

Knowledge Transfer Study 2010-2012

Expert workshop

Tirana, 13 June 2012



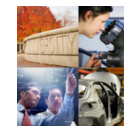
Knowledge transfer and IP management at universities and public research organisations in Serbia

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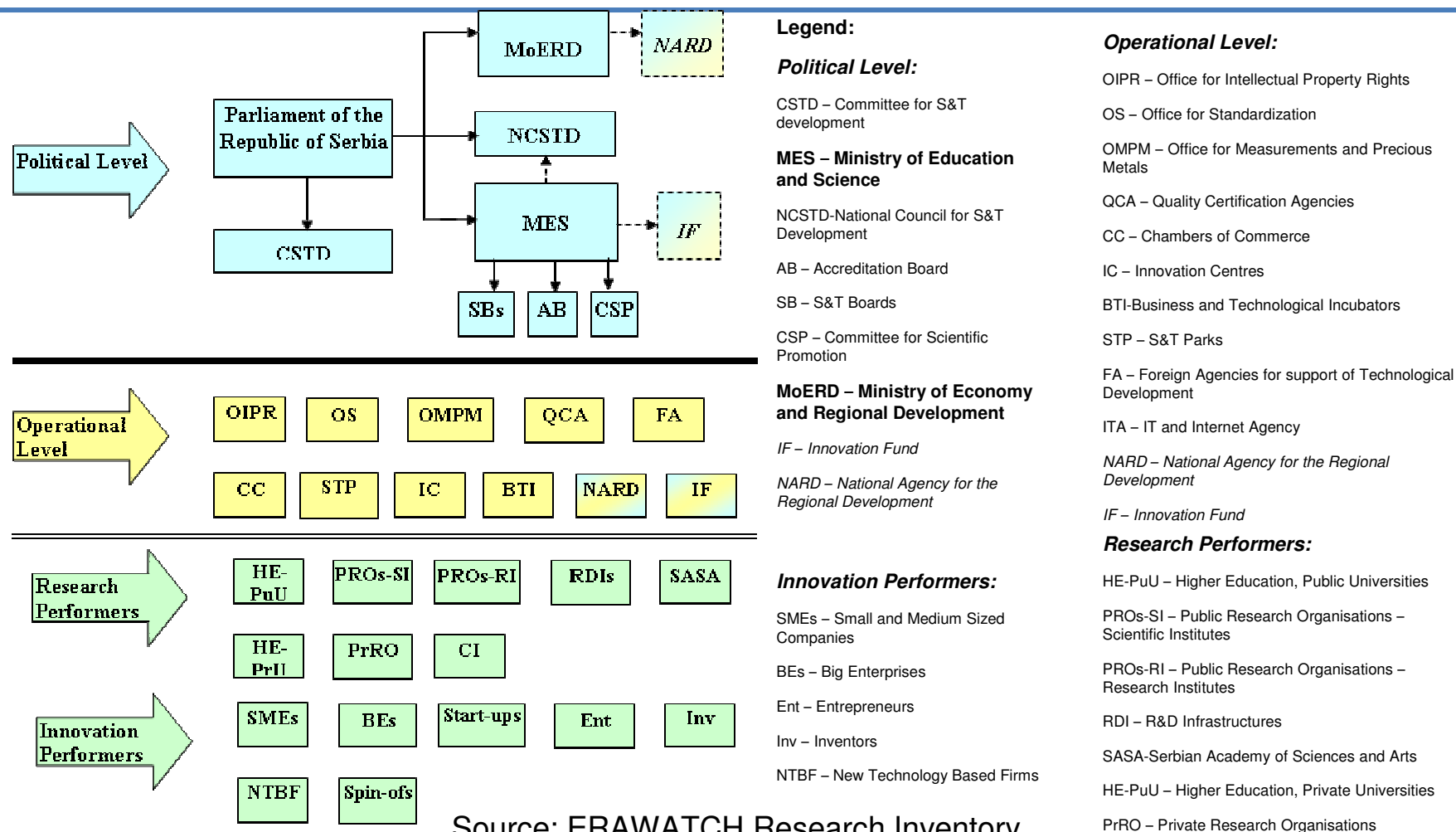
An event on behalf of the
European Commission



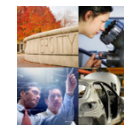


Key facts

Figure 1: Overview of Serbia's research system governance structure

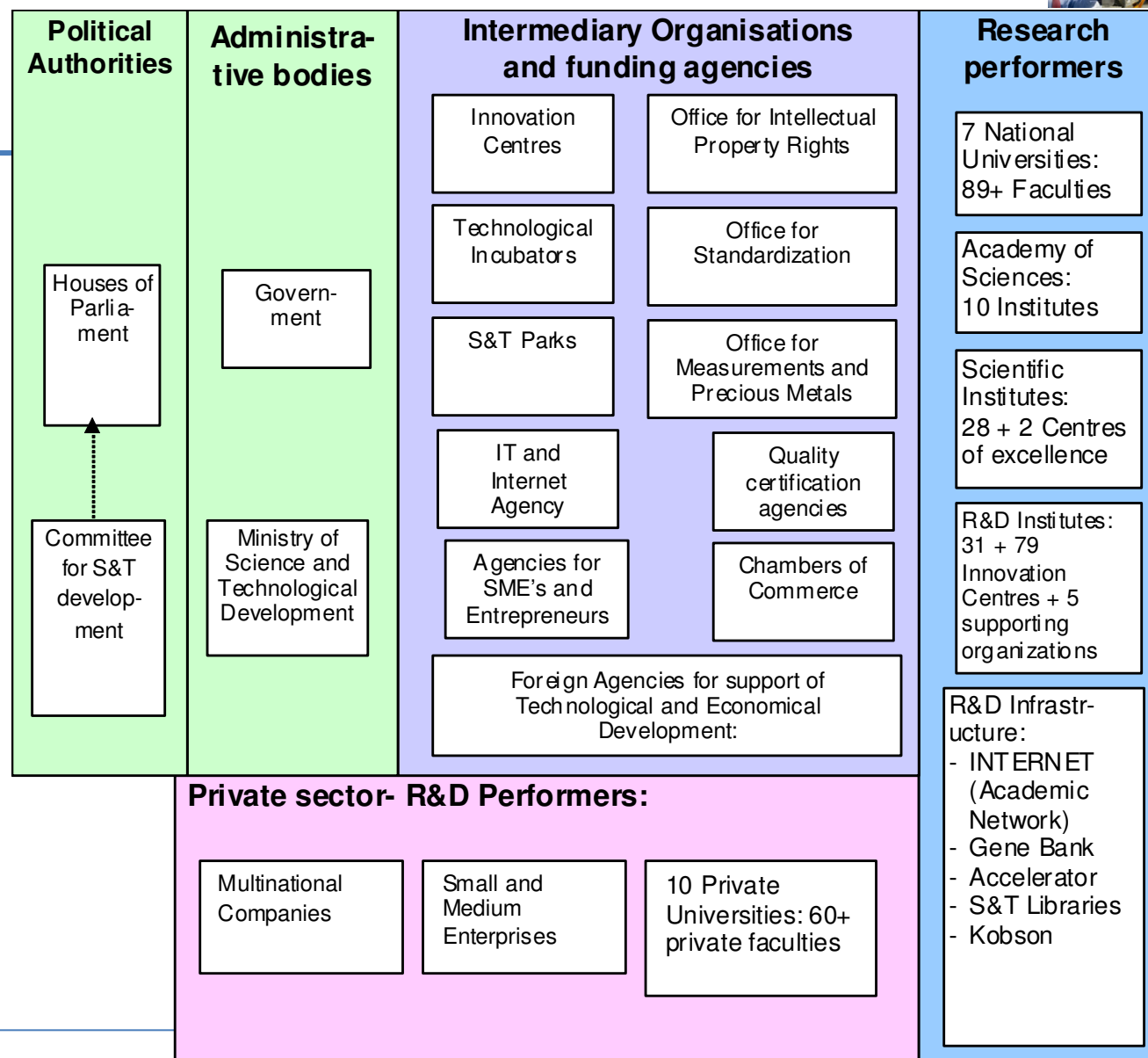


Source: ERAWATCH Research Inventory



Key facts

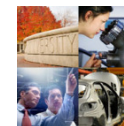
Figure 2:
Serbia's
Research
and
Innovation
system



Key facts - Knowledge transfer infrastructure



- R&D and Innovation organisations – Register MES:
 - Register of scientific institutes – registered **27**,
 - Register of research – development institutes – registered **28**,
 - Register of faculties (suitable for R&D activities) – **75**,
 - Register of innovative organizations – registered **102**,
 - Register of individuals – innovators – registered **152**.
- Knowledge transfer infrastructure – WBC-INCO.net project register (June 2011):
 - Technology / Innovation Centres – **5**,
 - Clusters – **31**,
 - Technology and Science Parks – **5**,
 - Business start-up centres / Technology incubators – **18**,
 - Technology Transfer Offices – **2**.
- Knowledge transfer infrastructure – Others:
 - Technology Transfer Offices – **2**,
 - Enterprise Europe Network – **6** partners,
 - Programmes, Projects, Funding Agencies etc.



Key facts - Knowledge (transfer) performance

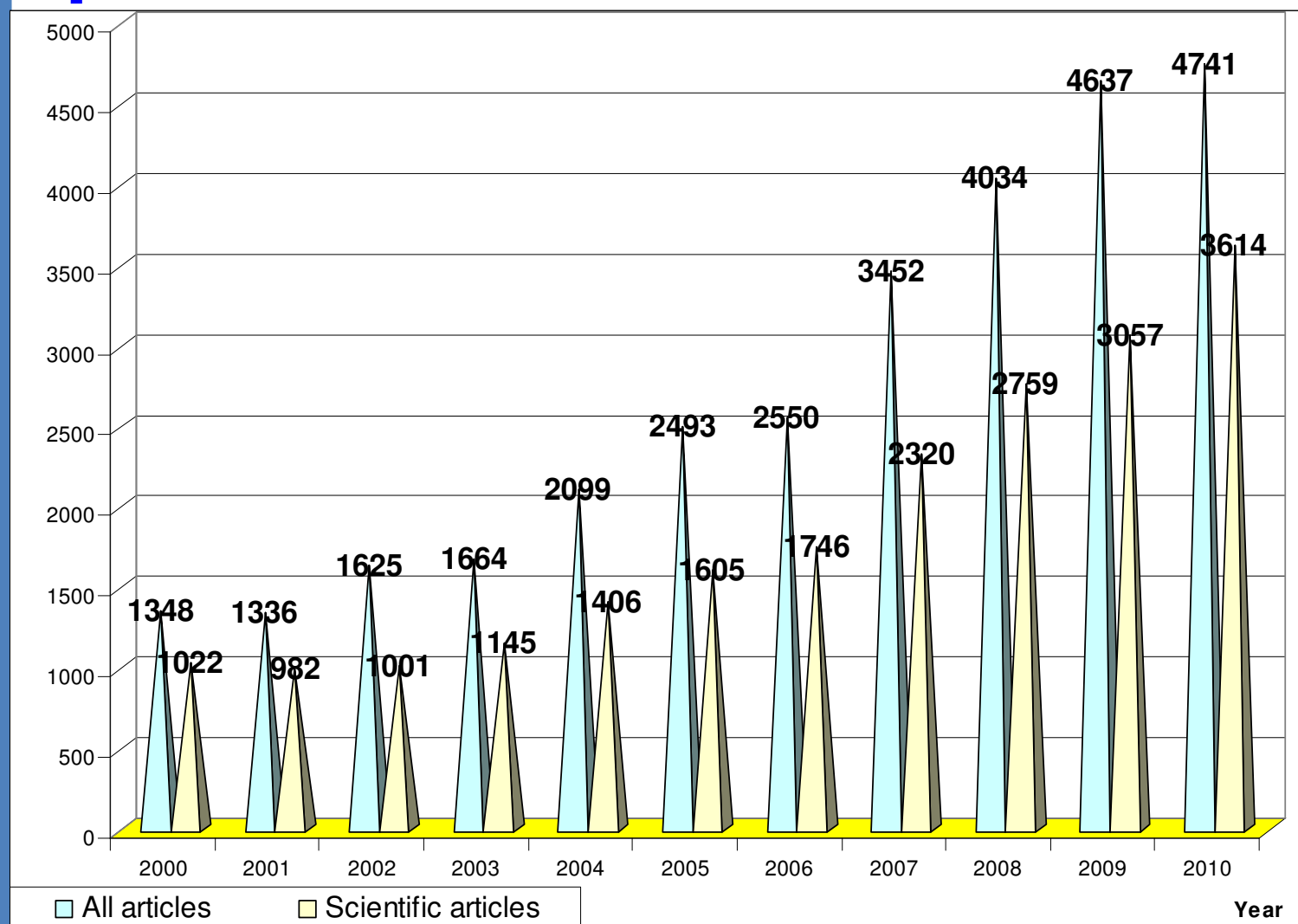
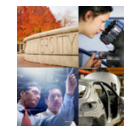


Figure 3:
Number of articles published in WoS journals, authors from Serbia, 2000-2010



Key facts - Knowledge (transfer) performance

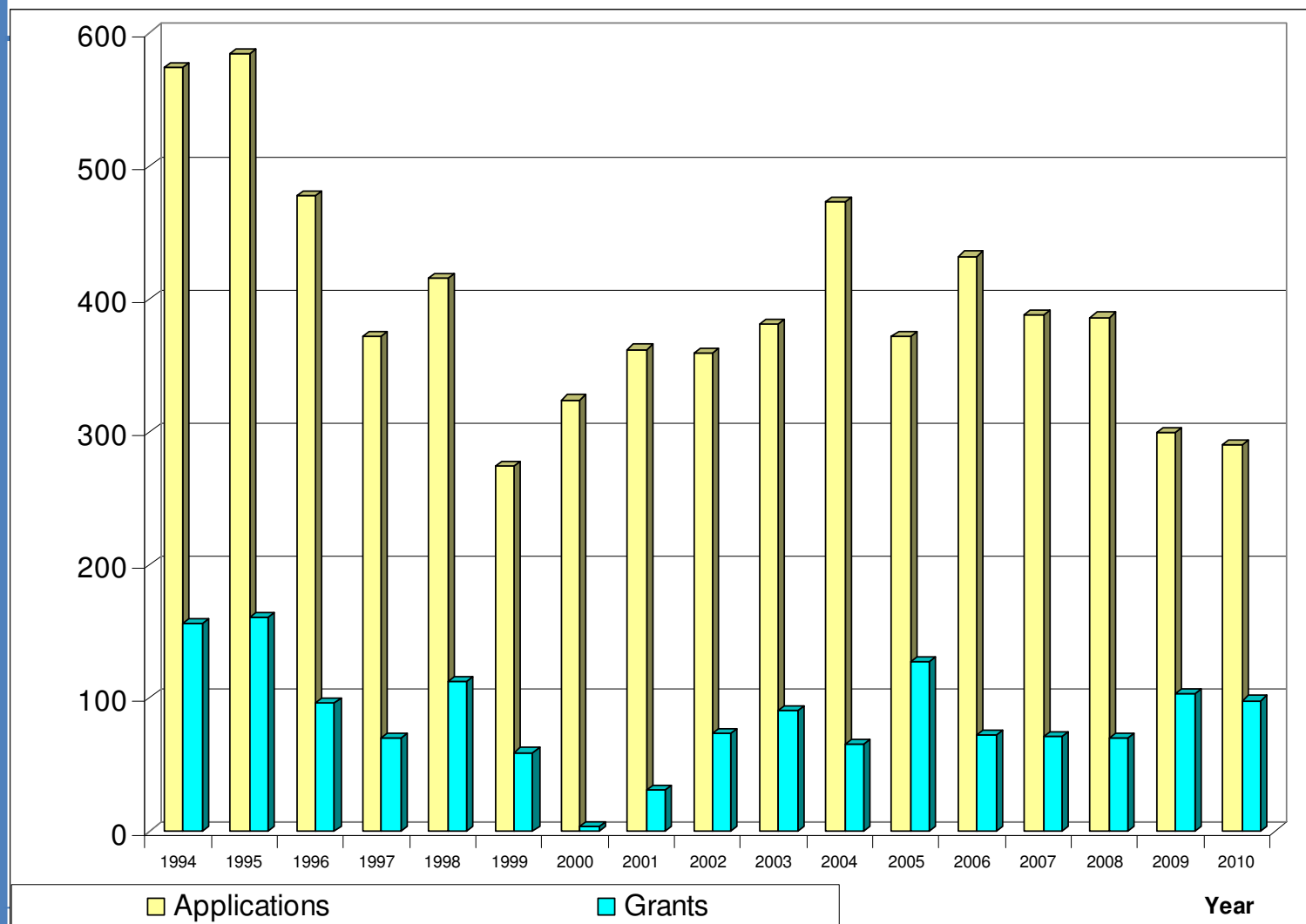


Figure 4:

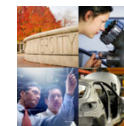
Resident patent applications and grants in Serbia, 1994-2010

Key facts - Knowledge (transfer) performance



The main results which should be achieved in national R&D projects financed by the Ministry in charge of the science and technological development within technology development programme are so-called technical solutions, patents, pilot technological facilities, new innovations, technological upgrades and other technological solutions that can be directly applied in industry and services.

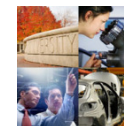
In the period 2003-2007, MSTD has collected reports of the implementation of over **3,400** technical / technological solutions / results within the technological development programme financed by the MSTD in Serbia.



Key facts – KT STRENGTHS

■ Strengths:

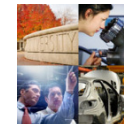
- *Soaring tendency, in terms of key research indicators in Serbia:*
 - *Increasing tendency of GERD;*
 - *Increasing tendency of business sector R&D investments;*
 - *Increasing share of funding for R&D from abroad;*
 - *Increasing number of researchers;*
- *Rising number of papers on the SCI list and the number of citation;*
- **Adopted institutional framework:**
 - **High Education Law (“Entrepreneurial university”);**
 - **Innovation Law (support for entrepreneurship);**
 - **IPR law (fully in accordance with international practice; Serbia has become the member of the EPO in 2010);**
- **First 2 TTOs established in Novi Sad and Belgrade;**
- **Appearance of spin-off companies within university environment!**



Key facts – KT WEAKNESSES

- Weaknesses:
 - The still present linear model of governance of the R&D and innovation system in the country is the main obstacle to the networking of R&D sector with the rest of economy and society;
 - Missing key policy documents:
 - Innovation strategy / policy;
 - Policy for transformation / restructuring of R&D system;
 - Lack of entrepreneurial behaviour in academic sector;
 - Insufficient incentives for commercialisation of R&D results;
 - Legal requirements for career advancement in R&D sector promote R rather than D activities;
 - Low level of patenting culture;
 - ...

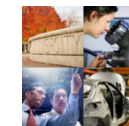
IPR - the level of strategy development for intellectual property protection and KT at universities and PROs as well as related barriers



July 15, 2011: The Government of the Republic of Serbia has adopted the STRATEGY OF THE INTELLECTUAL PROPERTY DEVELOPMENT for the period 2011-2015

- Planned measures:
 - I. Establish Technology Transfer Centres at least on two state universities
 - II. Elaborate models of contracts regulating relationships in the projects of cooperation between universities or scientific and development organizations and economy
 - VII. Continue and support the existing competition for the best technological innovation of the year
 - XI. Support the introduction of subject matter on the basis of intellectual property at the technical, economic, agricultural and management faculties and art colleges
 - XII. Connect Education and Information Centre of the Office with the universities, other educational institutions, scientific and development organizations and chambers of commerce for the sake of coordinating educational activities in the field of intellectual property

IPR - the level of strategy development for intellectual property protection and KT at universities and PROs as well as related barriers



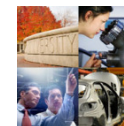
- The legal framework for the protection of intellectual property rights in Serbia is complete and fully in accordance with international recommendations and practice.
- The Republic of Serbia has become the member of the European Patent Organization (EPO) on October 1, 2010.
- The University of Novi Sad has established the first Intellectual Property Liaison Office in a Serbian university, in cooperation with the national Intellectual Property Office (IPO) in 2008.
- Agreement on the support of the IPR Office to the University of Belgrade and the foundation and work of the Technology Transfer Centre was signed in November 30, 2010. The Centre is established by the decision of the University Council from October 26, 2010, in the purposes of identification, protection and commercialization of the results of research work of professors, researchers and students, and protection of IPR.

IPR - the level of strategy development for intellectual property protection and KT at universities and PROs as well as related barriers



Barriers:

- Separation between R&D sector and the economy;
- Lack of entrepreneurial behaviour in academic sector;
- Insufficient incentives for commercialisation of R&D results;
- Legal requirements for career advancement in R&D sector promote R rather than D activities;
- Low level of patenting culture;
- ...



Policies for KT development at universities and PROs in Serbia

Strategy of S&T Development of the Republic of Serbia 2010-2015

*Vision of the development of the Serbia in XXI century:
Knowledge Based Society and Economy*

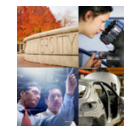
„The Republic of Serbia as an innovative country, where scientists attain European standards, contribute to society's overall level of knowledge and advance the technological development of the economy.“

Ministry of Education and Science

Objective:

National Innovation System:

The ultimate objective is to create a system that fosters strong national innovation



Policies for KT development at universities and PROs in Serbia

Strategic Vision

„The development of an Entrepreneurial Economy, based on knowledge and innovativeness, which creates strong, competitive and export oriented SME sector and sustainability contributes to an increase in living standards in the Republic of Serbia.“

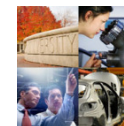
Ministry of Economy and Regional Development

The Strategy is based on five pillars, further developed in modules and measures, corresponding to the priorities in SME development and aimed to contribute to improving the performance of the entrepreneurs through all stages of start-up, growth and development of SMEs:

Pillar 1 deals with potential entrepreneurs, the conditions for establishing a start up and encouraging micro enterprises development within the SME sector.

Pillars 2-4 define specific types of support to SMEs for growth and development, i.e. for transformation of micro into small and small into medium-sized enterprises.

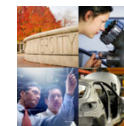
Pillar 5 is targeted at improving general business environment, whatever the size of the enterprise.



Policies for KT development at universities and PROs in Serbia

Current and planned Serbian policies for KT development at universities and PROs:

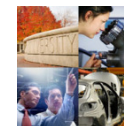
- **The “Strategy of Scientific and Technological Development of the Republic of Serbia 2010-2015”** (SSTDRS), adopted by the Government of the Republic of Serbia on February 25, 2010, defined seven national priorities in the domain of S&T and proposed institutional funding on a reasonable minimum level, only for minimum share of maintenance costs of a few government owned R&D organisations. The restructuring of the public R&D system together with harmonised efforts toward recognition and integration of the business R&D sector into the **national innovation system** is key objective of government strategy for S&T development of the Republic of Serbia until 2015.
- **Innovation law** [“Law on Innovation Activities”, “Official Gazette of the Republic of Serbia”, no. 110/2005 and 18/2010] supports cooperation between PROs and SMEs. The recently adopted S&T Strategy and the latest public call for new R&D projects for the 2011-2014 period also support (and awards, in financial terms) cooperation between PROs and SMEs.



Policies for KT development at universities and PROs in Serbia

Current and planned Serbian policies for KT development at universities and PROs:

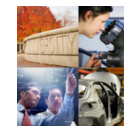
- A crucial step forward in order to create an environment which supports technological entrepreneurship in Higher Education Sector (HES) and public R&D laboratories and institutes are changes in HE law and innovation law to help stimulate **creation of university and PROs spin-offs**. The best practice case and recommended example of public-private knowledge transfer model is the (public) University of Novi Sad with more than 68 spin-off companies created within last the 5-6 years.
- The University of Novi Sad has established the first **Intellectual Property Liaison Office** in a Serbian university, in cooperation with the national Intellectual Property Office (IPO).
- An agreement on the support for the Intellectual Property Office to the University of Belgrade and on the foundation and objectives of the Technology Transfer Centre was signed in November 2010. The centre was established by the decision of the University Council from October 26, 2010, with the purpose of identification, protection and commercialization of the results of research work of professors, researchers and students, and the protection of intellectual property.



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Current and planned Serbian policies for KT development at universities and PROs:

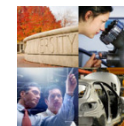
- Several **Innovation Centres** (IC) and Business and Technology Incubators (BTI) are formed within public universities and large PROs, as the main institutions devoted to the transfer of R&D results into marketable products and services. In addition, several S&T parks are part of research infrastructure initiative for the period 2011-2015, within public universities in Novi Sad and Nis and around the "Mihajlo Pupin" Institute as the core PROs for the S&T Park "Zvezdara" in Belgrade.
- Creation of a knowledge-based economy through the construction of **S&T parks** in Belgrade, Novi Sad, Niš and Kragujevac (an approximately 30 million EUR investment) is one of the key elements of R&D policy for the immediate future which promotes the diversification of sources of finance for scientific projects through better cooperation with business partners.



Policies for KT development at universities and PROs in Serbia

Assessment of these policies:

- There are **no official mechanisms for monitoring and reviewing progress** made by national public research organisations in knowledge transfer activities in Serbia.
- Nevertheless, reporting on such activities is obligatory part of **accreditation documentation** for institutes and faculties (every four years) [under the label: "Efficiency and effectiveness of the results of scientific research activities/ valorisation and market commercialization through knowledge and technology transfer"].
- In addition, **annual reports** on realisation of the R&D projects (co)financed by the MES regularly consist request for information concerning knowledge transfer activities organised and performed by the research teams.

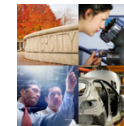


Policies for KT development at universities and PROs in Serbia

Assessment of these policies:

- The new "Strategy of Scientific and Technological Development of the Republic of Serbia 2010-2015" has proposed establishment of a strict implementation tracking system, i.e. the implementation of the Strategy shall be monitored by the Ministry in charge of science and technology development, together with the Ministry of education, Ministry of economy and other ministries, the National Council of science and technology, National council of higher education, Serbian Academy of Arts and Sciences, other advisory bodies and representatives of local and international companies. **The SSTDRS has mentioned as subject of monitoring in particular:** *"Program of knowledge transfer, which should enable the development and operation of centres for transfer of know-how and networking, organization of training courses for new technologies, incentives for feasibility studies of introduction to specific industries (in cooperation with the Fund for research and technology, banks and the Fund for development)."*

Policies for KT development at universities and PROs in Serbia



Challenges of knowledge transfer in Serbia:

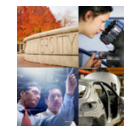
- The absence of coordinated governance and funding of national innovation system in Serbia between main ministries and public funding sources as a consequence of the fact that the concept, purpose and functioning of innovation is not sufficiently developed and accepted in the economy and the society in Serbia;
- Still present linear model of governance of the R&D and innovation system in the country; this is the main obstacle for networking of R&D sector with the rest of economy and society. A crucial challenge for research governance in Serbia is the question how to increase R&D and Innovation activities in the BES;
- One of the significant problems in preserving and strengthening the scientific community is the ongoing drain of highly educated individuals from the country;
- Absence of evaluation culture and practice in R&D and innovation system in Serbia;
- Insufficient knowledge about R&D and innovation capacities in BES;

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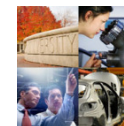
Challenges of knowledge transfer in Serbia:

- The attractiveness of R&D system in Serbia for private investments in R&D is insufficient because of the present structure and capacities of public R&D system. Restructuring of public R&D system and integration of BES into national innovation system is primary task for the government. In addition, legal framework is not in favour of private sector engagement in R&D and innovation activities;
- Undeveloped infrastructure for innovative entrepreneurship and lack of culture for technological entrepreneurship in Higher Education Sector (HES) and public R&D laboratories and institutes (PRO – Public Research Organisations);
- Recognition of the needs for financing of innovation activities with a much larger budget and significantly increased financing per innovation grant;
- Lack of demand-side R&D and innovation policy tools and measures in Serbia.



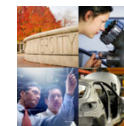
Case Study 1

- Spin-off companies in R&D sector:
 - Faculty of Technical Sciences, University of Novi Sad: 68+ spin-offs;
 - “Mihajlo Pupin” Institute;
 - ...



Case Study 2

- **Competition for Best Technology Innovation:**
 - The project Competition for Best Technology Innovation is initiated in 2005 by the Ministry of Science and Environmental Protection of Serbia. The idea for this project came from Faculty of Technical Science Novi Sad based on successful pilot competition for its students in 2003;
 - The number of reported innovations by the end of 2010 is 1615, the total number of innovations that pass the first round of review is 970;
 - Total prize money by 2010 was 53.18 million dinars, of which 46,335,000 dinars was funded by MSTD;
 - So far in this competition a total of 5360 competitors participated, it was held 234 trainings, 476 teams have written a business plan for setting up a business based on their inventions and 115 teams have drafted marketing plan;
 - Over 350 reviewers from home and abroad, has participated in this contest;
 - By 2010 it is established 44 enterprises;
 - <http://www.inovacija.org/>



Thank you for your attention !

Questions



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Answers