Intellectual Property Rights Commercialization

Introduction

When we talk about IPR commercialization in wider sense we talk about knowledge and innovation and it is all tied up in science, technology and innovation (STI) policy. All around the world economic activity is shifting towards innovation and knowledge-driven industries. Knowledge and information have replaced energy and capital as the primary wealth-creating assets. More and more, the only competitive advantage any business, enterprise or indeed a society can enjoy is its own process of innovation and the ability to derive value from knowledge and information. In this context, science makes vital contributions to knowledge-driven economies by generating new ideas and technology solutions. Equally important to the knowledge-based economy is the ability to turn scientific discoveries into successful commercial products.

Strategy

STI policy should be adopted as strategic document by the government and/or parliament and needs to be chosen as path which country should take for next mid term commitment (15 + years). When we talk about strategy we can look into wide or EU and national context.

EU context

Lisbon Declaration conveys two major goals – higher and more stable economic growth, which further implies opening of a larger number of high-quality jobs. The Action Plan (EC SEC 2005, 192 working document)[1] covers ten major goals, wherein, under the common title "Knowledge for Growth", the following are listed:

- Increase and improvement of investments into knowledge, research and development
- Stimulation of innovation, expanding the use of information and communication technologies, and sustainable use of resources
- Knowledge-based society must strive towards realization of a healthy economy.

Within the policy of increasing investments into research and development, the Lisbon Declaration anticipates increase of funds for research and development in individual member countries, as well as achieving the goal of 3% GDP allocation on the EU level. It further anticipates improvement of off-budget and public investment ratio to 2:1.

The Seventh Framework Program for Research and Development[2], as an EU instrument in the R&D sector, has the purpose of providing a new impetus to the research and innovation area, ensuring the essential participation of Europe in the world transfer of knowledge, as well as supporting research and development in areas of special interest for European competitiveness. Supportive measures will be implemented through cooperation on projects and coordination of national research programs, as well as through strong encouragement of mobility of scientists and ideas.

National context

In the area of innovational and industrial policy, members are expected to develop their individual innovation policy in line with their national characteristics and advantages, to introduce support mechanisms for small and medium enterprise, to support joint research between the industry and R&D sector, to create conditions for founding and growth of high-technology companies, as well as to encourage development of partnerships for innovations on the regional and local level.

The vision of the national R&D program is to develop a high quality STI and higher-education sector that would support economical, social and humane progress and, through its contribution, would serve as a backbone for the development of a knowledge-based society.
The excellence of the R&D sector should be proven through innovativeness, originality, effectiveness, increase in the number and quality of patents, publication of top-level scientific papers, and, above all, through rationality, adaptability and the ability to transfer knowledge into the economy, as well as through cooperation with higher-education institutions, research institutes and the industry.

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[1] http://ec.europa.eu/growthandjobs/pdf/SEC2005_192_en.pdf
[2] http://cordis.europa.eu/fp7/,

Objectives

Our *overall aim* is to stimulate scientific excellence and enable the transfer of knowledge and results of scientific discoveries to industry and business in order to increase competitiveness and generate sustainable growth and productivity.
To achieve this, we have set *key objective*. Briefly, these objectives could be:

- *Increase funding for excellent science and technology projects* - in order to meet the "3% of GDP for research investment" as laid out in the Lisbon Strategy set by the European Commission with goals to promote economic growth and job creation
- *Restructure publicly-funded research institutes and R&D centers* - in order to re-orient their research towards national priority areas and industry needs
- *Encourage research partnerships and strengthen support schemes for quality young researchers* - in order to facilitate mobility, interdisciplinary and cross-sector cooperation, and build a more flexible research and education system
- *Invest in science research infrastructure and knowledge transfer institutions* – in order to build research capacity and provide access to business solutions
- *Introduce measures to promote commercialization of academic research* – in order to encourage universities and research institutions to work more closely and effectively with business
- *Introduce measures to promote technological development and innovation* – in order to attract people and capital into innovative business ventures
- *Administer stimulatory and business-friendly legislation* - including appropriate intellectual property laws and tax incentives for investment into priority area R&D, in order to build a system that encourages innovation

Technology transfer

Technology transfer (TT) is a part of STI policy and we propose measures for it in The Science and technology policy matrix (Table 1.) In this paragraph we shall define TT, identify stakeholders, address key issues and major challenges to commercialize it.
Definition: Technology transfer is the process of transferring scientific research results, technical expertise or know-how developed by an individual, enterprise, university or organization to another individual, enterprise, university or organization. Effective technology transfer results in commercialization of a new product, process or service.

For better understanding technology transfer one needs to know stakeholders: University Professors, Researchers, Students, Faculty of research unit, Guest researchers, TTO/ TMO, Governments, Partner Industries, Partner universities, Public.

There are many open issues that need to be addressed and answer in IP. First one to start with is ownership and benefit sharing. Who is owner and who gets profit from its commercialization? Generally, national law defines who owns IP (inventions) arising from work conducted for an employer In some cases, national laws specifically address ownership of inventions arising from publicly sponsored research and yet sometimes IP ownership is covered in different laws. In publicly funded research owner can be government, university (e.g., Germany, Austria, Japan, China, South Korea, UK, France, US, Denmark) or inventor/ faculty (e.g., Finland, Italy, Norway, Sweden).
How are the revenues from research commercialization shared among faculty, university, government founder and other stakeholders? The distribution proportions differ by institution for the inventor or university. On average Inventor/ Faculty gets between 25% and 50% and university gets between 50% and 75%. In many cases, the university provides part of its portion to the TTO (or the administrative unit) and the laboratories of the creator 1/3: 1/3: 1/3 – institution portion often used for funding research. It is crucial to have IP policy or principles of actions adopted by an organization or an individual. It often has legal implication. Policy should provide:
IP Policy provides:

- Clear rules and guidelines for research operations
- The legal framework for commercialization
- Guidance for IP and technology management procedures

- Clear policy on ownership criteria and benefit sharing
- Consistency of approach (in a systematic manner)
- Transparency in decision making process
- Objectivity in measurement

Next key issue is choice of commercialization. What path do we take donation, licensing and sales of IP or creation of start-up company? But before one want to commercialize, one should be acquainted with the cost of the IP. Cost include inventor compensation, legal fees associated with patent prosecution (filing fee, search fee, examination fee, attorney's fees, translation, patent grant fee etc.), patent annuity/ maintenance fees, legal/ business fees associated with patent licensing and legal fees associated with patent enforcement. There should be incentive for scientists/ researchers to patent. One can be training on IP knowledge which reflects in capacity building and involvement of scientists/ researchers in the process of IP and technology management. Financial compensation is always good and it can be seen in fixed percentage of royalties, lump sum or inventor's award. Professionally, one needs to benefit from patent protection in the promotion scheme.
Finally, it is important to address major challenges to commercialize R&D results. There could be:

- Lack of IP management infrastructure
- Lack of strategic research planning
- Gap between basic research and market needs
- Lack of funds for IP protection
- Lack of IP knowledge
- Lack of expertise to manage TT and commercialization process
- Lack of entrepreneurial skills
- Lack of support (Government, University senior managers) and incentive
- Conflict of interest (University vs. Industry)

Table 1. The Science and technology policy matrix

Key policy element	Strategic objective(s)	Critical challenge(s)	Proposed policy measure(s)
Political commitment	Coherence in policy making Translation of commitment into actions	Lack of continuity	Confidence raising and awareness campaign Programs supporting R&D
Legislative and regulatory framework	Build stimulative framework for business investment and enable introduction of EU norms and standards	Lack of experienced professionals/experts	Tax incentives for priority business sector investments IPR regime and regulatory framework for technology transfer Business-friendly (as opposed to over-regulated) environment
Scientific base	Adopt excellence and competitiveness as major merit criteria	Existing system of values and governance principles	Introduce peer review and a top-down governance system
Capital	Diversify funding sources (public, venture capital, corporate income tax)	Unattractive surroundings for investment (high regulatory barriers for entry)	Supportive legislation for risk capital and corporate income tax Matching grant schemes
Market	Create demand for technology-based products/services Introduce principle of cost-effectiveness	Investing into R&D unrecognized as vital part of business process	Clustering initiative Privatization of government-owned companies
Government support	Research grants for R&D and technology projects Ensure quality of government-sponsored research	Vague strategic focus and lack of transparency	Strengthen grant schemes and mechanisms for support Assure transparent and merit-based selection
Public acceptance	Raise awareness about the benefits of RTD for society	Interest group opposition	Educative and promotional campaigns
Cooperation and partnerships	Bridge the gap between science and industry	Negative attitude towards cross-sector cooperation Unconcerned and torpid target community	Programs targeted at mobility and forming partnerships Introduce system of reward for cooperative and problem-oriented research