *Maintenance*
 - Renewal fee payments
 - Regular reviews of portfolio

02. Basics of Intellectual Property Rights

Significance of IP Strategy at state level

- Creates a positive social, economic and cultural environment.
- Is a key policy tool to promote public interest, innovation and technology progress.

IP Strategy is a set of measures formulated and implemented by a government to encourage and facilitate effective creation, development and management of intellectual property. (WIPO)

The goal of an IP strategy is the creation, ownership and management of IP assets to meet national needs and to increase economic growth.

Group Discussion:

- What is the relevance of IPR for innovation?
- Can you think about IPR management strategies?

02. Basics of Intellectual Property Rights

Some facts about the European IP system

IPR can be enforced even without registration:

Under certain conditions, proof of earlier use in European country markets should be sufficient to enforce unregistered IP assets.

Conditional protection is granted from the date of filing:

You can start enforcement proceedings of IPR as soon as the application is filed. However, if the IP application is rejected, the enforcement efforts are not recognized.

IPR is territorial:

IPR registered in a European country is only protected in that country.

02. Basics of Intellectual Property Rights

Some facts about the European IP system

Registration:

Patents, utility models, designs and trademarks can be registered in every EU Member State separately within the Intellectual Property Officer (list of offices available:

<http://www.innovaccess.eu/>).

Patents and trade marks can be extended internationally:

EU countries are part of the Patent Cooperation Treaty and the Madrid System administered by WIPO. This can simplify the international extension procedure for patents and trademarks as formalities are done at the local IP office.

Visual, sound and scent trade marks are recognized:

EU Member States recognize not only visually perceived marks but also other types of marks such as sound and scent trade marks.

02. Basics of Intellectual Property Rights

Some facts about the European IP system

Trade mark registration can take from 3 months to 3 years:

Depending on the country of registration, the trademark registration can take between 3 months and 3 years. However, the trademark will have conditional protection from the filing date as long as the trademark is eventually officially granted.

EU countries use the International Classification of Goods and Services:

EU countries use the International Classification of Goods and Services divided into 45 classes with no further division into subclasses.

Copyright is protected from the date of creation:

Only a few EU Member States provide copyright registration. They should keep a record of authorship and a date of establishment of a work of art in order to enforce the copyrights.

02. Basics of Intellectual Property Rights

IPR in Eastern Europe:

All the countries in Eastern Europe are members of the **European Patent Convention (EPC)**.

Laws largely harmonised with EU law.

However, different usage patterns than in Western Europe

- Rather little patenting activity statistically
- This is not an issue to particularly worry about – why?

03. Technology Transfer and Commercialization

03. Technology Transfer and Commercialization

Technology Transfer Definition:

The flow of know-how, experience and equipment amongst different stakeholders such as governments, private sector entities, financial institutions, NGOs and research institutions

Source: United Nations - UNCTAD series Transfer of Technology 2001

The transfer of new technologies from universities and research institutions to parties capable of commercialization

Source: World Intellectual Property Organization

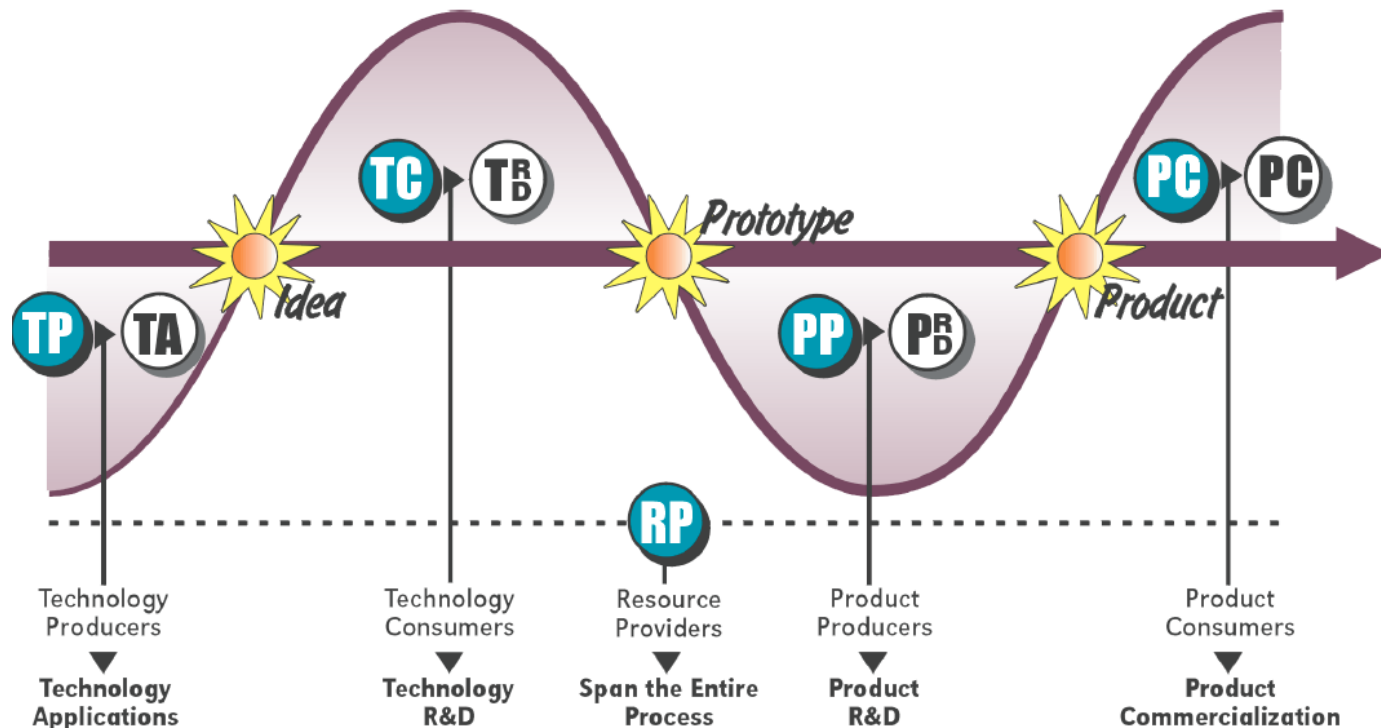
03. Technology Transfer and Commercialization

Technology Transfer Definition – Stakeholders involved

Stakeholder group	Members
Technology producers	Independent inventors; researchers in universities; state laboratories; private laboratories
Technology consumers	Private sector manufacturers, government agencies; intellectual property brokers
Product producers	Private sector manufacturers; distributors; value-added retailers
Product consumers	End-users; professional service providers
Resource providers	Government agencies; inter-governmental institutions and donors; financial sector; technology transfer intermediaries

03. Technology Transfer and Commercialization

Technology Transfer Definition – Stakeholders involved



Source: T2RERC, State University of New York, University at Buffalo

03. Technology Transfer and Commercialization

Technology Transfer Definition

In the process of technology transfer partnerships and networks of various stakeholders are often involved and may depend on the coordination of multiple organizations, such as:

- Networks of information service providers
- Networks of business consultants
- Networks of financial firms
- And partnerships among stakeholders

GOVERNMENTS CAN FACILITATE NETWORKS AND PARTNERSHIPS

03. Technology Transfer and Commercialization

Interactions between Research and Industry- New Trends

- Industry - Open Innovation Approach
 - *Companies are developing open innovation approaches to R&D – combining in-house and external resources.*
 - *Begun to treat public research as a strategic source.*
- Academic Community – Seeking Additional Sources of Funding
 - *Institutions are taking a more proactive role in generating a financial return from research results.*
 - *Begun to treat industry and the market as a potential funding sources.*

03. Technology Transfer and Commercialization

Technology transfer and commercialization do not evolve naturally and linearly from research and the discovery of scientific solutions.

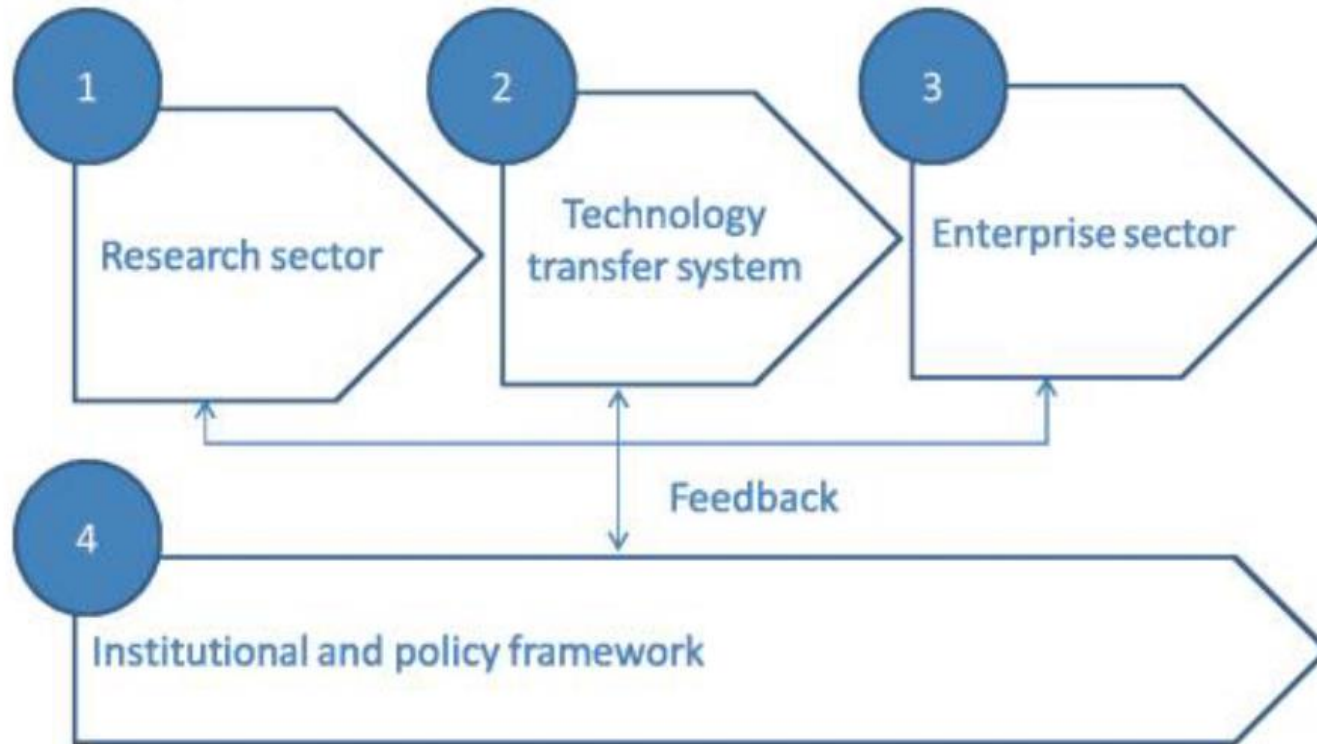
Source: Innovation Policy Platform, OECD & World Bank

In the early days of transfer and commercialization, the process was considered to be a linear progression:



Today it is understood the process is highly non-linear

03. Technology Transfer and Commercialization

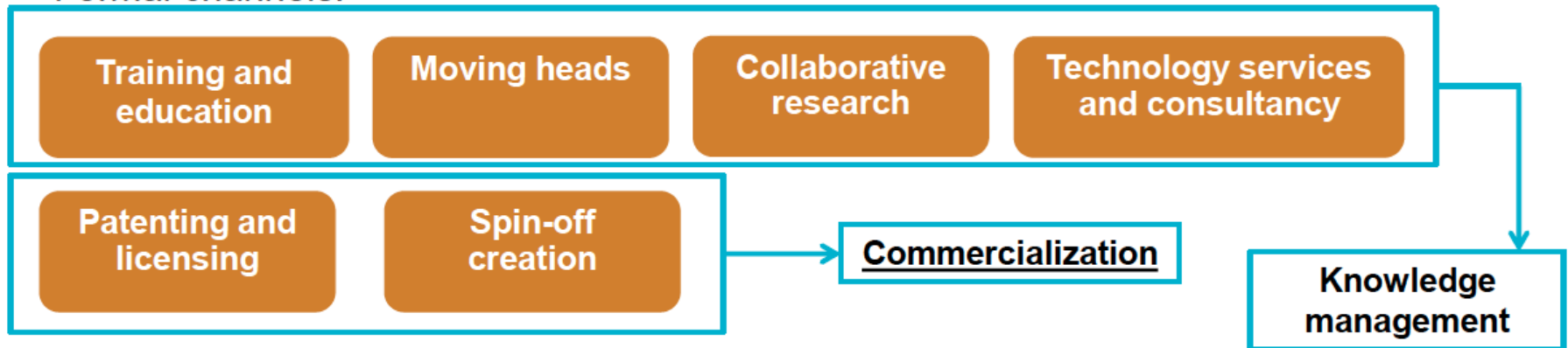


Source: World Bank, Overview of the Research and Innovation Sector in Western Balkans, 2013

03. Technology Transfer and Commercialization

Technology Transfer Channels

Formal channels:



Informal channels:



03. Technology Transfer and Commercialization

Motivations and Barriers for Technology Transfer



Firms are motivated to acquire technologies due to the potential for:

- Cost reductions (e.g. Production costs) and/or increase in revenue
- Increased technical capabilities or quality reductions that cannot be achieved on their own
- Higher perceived status of "international level" technologies
- Access to managerial and marketing expertise, and sources of capital
- Greater access to export markets
- Access to new distribution networks

03. Technology Transfer and Commercialization

Motivations and Barriers for Technology Transfer

Universities are motivated to engage in tech transfer to:

- Strengthen and establish research partnerships with industry
 - *Contract research and collaborative R&D grants*
 - *Patents and licensing may have a facilitating/signalling role*
- Support entrepreneurship
- Create technological standards and disseminate technology
- In-ward tech transfer: learning from industry
- Retaining research teams and excellence through control of key technologies
- And last: Nice to have extra income



03. Technology Transfer and Commercialization

Motivations and Barriers for Technology Transfer

Possible **barriers** include:

- Lack of human capital
- Lack of absorptive capacity
- Lack of connectedness
- Lack of trust
- Lack of prior experience with partnerships
- Lack of integrated policy and support



03. Technology Transfer and Commercialization

Commercialization is a specific case of technology transfer:

It occurs when the party transferring technology receives money [consideration] in exchange for giving up some or all their rights to the technology. It involves a sale.

Source: Foresight Science and Technology Inc., What Every Researcher Needs to Know about Commercialization, 2008

03. Technology Transfer and Commercialization

What can be commercialized?

Any science, technology or engineering insight that might enable manipulating the world in a novel way and for which there is a demand

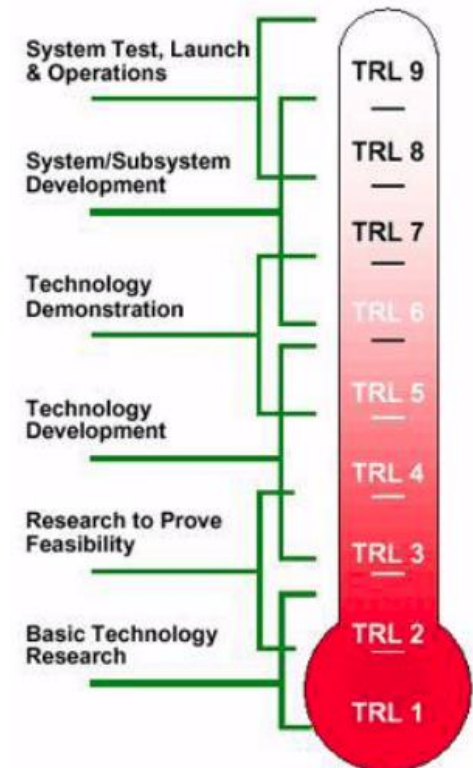
- Ideas and concepts alone can not be commercialized. It is necessary that they become inventions, i.e., that they can be reduced to practice
- If no demand exists, the technology will not be commercialized.



03. Technology Transfer and Commercialization

When can it be commercialized?

- Technology Readiness Level (TRL): assesses the maturity of a technology and how close to the market it is
- Plays a major role in Horizon 2020 as an evaluation criterion for Innovation and Research and Innovation Actions



Source: NASA

03. Technology Transfer and Commercialization

Technology can be commercialized. Now what?

- Three main vehicles are normally considered relevant to bring a technology to the market: internal development and use; spin-off creation; licensing
- Internal development and use
 - *Makes more sense if the researcher works in a company with the capability to produce and sell the invention or apply the invented process to make and sell products*
 - *Not particularly applicable to university and research centre work, unless developed under a strategic alliance with a firm*

03. Technology Transfer and Commercialization

Technology can be commercialized. Now what?

- Spin-off creation
 - *Makes sense if there is very profitable intellectual property to be explored and an entrepreneurial and business savvy management team*
 - *Might need investment if the technology needs maturing and further development*
- Licensing
 - *When the other two vehicles do not seem suitable. Good solution for academic researchers not interested in pursuing a business career*
 - *Can be used together with spin-off creation to produce joint ventures*

03. Technology Transfer and Commercialization

Technology can be commercialized. Now what?

- Greatest risk is associated with spin-off creation
- Criteria to determine the opportunity of spin-off creation
 - *Range of market opportunities for the technology. Does a competitive advantage exist?*
 - *Is the intellectual property portfolio strong enough?*
 - *Is the management team good enough?*

03. Technology Transfer and Commercialization

Important issue to consider – Intellectual Property

- Converting intellectual assets into intellectual property is a key step in technology commercialization
- It is important to document all research work steps since the very beginning – Inventor Notebook/Lab book/signed records. Get the documentation witnessed
- Initial disclosures of work should be protected by Non-Disclosure Agreements (NDA)
- Not everything can be patented and not everything should be patented

03. Technology Transfer and Commercialization

Some relevant thoughts

- Commercialization is about selling. Money gained from commercialization can feedback into research work., but it is not the sole reason for tech transfer.
- Exposure is necessary. Successful commercialization is achieved by proactive researchers who go out there and engage relevant stakeholders
- Good deals are win-win. Contrary to some popular culture, greed is not always good.
- Getting rich is a long shot, but an important motive. While technologies can garner nice bonuses, most are not big hits for their inventors – typically generating under 10,000 USD

03. Technology Transfer and Commercialization

The role of Technology Transfer Offices. What are they?

(...) structures whose common core role is to assist public research organisations (PROs) in managing their intellectual assets in ways that facilitate their transformation into benefits for society. In doing this, the TTO helps to bridge the gap between research and innovation.

Source: Innovation Policy Platform, OECD & World Bank

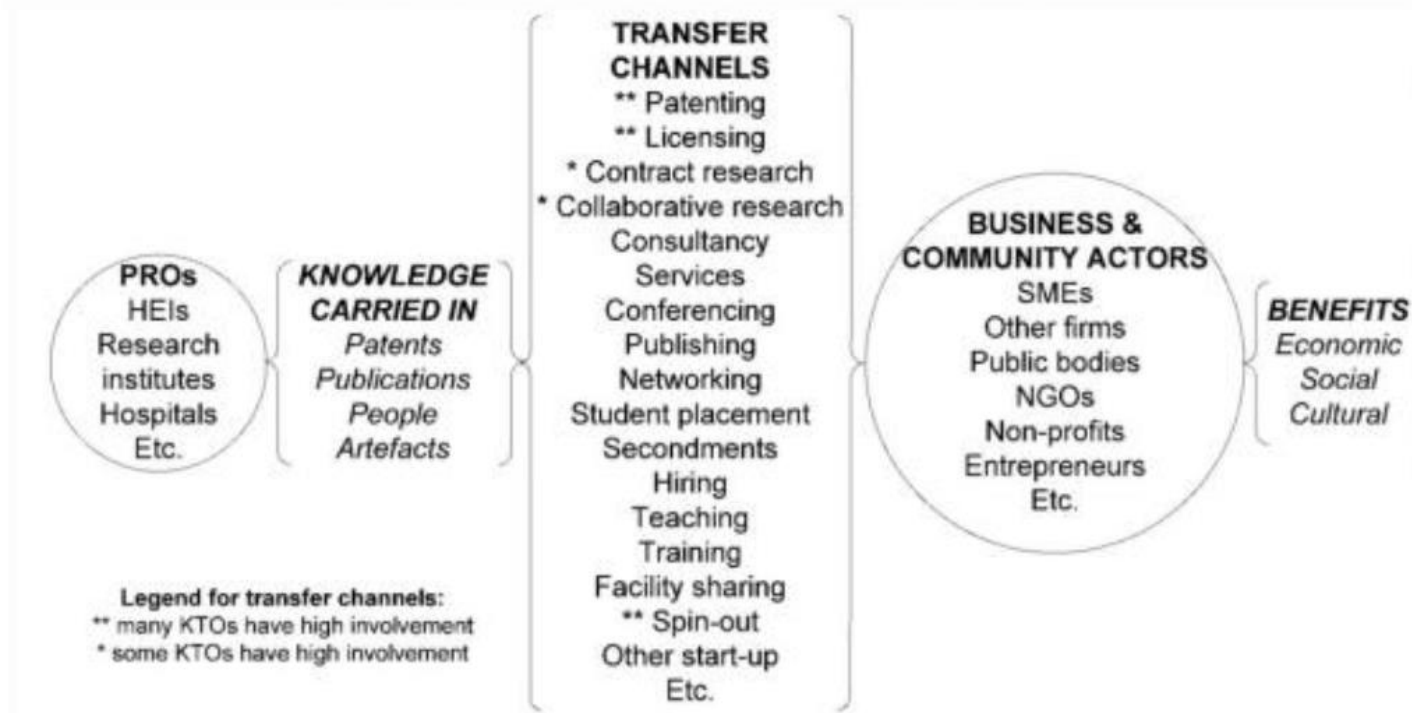
03. Technology Transfer and Commercialization

What do they do?

- Establish relationships with firms and community actors
- Generate new funding support from sponsored research or consulting opportunities
- Provide assistance on all areas related to entrepreneurship and intellectual property
- Facilitate the formation of university-connected companies utilising PRO's technology (start-up) and/or university people (spin-off) to enhance prospects of further development
- Generate net royalties for the PRO and collaborating partners.

03. Technology Transfer and Commercialization

What do they do?



Source: Innovation Policy Platform, OECD & World Bank

03. Technology Transfer and Commercialization

How do they work?

Motivations

The innovation paradox
– linear model and
underutilization of
research results

New rationale –
academia-industry links

New legal frameworks –
university patents

Need of a proactive
approach

New challenges –
effectiveness of IP
management

Resources

Organizational – model
and legal incentives

Financial – PRO
budget, licencing,
capital gains, overheads
of contract research

Human – legal,
business, technical

Network –
establishment of links

Interactions

The PRO Community –
researchers, students,
administrative staff
(inside)

Industry, business and
community – making
deals and growing
companies

Government and public
bodies – making deals,
influence in policy
making

Evaluation

Processes not
harmonized

Indicator-based
assessment

AUTM indicators:

- invention disclosures
- patent applications
- patent grants
- number of licenses
executed
- established gross
license revenue
- number of spin-
offs/start-ups

03. Technology Transfer and Commercialization

TTO are sensitive to policy intervention

- Governments shape the legal framework for IP management
- The mindset of PROs can be re-formatted to have them acknowledge and treasure the role of TTO – codes of practices
- TTO have the need to acquire the necessary human, financial and organizational resources
- Allocation of resources to the TTO can be tied to performance to incentivize improvement and evaluation practices

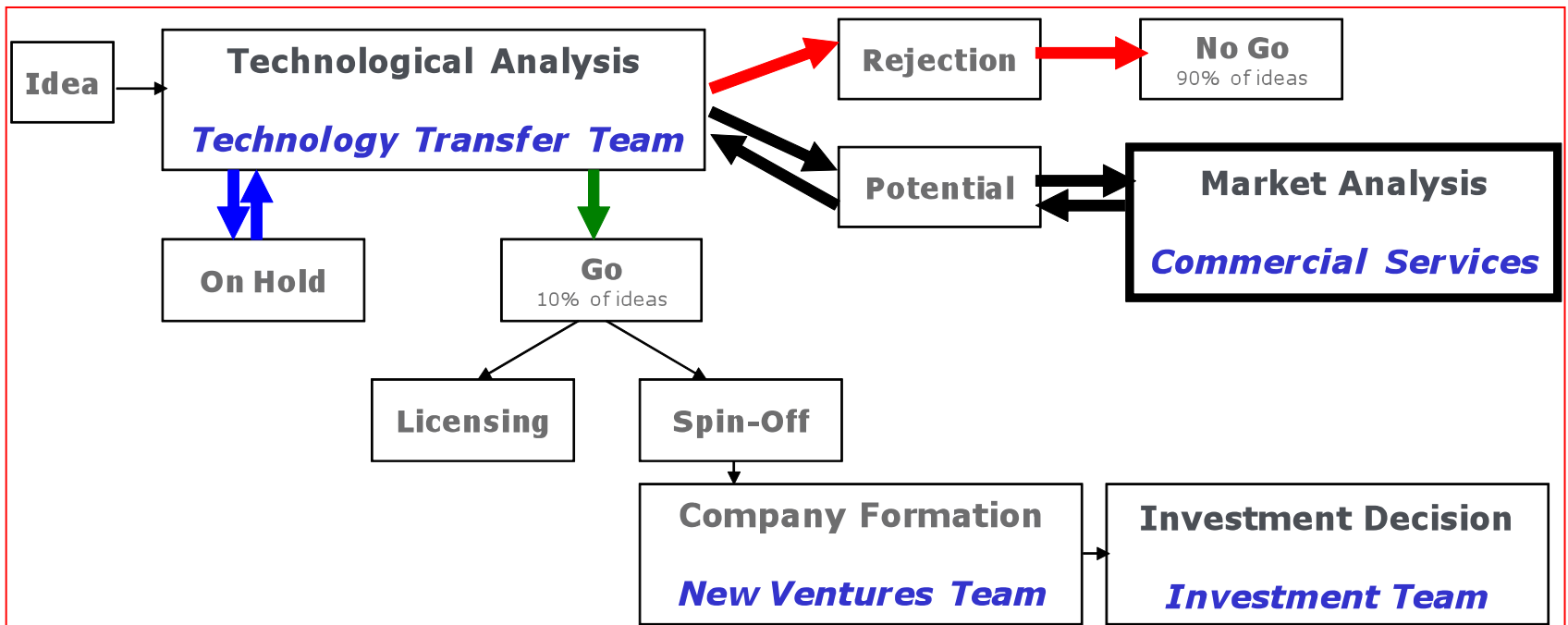
03. Technology Transfer and Commercialization

Some issues in Eastern Europe in particular

- Staff at TTOs rather young, not well networked
- Local industry not developed enough to capture tech
- Bad incentive systems at the level of universities
- TTO only a peripheral unit at university, little executive attention
- Sustainability questionable, as many TTOs the result of time-limited (3-year) EU-funded projects
- Wide dispersion of TTOs does not allow for the creation of critical mass
- Is the link towards spin-off creation/VC strong in EE?



A good practice example – Imperial Innovations (UK)



Group Discussion

- How could links between research organizations and industry be improved?

- How good are Public Research Organizations in assisting researchers commercialize their inventions?

03. Technology Transfer and Commercialization

The role of governments. Why should they care about technology transfer and commercialization?

- By improving the technology transfer and commercialization contextual conditions, countries can increase innovation in the economy and thereby raise productivity, create better job opportunities, and address societal challenges.
- Not surprisingly, governments have been actively searching for new ways to improve knowledge transfer from PROs to industry.



03. Technology Transfer and Commercialization

Where should policy-making intervene?

Four key policies:



Intellectual property



Academia-Industry
Linkages



Capacity Building



Incentives

03. Technology Transfer and Commercialization

How should policy-making intervene? – Intellectual Property

- Improve and ensure the capacity of national intellectual property institutions to support the creation of IPRs, and effective oversight and commercialization
- Improve understanding of IPR among key stakeholders and in education
- Do not treat IP as specialist topic – it is part of innovation policy to facilitate the business side of things
- Put IP management as main topic in front of audience
 - *Question of value and quality over quantity*
 - *Skills to use all the different IP instruments important*
- Having adequate enforcement mechanisms, efficiency, and timely patent processing and quality controls

03. Technology Transfer and Commercialization

How should policy-making intervene? – Academia-Industry Linkages

- Counter the trend under which career structures for scientists in academic and public PROs reward only academic accomplishments
 - *But before you go IPR, you should have a clear and good idea what you want to do with IPR*
- Eliminate employment regulations that unjustly limit the participation of researchers in entrepreneurial endeavours or joint research activities
- Ensure research organizations have legal mandates and operational flexibility to efficiently manage IPR (e.g., managing a portfolio of spinoff companies)
- Hold research organizations or researchers accountable for the management or commercialization of public research
 - *Important tool: performance contracts*
- Try to integrate offerings, also to make them sustainably and create critical mass of expertise

03. Technology Transfer and Commercialization

Good practice – The Bayh-Dole Act, USA, 1980

- Major milestone in the technology transfer and commercialization arena
 - *P.L. 96-517, Patent and Trademark Act Amendments of 1980*
- Created a uniform patent policy among the many federal agencies that fund research, enabling small businesses and non-profit organizations, including universities, to retain title to inventions made under federally-funded research programs
- The Act is a necessary, but not sufficient means to foster tech transfer. Careful to not misinterpret the Act such that it asks for a large number of patents to be filed...

03. Technology Transfer and Commercialization

Good practice – The Bayh-Dole Act, USA, 1980

- Provisions:
 - *Non-profits, including universities, and small businesses may elect to retain title to innovations developed under federally-funded research programs*
 - *Universities are encouraged to collaborate with commercial concerns to promote the utilization of inventions arising from federal funding*
 - *Universities are expected to file patents on inventions they elect to own*
 - *Universities are expected to give licensing preference to small businesses*
 - *The government retains a non-exclusive license to practice the patent throughout the world*
 - *The government retains march-in rights*
- Other countries with similar law: Brazil, China, Denmark, Finland, Germany, Italy, Japan, Malaysia, Norway, Philippines, Russia, Singapore, South Africa, South Korea, UK

Group Discussion

- What can governments do to improve the technology transfer and commercialization framework?

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Thank you

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