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ASSESSMENT OF INNOVATION AND COMPETITIVENESS SUPPORT PROGRAMMES, SERBIA

- RECOMMENDATIONS AND PROPOSED CORRESPONDING ACTIONS -

Summary Report of Programmes Assessment & Documents of the Workshop 'Innovation for Competitiveness?'



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Abbreviations

BISO	Business and Innovation Support Organisation
BSO	Business Support Organisation
CIP	Competitiveness and Innovation Programme
CoC	Chamber of Commerce
EEN	Enterprise Europe Network
ERA	European Research Area
EU	European Union
FP7	Seventh Framework Programme
GoS	Government of Serbia
ICIP	Improved SME Competitiveness and Innovation Project
IPA	Instrument for Pre-Accession Assistance
JE	Junior Expert
KPI	Key Performance Indicator
M&E	Monitoring and Evaluation
MoAFWM	Ministry of Agriculture, Forestry and Water Management
MoERD	Ministry of Economy and Regional Development
MoES	Ministry of Education and Science
MoF	Ministry of Finance
MoSTD	Ministry of Science and Technological Development (former)
MoTS	Ministry of Trade and Services
MoYS	Ministry of Youth and Sport
MPI	Mihajlo Pupin Institute
NARD	National Agency for Regional Development
NCP	National Contact Point
NGO	Non-governmental organisation
R&D	Research and Development
RDA	Regional Development Agency
RTD	Research and Technology Development
SE	Senior Expert
SECEP	Support to Enterprise Competitiveness and Export Promotion
SIEPA	Serbian Investment and Export Promotion Agency
SMEE	Small and Medium-sized Enterprises and Entrepreneurship
SMEs	Small and Medium-sized Enterprises

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1. PREFACE

The Improved SME Competitiveness and Innovation Project (ICIP) is financed by the European Union and aims at improving the competitiveness of Serbian SMEs and increasing levels of innovation in SMEs. The project also envisages meeting related needs to strengthen the institutional capacity and support framework for increased level of innovation in enterprises, upgrade of innovation support services, build capacities of innovation stakeholders and strengthen links between education, research institutes and business. A good institutional framework for SME competitiveness and innovation has been put in place and a substantial improvement in cooperation and coordination between various actors has been reached. ICIP aims *inter-alia* for continuous inter-ministerial innovation policy coordination in all areas affecting enterprise competitiveness and innovation.

To support these aims ICIP has undertaken an in-depth analysis of the innovation and competitiveness support programmes in Serbia to raise awareness for strong policy coordination among main stakeholders and to further adapt the support tools in accordance with needs of enterprises and innovation service providers.

In total nine SME innovation and competitiveness support programmes have been evaluated that are implemented by the Government of Serbia and managed by the Ministry of Economy and Regional Development (MoERD), Ministry of Science and Technological Development (MoSTD) – since March 2011 integrated within the Ministry of Education and Science (MoES) – and the National Agency for Regional Development (NARD). For the assessment of programmes a sample group of 67 enterprises in total were consulted by questionnaire and telephone contacts and in-depth interviews were held with managers of the support programmes. The assessment of the innovation and competitiveness support programmes is conducted against the government strategy for development of competitive and innovative small and medium-sized enterprises and the related policy aims and expected intermediate results.

The assessment of programmes including the individual report formulation was undertaken by a team of the Mihajlo Pupin Institute, Belgrade, consisting of SE Prof. Djuro Kutlaca, PhD and JE Sanja Popovic-Pantic, MSc as well as other team members, Dusica Semencenko PhD, as MPI expert and technical support of Marija Mosurovic MSc and Zorica Mitrovic.

The purpose of this Summary Report is to enhance the political dialogue between social partners on improved innovation support to the SME sector in Serbia. The Ministry of Economy and Regional Development leads the dialogue. The main contributors in this dialogue are the MoERD itself, the Ministry of Education and Science, the Ministry of Trade and Services, the Ministry of Finance, the National Agency for Regional Development, the Serbian Investment and Export Promotion Agency and the Inter-Ministerial SME Council.

The assessment was concluded by the workshop “Innovation for Competitiveness?” held on 29 September 2011, at the Mihailo Pupin Institute, discussing the key

findings and recommendations with government SME policy decision makers, representatives of the Serbian universities, research organisations, business associations and chambers, and other social partners and private sector representatives. Professor Slavo Radosevic of the Centre for Comparative Economics, University College London reflected the conventional innovation policy for science-industry links in central, eastern and south-eastern Europe with the economic reality of the region. Dr. Gerd Meier zu Köcker, Director of the Institute for Innovation and Technology in Berlin analysed under the European dimension what makes collaboration between science and industry happen?

Final conclusions and suggestions have been drawn. Policy statements and key presentations of the workshop are included in the second part of this document.

Dr. Jurgen Henke

Team Leader of the EU funded project

Improved SME Competitiveness and Innovation (ICIP)

A. Assessment of Innovation and Competitiveness Support Programmes in Serbia – Recommendations and Proposed Corresponding Actions

2. INTRODUCTION

The Improved SME Competitiveness and Innovation Project (ICIP) aims at improving the competitiveness of Serbian SMEs and increasing levels of innovation in SMEs through two closely interlinked but distinct components:

- Business support services, and
- Innovation for competitiveness.

The project also envisages related capacity building for the relevant stakeholders so that policy / strategy development and project implementation and monitoring are more effective, and sustainability of the institutional support infrastructure is ensured. Capacity strengthening of public institutions in support of innovation and competitiveness will be achieved *inter-alia* through effective mechanisms for continuous inter-ministerial policy coordination and learning in all policy areas that are affecting enterprise competitiveness.

ICIP assists the Ministry of Economy and Regional Development (MoERD), the Ministry of Education and Science (MoES/MoSTD), the National Agency for Regional Development (NARD) and other stakeholders in improving the quality, range and availability of business and innovation support services. Through strengthening the institutional capacity and support framework the level of innovation in enterprises shall be increased.

Purpose

The purpose of the assessment is to undertake an in-depth analysis of the innovation and competitiveness support programmes in Serbia and to raise awareness for strong policy coordination among main stakeholders to further adapt the support tools in accordance with needs of enterprises and business and innovation service providers.

The result of the assessment will also contribute to an improved service friendly climate and a new qualification programme for management and support staff.

The Government of Serbia, including MoERD, MoES, NARD and other stakeholders are managing a number of national and international donor funds for innovation and competitiveness of enterprises. The following programmes were assessed by ICIP under the activity 2.1 “Assessment of Innovation Support Programmes”:

- The “Project for Supporting SMEs to Invest in Innovation” provides grants for product and process activities, from developing an invention through piloting

the application up to developing a prototype and introduction of a new or improved product to the market.

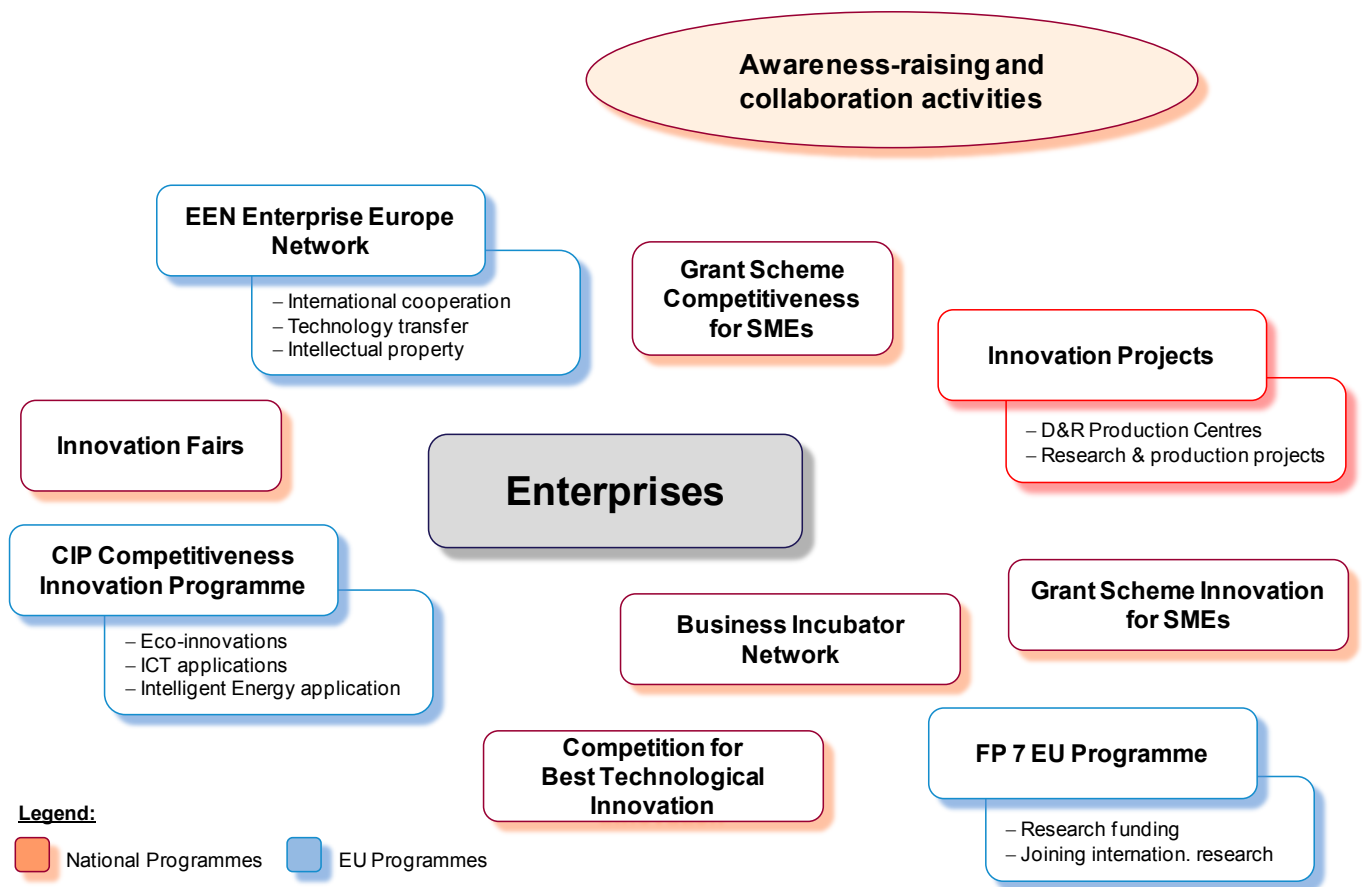
- The “Project for Supporting the Development of Competitiveness of SMEs and Innovation” focus its grants on activities which contribute to competitiveness of SMEs, e.g. introduction of quality standards and certifications, qualification of entrepreneurs and employees, etc.
- Project EEN - Enterprise Europe Network - is a business and technology cooperation programme launched by the European Commission and Serbia started to implement the network in June 2009. The project was monitored for the period it started till end of 2010.
- The Competitiveness and Innovation Programme (CIP) has several sub-components like the Entrepreneurship and Innovation Programme (EIP). It aims to encourage innovation and to promote the competitiveness of European enterprises. Serbia joined the CIP/EIP programme in late 2008 and received full membership in 2009.
- “Competition for Best Technology Innovation” is a successful national initiative to involve scientists, inventors and students in a competition for creating project ideas and assisting their development (e.g. by training, business plan development) up to spin-offs or start-up companies.
- EU FP7 Programme is the main research, development and technology assistance instrument of the European Commission to encourage European research collaboration; Serbia has participated in the programme since 2007.
- The “Business Incubator Network” has actually 16 registered business incubators but is lacking in lobbying power and is still in its development stage.
- “Innovation Fairs” is a summarized description of local, sectoral and a few national events where inventors, scientists and enterprises are provided with the opportunity to present their ideas and new technologies.
- “Innovation Projects” have been launched previously by the MoSTD on different subjects by public calls. Registered organizations, enterprises and inventors could bid for such tenders.

Reports were produced on each of the assessed programmes and support activities, including main findings and recommendations, which are the basis for this Summary Report. The reports are available as separate documents.¹

The listed and briefly described programmes indicate that Serbia has established a developed innovation support infrastructure (see the following Figure 1) which was confirmed by the undertaken surveys. The purpose of the programme assessment was to find out if some gaps do exist and how far the innovation infrastructure meets the demand of enterprises and science organisations. The target was as well to develop policy recommendations to strengthen Serbia’s innovation support network.

¹ To receive individual reports, please contact the ICIP project office: office@icip-serbia.org

Figure 1: Innovation Support Structure Serbia



It should be repeated that the surveys and Figure 1 cover only such programmes which are directly targeted to innovation and competitiveness. The Serbian government has set up in total about 40 support programmes for SMEs and entrepreneurs with different aims (e.g. export promotion, cluster financing, start-up training and assistance, qualification of unemployed people) which are partially complementary to the innovation strategy. See also the following chapter on Policy Background.

3. POLICY BACKGROUND

Specific innovation support through national programmes is provided by both the Ministry of Education and Science and the Ministry of Economy and Regional Development. The National Agency of Regional Development is managing the Project for Supporting the Development of Competitiveness of SMEs and Innovation and additional competitiveness support programmes. Funding programmes with the potential to influence innovation and competitiveness are also supported by the Serbian Investment and Export Promotion Agency (SIEPA), the Ministry of Agriculture, Forestry and Water Management (MoAFWM) and the Ministry of Youth and Sports (MoYS). The Serbian Chamber of Commerce (CoC) contributes as well to some projects, e.g. innovation fairs and Competition for Best Technology Innovation. For several years Serbia has gained access to and is integrated into the main EU support programmes for research, innovation and competitiveness such as the Competitiveness and Innovation Programme (CIP), the Enterprise Europe Network (EEN) and the Seventh Framework Programme (FP7). Meantime, Serbia has successfully set up the infrastructure to manage EU-based programmes.

The innovation policy frame is set by the Serbian Law on Innovation Activity, last amended in March 2010² and implemented by MoES/MoSTD. The Law on Innovation Activity regulates basic principles, goals and organization of application of scientific knowledge, inventive faculties and inventiveness, for the purpose of creation and realization of new and improved products, processes and services to serve as a driving force for the development of the Republic of Serbia. Based on the legal frame, the government has developed the Strategy for Scientific and Technological Development of the Republic of Serbia for the period 2010-2015.

The Strategy for the Development of Competitive and Innovative Enterprises was adopted in 2008³ and implemented by the MoERD; it is a strategic policy document for development of small and medium-sized enterprises and entrepreneurship, which defines key priorities and the way they will be implemented.

Strategic Vision

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

Ministry of Economy and Regional Development

² Law on Innovation Activity; Official Gazette of the Republic of Serbia, no. 110/2005 and no. 18/2010.

³ Strategy for Development of Competitive and Innovative Small and Medium-sized enterprises 2008-2013; Official Gazette of the Republic of Serbia, no. 55/2005, 71/0505 amended, 101/2007 and 65/2008.

The Strategy is based on five pillars, further developed in modules and measures, corresponding to the priorities in SME development and aims 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.

The MoERD is reporting regularly on the progress made in development of the small and medium-sized businesses⁴. For Serbian government the development of the SME sector is a key factor in the European integration process.

The European policy frame is set by the “Small Business Act” for Europe, adopted in June 2008, recognizing the central role of SMEs in the EU economy and puts into place a comprehensive SME policy framework for the EU and its Member States. It establishes the principles and actions to be implemented in EU countries:

- Guiding the conception and implementation of policies both at EU and national level to improve the administrative and legal environment allowing these enterprises to realise their full potential
- Implementing new measures, including legislative proposals which translate the 10 principles of the “Small Business Act” into actions
- Ensuring the full commitment of both the Commission and the Member States together with regular monitoring of implementation.

The Serbian government’s strategy for development of SME Sector was defined as a short-term priority within the National Programme for the Integration of the Republic of Serbia in EU with reference to the “Small Business Act”. The EU framework, guiding entrepreneurship support and promotion, has been taken into account in developing the Serbian SME strategy. The strategy ensures the alignment of SME development policy with relevant Chapters of the *Acquis Communautaire*.⁵ Chapter 5 of this report refers to the government’s Strategy for Development of Competitive and Innovative SMEs in detail.

In its latest statements the European Commission confirmed that Serbia has developed key aspects of an industrial policy. Both the industrial strategy and the SME strategy are broadly in line with EU principles in this area. The Commission concludes as well that the National Strategy for Scientific and Technological Development for the period 2010-2015 is fully in line with the objectives and targets of the European research Area and the Innovation Union. Overall, Serbia should, in the medium term, have the capacity to comply with the requirements of the EU

⁴ Ministry of Economy and Regional Development, Report on Small and Medium-sized Enterprises and Entrepreneurship 2008 and 2009, Belgrade 2009 and 2010.

⁵ Official Gazette of Republic of Serbia, ebd., Strategy for Development of Competitive and Innovative Small and Medium-sized enterprises 2008-2013; p.8

acquis in the area of enterprise and industrial policy provided it continues its efforts.⁶ The Commission's view is confirmed by the overall results of these undertaken surveys.

⁶ European Commission, 12.10.2011, SEC(2011)1208; Commission Opinion on Serbia's application for membership of the European Union.

1. METHODOLOGY

In total nine innovation support programmes and measures, targeting for improved competitiveness of the SME sector, were assessed to measure the programmes' impacts. Innovations are categorised by⁷:

- a) Product/service innovation
- b) Process innovation
- c) Organisational innovation of enterprise
- d) Marketing methodology.

The focus of the assessment is on the impact of these nine programmes on the parties involved, specifically on the beneficiary enterprises and the innovation support organisations and consultants. Of less importance for this assessment is the national socio-economic impact of the existing innovation policy of the Government of Serbia. This decision was taken due to the available resources and time span of the ICIP programme.

Consequently, the methodology focussed on effectiveness and efficiency of programmes, the management and capacities to operate the programmes, as well as awareness of existing support measures. Regarding the beneficiary enterprises, the methodology looked towards possible specialisation of support measures profiles, on closing gaps in the innovation assistance process and meeting the needs of beneficiary enterprises.

The assessment of the programmes consists of two approaches: firstly, sample groups of enterprises, which have participated in innovation support programmes and received grants for the purpose of the improvement or development of new products/ services/ processes were given questionnaires; secondly qualitative interviews were held with persons from the MoERD, MoES, NARD and other government organisations responsible for managing the programmes.

The nine assessment reports conclude with key findings and recommendations for policy actions. In the annex of the reports, a copy of the questionnaire used in the research is attached.

⁷ Following the definition of OECD, Oslo Manual, 3rd ed., 2005

2. EXECUTIVE FINDINGS AND CONCLUSIONS

5.1 Introduction

The Improved SME Competitiveness and Innovation Project (ICIP) has evaluated the national and EU funded programmes dealing with support to innovation and competitiveness measures in SMEs only. The assessment survey compared results achieved by the programmes with the aims as they are defined by the “Strategy for Development of Competitive and Innovative Small and Medium-sized Enterprises 2008-2013”. Not all measures and policy aims of the Strategy are directly related to innovation and competitiveness and therefore are not included in the survey results. The introduction provides an overview of surveyed measures and aims being taken into account.

Policy Strategy of Pillar 1: Promotion and Support for Entrepreneurship and Business Start-Up

Measures	Policy Aims
<ul style="list-style-type: none"> • Increased potential to produce business start-ups and develop entrepreneurship • Improved business development support to new businesses • Improved business environment for start-ups 	<ul style="list-style-type: none"> • Promoting and raising awareness to increase business start-up • Improving the quality and availability of business support to potential and new entrepreneurs • Reform of formal and informal education system and introducing an entrepreneurship education system • Improving educational system in the field of entrepreneurship • Easing the taxation burden on start-ups with limited financial resources • Faster and cheaper business registration, including the introduction of a unified “One-stop shop” system; • Providing monitoring systems in order to support survival of business start-ups



Only the marked items are subject of the assessment survey


Measured results:

The evaluated programmes under this assignment were not directly targeted towards the measures and policy aims of Policy Strategy of Pillar 1. Anyhow, the following aspects were partially evaluated by the assessment survey:

- Promotion and awareness-raising among SMEs to invest in enhancing innovation and competitiveness
- Quality and availability of business support services
- Need for a harmonised and regularly applied monitoring and impact evaluation is recognised

Policy Strategy of Pillar 2: Human Resources for a Competitive SME Sector

Measures	Policy Aims
<ul style="list-style-type: none"> • Module 1: Better policy framework for entrepreneurship education • Module 2: More efficient business services to support SMEs <ul style="list-style-type: none"> - Improved business services system - Improved capacities of various institutions to provide business services • Module 3: Improvement of management skills <ul style="list-style-type: none"> - Improved management skills in SMEs - Increased skills of SME managers through international training • Module 4: High qualified labour force for SMEs 	<ul style="list-style-type: none"> • An enterprise culture that encourages entrepreneurship and recognises entrepreneurial success • Promoting the diffusion of training programmes and lifelong learning opportunities • Promoting women’s entrepreneurship through the elimination of barriers to enterprise creation and growth • Engaging disadvantaged groups through business support services targeted to these groups

 Only the marked items are subject of the assessment survey

Measured results:

The evaluated programmes under this assignment are focused only partially on the measures and policy aims of Policy Strategy of Pillar 2. Module 2 of this Pillar – Improved capacity of institutions to provide business services – is partially the subject of the ICIP project itself. The following aspects were evaluated by the assessment survey:

- Improved capacity of business service providers
- Improved management skills in SMEs through provision of qualification measures
- The policy aim - promoting women’s entrepreneurship and engaging disadvantaged groups - is missing as a targeted objective in some of the assessed projects and accordingly is not sufficiently reflected in organisations’ reports⁸

⁸ However, this is the subject of an assessment to be carried out jointly by UNDP and MoERD

Policy Strategy of Pillar 3: Financing and Taxation for SMEs

Measures	Policy Aims
<ul style="list-style-type: none"> • Module 1: Improved finance and financial expertise for SMEs • Module 2: Taxation for SMEs 	<ul style="list-style-type: none"> • Improving financial knowledge and management in SMEs • Providing a range of financial instruments to meet different business development needs • Fostering development of local and regional financing tools • Encouraging microfinance schemes to make better use of public funding • Promoting awareness of the importance of equity finance; • Adjusting the taxation system to the capabilities of SME sector



Only the marked items are being subject of the assessment survey

Measured results:

The evaluated programmes under this assignment are not targeted towards the measures and policy aims of Policy Strategy of Pillar 3; although the lack of equity financing is affecting the low level of private innovation investment in Serbian enterprises as mentioned as a result of the survey.

Policy Strategy of Pillar 4: Competitive Advantage of SMEs in Export Markets

Measures	Policy Aims
<ul style="list-style-type: none"> • Module 1: Developing a Culture of Investing in Innovation by SMEs <ul style="list-style-type: none"> - Improve technical and non-technical innovations in SMEs - Support investments in ICT - Encourage participation of enterprises in innovation programmes of scientific research organisations and EU innovative programmes • Module 2: Standards and Quality Control <ul style="list-style-type: none"> - Create an infrastructure for efficient adoption of quality standards - Encourage SMEs for use of internationally recognised management system standards • Module 3: Cluster and Business Linkages <ul style="list-style-type: none"> - Implement Serbian Business Incubator Programme ... - Support the development of SME-based cluster programme - Facilitate SME access to business supplier systems • Module 4: Targeted Support to Export Oriented SMEs 	<ul style="list-style-type: none"> • Technical upgrading of products and processes through access to information on the best technologies and processes in the world • Improving links between SMEs and scientific research institutions • Providing information to SME on the standardization and certification process • Establishing an acceptable certification system in terms of procedure and costs • Enhancing clusters and networks by strengthening liaisons between SMEs and knowledge centres • Encouraging SME participation in global supplier chains • Strengthening state support for SME access to foreign markets and taking business to international level



Only the marked items are subject of the assessment survey

Measured results:

The evaluated programmes under this assignment targeted most of the measures and policy aims of Policy Strategy of Pillar 4. Module 3 and 4 of this Pillar – Support to development of SME based cluster and facilitate access to business supplier systems, as well as support to export oriented SMEs – is partially subject of the SECEP project. The following aspects were evaluated by the assessment survey:

- Module 1, developing a culture of investing in innovation by SMEs and improving technical and non-technical innovation, has been evaluated by SMEs and programme managers of respective programmes as being important

- The participation of enterprises in innovation programmes of scientific research organisations and EU innovative programmes is the subject of the survey report
- In Module 2, the measures to adopt standards and quality control have been evaluated by SMEs using the respective government programmes
- The Serbian Business Incubator programme is evaluated as well and a separate survey report is produced

Policy Strategy of Pillar 5: Serbia’s Legal, Institutional and Business Environment for SMEs

Measures	Policy Aims
<ul style="list-style-type: none"> • Module 1: A Legal Framework and Business Environment which Encourages Entrepreneurship • Module 2: Efficient Public Sector Serving SMEs • Module 3: A well developed Regional Infrastructure for SME Support <ul style="list-style-type: none"> - Promotion of SMEs and entrepreneurship at regional and local level - Strengthening of the network of regional SME development agencies • Module 4: Effective Representation of SME Interests through Public/Private Dialogue • Module 5: Public Procurement and SMEs 	<ul style="list-style-type: none"> • Regulatory framework suited to the needs and capabilities of SMEs • Improving the efficiency of the Public Sector in service of SMEs • Developing effective regional support infrastructure for SMEs • Effective representation of SMEs in the policy development and implementation process • Ensuring fair access of SMEs to public procurement processes



Only the marked items are being subject of the assessment survey

Measured results:

The evaluated programmes under this assignment targeted only partially the measures and policy aims of Policy Strategy of Pillar 5.

- Part of Module 3 of this Pillar – Strengthening the network of regional SME development agencies – has been evaluated by SMEs using the respective government programmes

5.2 Intermediate objectives of the assessed programmes

Some of the assessed programmes, as mentioned above, have been established by the Serbian government since 2005 and are still operating with the aim to provide innovation and competitiveness related support to SMEs and entrepreneurs. Also, EU financed programmes are available for the science and SME sector; but only since 2009 has Serbia reached full membership for e.g. FP7, EEN and CIP/EIP programmes.

The following main intermediate objectives were set by the assessed SMEs using the innovation and competitiveness support programmes in supporting the strategic policy aims:

- (1) To increase the productivity and competitiveness of assisted SMEs based on investment in technology use and adaptation and on internationally recognised standards and certifications
- (2) To access best technologies and processes, and increase research development by entrepreneurs and SMEs to improve innovation cooperation between SMEs and R&D institutions to upgrade products, processes and organisational structure within the SME sector
- (3) To develop a culture of entrepreneurship and SME development and create a public awareness on the need to invest in research, technical and non-technical innovations and managerial education to support the creation of a demand driven science and invention based economy.
- (4) To strengthen the innovation support infrastructure and support networks/institutions to improve quality and availability of business support services and encourage international cooperation and competitiveness

5.3 Principle findings and conclusions for beneficiaries

With regards to the above-mentioned main intermediate objectives, the following principle conclusions are drawn on the impacts for enterprises:

Ad 1: Contribution of the following programmes to the first intermediate objective (Productivity and competitiveness)

- Project for Supporting SMEs to Invest in Innovation
- Project for Supporting the Development of Competitiveness of SMEs and Innovation

The survey showed (based only on a sample group of 32 enterprises), that a small but significant proportion of supported enterprises reported increases in their

profitability and market competitiveness as a result of their projects, such as: better positioning in the current market; access to new clients with new or improved products. The vast majority of enterprises (more than 96%) prefer to manage the innovation path up to the commercialisation of their market-ready products and services and investing in sales and distribution directly. On the other hand, only about 12% plan to invest in purchasing of patents for product and process development. This approach of enterprises is reflected in the modes of calling on the innovation support activities of both Programmes: 14% of enterprises using the funds for prototyping, design and packaging improvement, 9% for testing of new production processes and 78% for the development of new activities or improving existing products and services.

However, these benefits are likely to become more widespread in time because both projects have stimulated important intermediate effects including development of an innovation culture in enterprises (56%) and qualification of employees (53%) to manage the process of innovation.

- Project EEN in Serbia 2009-2010

EEN Serbia started its operation in June 2009. It provides assistance to SMEs in access to international business and technology, legal services and individualised skill improvements. 618 business profiles and 64 technology profiles are registered with EEN Serbia. Out of the small sample survey of 35 enterprises, significantly positive effects are reported on improved business (37%) as a result of EEN support in research and development, business intelligence and access to new customers.

Ad 2: Contribution of the following programmes to the second intermediate objective
(Access technologies; increase research; improve innovation cooperation)

- Project for Supporting SMEs to Invest in Innovation
- Project for Supporting the Development of Competitiveness of SMEs and Innovation

Almost 90% of enterprises reported that the Programmes met their expectations. 25% of enterprises have applied an innovation strategy for the first time with the support of the Programmes. The survey found strong evidence of increased technical and non-technical innovations in enterprises; 68% claimed that participation in the Programmes provided the basis for contribution to organisational changes and development of their business model and 65% reported that the Programmes allowed them to focus on their innovation capacities based on their own resources and supported by innovation collaboration with external partners.

The Programmes contributed significantly to the cooperation between research and economic entities. Almost 70% of enterprises have established innovative partnership through the Programmes, although only 12% organised it with R&D institutions or universities (28%) while the majority (43%) cooperated with consulting firms. The majority of enterprises (65%) evaluated the cooperation as very good or excellent; consequently, 75% of them will develop in the future new innovative

activities in cooperation with external partners. Regarding future plans, 90% of enterprises reported planning investments in innovation also for the coming years.

The technical and non-technical innovation effects are likely to increase based on the positive evaluation of enterprises, but could be positively influenced by availability of a central database with all eligible R&D institutions, university departments, consulting firms and laboratories acting as Business and Innovation Support Organisations (BISOs) for SMEs. This database is under development.

- Competition for Best Technology Innovation

The Competition for Best Technology Innovation started in 2005 and showed remarkable results in establishing innovation cooperation between science and enterprises and assisted the establishment of high-tech enterprises. Out of 5360 participants, 970 innovations were further supported and totally 44 enterprises were established, either by researchers or as a result of cooperation with inventors and research institutions. Inventions and possible applications were presented at public events and on national TV.

- Project EEN in Serbia 2009-2010

The project EEN Serbia is well known as a business and innovation network organised by the European Commission. Access to specific technology has been requested by 6 Serbian enterprises, of which 3 were successful in signing a partnership agreement and additionally 5 research partnership agreements have been signed. In total 350 expressions of interest have been placed through EEN Serbia and 6 commercial partnership agreements have been concluded. Serbian partners consider organisation of business exchange and company missions as the most effective way of linking with potential partners. The access to technology is expected to increase when the Project EEN is well established after its current (still) initial phase.

- EU FP7 Programme in Serbia
- CIP/EIP Programme in Serbia 2009-2010

Serbia is an associated member of the EU FP7 programme since 2007 and received full member status in 2009 and it is also a full member of the EU Competitiveness and Innovation Programme (CIP) since 2009 - EEN and the Entrepreneurship and Innovation Programme (EIP) are part of CIP.

By the end of 2009, in total, 107 Serbian organisations and enterprises participated in the FP6/7 programme, which is evaluated as a good result. The majority of participants evaluated the cooperation with project partners and the project effects as good or excellent (67% and 73% respectively). The number of SMEs benefiting from FP7 is given by the CORDIS database as 8 (5 from the thematic field of ICT and 3 from Knowledge Based BIO-Economy). Up to now Serbian enterprises have benefited only indirectly from the CIP/EIP programme, specifically through the projects - Environmental services for SMEs and the Ambassador of the European Network of women's entrepreneurship.

The results of the survey undertaken with the sample group of enterprises indicate that only a minority of enterprises are familiar with international research programmes or are actively searching for international cooperation. Due to the low number of SMEs participating in both programmes (FP7 and CIP/EIP) the survey concludes that there is still a link missing in the chain of technology transfer process to SMEs. This might require as well actions of the European Commission to ease access of SMEs to these programmes.

- Innovation Projects

The programme Innovation Projects, managed by the Ministry of Science and Technological Development, now merged with the Ministry of Education and Science, is targeted at establishing a sustainable bridge between research organisations and industries and increasing the application of research results into the economy. Innovation support projects are launched through public calls. The number of funded innovation projects of legal entities between 2007 till 2009 is 180. The survey was unfortunately not able to quantify the results of the programme objectives.

Ad 3: Contribution of the following programmes to the third intermediate objective (Culture; public awareness; education in enterprises)

- Project for Supporting SMEs to Invest in Innovation
- Project for Supporting the Development of Competitiveness of SMEs and Innovation
- Project EEN in Serbia 2009-2010

The survey indicates that participation in all three Programmes is evident for developing innovation culture and innovation management capabilities in enterprises for both SME owners and innovation project managers. The programmes are well publicised through websites of public institutions, daily newspapers and business organisations. The websites of MoERD and NARD are the main sources of information (for ca. 50% of enterprises), followed by information received through regional and local business service organisations (28%).

Public awareness on the need to invest in innovation and managerial skills is promoted by EEN Serbia through partnership-building with associations of enterprises and entrepreneurs (e.g. chamber organisations, association of SMEs and entrepreneurs, business technology incubators), innovation centres, consultants and research and innovation fund managers. National information days are organised regularly and meantime three conferences in the Western Balkan region have been held.

The professional training is well perceived by management and SME staff and, as the survey on grant scheme programmes reported, showed intermediate effects for innovation management capacities in enterprises. The qualification of enterprise staff is being reported as a trust and image building factor and, as one company reported, positioning it as an 'expert centre'.

- Competition for Best Technology Innovation

This is a unique programme combining both raising public awareness on entrepreneurship and qualification of entrepreneurship in technical and non-technical innovations. The aim is to promote entrepreneurship in Serbia and to assist potential and existing entrepreneurs. The survey identified significant results in awareness-raising and managerial education: 5360 competitors participated in 243 trainings held for 591 teams of researchers, students, innovators, entrepreneurs and creative individuals.

Ad 4: Contribution of the following programmes to the fourth intermediate objective (Innovation support infrastructure; business support services)

- Project for Supporting SMEs to Invest in Innovation
- Project for Supporting the Development of Competitiveness of SMEs and Innovation
- Project EEN in Serbia 2009-2010

The survey provides clear evidence on the importance of the innovation support infrastructure for enterprises in both access to innovation expertise and preparation for project proposals to reduce the burden during the application process. 43% of enterprises used the network of business support service providers for selection of innovation expertise, innovation support programmes and application to the correct programme. Only 19% of enterprises are aware of international programmes (e.g. FP7, IPA funds) or have knowledge to access these funds. The range and availability of financial instruments for innovation has been identified as lacking in the innovation support infrastructure.

The consortium partners managing the EEN project have qualified experts to provide business and technology profiling of enterprises and networking of these profiles internationally. EEN is seen as a gateway for international business and technology networking. The EEN Project has the potential to further develop the innovation support infrastructure towards European and international partnerships.

- Business Incubator Network

In different databases 22 incubators are registered but only 16 are listed in the database no. 988 of services; out of this 11 responded to the survey. Innovation oriented incubators have not been operating more than 5 years with one exception. 45% of incubators have up to 10 tenants, while 55% operate with more than 10 tenants. The total number of employees of enterprises in the incubators is 352. Training and education is provided by 90 % of incubators, while 45% also provide services related to science and technological professional counselling, foreign trade and similar services. 72% of incubators also provide these services to enterprises outside of incubators.

The survey indicates that, despite the small number of entities, incubators in Serbia are an important part of the infrastructure to support innovation and competitiveness in SMEs and have achieved a number of successful outcomes, such as development of new products and services, successful incubation, increase of employment and profitable performance. But the survey identifies also a missing element - strong political commitment towards this innovation support service.

- Innovation Fairs

Innovation fairs in Serbia have rarely been considered as a systematic approach to provide linkages between inventors or researchers and the economic sector, although they might have the potential to become brokerage events where scientists and investors meet and build innovation partnerships.

5.4 Principle conclusions for programme decision makers

In the following, the main principle conclusions are drawn for programme policy objectives and design of programme measures. They are based on single survey results and individual programme conclusions. The principle conclusions appear to be relevant for policy aims of innovation in enterprises and for more than one of the evaluated programmes.

- (1) The evaluation of innovation support programmes is done irregularly and does not follow a harmonised approach. It is proposed to undertake an impact assessment of programmes supporting innovation and competitiveness in Serbia.

The approach should make a distinction between:

- Evaluation of the programme performance against programme objectives on the basis of clearly defined, measurable key performance indicators (e.g. quantified jobs ensured or created);
- Assessment of the cost-effectiveness of the programmes in terms of policy aims, expenditure which results in the engagement of business, and the take-up of programmes.
- Strengths and logic of programme linkages, though causal chains that show the relationships and pathways between different implementation measures and programmes, in order to identify both strengths and weaknesses, as well as unanticipated consequences of the measures
- Direct impact on business activities and practices and business performance (e.g. new products initiated, profitability of business or penetration of new markets), as well as indirect wider spill-over effects (including Strategic Added Value) through the involvement of research partners and stakeholders; and
- Socio-economic impact assessment, measuring the gross and net economic impacts (e.g. employment, business creation, local multiplier effects, and Gross Value Added) at national and regional levels.

It is further proposed that an impact assessment system and methodology should be established allowing the relevant authorities to undertake regular evaluation of socio-economic impacts of such programmes on a comparative basis, which will also ensure that both national and regional disparities in access, take-up and impact can be clearly monitored and assessed.

- (2) Policy goals on cross-cutting issues have been set to be targeted by the assessed programmes. The following issues have been mentioned in SME strategy documents: gender equality, minorities' inclusions and youth, environmental and regional secured activities. Cross-cutting issues are laid down in a number of international conventions, declarations and treaties that are binding to EU countries. They must be taken into account at all stages of the funding cycle. With the proposed evaluation of the programmes such cross-cutting issues should be monitored and, even more important, programme management staff should be made aware to include such issues as subjects of programme planning, as well as identifying clear indicators for each cross-cutting issue within programme design.
- (3) Serbia has established a number of innovation support programmes and facilities, but is still missing a centralised event where research meets business. Also, innovations created by SMEs are usually promoted as part of company – innovator's relations but is missing a central market event. It is therefore recommended to work out a concept and to establish a coordinated central research – market event which presents research and innovation support organisations and enterprises; this might be organised as an innovation - cross sector - fair aimed to attract investors from the economic and industrial sector. Such an event should be branded and positioned as state-of-the-art, with large number of national and international exhibitors from both research and economy, to promote new technologies and solutions in dominantly creative industries.
- (4) The survey of programmes provided evidence that supported firms appreciated or demanded supporting infrastructure (e.g. access to technological information and programmes, identification of specific expertise, assistance in programme applications) and that supported firms are assisted to thrive. It is recommended to develop the range of innovation support infrastructure in a wider sense, including business and technology incubators, science and technology parks and other high-tech support facilities, and to ensure widespread geographical access to such facilities across the territory of Serbia.

The survey indicated as well that lacking access to finance is an obstacle to innovation for SMEs although innovative firms will not base their decision on available financial support for innovation. The supported enterprises indicated a greater commitment to R&D and innovation if sufficient funds are available. A general recommendation is to increase the amount of available financial support. In some areas less number of programmes with more funds per company project will show higher effects.

- (5) It is recommended to develop a set of improved and additional measures to maximise the use of existing information and increase the accessibility of information on innovation assistance. The survey on enterprises' awareness of assistance for innovation and competitiveness presents a mixed picture; the most used sources of information are MoERD and NARD websites. It was also shown that not all innovation support programmes are equally visible to entrepreneurs / SME-owners and still some gaps in information provision do exist as e.g. access to technology and innovation expertise – nationally and internationally.

The improved measures should include a further popularisation of up-to-date information through the widely viewed websites and electronic communication channels including TV and radio broadcasts. A coordinated presentation of the range of services is advised, with a clearly visible profile of different programmes. The information should be permanently available and regularly updated. Information campaigns should use a set of promotional tools. The existing web portals should introduce extended services, e.g. databases with information on sectors or thematic fields (e.g. technology, research, innovation).

A specific aspect of the survey results with enterprises is the low participation and attractiveness of EU funded programmes. It is recommended to design hands-on information events with best practice samples and an increased number of information packages. It is also recommended to establish a specialised information infrastructure for SMEs, in order to popularise such programmes and establish support facilities including a strategy to encourage international cooperation.

- (6) It is recommended to nominate 'Competence Centres' for thematic fields acting as project-executing organisations, managing programmes with expertise. The surveys have stated that national and international research programmes are managed by qualified Serbian teams although these teams require more specific training on popularisation of programmes. In addition, it is proposed in survey reports to enhance the assistance provided to research and economic organisations with specific expertise in thematic fields.

'Competence centres' or 'project executing organisations' might be in a form of government co-financed institutions and agencies involved in R&D and academic science and non-profitable with specific thematic focus, acting as mandatory body for governmental institutions. Besides assistance in programme management and networking, they should be capable to provide expertise in the thematic area of innovation management between applied science and economy for high technologies. This capability is specifically relevant for international collaboration and application of international research programmes (e.g. EU programmes CIP, FP7).

- (7) The need of policy coordination for science and innovation is often mentioned by enterprises and research institutions as well. This report repeats the recommendation for a strongly coordinated National Strategy for science,

education, research and innovation. To reach the overall objective of the Serbian government to establish a science-based society and a strong international collaboration in science and research is suggested with the intention to link up with the most competitive knowledge-based economies worldwide which requires seizing the opportunities of growing internationalisation to a greater extent.

It is recommended to establish a dynamic political platform of policy consulting for science, research and innovation policy.⁹ The spectrum may range from involving government-funded institutions and agencies involved in R&D and academic science and scientific advisory boards and organising a permanent innovation dialogue between government, industry/economy and science to be led by the Serbian Prime Minister.

Detailed suggestions for proposed actions and some implementation steps have been developed in the individual reports.

⁹ Guidelines for the policy framework are developed in the ERAWATCH INNOPOLICYTRENDCHART.

6. RECOMMENDATIONS AND PROPOSED CORRESPONDING ACTIONS

This chapter presents the summarised recommendations and proposed corresponding actions in line with the findings of the assessment of nine innovation and competitiveness support programmes. Recommendations and proposed actions are based on the evaluation of programmes, the beneficiaries' / enterprises' opinions and interviews held with programme managers, as recorded by the team of the Mihajlo Pupin Institute, Belgrade, which consisted of SE Prof. dr Djuro Kutlaca and JE Sanja Popovic-Pantic.

6.1 Project for Supporting SMEs to Invest in Innovation (2009), and Project for Supporting the Development of Competitiveness of SMEs and Innovation (2009)

The 'Project for Supporting SMEs to Invest in Innovation (2009)' is organised by the Ministry of Economy and Regional Development, and 'Project for Supporting the Development of Competitiveness of SMEs and Innovation (2009)' is managed by the National Agency for Regional Development. Since the main part of the survey results are based on a joint pool of enterprises, the recommendations and proposed corresponding actions are summarised in one chapter.

A. In the field of effectiveness and efficiency of programme

R.1. Future Grants Schemes should be followed by a robust monitoring, evaluation and impact assessment (MEI) system.

A.1. It is proposed to establish for each Grant Scheme a standardised monitoring and evaluation and impact assessment system that covers the following five areas: Design of the Grant Scheme (does the Grant Scheme achieve its purpose?), Effectiveness of Grant Scheme (Are the innovation resources inside and outside of the beneficiary SME effectively mobilised?), Efficiency of Grant Scheme (Does the beneficiary of the Grant Scheme actually achieve innovation outputs as mentioned in the Grant Scheme application), Sustainability of Grant Scheme (Is the beneficiary willing and able to continue the innovation activity initiated under the Grant Scheme?), and Impact (are the Grant Scheme financial and non-financial KPIs achieved?).

Each Area should be supported by corresponding Objective Verifiable Indicators and correlated Sources of Verification (both already to be mentioned in the application) that may be either of qualitative or quantitative nature. The Impact Assessment should be carried out 12-18 months after the expiration of the innovation activity and should, ideally, be based on "hardcore" Sector Performance Indicators. Providing feedback by the grantee as per above indicators should be made compulsory and future grants

should be made conditional on having successfully provided feedback on a previous innovation grant received.

B. In the field of specialising aims of support measures

- R.2. Considering the limited funds available, the fact that companies would benefit more from an innovation process/programme than an ad-hoc innovation activity or intervention approach (thus de facto encompassing more innovation interventions per beneficiary company) and the fact that some of the eligible innovation co-financing activities are re-taken in more than 1 Grant Scheme, it would be wise to introduce a higher degree of specialisation in each of the Grant Schemes currently operated in Serbia. This specialisation could be achieved either by limiting the Grant Scheme beneficiaries to specific target groups and/or limiting the type and kind of innovation activities eligible for co-financing under an individual Grant Scheme. If well planned and executed, such a specialisation would also not limit the coverage of all innovation support activities currently on offer, as the “palette” of innovation services on offer through all combined individual Grant Schemes would still broadly cover all SME innovation needs.
- A.2. It is advised that future Grant Schemes should have a more specialised approach. In this aspect, NARD could specialise, for instance, on innovation training and standardisation while MoERD could concentrate on commercialising new and innovative products through partnerships between R&D Institutions and SMEs (such as university spin-offs). Important is that on one hand an institutional platform is created where all stakeholders, at the forefront NARD, MoERD, MoSTD and SME Representative Organisations, would discuss and agree upon innovation Grant Scheme specialisation areas and on the other hand ensure that all relevant SME groups and individual SME innovation needs would be covered by the individual Grant Schemes, jointly.
- R.3. The Survey amongst SMEs indicates that access to innovation funding, at least for those who claim not to have enough internal resources to continue the innovation activity initiated, and obtaining of equipment, is the major co-financing innovation activity necessary but not eligible on the current Grant Schemes.
- A.3. It is advised that the Government of Serbia (GoS) looks hard at the possibility of providing financial support to offer either innovation funding or funding to acquire new equipment. This could be done by either including funding activities as part of the eligible individual Grant Schemes (for instance in the voucher programme for business support services under discussion) or, outside of the Grant Schemes, through company Profit & Loss account actions (tax break, equipment investment subsidies, etc.). The latter solution seems to be the one preferred in most EU countries.

C. In the field of further assistance to close gaps in the Innovation Process

- R.4. If MoERD and NARD see innovation support as a long-term rather than short-term commitment, which they claim to do, innovation impact on company and sector results must clearly be the major focus. Impact, however, implies a programme/process approach rather than financing interventions in a form of individual innovation activity.
- A.4. The Survey amongst SMEs, with the noticeable exception of access to funding, has indicated that the current Grant Schemes, to a very wide extent, cover the innovation needs of companies. The problem, if any, lies in the fact that the Grant Scheme, if it wants to achieve a more sustained impact and success while promoting innovation in companies, will need to be more project/process based rather than innovation activity-oriented. It is, therefore, suggested that future Grant Schemes should operate on the basis of Company Individual Innovation Business Development Paths (listing a series of innovation activities within the overall company over a longer period of time) rather than discrete, stand-alone innovation activities.

D. In the field of increasing the number of SMEs specifically participating in EU-funded programmes

- R.5. The Survey indicated that very few of the beneficiaries either carried out the innovation activity covered by the Grant Scheme with foreign innovation partner or that it is their intention to do this in the framework of a continued (new) future innovation activity. Furthermore, most companies that have heard of the possibility to participate in EU-funded innovation programmes were in need of additional information in order to fully grasp the potential of participating in such programmes.
- A.5. In order to increase the number of Serbian SMEs participating in EU-funded programmes, the first step must clearly be the implementation of a well-conceived, well-targeted and well-implemented information Campaign on EU Innovation Programmes amongst Serbian SMEs. Whilst conceiving the concept of such a campaign, it is advised to engage and inform potential Serbian beneficiaries on a personalised, one-on-one information provision basis (personal meetings, implementation of an innovation diagnostic and on the basis of the result thereof, indicate possible participation in EU-funded programmes) rather than designing and implementing general, broad-based media information campaigns. Furthermore, in addition to the information campaign, there will certainly be a need to “accompany” interested Serbian companies in the process of identifying, helping to contact/enter/form a partnership with a foreign partner and ultimately supporting their actual involvement in the specific EU innovation Programmes aimed at (“helping hand” approach). In the latter aspect, the Serbian Grant Schemes could support such an approach by, for instance, giving a higher evaluation quotient to those Serbian beneficiaries applying within an internal/EU innovation context than Serbian beneficiaries applying within a pure Serbian national context.

E. In the field of access to improved information via Business Portals

- R.6. Although not clearly voiced as such in either the Survey amongst SMEs or the interviews with the Project Managers of the Grant Schemes of MoERD or NARD, Business Portals are generally seen as an efficient and cost-effective way of informing target groups about innovation in general and specific innovation programmes, initiatives, Grant Schemes and activities in particular.
- A.6. The Business Portal envisaged to be created with the support of the ICIP Project will definitely contribute to satisfying the innovation information needs of SMEs. Considering that most SMEs claimed to learn information through specialised Web Sites such as the MoERD Web Site, it is strongly advised not to develop the Business Portal as a stand-alone Portal, but to have it fully integrated with and hosted by MoERD, with immediately visible and accessible reference “click” links from and to the EEN Web Site, NARD Web Site, MoSTD Web Site, and possibly other government websites.

F. In the field of sustainability of programmes

- R.7. If sustainability is measured as both fulfilling the overall and specific aims of the Grant Scheme or the assurance that grantees intend to continue or expand the innovation activity initiated under the Grant Scheme, both MoERD and NARD Grant Schemes have clearly achieved this indicator. Any improvements in this area, therefore, should not only target sustainability as such, but rather the next step following sustainability, namely impact and this both on Company Level as well as SME Sector Level.
- A.8. It is, therefore, proposed – see also section A: effectiveness and efficiency of programmes – to introduce a standardised robust ex-ante, implementation, ex-post and impact M&E system for each of the Grant Schemes where the impact would be measured against a set of verifiable Key Performance Indicators (KPIs) both on company and sector/programme level. For company, KPIs as logic parameters would be financial and non-financial (e.g. increase in profitability due to the innovation activity introduced, increase of market share of innovative product on national and international markets, number of people additionally hired) while those on a sector/programme level could be linked to KPIs measured in achieving integration with the EU (number and % of companies having achieved standardisation, number of (EU-wide) patents submitted by Serbian companies, number of licenses bought or sold, etc.). Furthermore, assessment impact should be carried out between 12-24 months after the finalisation of the innovation activity co-financed by the Grant Scheme.

G. In the field of user-friendly climate to serve potential clients

- R.9. The Survey amongst SMEs, as well as the interviews with the Project Managers of the MoERD and NARD Grant Schemes, have indicated that, overall, the application process is feasible and not too cumbersome. It was, however, mentioned that some applications to specific Grant Schemes were

not considered, because the applicants were not able to gather all required supporting application documentation in time, i.e. against the Grant Scheme's submittal deadline.

- A.9. In order to ensure the highest possible transparency in the application process, it is, therefore, suggested that the Grant Scheme application process should be on-going (let's say open during one full year) rather than very limited in time and that the number of required application support documents would be limited to the strictly necessary ones.

H. In the field of possible qualification areas to manage support programmes

- R.10. This recommendation and proposed action scope can actually be considered on two levels: i) the level on which the beneficiary company and the external innovation partner manage the innovation activity/process covered by the Grant Scheme and ii) the level on which MoERD and NARD manage the Grant Scheme programme by themselves, from design to impact assessment. On the first level, it becomes clear that consultants and consulting companies have been more active than R&D institutions in "seizing" the innovation co-financing activity (business) potential and, thus, have been very actively helping beneficiary companies in applying for and implementing the innovation activity under the Grant Scheme. This has led, in some instances, to a situation where only one consulting company has "partnered" with various applicants, as a result of which, these applications looked "very similar". On the other level, NARD and MoERD Programme Managers interviewed, confirmed that some capacity-building support in better understanding how to conceive, design, implement, monitor and evaluate Grant Schemes could be beneficial.

- A.10. Although it could be considered as limiting in the amount of time, once consulting company could partner up with different SME beneficiaries for applying to a particular Grant Scheme, one could also consider having a more specialised individual Grant Schemes approach (see also section B – specialising aims of support measures) where the fact that various applications have a similar approach would not be so detrimental. It is also highly recommended that Grant Scheme Project Managers could gain targeted and **continuous** training on the different aspects of envisaging and running Grant Schemes. A critical area to be covered in this training/capacity-building package should be the link between a robust M&E system to the Grant Scheme and the usage of the feedback generated through the M&E system in fine-tuning and optimising future Grant Scheme intervention areas, eligibility areas and factors and selection criteria.

I. In the field of possible qualification areas to assist enterprises in the application of innovation

- R.11. The Survey amongst SMEs highlighted the fact that the vast majority of beneficiary SMEs are extremely satisfied with the support provided through innovation partnership. On the other hand, the Project Managers of the Grant

Scheme highlighted the need to have a formal accreditation process for (external) innovation advisers/partners in order to ensure the quality of delivery. Both observations are not necessarily conflicting as most SMEs do not really understand what the benefit of more professional “innovation experts” would be, as they do not simply know what extra benefit they could gain from only using such higher quality external support. As such, the need for introducing an accreditation process of (external) innovation advisers is to be seen as an improvement step in innovation quality offer, not directly supported by an expressed innovation quality demand from the SME side (a bit like introducing standards by regulatory bodies within the sector).

- A.11. It is highly advised that MoERD and NARD, as well as other Grant Scheme players such as MoSTD / MoES, establishes a quality-driven accreditation process for (external) innovation advisers. The process should consist of establishing the quality accreditation criteria, the formulation of the accreditation process, the possibility for external advisers to undergo a quality accreditation training programme and the “favouring” of accredited quality advisers as innovation partners while evaluating the Grant Scheme applications. In no case, however, should accreditation become a pre-requisite for being able to function as an (external) innovation partner within the Grant Scheme. It should just be that innovation partners/experts that have an accreditation get extra evaluation points, thus acting as a “soft” push factor for individual innovation partners/experts to participate in the accreditation process.

6.2 Innovation projects (organised by MoSTD/MoES)

Within direct support of Innovation Activity, the MoSTD is not co-financing implementation of innovation projects on a regular yearly basis because of inappropriate position in MoSTD budget and lack of financial resources; therefore only four public calls have been realized in the period 2006 – 2011. The recommendation is to stabilize and properly define the position of this scheme within the annual MoSTD/MoES programme of activities.

The programme of (co)financing of the innovation projects should be monitored and evaluated in order to have adequate monitoring and assessment of effectiveness and achievements of the programme.

Results and effects of innovation projects must be widely marketed and visible on the Internet as well as in wider business community and interested society.

The main recommendations and proposed corresponding actions are:

A. In the field of effectiveness and efficiency of programme

- R.12. Direct support of Innovation activity co-financed by the unit¹⁰ which will be established within the newly reconstructed Ministry of Education and Science, in charge for Science policy should be followed by a robust monitoring, evaluation and impact assessment (MEI) system
- A.12. it is proposed to establish for each direct support of innovation activity a standardised monitoring and evaluation and impact assessment system with the prioritized aim to avoid overlapping with other grant schemes, as the system to date enabled applicants to apply and receive grants for the same purpose but from different Grant schemes and Ministries.

B. In the field of further assistance to close gaps in the Innovation Process

- R13. Inter-connection and correspondence between the education programs and entrepreneurship education modules with the focus on innovation, on all educational levels starting from primary school, should be achieved, as a benefit from the joint organization of the Science and Education Policy.
- A.13. Set up the multidisciplinary task force which will work on this issue
- R.14. The fact that Ministry of Science is incorporated into the Ministry of Education will obviously bring a new organization scheme which is in drafting stage. This is challenging for the Science policy, but also for the programs of direct support to innovation activities. At the same time it is an opportunity to make it better and more corresponding with the educational programs. Namely, education for innovation should be organized for the SMEs, which

¹⁰ MoSTD has been merged the Ministry of Education and Science in the latest reconstruction of the Government of Serbia, in March 2011.

are usually lacking the knowledge and skills in innovation. Raising awareness on innovation as a precondition to competitiveness should be linked with the appropriate international educational seminars and courses, which used to be regularly promoted through Ministry of Education and Science.

- A.14. Joint organization of Science and Education, launched recently, provides the chance to incorporate innovative entrepreneurship as a subject in the relevant educational programs even in primary and secondary schools. The aim is to raise the awareness of the student population on the significance of entrepreneurship, creativity and innovation, but also as a good opportunity to become self-employed.

6.3 Competition for Best Technology Innovation

The project Best Technology Competition is one of the most attractive approaches of the government to promote innovation. It is clear that this practice should be continued and improved.

Even in the structure of the ex MoSTD, this project was facing the problem of sustainability because of its treatment within MoSTD's annual programme of activities and budgeting. It is less clear now than before, how this project will be positioned within the new organizational structure which is in process of being established in the Ministry of Education and Science.

So far the approach has been that access to the competition was available only online. Therefore competitors should possess strong IT skills which discouraged all other potential applicants and made the competition weaker.

The main recommendations and proposed corresponding actions are:

A. In the field of effectiveness and efficiency of programme

- R.15 It is recommended to define appropriate managerial as well as financial schemes which could allow sustainability and continuity together with adequate monitoring and assessment of effectiveness and performance of the competition.
- R.16. Language barrier should be overcome.
- R.17. The members of the Jury should include eligible representatives of the research and business community who should judge, on both technical and commercial aspects of the innovation in the most competent way.
- R.18. More targeted promotion is recommended, as well as better timing of broadcasting than at present. The business community should be attracted as the main audience. Special attention, during the whole process of attracting, selecting and awarding the best inventors, should be paid to the potential users/buyers of the innovations. It is recommended to involve them in all stages of the Competition.
- R.19 It is also recommended to establish robust monitoring, evaluation and impact assessment (MEI) system for this Programme support.

- A15 Appropriate contest documentation should be provided in English. In order to attract foreign investors, it is important to create bilingual promotional materials of the Competition, including the web site presentation of finalists and resumes of their innovation projects. A2. See action 3 in the Innovation fairs paragraph.

6.4 Project EEN in Serbia 2009-2010

Enterprise Europe Network is one of the basic tools for encouraging innovativeness of small and medium enterprises in Serbia. The staff of the EEN consortium in Serbia is highly professional, so they can come out to meet demand of clients at all times. One significant advantage of EEN services is that they are free of charge to all interested companies. By establishing EEN in Serbia, it would be possible to motivate companies to think about improving innovation through new forms of business and technological cooperation as well as advisory services, not only through financial support from government and other funds.

The participating enterprises, belonging mainly to the SME sector; national RTD institutions and organisations are as well direct users of this project. The special groups of direct users are women entrepreneurs and young entrepreneurs, especially in the identification of their needs and creation of instruments for their stronger support.

The indirect users are chambers of commerce, local authorities, professional trade organisations, NGOs (they will have a significantly better access to the information on markets, policy, funds, legislation, both on national and EU level, and facilitated creation of direct links with the companies from the SME sector).

By establishing EEN in Serbia, the direct and indirect users are in position to gain information about the requirements for entering and conducting business operations in EU (relevant legislation, directives, etc.), export opportunities, public procurement possibilities, innovative technologies, potential innovative partners, EU RTD possibilities and programs, and gain access to the innovative technologies in one place (one-stop-shop). Correct information and correct innovative solutions to the problems of SMEs contribute to the business development of Serbian SMEs and their survival on today's dynamic and open markets.

The main recommendations and proposed corresponding actions are:

A. In the field of effectiveness and efficiency of programme

- R.20. EEN consortium and policy makers should promote the activities of EEN in Serbia with higher intensity among enterprises in Serbia in order to improve their innovation capacity.
- R.21. It is clear that Enterprise Europe Network must continue its work with more joint efforts and must create an even larger client base in order to reach its goal and become a stronger support to SMEs and Serbian economy.
- R.22. It is recommended to establish robust monitoring, evaluation and impact assessment (MEI) system for this Programme support.
- A.16. In order to make SMEs motivated to be more responsive on the EEN activities, it is important to organize meetings where the achieved results will be promoted. Presentation of "Best practice in EEN Serbia: How to use access to EU market at your doorstep" might be an appropriate way to get SMEs together and keep them informed on the regular basis on the benefits EEN can provide to them, through promotion of the realized partnership agreements within Serbian EEN.

6.5 CIP/EIP Programme in Serbia 2009-2010

The MoERD, Department for SME policy development, has undertaken a self-assessment and recognised the reported achievements, as well as shortcomings and problems. The department of the ministry prepared an activity plan for 2011 which relies on the results of the above-mentioned self-assessment.

Two main weaknesses are so far identified:

- Lack of financial mechanisms for innovation stimulation
- Long duration of ongoing financial procedures.

The main recommendations and proposed corresponding actions are:

A. In the field of effectiveness and efficiency of programme

R.22. More accurate reflection and decision making from the higher level of public administration is needed. Besides the suggestions in the activity plan, more practical work – organizational or in-house – should be foreseen in the next period.

R.23. There is room to develop a more strategic approach in cooperation with other stakeholders in programme performing.

R.24. Finally, it is recommended to establish a robust monitoring, evaluation and impact assessment (MEI) system for this Programme support.

A.17. Analysis of the Work Programme for next year and, with the cooperation of interested parties, determination of the priority of calls.

A.18. Establishment of working groups to promote selected public calls and activities under EIP.

A.19. Permanently inform stakeholders about the conditions of participation in public call for proposals, assistance in the preparation of project proposals.

A.20. Maintenance of internet-themed presentations and networking with stakeholders' websites.

A.21. Media promotion of the participation of the Republic of Serbia in the CIP-EIP programme (media articles on the show "Euronet" «Production Group Mreža», and journal "Ekonomist", etc.).

A.22. Payment of financial contributions to the Republic of Serbia.

A.23. Regular organisation of Info Day in collaboration with development agencies, Chamber of Commerce and the Regional Chambers.

A.24. Regular participation in the EIP Programme Committee.

A.25. Strengthen activities aimed at finding a partner to sign the tender.

A.26. Keep correspondence with representatives of the Directorate General for Enterprise and Industry of EC.

A.27. Regular up-date of database on participants in the EIP in: registration applications and approved projects.

6.6 EU FP7 Programme

The integration of Serbia's R&D system into the European Research Area (ERA) system is a need, desire and the destiny of the vast majority of researchers in Serbia. The results of the survey present the facts why it is good that the creative sector of Serbia becomes part of the European Research Area and thus contribute to the development of national economy and society as a whole. This good spirit and motivation of national science can, and should be used as a motivational factor for the faster integration into European Union and all other sectors and countries as a whole.

But, there is still missing one important link in the chain of technology transfer processes – SMEs. Facts about low participation of SMEs from Serbia in FP projects require action. The problem is recognized within Ministry for Science and Technology Development, Department for international cooperation and European integration and National Contact Point (NCP) system, but still stays unsolved. It is also unclear how the problem will be treated within the new organization of the Ministry of Education and Science.

The main recommendations and proposed corresponding actions are:

A. In the field of effectiveness and efficiency of programme

- R.25. Interaction with other stakeholders within national innovation infrastructure is recommended
- R.26. Promotion of building partnerships between R&D institutions and SMEs is desirable. In this context, dissemination of the information about FP7 among SMEs should be intensified.
- R.27. Linkages between NCPs and Enterprise Europe Network Serbia should be more developed and encouraged.
- R.28. It is recommended to establish robust monitoring, evaluation and impact assessment (MEI) system for this Programme support.
- A.29. To inter-connect all relevant EU funded projects to support innovation of SMEs in Serbia with the aim to make final beneficiaries (SMEs) familiar with them. As a first step, set up of the links toward the relevant web sites of the mentioned programs is recommended. Link toward the FP7 should be set up on e.g. the website of the MoERD.

6.7 Business Incubator Network

Analysis and conclusions of this report provide basis for the following recommendations and proposed corresponding actions to policy and decision makers responsible for innovation infrastructure in Serbia:

- R.28. National Programme for incubators with tenants – companies which are technology based/oriented, should be governed by the Ministry responsible for Science and Technological Development (at the moment MoES – Ministry of Education and Science). This Programme should provide support to incubators, stable source of funding and liability of reporting, monitoring and evaluation of them. In addition, MoSTD should propose adequate instruments for cooperation between Universities and other R&D organizations and Incubators in order to improve innovation capacities of the tenant companies;
- R.29. National Programme for incubators with tenants – companies which are business oriented - should be governed by the Ministry of Economy and Regional Development. This Programme should provide support to incubators, a stable source of funding and reliability of reporting, monitoring and evaluation of them. MoERD should propose adequate instruments for improvement of business performance, visibility in business community as well as networking in business clusters of tenant companies;
- R.30. Incubators that are even partially state-owned must be accountable and cooperative with their founders, considering monitoring and evaluation of activities and social responsibility within local and national economy;
- R.31. Incubator's administration should establish functional cooperation with national partners responsible for functioning of European Enterprise Network in Serbia;
- R.32. It is necessary to create mechanisms for better cooperation between management of Incubators with institutions that can help to improve performance and operations of incubators and tenants, providing training programmes, certification and accreditation procedures, access to international funding schemes, etc.

A. In the field of effectiveness and efficiency of programme

- A.30. Consultative meetings of MoERD and MoES (Ministry of Education and Science) should be organized on a regular basis with the aim to ensure compatibility of the strategic development of the incubators in Serbia.
- A.31. Registers of the technology-based and business-based incubators should be produced.
- A.32. Set up the criteria for establishing the business incubators based on the "best practices" from EU and launch the accreditation procedure, which will distinguish business incubators from the associations and clusters.

- A.33. Establish the effective selection criteria and mechanism of tenants which will promote the best applicants for start-up credits. This action implies good communication between banks, awarding institutions (NARD, MOERD, MoES, and Development Fund etc). Launching this practice will contribute to avoiding developed business existing within the incubators.

6.8 Innovation Fairs

Innovation fairs in Serbian economy are still linked to the exhibition of the inventions, organized mostly by the national and local associations of inventors. Accordingly, these exhibitions are organized individually or as an integral part of Business Base or other relevant fairs in sectors such as: healthcare sector, agriculture, food processing, energy efficiency and mechanical engineering. It is obvious that the activity of these associations, which usually have in their title “invention” or “innovation”, is promoted and exhibited separately from the innovations of the SME’s at the sector’s fairs, which indicates that the inventors and innovators are not only “physically” but also practically, excluded from the core innovation activity of the SME sector.

On the other hand, innovations created by SMEs are usually promoted as a part of company-innovator’s campaign, but not as a market innovation itself. These facts show that there is not an appropriate innovation fair which would bring together innovative industries, start-ups, research labs and investors.

It is pretty clear that a developed methodology and procedure to evaluate the potential of invention to be developed into innovation and to become “marketable” does not exist. Also, there is not an authorized body, which would be able to implement such a procedure. It seems that there is also a lack of a mechanism to inter-link inventions with the potential to be developed into innovation with the investors, as inventors and innovators usually have a lack of the financial resources.

There is a need to develop a new concept of the innovation fairs which will be accordingly branded and positioned as a state-of-the-art tool to promote new technologies and solutions in dominant creative industries.

The main recommendations and proposed corresponding actions are:

A. In the field of effectiveness and efficiency of programme

- R.33. Repositioning of the concept of the innovation fairs from the old-fashioned perception which refers mostly to the non-profitable projects of the inventors into the promotion of the cutting-edge technologies and achievements in profitable sectors.
- R.34. As a part of the new concept of the innovation fairs, online-matchmaking and networking should be organized through the web portal developed for the purpose of the continuing activity which will be performed in the period between two annual innovation fairs.
- A.34. Link the innovation fairs to the promotion of the “best practices” examples that will come out from the either direct innovation support provided by the relevant governmental unit in charge for Science Policy, or regular innovation support grant schemes organized by MoERD and NARD.
- A.35. Online-matchmaking and networking should be organized through the web portal developed for the purpose of the continuing activity which will be performed in the period between two annual innovation fairs.

- A.36. Integration of the “Competition for Best Technology Innovation” into the new concept of the innovation fairs and encouraging greater use of commercial sponsorship.

B. Workshop ‘Innovation for Competitiveness?’ – Documents of the Workshop

7. INTRODUCTION: INNOVATION FOR COMPETITIVENESS?

Dr. Jürgen Henke, Team Leader of the project Improved SME Competitiveness and Innovation

The workshop presents for discussion the results of the survey about Serbia's innovation and competitiveness support programmes and its Innovation and Competitiveness Strategy. Nine major programmes operating in Serbia were analysed and compared with policy aims set by the Serbian government. The reports are available and can be requested from the ICIP office, as well the summary report – including recommendations and proposed corresponding actions – and the presentations given at this workshop.¹¹

The overall question which prompted the survey as well as this workshop is, does the innovation policy work and how efficient are the measures in reaching the policy aims? To reach an indicatively reliable answer to this question, a sample group of companies, who participated in at least one of the programmes, was contacted and 67 companies responded to the in-depth questionnaire. Further-on, qualitative interviews were held with all programme managers. We hoped to find out if there is a gap in the innovation support infrastructure which might be filled up by appropriate follow-up actions, and should the existing measures and instruments be improved and if yes, what might be recommended?

What did we find out? The Summary Report lists a wide range of positive results and explains a number of possible actions. I would like to focus on a few findings:

First: Serbia has a developed an infrastructure of policy instruments to assist innovation and competitiveness; the instruments are contributions to the formulation of policy aims and their implementation – although with different efficiency. It should be mentioned that we did not include in the surveys the option of private financing instruments for innovation like venture capital, risk capital or any other. The innovation support instruments are based on: national budget like the innovation support programme of the MoERD, the competitiveness support programme managed by NARD, the competition for best technology innovation up to now financed form the budget of the MoSTD, the business incubator network and others. Also Serbia's participation in EU financed programmes (e.g. FP7, CIP, and EEN) is part of the innovation support infrastructure.

It was positively recognised that some of the programmes are implemented with impressive personal engagement of the respective programme manager and coordinators.

Second: It should be highlighted as well that the implemented innovation policy instruments are well perceived by enterprises; companies are in general satisfied with the support they have received. An exception might be that still too few

¹¹ ICIP project office: www.icip-serbia.org; e-mail: office@icip-serbia.org. The workshop documents are also available via ICIP's website.

enterprises benefit from EU funded research and innovation programmes. This is to a large extent because the detailed knowledge of conditions for participation is not well spread among enterprises, although the number of Serbian firms, being involved in FP7 programmes, is increasing over the last few years.

Professor Kutlača will present further details about the results of the survey. He and his team from Mihailo Pupin Institute analysed the programmes. His presentation will also include specific recommendations to further develop innovation policy instruments.

Third: We were not able to summarise the impact the programmes have on the Serbian economy; an economic impact assessment is not done regularly. All programmes measure their performance in terms of number of applications, number of participants, budgets used, etc. But an impact assessment, how does the government spending contribute to socio-economic development (e.g. employment, sales revenue), has not been systematically established. It might be the time now to introduce a regular impact assessment for main programmes.

Professor Radošević will speak in his presentation on how to encourage demand driven research of public research organisations and how policy makers may diversify innovation policy for SMEs in transition economies based on experience of central, eastern and south-eastern European countries.

Fourth: As the last topic of my introductory remarks I would like to underline the importance of promotion and visibility of Serbia's innovation performance. As mentioned, Serbia has established an infrastructure of innovation policy instruments. What is missing, as another result of the survey, is a focal point where 'science meets economy'. Such focal point could be a regular central conference, an innovation or industry fair or specially designed innovation awareness events.

Innovation is based on a combination of different factors of hard and soft skills; to make innovation happen catalysts are needed to merge these factors. The collaboration between Research, Development & Technology (RDT) providers and enterprises is today an increasing success factor for innovation.

This is the topic of the presentation of Dr. Meier zu Köcker. His wide experience in Europe will be of great benefit for our future joint tasks to let innovation contribute to Serbian competitiveness.

I wish us a fruitful workshop!

8. WELCOMING REMARKS

8.1 Jose Antonio Gomez Gomez, Head of Operations II, European Union Delegation to the Republic of Serbia

Dear State Secretary, Assistant Minister, Director of the Institute, Ladies and Gentlemen,

It is my pleasure to be here with you today at the Workshop on Innovation for Competitiveness and share with you more information on the EU funded support to this important area for the future development of Serbia.

As you are all aware, during the last decade Serbia has recognised the importance of the SME sector and has followed the European trend by growing this sector. Yet **competitiveness at the company level** can and should be further improved.

The ongoing project in this area – the **Improved Competitiveness and Innovation Project** (with total value of **€3 million**) – is a continuation of the EU efforts to support the improvement of competitiveness of your economy.

This Project focuses on creating a **standardised model of business support services** in Serbia and improving the business support infrastructure that will enhance the creation of more SMEs, and improve their survival rates and competitiveness.

Secondly, the Project will provide support to competitiveness and innovation through **capacity building of both government institutions and specialist Business Innovation Support Organisations**

This activity is in line with the EUROPE 2020 strategy adopted by Serbia which promotes improving conditions for businesses to innovate, as they are one of the key drivers of economic growth.

Yet much more needs to be done on Serbia's road to sustainable economic development and specifically in the area of **innovations**.

Please allow me to highlight just some of the challenges and obstacles in support of innovation:

- There is still a lack of awareness of what actually innovation services are and how to promote them effectively. Currently, not many “good practice” examples on how to design innovation support programmes that meet the specific needs of service firms exist. The challenge is to accelerate the modernisation of innovation support tools in general by sharing practical experience.
- But the main challenge is to create new job opportunities through services innovation and this calls for a more favourable business environment for service firms to exploit their innovative ideas.

As you all know, only an **innovative business sector** – based on knowledge management and capable of transforming ideas into new and improved technological processes – can and will bring new products to the market and foster much needed **competitiveness in Serbian economy**.

This requires large financial means and investments by the Government, badly needed in the time of the financial crisis.

To get a better idea about the importance and necessity of investing in this area it is sufficient to read the recently announced EU budget for 2014 – 2020 with a **46% increase in the expenditures for research and innovation funding** (amounting to €80 billion).

The EU is therefore trying to assist the development of the SME sector in Serbia and its competitiveness as much as possible.

So far – from 2001 – the EU funded financial and non-financial support amounted to **€58 million to SME related projects in Serbia.**

We will continue to support the private sector development in Serbia in the future. As a follow-up an **additional €3 million have been recently contracted from IPA 2010 programmes** to further support the implementation of the national *Strategy for Competitive and Innovative SMEs* and develop new financial instruments for innovation and technology transfer. This project will start in two weeks.

On its path towards European integration, Serbia needs to capitalise on the assistance provided, maintain the momentum and evolve rapidly into an innovative, knowledge-based society which will play a vital part in the Region.

Finally, in the spirit of today's agenda, I would like to be innovative and remain very brief in my opening speech!

Thank you for your attention.

9. OPENING

9.1 Dragijana Radonjic Petrovic, State Secretary, Ministry of Economy and Regional Development

Ladies and gentlemen, esteemed colleagues and dear guests from abroad, I am pleased that today I can open the workshop with the main goal of linking the SME and scientific - research institutions, as well as to promote cooperation in encouraging innovation.

Innovation and related activities are one of the priorities of the entire EU policy. This is reflected through the Strategy Europe 2020, which has established a set of ambitious goals, including the development of economy based on knowledge and innovation, with aim to increase competitiveness and employment.

We are all fully aware of the importance of SMEs for economic development, but let me repeat the fact once more. SMEs in Serbia, just like in the EU, are 99.8% of all businesses, employ 2/3 employees, achieve 44.5% of exports, use 52.3% of imports and contribute to 33% of GDP. The SME sector, with foreign direct investment, as one of the key pillars of economic and social development, because this sector creates new jobs and gives the best opportunity for employment, and the decisive contribution to balanced regional development.

What are the problems related to innovation in Serbia? SMEs do not recognize sufficiently the importance of innovation to improve their business, and therefore under-invest in it. Every seventh company implemented innovative activities, and each fourteenth realized innovative collaboration with other economic entities or institutions. The research -development institutions are not seen as potential partners, and on the other hand, the researchers do not recognize SMEs as their target audience, as someone who can help them in making their work alive. There is also the ever present problem of access to finance, especially in form of non-bank financial instruments, which are particularly important for innovative SMEs, and have not yet been developed and are in their infancy in Serbia.

Investments in scientific-research work and innovation in Serbia is far below the EU average and the set target of 3% of GDP, being at level of about 0.8%. Unlike the EU and its member states, like Germany or Finland, where the private sector achieves 2 / 3 of all investments in innovation, in Serbia there are still no indicators of private sector involvement in this area.

However, scientific research for the glory does not lead to general social benefit and does not strengthen the economic performance. To improve the competitiveness of the economy, improve the market position, strengthen export, innovation and commercialization of innovations that can be applied in the economy are the key.

In all countries there is a problem of insufficiently strong links between scientific research institutions and SMEs. The same situation is with us, and Serbia is no

exception in this field. Today we are here with representatives of two ministries most directly involved in the development of innovation in small and medium enterprises. Ministry of Economy and Regional Development is trying to encourage SMEs and to raise their awareness of the opportunities that innovation brings. Colleagues from the Ministry of Education and Science, on the other hand, support scientific and research institutions and encourage them to cooperate with SMEs.

The establishment of these relations and cooperation between industry and research institutions, raising awareness about the importance of innovation, improving existing and creating new programs that will support only those projects that involve both sides - both SMEs and researchers - is a joint task for us all.

As you know, support to the development of innovation is a complex process consisting of different components, ranging from improving the environment for SME innovation, stimulating cooperation between SMEs and research institutions to facilitate SME access to finance necessary for investment in innovative activities and their commercialization. This task requires the active involvement of various stakeholders from public and private sectors, as well as EU support.

Therefore, this workshop is just one of the activities in this process and the first step in improving the competitiveness of the economy through the promotion of innovation.

We would like to thank the European Union and the EU Delegation in Serbia for their support and donations which have been invested in development of SME sector in Serbia for over a decade, with the desire to continue this cooperation to our mutual satisfaction.

Thank you for your attention!

9.2 Nada Dragovic, Assistant Minister, Ministry of Education and Science

Ladies and gentlemen, esteemed colleagues and dear guests!

During the previous year, the Ministry of Science and Technological Development (merged with Ministry of Education from March 2011) has made a strategy whose significant part is dedicated to the strengthening of innovation activities. In addition to linking the scientific and research organizations with the economy, the strategy includes focusing on the strengthening the innovative organizations, and organizations which provide the infrastructure for innovative activities. These are technology parks, such as the one which is built in the courtyard of the Institute Mihailo Pupin, which are again planned on the basis of the strategy. The park will be the place where tomorrow various types of innovations will be created and the place where they will be turned into a commercial product, i.e. in a better economy for our country.

All these technology parks and other infrastructure facilities were made thanks to the EIB loan amounting to 200 million euro, which was provided last year. We hope that these facilities will be just what is needed for contribution to scientific and

technical development of the country. The amendments to the Law on Innovation were passed, based on which the Innovation Fund was established. We believe that the Fund is a very important institution which will be able to provide additional incentives to economic entities as carriers of innovation activities and to increase investments in implementation and placement of market-oriented innovation by creating new SMEs.

Although the funds from the Ministry allocated to innovation were reduced last year, the public calls for the allocation of resources in this area will not be abolished. The Programme "Best Technological Innovation", which is funded by the Ministry of Education and Science, is a project that has good reputation in Serbia and should continue, and whose results should be applied in the economy.

10. SCIENCE-INDUSTRY LINKS IN CENTRAL, EASTERN AND SOUTH-EASTERN EUROPE;

Conventional policy wisdom faces reality: Synopsis of presentation at ‘Innovation for Competitiveness?’ conference, Belgrade, 29. September 2011

Prof. Slavo Radosevic, Centre for Comparative Economics, University College London

1. The aim of this presentation is to give a broader picture of experiences of policies for science –industry links (SIL) in CEE countries in the last 20 years and on that basis draw implications for future policy actions and for Serbia in particular.

2. A wish to support SIL is a reflection of the aim of a country to compete in higher value added segments of international markets. In these segments incomes per capita are higher and competitive positions are more durable when compared to cost based competition.

3. So, SIL are part and parcel of institutional, economic and technological requirements for technology based competition. These requirements involve: competition based on product/process innovation, sophisticated demand, user requirements, certificates and standards, capacity to overcome marketing barriers (brand), after sale services and warranty, developed system of IPRs, affordable access of NTBFs to technical infrastructure, and available finance to upscale production.

4. Western Balkan countries are only marginally competing in this segment of international markets. Their current productivity increases are based on improvements on production, not innovation capability. Production capability is capacity to produce efficiently at world level of quality and costs at given technology. Innovation capacity is capability to compete by introducing new products and processes with products or processes that are new to international market.

5. Industry in CEE has quite low R&D intensity and much higher indirect R&D intensity i.e. R&D embodied in imported equipment and material inputs. A majority of the EU NMS and all WeBa are technology users and have high indirect technology intensity. Hence, their pattern of technology upgrading is not the one depicted in EIS but follows the following pattern:

-> low overall technology intensity -> high indirect technology intensity -> average direct and indirect technology intensity -> high direct technology intensity

The policy implication of this pattern is that there is need to integrate FDI / technology transfer into innovation policy (increases R&D but in interaction with imported and indirect domestic R&D (embodied in capital goods and inputs)

6. WEF data which are based on assessment of firms shows that the major feature of SEE countries is strong demand gap for R&D and still relative supply surplus of R&D. So, even with reduced R&D capacities demand for R&D is still relatively lower. This shows that the key constraint for SIL is demand gap, not so much supply gap. This is confirmed by data on major barriers to knowledge intensive enterprises in 6 CEE countries. The most frequent and the most important barrier is limited market.

7. The SIL depend on the strength of R&D in business enterprises sector (BES). Our analysis based on UNESCO data shows that BES dominated systems are a feature of countries above \$15k per capita. Most of the SEE countries are far below this threshold. Also, reorientation of R&D systems towards BES has been extensive as these systems have reoriented more towards higher education or government sectors.

8. In continuation, we analyse key features of knowledge intensive enterprises in CEECs. Data based on our sample from 6 CEECs show that these firms are not only oriented towards value chain partners (buyers and suppliers) but also towards public research organisations and universities. Sources of their knowledge are in-house activities, customers and suppliers but equally fairs and exhibitions, patents, journals and research organisations. This suggests that KIEs are more network-dependent than ordinary enterprises.

9. We then present different typologies of KIEs which are based on the major sources of knowledge, on intensity of their links and in their success factors. All these taxonomies show that these organisations are much more diverse than conventionally assumed. It is customary to identify SIL with new technology-based organisations. Yet, our analysis shows that this is only one type of enterprise. Based on their success factors the other two types are enterprises which are operating based on a variety of networks or in customer-oriented organisation capabilities.

In terms of intensity of links some are closely cooperating with foreign or domestic value chain partners or are dependent on public research organisations or on variety of network partners.

10. Based on case studies we were able to draw stylized picture of CEE KIE which is quite different when compared to NTBF from literature. This is quite understandable as these enterprises operate in a very different market and infrastructural context. Yet, policy is still geared towards idealized or stylized picture of NTBFs which de facto form only of several types of KIEs in CEE country. The dominant policy perspective is implicitly based on linear innovation model which is in strong discrepancy when compared to reality (see Novosibirsk Akademgordok research as example of this).

11. Now we move to policy issues as SIL are the most populated policy area today in the EU, and CEE, in particular. What are major weaknesses of SIL policies across CEECs? I would say that is foremost obsessions with 'bricks and mortars' not functions; this undermines coupling of NTBFs with business support assistance and leads to neglect of organisations and other links in innovation system. In view of our analysis investments in SIL should be closely linked to careful assessment of demand in BES. Otherwise, there is danger that S&T parks etc may be more 'surrogates of modernization' than really effective contributors to modernization. In view of that priority should be, first, given to projects and services (functions) and only then buildings (organisations). Also, preference should be given to technology specific parks or centres linked to potential sources of demand like large enterprises.

12. In conclusion, we are witnessing probably widespread 'linkage failures' in CEECs due to largely uncritical application of conventional policy wisdoms into the context of 'catching up' and 'laggard' economies .

There is a strong need to learn from success stories and success instruments ('policy as discovery process') in Serbia and in other countries.

Support to science – industry linkages for the C&E/SEE should be balanced with support to strengthening 'actors' (existing large and small firms; universities and public research organisations) and support to other linkages in NIS, especially knowledge links between domestic/foreign large enterprises and SMEs.

Finally, policy should be able to tailor support towards different types of knowledge intensive firms, not only towards NTBFs.

List of Abbreviations used in the Synopsis:

BES	Business Enterprise Sector
C&E/SE	Central & East/South East
CEB	Conventional Economic Business
CEE	Central & Eastern Europe
CEEC	Central & Eastern Europe Countries
EIS	European Innovation Scoreboard
EU NMS	Non Member States of the European Union
FDI	Foreign Direct Investment
GOV	Government
HES	Higher Education Sector
IPR	Intellectual Property Rights
KBE	Knowledge Based Enterprises
KIE	Knowledge Intensive Enterprises
NIS	National Innovation System
NTBF	New Technology-Based Firms
PRO	Public Research Organization
R & D	Research and Development
S & T parks	Science and Technology parks
SIL	Science Industry Links
UNESCO	United Nations Educational, Scientific and Cultural Organization
WeBa	Western Balkans
WEF	World Economic Forum

Power Point Presentation:

UCL

Science – industry links in C&E/SE Europe: conventional policy wisdoms facing reality

Prof. Slavo Radosevic
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 Beograd, 'Innovation for Competitiveness?'

UCL

Technology based competition: challenges

- Cost and quality based vs. technology based competition
- Requirements for technology based competition
 - competition based on product/process innovation
 - sophisticated demand
 - user requirements
 - certificates and standards
 - marketing barriers (brand)
 - after sale services and warranty
 - IPRs
 - affordable access of NTBFs to technical infrastructure
 - available finance to upscale production

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An indirect R&D content dominates in the EU 10 CEE: Percentage share of total R&D content in the manufacturing of ICT equipment

Source: Knell M. (2008), Embodied technology diffusion and intersectoral linkages in Europe, Europe Innova Sectoral Innovation Watch deliverable WP4, European Commission, Brussels.

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Direct and indirect R&D content: policy implications

- A majority of the NMS and all WeBa are technology users and have a high indirect technology intensity

Non-EIS pattern of technology upgrading:
 -> low overall technology intensity -> high indirect technology intensity -> average direct and indirect technology intensity -> high direct technology intensity

Policy implication: integrate FDI / technology transfer into innovation policy
 (increase R&D but in interaction with imported and indirect domestic R&D (embodied in capital goods and inputs))

EIS - European Innovation Scoreboard

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Factors of RTD: demand gap in C&E/SEE

Demand gap/supply surplus: Rus/Ukr, CE,SEE;
 Demand surplus/supply gap: US

Source: Based on WEF, 7

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Legend

- **Supply**
 - Availability of scientists and engineers
 - Quality of math and science education
 - Local availability of specialized research and training services
 - Quality of scientific research institutions
 - Quality of public schools
 - Quality of the educational system
- **Demand**
 - Degree of customer orientation
 - Firm-level technology absorption
 - Buyer sophistication
 - Production process sophistication
 - Extent of staff training
 - Capacity for innovation
 - Company spending on research and development
 - Government procurement of advanced technology products

8

A common barrier for knowledge intensive enterprises (KIEs) in C&E/SEE: a limited market

High and medium important barriers on domestic market (% of firms)

	All countries	Hungary	Czech R	Lithuania	Croatia	Poland	Romana
Limited market	78	78	70	74	80	79	88
High cost of labour	71	68	68	60	88	93	88
Increased competition on market	54	59	82	59	80	80	75
Lack of access to finance	59	78	48	48	64	81	75
Lack of public support	75	52	50	43	72	84	90
Lack of skill and know how	65	42	40	44	72	52	88
Other	57	100	0	50	100	67	10

Note: % as a percentage of all firms that answered the relevant question
 Note: High and medium importance answers 3-7 on scale 1-7

Different institutional profiles of R&D systems

Dominant performing sector < Dominant source sector

Model 1	Model 2	Model 3	Model 4	Model 5
BES < BES	BES < GOV	HES < GO	GOV < GOV	GOV < BES
USA	Slovakia	Portugal	Bulgaria	Kazakhstan
Ireland	Hungary	Estonia	Azerbaijan	
France	Poland	Lithuania		
UK	Belarus	Turkey		
Austria	Croatia			
Belgium	Russia			
Finland	Romania			
Germany				
Spain				
Korea (Rep)				
Slovenia				
Czech R				
Latvia				

BES dominated R&D systems are feature of countries above \$15Kpc

Country	GDP pc 2003	Model type	Model Dummy
USA	29,037	1	1
Ireland	24,739	1	1
France	21,864	1	1
UK	21,310	1	1
Austria	21,232	1	1
Belgium	21,105	1	1
Finland	20,511	1	1
Denmark	18,148	1	1
Spain	17,021	1	1
Korea (Rep)	15,732	1	1
Estonia	14,340	3	0
Slovenia	13,995	1	1
Portugal	13,997	3	0
Czech R	9,905	1	1
Latvia	9,225	1	1
Slovakia	9,192	2	1
Lithuania	7,986	3	0
Hungary	7,947	2	0
Poland	7,674	2	0
Kazakhstan	7,025	2	0
Belarus	7,387	2	0
Croatia	7,233	2	0
Turkey	6,731	3	0
Russian Fed	6,323	2	0
Bulgaria	5,278	4	0
Romania	3,510	2	0
Azerbaijan	3,394	4	0

R&D employment: limited re-orientation towards BES in CEE

Country	Business enterprises	Government	Higher education	Private non-profit	Not distributed
China	0.47	0.26	0.78	0.00	0.20
China	0.69	0.23	0.17	0.00	
Slovenia	0.42	0.34	0.22	0.03	
Slovenia	0.58	0.23	0.18	0.04	
Czech Republic	0.48	0.34	0.19	0.00	
Czech Republic	0.52	0.28	0.21	0.01	
Hungary	0.31	0.36	0.33	0.00	
Hungary	0.29	0.33	0.37	0.00	
Lithuania	0.03	0.48	0.49	0.00	
Lithuania	0.09	0.29	0.62	0.00	
Russian Federation	0.64	0.26	0.10	0.00	
Russian Federation	0.60	0.38	0.10	0.00	
Bulgaria	0.14	0.58	0.27	0.01	
Bulgaria	0.14	0.56	0.19	0.00	
Poland	0.25	0.25	0.47	0.00	
Poland	0.17	0.26	0.55	0.04	
Romania	0.71	0.23	0.06	0.00	
Romania	0.49	0.30	0.21	0.03	
Slovakia	0.32	0.41	0.27	0.00	
Slovakia	0.21	0.24	0.51	0.01	

Increasing share of BES (China; Slovenia); increasing shares of BES and HES (Czech R; Hungary; Lithuania); increasing share of government sector (Russia); increasing share of government and HES (Bulgaria); increasing share of HES (Poland; Romania; Slovakia)

Key features of knowledge intensive enterprises in C&E/SEE

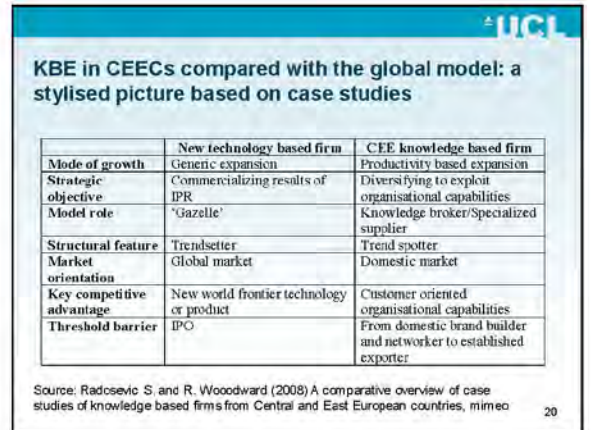
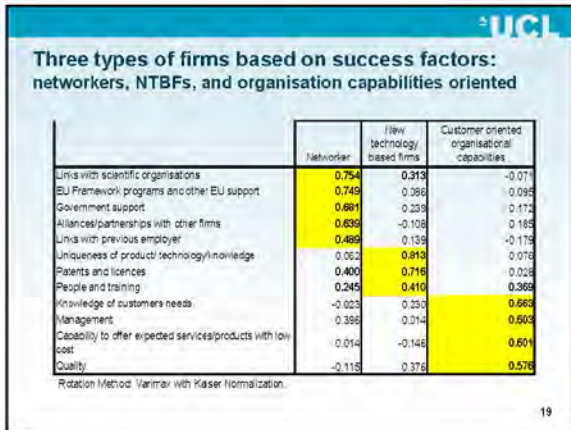
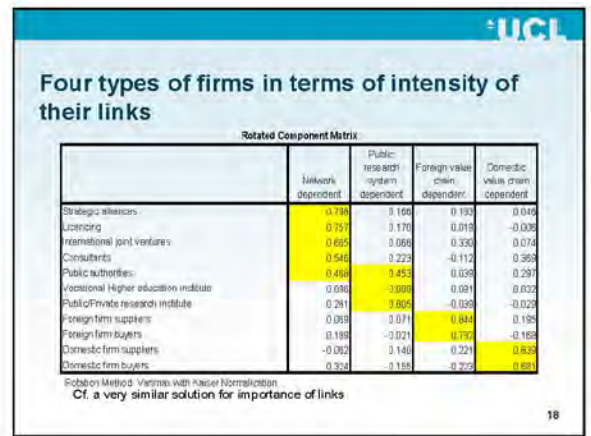
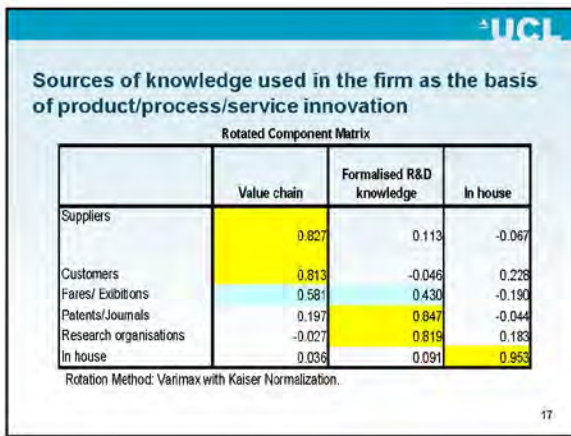
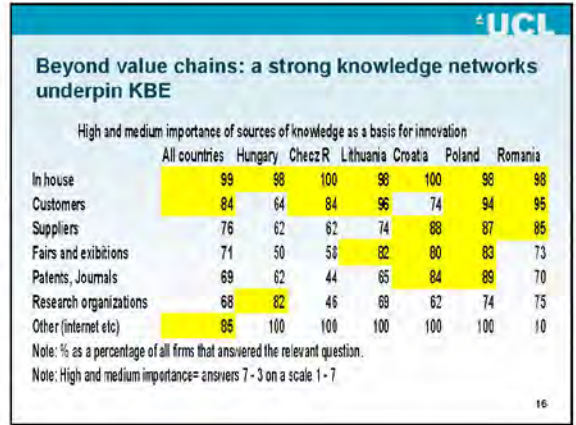
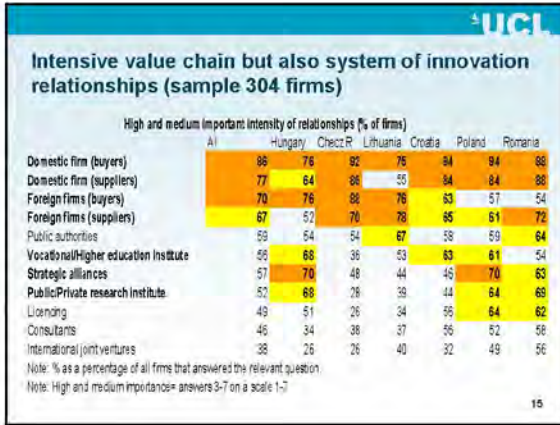
- Market demand as a key constraint for KIE
- They are mainly domestic market oriented and serve a diverse types of customers
- KIEs in C&E/SEE are not 'gazelles' but ...
- ... important players in a knowledge system which are heavily dependent on external knowledge networks (domestic and foreign)
- Key factor of KBE firms' growth: firm specific capabilities which do not always involve R&D
- KIEs operate as specialized suppliers (cf. Pavitt, 1984 taxonomy)
- Unlike standard companies which are very much value chain dependent in their growth ...
- ... networks of KIEs are much broader and involve local systems of innovation actors including professional networks

SEE: a local demand is much stronger constraint to growth in software sector than in CEB

Quality of local vs foreign demand for firms' products and services

Region	Local	Foreign	Diff. Loc-Forg
CEB	4.1	3.8	0.3
SEE	4.1	3.8	0.3
CEE	4.1	3.8	0.3
SEE	4.1	3.8	0.3
CEE	4.1	3.8	0.3
SEE	4.1	3.8	0.3
CEE	4.1	3.8	0.3

Source: Radozevic (2006)



UCL

Policy is geared towards NTBFs, but not towards other types of knowledge intensive firms.....

- NTBFs (formalised R&D)
- Networkers
- Customer oriented
- Value chain based firms (foreign, domestic)
- Public research system oriented
- In house know-how based

UCL

Novosibirsk Akademgorodok: Reality of NTBFs contradicts underlying (implicit) linear innovation model

- Initial expectations: commercialisation (*vnedrenye*) based on linear innovation model logic
 - Outcome: assessment in 1993: - 5 out of 200 technologies with immediate commercial potential in Akademgorodok; 2001: after extensive learning this potential seems to be bigger
- Reality: innovation as an interactive process where RI and NTBFs operate as:
 - specialized suppliers (testing equipment, niche products, scientific instruments),
 - consultants or 'knowledge brokers' (facilitating adoption of new technologies)
 - education (methodologies, instrumentation)

22

UCL

Science – industry links: 'the most populated' policy area: number of policy measures (instruments)

Support for science - industry and NTBFs	364
Support for universities and public research organisations	148
Support for BERD	134

ProINNO Trendchart Database: 41 countries, as of 2007

23

UCL

A strong policy focus on science – industry links.....

- But obsession with organisations ('bricks and mortars'), not functions
- ... neglect of coupling funding of NTBFs with business support assistance ...
- ... and neglect of actors to be linked ...
- ... as well as other links in NIS

24

UCL

Invest in 'knowledge infrastructure' but only closely linked to careful assessment of BES demand

- S&T Parks and dangers of 'surrogate modernization'
- Priorities: First: projects and services (functions), and only then buildings (organisations)
- Give preference to technology specific (critical mass) vs. generic parks (preferably linked to large enterprises)

25

UCL

Conclusion

- Probably widespread 'linkage failures' (?) ... due to largely uncritical application of conventional policy wisdoms into the context of 'catching up' and 'laggard' economies (EIS)
- ... a strong need to learn from success stories and success instruments ('policy as discovery process')
- Support to science – industry linkages for the C&E/SEE should be balanced with
- ... support to strengthening 'actors' (existing large and small firms; universities and PROs)...
- ... and support to other linkages in NIS, especially knowledge links between domestic/foreign LE and SMEs
- Support should be tailored towards different types of knowledge intensive firms, not only towards NTBFs

26

11. WHAT MAKES COLLABORATION BETWEEN SCIENCE AND INDUSTRY HAPPEN?

Dr. Gerd Meier zu Koecker, Director, Institute for Innovation and Technology, Berlin

What makes collaboration between science and industry happen?

Dr. Gerd Meier zu Koecker
Director General
Institute for Innovation and Technology

Sources for Innovation – Today -

Internal Sources External Sources

Sources of New Ideas and Innovations

Source: IBM CEO Study 2006

The Innovation Dilemma

Yesterday Today (Open Innovation)

Classification of Innovations

SYSTEM	New series of cars, planes, computers, TV	New generation (MP3 and download as)	Steam engine, ICT, biotechnology
Importance of R&D and involvement of academia			
COMPONENT	components for existing systems	materials improving component properties	
	INCREMENTAL „do better what we already do“	„new for the company“	RADICAL „new for the world“

Triple Helix – Difficult Partners

Wish that political goals become reality
Often lack of understanding of reality looks like Hierarchic structure
Reluctance to spend public money

Policy

- Framework conditions
- Incentives
- Programmes

Science

- Focus on research
- Want to explore new scientific paths
- Low understanding of industrial needs
- Involvement of industry only when mandatory or incentives given

Industry

- Mental barriers against academia
- Not able to communicate R&D needs towards academia
- No long term planning of R&D
- Afraid of bureaucratic hurdles
- Not interested in political issues

High Tech Strategy for Germany

How the German Hightech-Strategy stimulates co-operation between Industry and academia

LEAD MARKETS

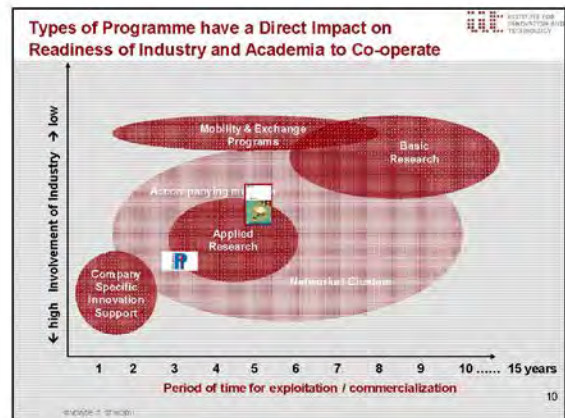
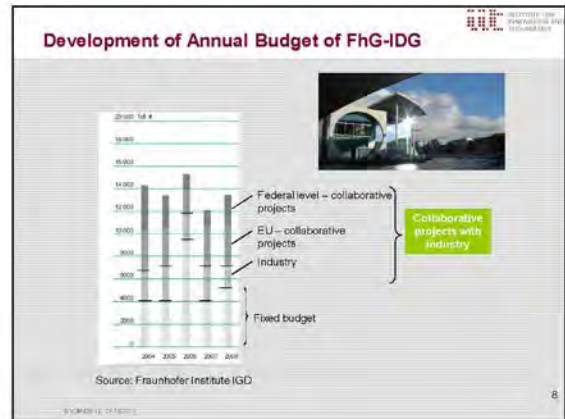
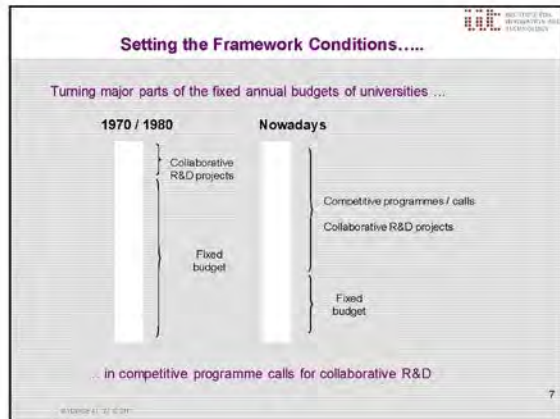
- Setting of lead markets
- Creation of new, high-tech markets in Germany
- Support of start-ups and SMEs
- Application of research results
- All high-tech-oriented research and development projects are supported with the „Innovation Fund“

INDUSTRY/SCIENCE

- Support of research, development, innovation networks and clusters for companies and academia
- Promotion of start-ups and SMEs
- Support of innovation regions in the research sector
- Legislative and regulatory framework for innovation

FRAMEWORK/CONDITIONS

- Internationalization of research, development, innovation networks and clusters for companies and academia
- Multiple promotion model of SMEs and start-ups
- Public procurement as driver for innovation
- Standards and regulatory framework for innovation



Examples for R&D Co-operations between Industry and Academia I

Name of programme: PRO INNO II

Intended for

- Companies with less than 250 employees
- R&D institutions and universities

Objectives

- Stimulating incremental innovations (further development of existing products)
- Collaborative development of innovative products, processes or services
- No focus on certain technical scope
- Neu Bundesländer

Funding conditions (mandatory)

- At least one SME and one academic partner
- Up to 300.000 TE (funding volume)
- Funding rate: up to 50 % for companies and 100 % for R&D institutions.

Duration of R&D projects: less than 3 years

Examples for R&D Co-operations between Industry and Academia II

Name of Programme: Microsystem Technology

Intended for

- High Tech firms (SME)
- R&D institutions

Objective:

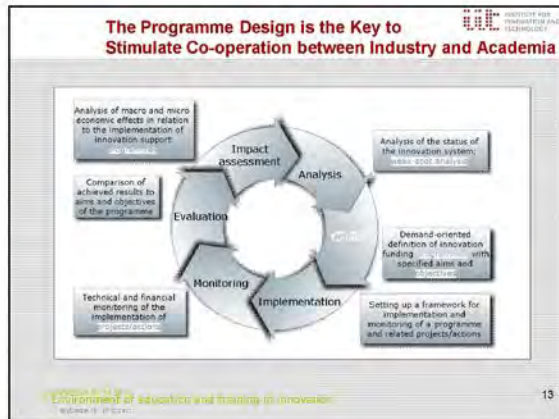
- Creating of radical innovations, new products and technologies
- Stimulating collaborative R&D between industry and academia

Funding conditions (mandatory)

- Consortia of at least 3 partners from industry and academia
- 100 % for universities or public R&D institutions, up to 50 % for SME, overall funding rate up to 50 %
- R&D outcomes are owned by SME
- Average funding volume about EUR 2 Mio.

Duration of R&D projects: 3 - 5 years

Cairo, December



- ### Status Quo and Lessons Learned
- Industry and academia have learned to co-operation, but there is still a lot to do
 - Intensity of involvement and role of partners shall be according to the overall programme objectives
 - Academia is only open for industrial driven R&D if there are incentives given
 - Programme design features and call designs are crucial for success
 - High share of SMEs in Germany have not yet been involved in joint R&D projects
 - Project proposals often academia driven (written from academia for industry)
 - Networks are promising tools to create need-based R&D proposals for SME
-
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Thank you very much for your attention

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12. ASSESSMENT OF SERBIAN INNOVATION AND COMPETITIVENESS SUPPORT PROGRAMMES; MAIN FINDINGS.

Prof. Djuro Kutlaca, Head of Science and Technology Policy Research Centre, “Mihailo Pupin” Institute, Belgrade

GFA Consulting Group
 Competitiveness & Innovation Project
 EU IPA
 Republic of Serbia
 MINISTRY OF EDUCATION AND SCIENCE
 Republic of Serbia
 MINISTRY OF ECONOMY AND REGIONAL DEVELOPMENT
Assessment of Serbian Innovation and Competitiveness Support Programmes: Main Findings
 Prof Đuro Kutlača, PhD
 Institute Mihajlo Pupin: www.nstini.mipupin.rs
 Improved SME Competitiveness and Innovation Project

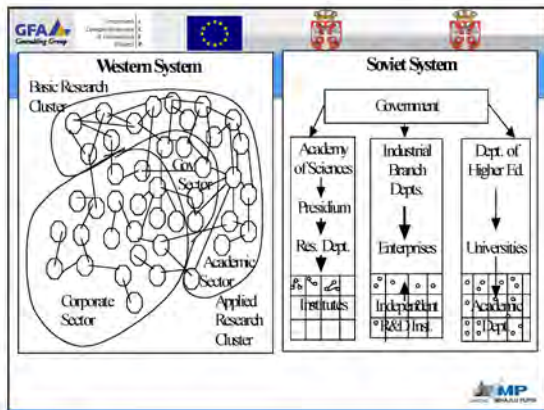
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 “Innovation Support Dialog”
 Workshop
INNOVATION FOR COMPETITIVENESS ?
 Assessment of Serbian Innovation and Competitiveness Support Programmes

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 MINISTRY OF EDUCATION AND SCIENCE
 Republic of Serbia
 MINISTRY OF ECONOMY AND REGIONAL DEVELOPMENT
Content:
 1. Transition: 1989 – 2000 – ?
 R&D -> NIS
 2. Assessment of Serbian Innovation Support Programmes:
 • Overview
 • Main Findings

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1.
Transition: 1989 – 2000 – ?
 R&D -> NIS

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 MINISTRY OF ECONOMY AND REGIONAL DEVELOPMENT
NIS =>
 “... the **network** of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies”
 [Freeman, 1987]

GFA Consulting Group
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 Republic of Serbia
 MINISTRY OF EDUCATION AND SCIENCE
 Republic of Serbia
 MINISTRY OF ECONOMY AND REGIONAL DEVELOPMENT
NIS =
 “...the **set** of organizations, institutions, and linkages for the generation, diffusion, and application of scientific and technological **knowledge** operating in a specific country”
 [Riccardo Galli & Morris Teubal, 1997]



Transition and restructuring of R&D system in CEEC:

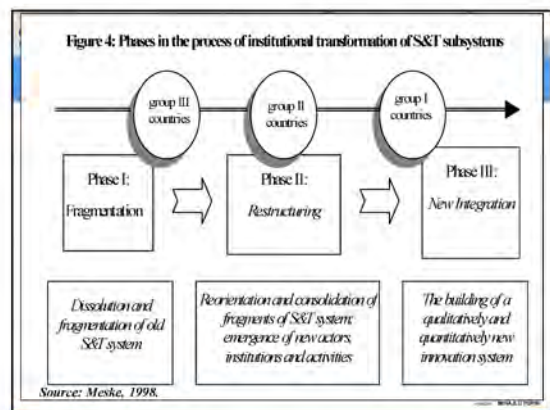
- re-allocation and **wasting** of human resources,
- strong organizational and functional changes (closing-up, take-over, **disappearing**, surviving, etc.),
- **searching for new role in new NIS**, which creation hardly could be connected with contribution form R&D system

[Radosevic, 1999]

Proposition how to move from transition to western system :

1. Essential to give institutes / research groups autonomy and allow re-grouping if this is necessary;
2. A high degree of inter-change and inter-action essential;
3. Mechanisms for dynamic re-grouping and self-renewal must be part of system .

[Sharp, 1999]



Main problems in process of creation of NIS in CEE :

- Practically, in the ex-socialist economy individual enterprises existed only as production units.
- R&D organizations were not organized in industry, but for industry, R&D was not conducted in industry, but for industry!
- The neglect of the role of enterprise as a source of technology and emphasis on extramural R&D were at the root of the problems of R&D in the socialist system
- "... the successful exploitation of imported technology is strongly related to the capacity to adapt and improve this technology through indigenous R&D" [Freeman, 1991].

[Radosevic, 1996]

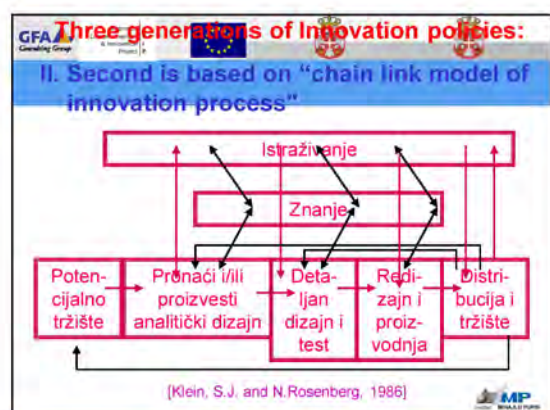
Main problems in process of creation of NIS in CEE (cont.) :

- Because of closeness of the socialist economies, their R&D systems were forced to imitate and re-invent technologies already in use in western economies, and strongly oriented towards military objectives, reducing their contribution to the economy.
- Product development dominated over R&D and over technological effort which focused on process technologies, cost reduction and organizational efficiency
- Civilian R&D sector had very low productivity, unable to cope with rapid changes in technologies, which became obvious with the progress of microelectronics.
- "Implementation of innovations was slow and inefficient and user specifications and requirements did not play an important role".

[Radosevic, 1996]

Three generations of Innovation policies:

I. First is based on "linear model of innovation process"



Three generations of Innovation policies:

III. Third is based on "model of integration of innovation activities"

... policy based on knowledge and integration of innovation concept into all other sectors (R&D, education, economy, IPR, finance, ...).

Three generations of Innovation policies:

I. First is based on "linear model of innovation process"

Istraživanje → Razvoj → Proizvodnja → Marketing

R D P M

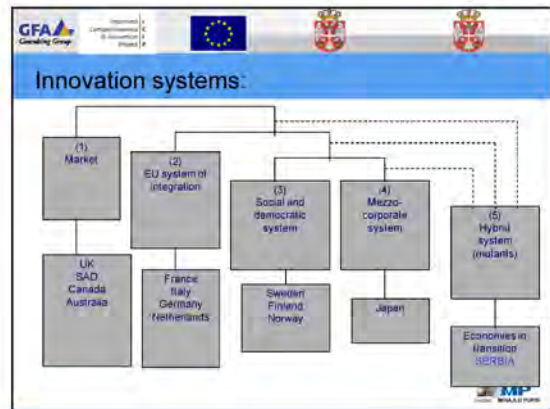
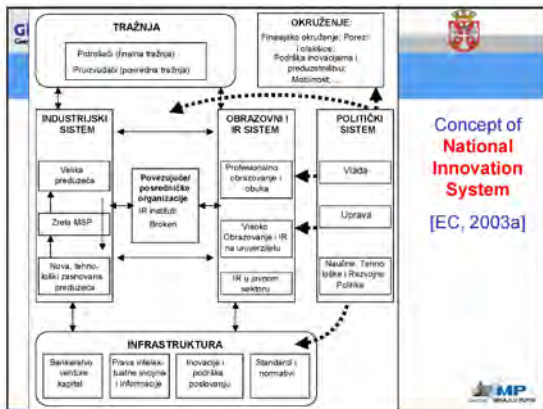
Serbia is still in LINEAR MODE!

Four phases of Innovation policy in EU:

- '70s: stimulation of R&D, as **objective and priority** of IP. Subventions for R&D are **content**, financing is **main instrument**;
- Early '80s: transfer of knowledge as **priority**, R&D activities are **content** of IP. Diffusion of knowledge is **main instrument**;
- Late '80s: support for KB start-ups as **main objective of IP**. Social sciences, formal and tacit knowledge are **content** of IP. Management is **main instrument**;
- XXI cent. **change**, as **priority** of IP. **Content**: S&T, formal and tacit knowledge, strategic information. **System approach** as **main instrument** (innovation networks, Foresight in S&T...).

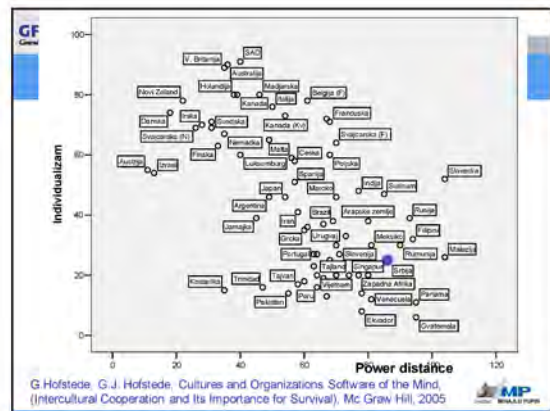
Four phases of Innovation policy in EU:

- '70s: stimulation of R&D, as **objective and priority** of IP. Subventions for R&D are **content**, financing is **main instrument** – **Serbia is still in this phase!**
- Early '80s: transfer of knowledge as **priority**, R&D activities are **content** of IP. Diffusion of knowledge is **main instrument**;
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- XXI cent. **change**, as **priority** of IP. **Content**: S&T, formal and tacit knowledge, strategic information. **System approach** as **main instrument** (innovation networks, Foresight in S&T...).



Attributes of Serbian national culture:

- Aversion toward national state and other countries – transferred into company level
- Importance of state and government
- Colectivity – suppressed individuality
- **No changes please!**



Drivers for creation of NIS:

1. Government technology policy;
2. Policy for technological development of SMEs;
3. Strategic technological policies for specific sectors of economy and groups of companies;
4. Policy for transformation of R&D system;
5. Policy for development of human resources in S&T;
6. Policy for international S&T cooperation;
7. etc.

Restructuring and transformation of R&D system into NIS – driving forces:

1. Process of creation of knowledge and technologies:
 - Improvement of quality of R&D,
 - Foresight in S&T,
 - Programme for support of Innovation projects,
 - Programme for support of S&T projects,
 - ...
2. Process of transfer and diffusion of knowledge and technologies.

Institutional framework for restructuring and transformation of R&D system into NIS:

1. Science Law
Conditions for transformation, ...
2. HE Law
"Entrepreneurial university", integration of HE with Economy, "research" vs. "teaching" university...
3. Innovation Law
Innovation infrastructure ...
4. Company Law, Labor Law, ...

Innovation strategies?

From 2005 till July 2011: 90 strategies made by the govt:

- Innovation Strategy or Policy still missing!
- App. 25 strategies include innovation as important issue;
- Innovation as big issue: **Industrial Strategy for the period 2011-2020** (July 2011);
- **Strategy for development of competitive and innovative SMEs 2008-2013** (MoERD): Knowledge based economy is overall objective of this strategy!
- **S&T strategy** (25.2.2010.) → NIS!

Enrollment of students: EU 27 – 2007/8

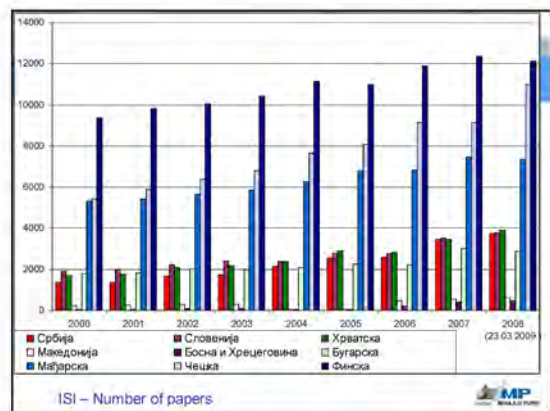
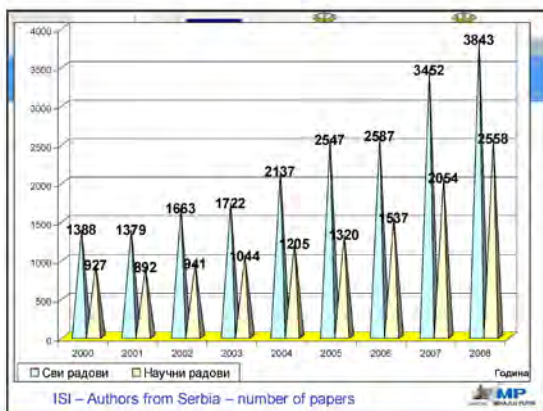
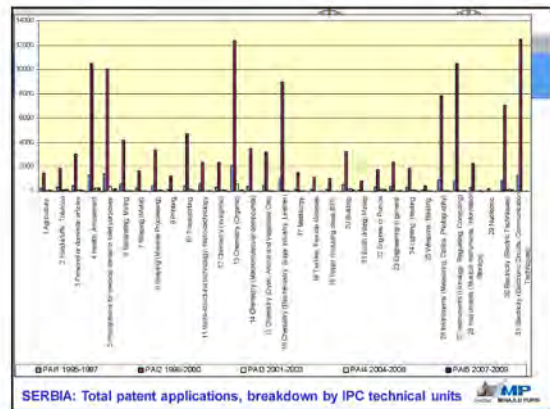
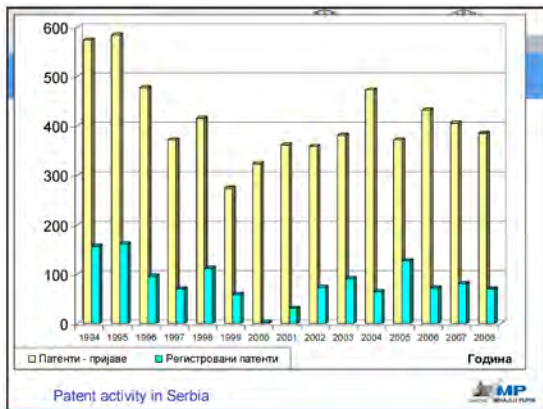
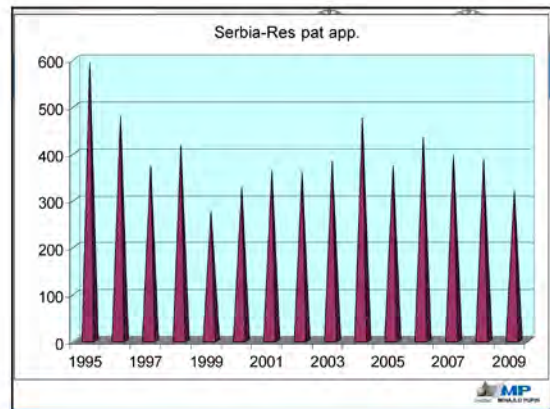
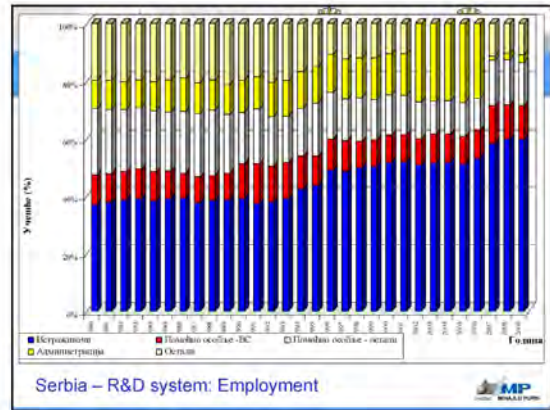
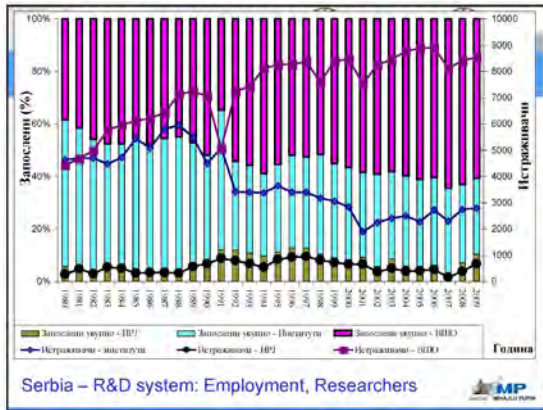
Enrollment of students: Serbia – 2007/8

Employment EU27 – 2009

Employment: Serbia – 2009

Employment– Serbia: trends

Export – Serbia: trends



2.

Assessment of Serbian Innovation Support Programmes:

- **Overview**
- **Main Findings**

Purpose:

- The purpose of the assessment is to undertake an in-depth analysis of the **innovation and competitiveness support programmes** in Serbia and to raise awareness for strong policy coordination among main stakeholders to further adapt the support tools in accordance with needs of enterprises and business and innovation service providers.
- The result of the assessment will also contribute to an **improved service friendly climate** and new qualification of programme management and support staff.

The following programmes were assessed by ICIP under the activity 2.1 "Assessment of Innovation Support Programmes":

- Project for Supporting SMEs to Invest in Innovation
- Project for Supporting the Development of Competitiveness of SMEs and Innovation
- Project EEN - Enterprise Europe Network - in Serbia 2009-2010
- CIP/EIP Programme in Serbia 2009-2010
- Competition for Best Technology Innovation
- EU FP7 Programme
- Business Incubator Network
- Innovation Fairs
- Innovation Projects

Reports were produced on each of the assessed programme and support activity, including main findings and recommendations, which are the basis for this Summary Report. The reports are available as separate documents.

The assessment of programmes including the individual report formulation was undertaken by a team of the **Mihajlo Pupin Institute, Belgrade**, consisting of SE Prof. Djuro Kutlaca, PhD and JE Sanja Popovic-Pantic, MSc as well as other team members, Dusica Semencenko PhD, as MPI expert and technical support of Marija Mesurovic MSc and Zorica Mitrovic.

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.

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

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 1: Promotion and Support for Entrepreneurship and Business Start-Up

Measures	Policy Aims
<ul style="list-style-type: none"> • Increased potential to produce business start-ups and develop entrepreneurship • Improved business development support to new businesses • Improved business environment for start-ups 	<ul style="list-style-type: none"> • Promoting and raising awareness to increase business start-up • Improving the quality and availability of business support to potential and new entrepreneurs • Reform of formal and informal education system and introducing an entrepreneurship education system • Improving educational system in the field of entrepreneurship • Easing the taxation burden on start-ups with limited financial resources • Faster and cheaper business registration, including the introduction of a unified "One-stop shop" system; • Providing monitoring systems in order to support survival of business start-ups

Only the marked items are subject of the assessment survey

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 1: Promotion and Support for Entrepreneurship and Business Start-Up

Measured results:

The evaluated programmes under this assignment were not directly targeted towards the measures and policy aims of Policy Strategy of Pillar 1. Anyhow, the following aspects were partially evaluated by the assessment survey:

- Promotion and awareness raising among SMEs to invest in innovation and competitiveness increase
- Quality and availability of business support services
- Need for a harmonised and regularly applied monitoring and impact is recognised

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 2: Human Resources for a Competitive SME Sector

Measures	Policy Aims
<ul style="list-style-type: none"> Module 1: Better policy framework for entrepreneurship education Module 2: More efficient business services to support SMEs <ul style="list-style-type: none"> Improved business services system Improved capacities of various institutions to provide business services Module 3: Improvement of management skills <ul style="list-style-type: none"> Improved management skills in SMEs Increased skills of SME managers through international training Module 4: High qualified labour force for SMEs 	<ul style="list-style-type: none"> An enterprise culture that encourages entrepreneurship and recognises entrepreneurial success Promoting the diffusion of training programmes and lifelong learning opportunities Promoting women's entrepreneurship through the elimination of barriers to enterprise creation and growth Engaging disadvantaged groups through business support services targeted to these groups

Only the marked items are subject of the assessment survey.

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 2: Human Resources for a Competitive SME Sector

Measured results:

Module 2 of the Pillar2 – Improved capacity of institutions to provide business services – is partially the subject of the ICIP project itself. The following aspects were evaluated by the assessment survey:

- Improved capacity of business service providers
- Improved management skills in SMEs through provision of qualification measures
- The policy aim - promoting women's entrepreneurship and engaging disadvantaged groups - is missing as a targeted objective in some of the assessed projects and accordingly is not sufficiently reflected in organisations' reports (However, this is the subject of an assessment to be carried out jointly by UNDP and MoERD)

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 3: Financing and Taxation for SMEs

Measures	Policy Aims
<ul style="list-style-type: none"> Module 1: Improved finance and financial expertise for SMEs Module 2: Taxation for SMEs 	<ul style="list-style-type: none"> Improving financial knowledge and management in SMEs Providing a range of financial instruments to meet different business development needs Fostering development of local and regional financing tools Encouraging microfinance schemes to make better use of public funding Promoting awareness of the importance of equity finance Adjusting the taxation system to the capabilities of SME sector

Only the marked items are subject of the assessment survey.

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 3: Financing and Taxation for SMEs

Measured results:

The evaluated programmes under this assignment are not targeted towards the measures and policy aims of Policy Strategy of Pillar 3; although

the lack of equity financing is affecting the low level of private innovation investment in Serbian enterprises as mentioned as a result of the survey.

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 4: Competitive Advantage of SMEs in Export Markets

Measures	Policy Aims
<ul style="list-style-type: none"> Module 1: Developing a culture of investing in innovation by SMEs <ul style="list-style-type: none"> Support investments in ICT Encourage participation of enterprises in innovation programmes of scientific research organisations and EU innovative programmes Module 2: Standards and Quality Control <ul style="list-style-type: none"> Create an infrastructure for efficient adoption of quality standards Encourage SMEs for use of internationally recognised management system standards Module 3: Cluster and Business Linkages <ul style="list-style-type: none"> Implement Serbian Business Incubator Programme Support the development of SME based cluster programme Facilitate SME access to business supplier systems Module 4: Targeted Support to Export Oriented SMEs 	<ul style="list-style-type: none"> Technical upgrading of products and processes through access to information on the best technologies and processes in the world Improving links between SMEs and scientific research institutions Providing information to SMEs on the standardisation and certification processes Establishing an acceptable certification system in terms of procedure and costs Enhancing clusters and networks by strengthening liaisons between SMEs and knowledge centres Encouraging SME participation in global supplier chains Strengthening state support for SME access to foreign markets and taking business to international level

Only the marked items are subject of the assessment survey.

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 4: Competitive Advantage of SMEs in Export Markets

Measured results:

The evaluated programmes under this assignment targeted most of the measures and policy aims of Policy Strategy of Pillar 4. Module 3 and 4 of this Pillar – Support to development of SME based cluster and facilitate access to business supplier systems, as well as support to export oriented SMEs – is partially subject of the SECEP project. The following aspects were evaluated by the assessment survey:

- Module 1, developing a culture of investing in innovation by SMEs and improve technical and non-technical innovation, has been evaluated by SMEs and programme managers of respective programmes
- The participation of enterprises in innovation programmes of scientific research organisations and EU innovative programmes is the subject of the survey report
- In Module 2, the measures to adopt standards and quality control have been evaluated by SMEs using the respective government programmes
- The Serbian Business Incubator programme is evaluated as well and a separate survey report is produced

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 5: Serbia's Legal, Institutional and Business Environment for SMEs

Measures	Policy Aims
<ul style="list-style-type: none"> Module 1: A Legal Framework and Business Environment which Encourages Entrepreneurship Module 2: Efficient Public Sector Serving SMEs Module 3: A well developed Regional Infrastructure for SME Support <ul style="list-style-type: none"> Promotion of SMEs and entrepreneurship at regional and local level Strengthening of the network of regional SME development agencies Module 4: Effective Representation of SME Interests through Public/Private Dialogue Module 5: Public Procurement and SMEs 	<ul style="list-style-type: none"> Regulatory framework suited to the needs and capabilities of SMEs Improving the efficiency of the Public Sector in service of SMEs Developing effective regional support infrastructure for SMEs Effective representation of SMEs in the policy development and implementation process Ensuring fair access of SMEs to public procurement processes

Only the marked items are subject of the assessment survey.

EXECUTIVE FINDINGS AND CONCLUSIONS

Policy Strategy of Pillar 5: Serbia's Legal, Institutional and Business Environment for SMEs

Measured results:

The evaluated programmes under this assignment targeted only partially the measures and policy aims of Policy Strategy of Pillar 5:

- Part of Module 2 of this Pillar – Strengthening the network of regional SME development agencies – has been evaluated by SMEs using the respective government programmes

EXECUTIVE FINDINGS AND CONCLUSIONS

Intermediate objectives of the assessed programmes

Some of the assessed programmes, as mentioned above, were established by the Serbian government since 2005 and are still operating with aim to provide innovation and competitiveness related support to SMEs and entrepreneurs. Also, EU financed programmes are available for the science and SME sector; but only since 2009 Serbia has reached full membership for e.g. FP7, EEN and CIP/EIP programmes. The following main intermediate objectives were set by the assessed SMEs using the innovation and competitiveness support programmes in supporting the strategic policy aims:

EXECUTIVE FINDINGS AND CONCLUSIONS

Intermediate objectives of the assessed programmes

- (1) To **increase the productivity and competitiveness** of assisted SMEs based on investment in technology use and adaptation and on internationally recognised standards and certifications
- (2) To **access best technologies and processes**, and increase research development by entrepreneurs and SMEs to improve innovation cooperation between SMEs and R&D institutions to upgrade products, processes and organisational structure within the SME sector
- (3) To **develop a culture of entrepreneurship** and SME development and create a public awareness on the need to invest in research, technical and non-technical innovations and managerial education to support the creation of a demand driven science and invention based economy.
- (4) To **strengthen the innovation support infrastructure** and support networks/institutions to improve quality and availability of business support services and encourage the international cooperation and competitiveness

Principle findings and conclusions for beneficiaries

Ad 1: Contribution of the following programmes to the first intermediate objective (Productivity and competitiveness)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**

The survey showed, that a small but significant proportion of supported enterprises reported increases in their profitability and market competitiveness as a result of their projects, such as: better positioning in the current market, access to new clients with new or improved products. The vast majority of enterprises (more than 96%) prefer to manage the innovation path up to the commercialisation of their market-ready products and services and investing in sales and distribution directly.

Principle findings and conclusions for beneficiaries

Ad 1: Contribution of the following programmes to the first intermediate objective (Productivity and competitiveness)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**

.....cont.:
Equivalent, only about 12% plan to invest in purchasing of patents for product and process development. This approach of enterprises is reflected in the modes of calling on the innovation support activities of both Programmes: 14% of enterprises using the funds for prototyping, design and packaging improvement, 9% for testing of new production processes and 78% for the development of new activities or improving existing products and services.

Principle findings and conclusions for beneficiaries

Ad 1: Contribution of the following programmes to the first intermediate objective (Productivity and competitiveness)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**

.....cont.:
However, these benefits are likely to become more widespread in time because both projects have stimulated important intermediate effects including development of an innovation culture in enterprises (56%) and qualification of employees (53%) to manage the process of innovation.

Principle findings and conclusions for beneficiaries

Ad 1: Contribution of the following programmes to the first intermediate objective (Productivity and competitiveness)

- **Project EEN in Serbia 2009-2010**

EEN Serbia started its operation in June 2009. It provides assistance to SMEs in access to international business and technology, legal services and individualised skill improvements. 618 business profiles and 64 technology profiles are registered with EEN Serbia. Out of the survey, significantly positive effects are reported on improved business (37%) as a result of EEN support in research and development, business intelligence and access to new customers.

Principle findings and conclusions for beneficiaries

Ad 2: Contribution of the following programmes to the second intermediate objective (Access technologies; increase research; improve innovation cooperation)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**

Almost 90% of enterprises reported that the Programmes met their expectations. 25% of enterprises have applied an innovation strategy for the first time with the support of the Programmes. The survey found strong evidence of increased technical and non-technical innovations in enterprises; 68% claimed that the participation in the Programmes provided the basis for contribution to organisational changes and development of their business model and 65% reported that the Programmes allowed them to focus on their innovation capacities based on their own resources and supported by innovation collaboration with external partners.

Principle findings and conclusions for beneficiaries

Ad 2: Contribution of the following programmes to the second intermediate objective (Access technologies; increase research; improve innovation cooperation)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**

... cont...
The Programmes contributed significantly to the cooperation between research and economic entities. Almost 70% of enterprises have established innovative partnership through the Programmes, although only 12% organised it with R&D institutions or universities (28%) while the majority (43%) cooperated with consulting firms. The majority of them (65%) evaluated the cooperation as very good or excellent; consequently, 75% of enterprises will develop in the future new innovative activities in cooperation with external partners. Regarding future plans, 90% of enterprises reported to plan investments in innovation also for the coming years.

Principle findings and conclusions for beneficiaries

Ad 2: Contribution of the following programmes to the second intermediate objective
(Access technologies; increase research; improve innovation cooperation)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**

... cont ...

The technical and non-technical innovation effects are likely to increase based on the positive evaluation of enterprises, but could be positively influenced by availability of a central database with all eligible R&D institutions, university departments, consulting firms and laboratories acting as Business and Innovation Support Organisations (BISOs) for SMEs, which is under development.

Principle findings and conclusions for beneficiaries

Ad 2: Contribution of the following programmes to the second intermediate objective
(Access technologies; increase research; improve innovation cooperation)

- **Competition for Best Technology Innovation**

The Competition for Best Technology Innovation started in 2005 and showed remarkable results in establishing innovation cooperation between science and enterprises and assisted the establishment of high-tech enterprises. Out of 5360 participants, 970 innovations were further supported and totally 44 enterprises were established, either by researchers or as a result of cooperation with inventors and research institutions. Inventions and possible applications were presented at public events and at the national TV.

Principle findings and conclusions for beneficiaries

Ad 2: Contribution of the following programmes to the second intermediate objective
(Access technologies; increase research; improve innovation cooperation)

- **Project EEN in Serbia 2009-2010**

The project EEN Serbia is well known as a business and innovation network organised by the European Commission. Access to specific technology has been requested by 6 Serbian enterprises, of which 3 were successful in signing a partnership agreement and additionally 5 research partnership agreements have been signed. In total 350 expressions of interest have been placed through EEN Serbia and 6 commercial partnership agreements have been concluded. Serbian partners consider organisation of business exchange and company missions as the most effective way of linking with potential partners. The access to technology is expected to increase when the Project EEN is well established after its current (still) initial phase.

Principle findings and conclusions for beneficiaries

Ad 2: Contribution of the following programmes to the second intermediate objective
(Access technologies; increase research; improve innovation cooperation)

- **EU FP7 Programme in Serbia**
- **CIP/EIP Programme in Serbia 2009-2010**

Serbia is an associated member of the EU FP7 programme since 2007 and has received full member status in 2009 and it is also a full member of the EU Competitiveness and Innovation Programme (CIP) since 2009 - EEN and the Entrepreneurship and Innovation Programme (EIP) are part of CIP.

By the end of 2009, in total, 107 Serbian organisations and enterprises participated in the FP6/7 programme, which is evaluated as a good result. The majority of participants evaluated the cooperation with project partners and the project effects as good or excellent (67% respectively 73%). The number of SMEs benefiting from FP7 is given by the CORDIS database as 8 (5 from the thematic field of ICT and 3 from Knowledge Based Bio-Economy). Up to now Serbian enterprises have benefited only indirectly from the CIP/EIP programme, specifically through the projects - Environmental services for SMEs and the Ambassador of the European Network of women's entrepreneurship.

Principle findings and conclusions for beneficiaries

Ad 2: Contribution of the following programmes to the second intermediate objective
(Access technologies; increase research; improve innovation cooperation)

- **EU FP7 Programme in Serbia**
- **CIP/EIP Programme in Serbia 2009-2010**

... cont ...

The results of the survey undertaken with the sample group of enterprises indicate that only a minority of enterprises are familiar with international research programmes or are actively searching for international cooperation. Due to the low number of SMEs participating in both programmes (FP7 and CIP/EIP) the survey concludes that there is still a link missing in the chain of technology transfer process to SMEs. This might require as well actions of the European Commission to ease access of SMEs to these programmes.

Principle findings and conclusions for beneficiaries

Ad 2: Contribution of the following programmes to the second intermediate objective
(Access technologies; increase research; improve innovation cooperation)

- **Innovation Projects**

The programme Innovation Projects, managed by the Ministry of Science and Technological Development, now merged with the Ministry of Education and Science, is targeted at establishing a sustainable bridge between research organisations and industries and increasing the application of research results into the economy. Innovation support projects are launched through public calls. The number of funded innovation projects of legal entities between 2007 till 2009 is 180. The survey was unfortunately not able to quantify the results of the programme objectives.

Principle findings and conclusions for beneficiaries

Ad 3: Contribution of the following programmes to the third intermediate objective
(Culture; public awareness; education in enterprises)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**
- **Project EEN in Serbia 2009-2010**

The survey indicates that participation in all three Programmes is evident for developing innovation culture and innovation management capabilities in enterprises for both SME owners and innovation project managers. The programmes are well publicised through websites of public institutions, daily newspapers and business organisations. The websites of MoERD and NARD are the main sources of information (for ca. 50% of enterprises), followed by information received through regional and local business service organisations (28%).

Principle findings and conclusions for beneficiaries

Ad 3: Contribution of the following programmes to the third intermediate objective
(Culture; public awareness; education in enterprises)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**
- **Project EEN in Serbia 2009-2010**

... cont ...

Public awareness on the need to invest in innovation and managerial skills is promoted by EEN Serbia through partnership building with associations of enterprises and entrepreneurs (e.g. chamber organisations, association of SMEs and entrepreneurs, business technology incubators), innovation centres, consultants and research and innovation fund managers. National information days are organised regularly and meantime three conferences in the Western Balkan region have been held.



The professional training is well perceived by management and SME staff and, as the survey on grant scheme programmes reported, showed intermediate effects for innovation management capacities in enterprises. The qualification of enterprise staff is being reported as a trust and image building factor and, as one company reported, positioning it as an 'expert centre'.

Principle findings and conclusions for beneficiaries

Ad 3: Contribution of the following programmes to the third intermediate objective
(Culture; public awareness; education in enterprises)

- **Competition for Best Technology Innovation**

This is a unique programme combining both raising public awareness on entrepreneurship and qualification of entrepreneurship in technical and non-technical innovations. The aim is to promote entrepreneurship in Serbia and to assist potential and existing entrepreneurs. The survey identified significant results in awareness raising and managerial education: 5360 competitors participated in 243 trainings held for 591 teams of researchers, students, innovators, entrepreneurs and creative individuals.






Principle findings and conclusions for beneficiaries

Ad 4: Contribution of the following programmes to the fourth intermediate objective
(Innovation support infrastructure; business support services)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**
- **Project EEN in Serbia 2009-2010**

The survey provides clear evidence on the importance of the innovation support infrastructure for enterprises on both access to innovation expertise and preparation for project proposals to reduce the burden during the application process. 43% of enterprises used the network of business support service providers for selection of innovation expertise, innovation support programmes and application to the right programme. Only 19% of enterprises are aware of international programmes (e.g. FP7, IPA funds) or have knowledge to access these funds. The range and availability of financial instruments for innovation is been identified as lacking in the innovation support infrastructure.

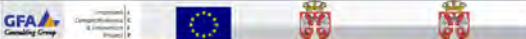

Principle findings and conclusions for beneficiaries

Ad 4: Contribution of the following programmes to the fourth intermediate objective
(Innovation support infrastructure; business support services)

- **Project for Supporting SMEs to Invest in Innovation**
- **Project for Supporting the Development of Competitiveness of SMEs and Innovation**
- **Project EEN in Serbia 2009-2010**

... cont ...

The consortium partners managing the EEN project have qualified experts to provide business and technology profiling of enterprises and networking of these profiles internationally. EEN is seen as a gateway for international business and technology networking. The EEN Project has the potential to further develop the innovation support infrastructure towards European and international partnerships.



Principle findings and conclusions for beneficiaries

Ad 4: Contribution of the following programmes to the fourth intermediate objective
(Innovation support infrastructure; business support services)

- **Business Incubator Network**

In different databases 22 incubators are registered but only 16 are listed in the database 988 of services, out of this 11 responded to the survey. Innovation oriented incubators have not been operating than 5 years with one exception. 45% of incubators have up to 10 tenants, while 55% operates with more than 10 tenants. The total number of employees of enterprises in the incubators is 352. Training and education is provided by 90 % of incubators, while 45% also provide services related to science and technological professional counselling, foreign trade and similar services. 72% of incubators also provide these services to enterprises outside of incubators.

The survey indicates that, despite its small number of entities, incubators in Serbia are an important infrastructure to support innovation and competitiveness in SMEs and have achieved a number of successful outcomes, such as development of new products and services, successful incubation, increase of employment and profitable performance. But the survey identifies also a missing element - strong political commitment towards this innovation support infrastructure.

Principle findings and conclusions for beneficiaries

Ad 4: Contribution of the following programmes to the fourth intermediate objective
(Innovation support infrastructure; business support services)

- **Innovation Fairs**

Innovation fairs in Serbia have rarely been considered as a systematic approach to provide linkages between inventors or researchers and the economic sector, although they might have the potential to become brokerage events where science and investors meet and build innovation partnership.




Principle conclusions for programme decision makers

(1) The evaluation of innovation support programmes is done irregularly and does not follow a harmonised approach. It is proposed to undertake an impact assessment of programmes supporting innovation and competitiveness in Serbia.

The approach should make a distinction between:

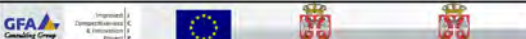

- Evaluation of the programme performance against programme objectives on the basis of clearly defined, measurable key performance indicators (e.g. quantified jobs ensured or created);
- Assessment of the cost effectiveness of the programmes in terms of policy aims, expenditure which results in the engagement of business, and the take-up of programmes.
- Strengths and logic of programme linkages, though causal chains that show the relationships and pathways between different implementation measures and programmes, in order to identify both strengths and weaknesses, as well as unanticipated consequences of the measures
- Direct impact on business activities and practices and business performance (e.g. new products initiated, profitability of business or penetration of new markets), as well as indirect wider spill-over effects (including Strategic Added Value) through the involvement of research partners and stakeholders, and
- Socio-economic impact assessment, measuring the gross and net economic impacts (e.g. employment, business creation, local multiplier effects, and Gross Value Added) at national and regional levels

It is further proposed that an **impact assessment system and methodology should be established** allowing the respective authorities to undertake regular evaluation of socio-economic impacts of such programmes on a comparative basis, which will also ensure that both national and regional disparities in access, take-up and impact can be clearly monitored and assessed.




Principle conclusions for programme decision makers

(2) Policy goals on cross-cutting issues have been set to be targeted by the assessed programmes. The following issues have been mentioned in SME strategy documents: gender equality, minorities' inclusions and youth, environmental and regional secured activities. Cross-cutting issues are laid down in a number of international conventions, declarations and treaties that are binding to EU countries. They must be taken into account at all stages of the funding cycle. With the proposed evaluation of the programmes such cross cutting issues should be monitored and even more important, programme management staff should be made aware to include such issues as subjects of programme planning, as well as identifying clear indicators for each cross-cutting issue within programme design.

Principle conclusions for programme decision makers

(3) Serbia has established a number of innovation support programmes and facilities, but is still missing a centralised event where research meets business. Also, innovations created by SMEs are usually promoted as part of company – innovator's relations but is missing a central market event. It is therefore recommended to work out a concept and to establish a coordinated central research – market event which presents research and innovation support organisations and enterprises; this might be organised as an innovation - cross sector - fair aimed to attract investors from the economic and industrial sector. Such an event should be branded and positioned as state-of-the-art, with large number of national and international exhibitors from both research and economy, to promote new technologies and solutions in dominantly creative industries.




Principle conclusions for programme decision makers

(4) The survey of programmes provided evidence that supported firms appreciated or demanded supporting infrastructure (e.g. access to technological information and programmes, identification of specific expertise, assistance in programme applications) and that supported firms are assisted to thrive. It is recommended to develop the range of innovation support infrastructure in a wider sense, including business and technology incubators, science and technology parks and other high-tech support facilities, and to ensure widespread geographical access to such facilities across the territory of Serbia.

The survey indicated as well that lacking access to finance is an obstacle to innovation for SMEs although innovative firms will not base their decision on available financial support for innovation. The supported enterprises indicated a greater commitment to R&D and innovation if sufficient funds are available. A general recommendation is to increase the amount of available financial support. In some areas less number of programmes with more funds per company project will show higher effects.

Principle conclusions for programme decision makers

(5) It is recommended to develop a set of improved and additional measures to maximise the use of existing information and increase the accessibility of information on innovation assistance. The survey on enterprises' awareness of assistance for innovation and competitiveness presents a mixed picture: the most used sources of information are MoERD and NARD websites. It was also shown that not all innovation support programmes are equally present to entrepreneurs / SME-owners and still some gaps in information provision do exist as e.g. access to technology and innovation expertise – nationally and internationally.

The improved measures should include a further popularisation of up-to-date information through the well perceived websites and electronic communication channels including TV and radio broadcasts. A coordinated presentation of range of services is advised, with clearly visible profile of different programmes. The information should be permanently available and regularly updated. Information campaigns should use a set of promotional tools. The existing web portals should introduce extended services, e.g. databases with information on sectors or thematic fields (e.g. technology, research, innovation).

A specific aspect of the survey results with enterprises is the low participation and attractiveness of EU funded programmes. It is recommended to design hands-on information events with best practice samples and an increased number of information packages. It is also recommended to establish a specialised information infrastructure for SMEs, in order to popularise such programmes and establish support facilities including a strategy to encourage international cooperation.

Principle conclusions for programme decision makers

(6) It is recommended to nominate 'Competence Centres' for thematic fields acting as project executing organisations, managing programmes with expertise. The surveys have stated that national and international research programmes are managed by qualified Serbian teams although these teams require more specific training on popularisation of programmes. In addition, it is proposed in survey reports to enhance the assistance provided to research and economic organisations with specific expertise in thematic fields.

'Competence centres' or 'project executing organisations' might be in a form of government co-financed institutions and agencies involved in R&D and academic science and non-profitable with specific thematic focus, acting as mandatory body for governmental institutions. Besides assistance in programme management and networking they should be capable to provide expertise in the thematic area of innovation management between applied science and economy for high technologies. This capability is specifically relevant for international collaboration and application of international research programmes (e.g. EU programmes CIP, FP7).

Principle conclusions for programme decision makers

(7) The need of policy coordination for science and innovation is often mentioned by enterprises and research institutions as well. This report repeats the recommendation for a strongly coordinated National Strategy for science, education, research and innovation. To reach the overall objective of the Serbian government to establish a science based society and a strong international collaboration in science and research is suggested with the intention to link up with the most competitive knowledge-based economies worldwide which requires to avail the opportunities of growing internationalisation to a greater extent.

It is recommended to establish a dynamic political platform of policy consulting for science, research and innovation policy (Guidelines for the policy framework are developed in the ERAWATCH INNOPOLICYTRENDCHART). The spectrum may range from involving government funded institutions and agencies involved in R&D and academic science and scientific advisory boards and organising a permanent innovation dialogue between government, industry/economy and science to be led by the Serbian Prime Minister.

Detailed suggestions for proposed actions and some implementation steps have been developed in the individual reports.

Recommendations and Proposed Corresponding Actions

Project for Supporting SMEs to Invest in Innovation (2009), and Project for Supporting the Development of Competitiveness of SMEs and Innovation (2009)

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.1. Future Grants Schemes should be followed by a robust monitoring, evaluation and impact assessment Monitoring and Evaluation (M&E) system.

A.1. It is proposed to establish for each Grant Scheme a standardised monitoring and evaluation and impact assessment system that covers the following five areas: Design of the Grant Scheme (does the Grant Scheme achieve its purpose?), Effectiveness of Grant Scheme (Are the innovation resources inside and outside of the beneficiary SME effectively mobilised?), Efficiency of Grant Scheme (Does the beneficiary of the Grant Scheme actually achieves innovation outputs as mentioned in the Grant Scheme application), Sustainability of Grant Scheme (Is the beneficiary willing and able to continue the innovation activity initiated under the Grant Scheme?), and Impact (are the Grant Scheme financial and non-financial KPIs achieved?).

Each Area should be supported by corresponding Objective Verifiable Indicators and correlated Sources of Verification (both already to be mentioned in the application) that may be either of qualitative or quantitative nature. The Impact Assessment should be carried out 12-18 months after the expiration of the innovation activity and should, ideally, be based on "hardcore" Sector Performance Indicators. Providing feedback by the grantee as per above indicators should be made compulsory and future grants should be made conditional on having successfully provided feedback on a previous innovation grant received.

Recommendations and Proposed Corresponding Actions

B. In the field of specialising aims of support measures

R.2. Considering the limited funds available, the fact that companies would benefit more from an innovation process/programme than an ad-hoc innovation activity or intervention approach (thus de facto encompassing more innovation interventions per beneficiary company) and the fact that some of the eligible innovation co-financing activities are re-taken in more than 1 Grant Scheme, it would be wise to introduce a higher degree of specialisation in each of the Grant Schemes currently operated in Serbia. This specialisation could be achieved either by limiting the Grant Scheme beneficiaries to specific target groups and/or limiting the type and kind of innovation activities eligible for co-financing under an individual Grant Scheme. If well planned and executed, such a specialisation would also not limit the coverage of all innovation support activities currently on offer as the "palette" of innovation services on offer through all combined individual Grant Schemes would still broadly cover all SME innovation needs.

A.2. It is advised that future Grant Schemes should have a more specialised approach. In this aspect, NARD could specialise, for instance, on innovation training and standardisation while MoERD could concentrate on commercialising new and innovative products through partnerships between R&D institutions and SMEs (such as university spin-offs). Important is that on one hand an institutional platform is created where all stakeholders, at the forefront NARD, MoERD, MoSTD and SME Representative Organisations, would discuss and agree upon innovation Grant Scheme specialisation areas and on the other hand to ensure that all relevant SME groups and individual SME innovation needs would be covered by the individual Grant Schemes, jointly.

Recommendations and Proposed Corresponding Actions

B. In the field of specialising aims of support measures

R.3. The Survey amongst SMEs indicates that access to innovation funding, at least for those who claim not to have enough internal resources to continue the innovation activity initiated, and obtaining of equipment, is the major co-financing innovation activity necessary but not eligible on the current Grant Schemes.

A.3. It is advised that the Government of Serbia (GoS) looks hard at the possibility of providing financial support to offer either innovation funding or funding to acquire new equipment. This could be done by either including funding activities as part of the eligible individual Grant Schemes (for instance in the voucher programme for business support services under discussion) or, outside of the Grant Schemes, through company Profit & Loss account actions (tax break, equipment investment subsidies, etc.). The latter solution seems to be the one preferred in most EU countries.

Recommendations and Proposed Corresponding Actions

C. In the field of further assistance to close gaps in the Innovation Process

R.4. If MoERD and NARD see innovation support as a long-term rather than short-term commitment, which they claim to do, innovation impact on company and sector results must clearly be the major focus. Impact, however, implies a programme/process approach rather than financing interventions in a form of individual innovation activity.

A.4. The Survey amongst SMEs, with the noticeable exception of access to funding, has indicated that the current Grant Schemes, to a very wide extent, cover the innovation needs of companies. The problem, if any, lies in the fact that the Grant Scheme, if it wants to achieve a more sustained impact and success while promoting innovation in companies, will need to be more project/process rather than innovation activity-oriented. It is, therefore, suggested that future Grant Schemes should operate on the basis of Company Individual Innovation Business Development Paths (listing a series of innovation activities within the overall company over a longer period of time) rather than discrete, stand-alone innovation activities.

Recommendations and Proposed Corresponding Actions

D. In the field of increasing the number of SMEs specifically participating in EU-funded programmes

R.5. The Survey indicated that very few of the beneficiaries either carried out the innovation activity covered by the Grant Scheme with foreign innovation partner or that it is their intention to do this in the framework of a continued (new) future innovation activity. Furthermore, most companies that have heard of the possibility to participate in EU-funded innovation programmes were in need of additional information in order to fully grasp the potential of participating in such programmes.

A.5. In order to increase the number of Serbian SMEs participating in EU-funded programmes, the first step must clearly be the implementation of a well-conceived, well-targeted and well-implemented information Campaign on EU Innovation Programmes amongst Serbian SMEs. Whilst conceiving the concept of such a campaign, it is advised to engage and inform potential Serbian beneficiaries on a personalised, one-on-one information provision basis (personal meetings, implementation of an innovation diagnostic and on the basis of the result thereof, indicate possible participation in EU-funded programmes) rather than designing and implementing general, broad-based media information campaigns. Furthermore, in addition to the information campaign, there will certainly be a need to "accompany" interested Serbian companies in the process of identifying, helping to contact/enter into a partnership with a foreign partner and ultimately supporting their actual involvement in the specific EU Innovation Programmes eyed at ("helping hand" approach). In the latter aspect, the Serbian Grant Schemes could support such an approach by, for instance, giving a higher evaluation quotation to those Serbian beneficiaries applying within an internal/EU innovation context than Serbian beneficiaries applying within a pure Serbian national context.

Recommendations and Proposed Corresponding Actions

E. In the field of access to improved information via Business Portals

R.6. Although not clearly voiced as such in either the Survey amongst SMEs or the interviews with the Project Managers of the Grant Schemes of MoERD or NARD, Business Portals are generally seen as an efficient and cost-effective way of informing target groups about innovation in general and specific innovation programmes, initiatives, Grant Schemes and activities in particular.

A.6. The Business Portal envisaged to be created with the support of the ICIP Project will definitely contribute to satisfying the innovation information needs of SMEs. Considering that most SMEs claimed to learn information through specialised Web Sites such as the MoERD Web Site, it is strongly advised not to develop the Business Portal as a stand-alone Portal, but to have it fully integrated with and hosted by MoERD, with immediately visible and accessible reference "click" links from and to the EEN Web Site, NARD Web Site, MoSTD Web Site, and possibly other government websites.

Recommendations and Proposed Corresponding Actions

F. In the field of sustainability of programmes

R.7. If sustainability is measured as both fulfilling the overall and specific aims of the Grant Scheme or the assurance that grantees intend to continue or expand the innovation activity initiated under the Grant Scheme, both MoERD and NARD Grant Schemes have clearly achieved this indicator. Any improvements in this area, therefore, should not only target sustainability as such, but rather the next step following sustainability, namely impact and this both on Company Level as well as SME Sector Level.

A.7. It is, therefore, proposed – see also section A: effectiveness and efficiency of programmes – to introduce a standardised robust ex-ante, implementation, ex-post and impact M&E system for each of the Grant Schemes where the impact would be measured against a set of verifiable Key Performance Indicators (KPIs) both on company and sector/programme level. For company, KPIs as logic parameters would be financial and non-financial (e.g. increase in profitability due to the innovation activity introduced, increase of market share of innovative product on national and international markets, number of people additionally hired) while those on a sector/programme level could be linked to KPIs measured in achieving integration with the EU (number and % of companies having achieved standardisation, number of (EU-wide) patents submitted by Serbian companies, number of licenses bought or sold, etc.). Furthermore, assessment impact should be carried out between 12-24 months after the finalisation of the innovation activity co-financed by the Grant Scheme.

Recommendations and Proposed Corresponding Actions

G. In the field of user-friendly climate to serve potential clients

R.8. The Survey amongst SMEs, as well as the interviews with the Project Managers of the MoERD and NARD Grant Schemes, have indicated that, overall, the application process is feasible and not too cumbersome. It was, however, mentioned that some applications to specific Grant Schemes were not considered, because the applicants were not able to gather all required supporting application documentation in time, i.e. against the Grant Scheme's submittal deadline.

A.8. In order to ensure the highest possible transparency in the application process, it is, therefore, suggested that the Grant Scheme application process should be on-going (let's say open during one full year) rather than very limited in time and that the number of required application support documentation would be limited to the strictly necessary one.

Recommendations and Proposed Corresponding Actions

H. In the field of possible qualification areas to manage support programmes

R.9. This recommendation and proposed action scope can actually be considered on two levels: i) the level on which the beneficiary company and the external innovation partner manage the innovation activity/process covered by the Grant Scheme and ii) the level on which MoERD and NARD manage the Grant Scheme programme by themselves, from design to impact assessment. On the first level, it becomes clear that consultants and consulting companies have been more active than R&D institutions in "seizing" the innovation co-financing activity (business) potential and, thus, have been very actively helping beneficiary companies in applying for and implementing the innovation activity under the Grant Scheme. This has led, in some instances, to a situation where only one consulting company has "partnered" with various applicants, as a result of which, these applications looked "very similar". On the other level, NARD and MoERD Programme Managers interviewed, confirmed that some capacity-building support in better understanding how to conceive, design, implement, monitor and evaluate Grant Schemes could be beneficial.

A.9. Although it could be considered as limiting in the amount of time, once consulting company could partner up with different SME beneficiaries for applying to a particular Grant Scheme, one could also consider a more specialised individual Grant Schemes approach (see also section B – specialising aims of support measures) where the fact that various applications have a similar approach would not be so detrimental. It is also highly recommended that Grant Scheme Project Managers could gain targeted and continuous training on the different aspects of envisaging and running Grant Schemes. A critical area to be covered in this training/capacity-building package should be the link between a robust M&E system to the Grant Scheme and the usage of the feedback generated through the M&E system in fine-tuning and optimising future Grant Scheme intervention areas, eligibility areas and factors and selection criteria.

Recommendations and Proposed Corresponding Actions

I. In the field of possible qualification areas to assist enterprises in the application of innovation

R.10. The Survey amongst SMEs highlighted the fact that the vast majority of beneficiary SMEs are extremely satisfied with the support provided through innovation partnership. On the other hand, the Project Managers of the Grant Scheme highlighted the need to have a formal accreditation process for (external) innovation advisers/partners in order to ensure the quality of delivery. Both observations are not necessarily conflicting as most SMEs do not really understand what the benefit of more professional "innovation experts" would be, as they do not simply know what extra benefit they could gain from only using such higher quality external support. As such, the need for introducing an accreditation process of (external) innovation advisers are to be seen as an improvement step in innovation quality offer, not directly supported by an expressed innovation quality demand from the SME side (a bit like introducing standards by regulatory bodies within the sector).

A.10. It is highly advised that MoERD and NARD, as well as other Grant Scheme players such as MoSTD / MoES, establishes a quality-driven accreditation process for (external) innovation advisers. The process should consist of establishing the quality accreditation criteria, the formulation of the accreditation process, the possibility for external advisers to undergo a quality accreditation training programme and the "favouring" of accredited quality advisers as innovation partners while evaluating the Grant Scheme applications. In no case, however, should accreditation become a pre-requisite for being able to function as an (external) innovation partner within the Grant Scheme. It should just be that innovation partners/experts that have an accreditation get extra evaluation points, thus acting as a "soft" push factor for individual innovation partners/experts to participate in the accreditation process.

Recommendations and Proposed Corresponding Actions

Innovation projects (organised by MoSTD/MoES)

Recommendations and Proposed Corresponding Actions

- Within direct support of Innovation Activity, the MoSTD is not co-financing implementation of innovation projects on a regular yearly basis because of inappropriate position in MoSTD budget and lack of financial resources; therefore only four public calls have been realized in the period 2006 – 2011. The recommendation is to stabilize and properly define the position of this scheme within the annual MoSTD/MoES programme of activities.
- The programme of (co)financing of the innovation projects should be monitored and evaluated in order to have adequate monitoring and assessment of effectiveness and achievements of the programme.
- Results and effects of innovation projects must be widely marketed and visible on the Internet as well as in wider business community and interested society.

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.11. Direct support of Innovation activity co-financed by the unit which will be established within the newly reconstructed Ministry of Education and Science, in charge for Science policy should be followed by a robust monitoring, evaluation and impact assessment Monitoring and Evaluation (M&E) system.

A.11. it is proposed to establish for each direct support of innovation activity a standardised monitoring and evaluation and impact assessment system with the prioritized aim to avoid overlapping with other grant schemes, as so far system enabled applicants to apply and receive grants for the same purpose but from different Grant schemes and Ministries

Recommendations and Proposed Corresponding Actions

B. In the field of further assistance to close gaps in the Innovation Process

R.12. Inter-connection and correspondence between the education programs and entrepreneurship education modules with the focus on innovation, on all educational levels starting from primary school, should be achieved, as a benefit from the joint organization of the Science and Education Policy.

A.12. Set up the multidisciplinary task force which will work on this issue.

Recommendations and Proposed Corresponding Actions

B. In the field of further assistance to close gaps in the Innovation Process

R.13. The fact that Ministry of Science is incorporated into the Ministry of Education will obviously bring new organization scheme which is in drafting stage. This is challenging for the Science policy, but also for the programs of direct support to innovation activities. In the same it is an opportunity to make it better and more corresponding with the educational programs. Namely, education for innovation should be organized for the SMEs, which are usually lacking the knowledge and skills in innovation. Raising awareness on the innovation as precondition to the competitiveness should be linked with the appropriate international educational seminars and courses, which used to be regularly promoted through Ministry of Education and Science.

A.13. Joint organization of Science and Education, launched recently, provides the chance to incorporate innovative entrepreneurship as a subject in the relevant educational programs even in primary and secondary schools. The aim is to raise the awareness of the student's population on the significance of the entrepreneurship, creativity and innovation, but also as a good opportunity to become self-employed.

Recommendations and Proposed Corresponding Actions

Competition for Best Technology Innovation

Recommendations and Proposed Corresponding Actions

- The project Best Technology Competition is one of the most attractive approaches of the government to promote innovation. It is clear that this practice should be continued and improved.
- Even in the structure of the ex MoSTD, this project was facing the problem of sustainability because of its treatment within MoSTD's annual programme of activities and budgeting. It is less clear now than before, how this project will be positioned within the new organizational structure which is in process of establishing in the Ministry of Education and Science.
- So far the approach was that access to the competition was available only online. Therefore competitors should possess strong IT skills which discouraged all others potential applicants and made competition weaker.

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.14. It is recommended to define appropriate managerial as well as financial scheme which could allow sustainability and continuation joined with adequate monitoring and assessment of effectiveness and performance of the competition.

R.15. Language barrier should be overcome.

R.16. The members of the Jury should include eligible representatives of the research and business community who should charge, on the both technical and commercial aspects of the innovation in the most competent way.

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.17. More targeted promotion is recommended, as well as better timing of broadcasting than current. Business community should be attracted as audience. Special attention, during the whole process of applying, selection and awarding the best inventors, should be paid to the potential users/buyers of the innovations. It is recommended to involve them in all stages of the Competition.

R.18. It is also recommended to establish robust monitoring, evaluation and impact assessment Monitoring and Evaluation (M&E) system for this Programme support.

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Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

A.14. Appropriate contest documentation should be provided in English. In order to attract foreign investors, it is important to create bilingual promotion materials of the Competition, including the web site presentation of finalists and resumes of their innovation projects.

MP

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Recommendations and Proposed Corresponding Actions

Project EEN in Serbia 2009-2010

MP

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Recommendations and Proposed Corresponding Actions

- Enterprise European Network is one of the basic tools for encouraging innovativeness of small and medium enterprises in Serbia. The staff of the EEN consortium in Serbia is highly professional, so they can come out to meet demand of clients at all times. One significant advantage of EEN services is that they are free of charge to all interested companies. By establishing EEN in Serbia, it would be possible to motivate companies to think about improving innovation through new forms of business and technological cooperation as well as advisory services, not only through financial support from government and other funds.
- The participating enterprises, belonging mainly to the SME sector, national RTD institutions and organisations are as well direct users of this project. The special groups of direct users are women entrepreneurs and young entrepreneurs, especially in the identification of their needs and creation of instruments for their stronger support.

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Recommendations and Proposed Corresponding Actions

- The indirect users are chambers of commerce, local authorities, professional trade organisations, NGOs (they will have a significantly better access to the information on markets, policy, funds, legislation, both on national and EU level, and facilitated creation of direct links with the companies from the SME sector).
- By establishing EEN in Serbia, the direct and indirect users are in position to gain information about the requirements for entering and conducting business operations in EU (relevant legislation, directives, etc.), export opportunities, public procurement possibilities, innovative technologies, potential innovative partners, EU RTD possibilities and programs, and gain access to the innovative technologies in one place (one-stop-shop). Right information and right innovative solutions to the problems of SMEs contribute to the business development of Serbian SMEs and their survivability on today's dynamic and open markets.

MP

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Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.19. EEN consortium and policy makers should promote the activities of EEN in Serbia with higher intensity among enterprises in Serbia in order to improve their innovation capacity.

R.20. It is clear that Enterprise Europe Network must continue its work with more joint efforts and must create an even larger client base in order to reach its goal and become a stronger support to SMEs and Serbian economy.

R.21. It is recommended to establish robust monitoring, evaluation and impact assessment Monitoring and Evaluation (M&E) system for this Programme support.

MP

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Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

A.15. In order to make SMEs motivated to be more responsive on the EEN activities, it is important to organize meetings where the achieved results will be promoted. Presentation of "Best practice in EEN Serbia: How to use access to EU market at your doorstep" might be appropriate form to get SMEs together and keep them informed on the regular basis on the benefits EEN can provide to them, through promotion of the realized partnership agreements within Serbian EEN.

MP

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Recommendations and Proposed Corresponding Actions

CIP/EIP Programme in Serbia 2009-2010

MP

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Recommendations and Proposed Corresponding Actions

The MoERD, Department for SME policy development, has undertaken a self-assessment and recognised the reported achievements, as well as shortcomings and problems. The department of the ministry prepared an activity plan for 2011 which relies on the results of the above mentioned self-assessment. Two main weaknesses are so far identified:

- Lack of financial mechanisms for innovation incitement
- Long duration of ongoing financial procedures.

MP

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.22. More accurate reflection and decision making from the higher level of public administration is needed. Besides the suggestions in the activity plan, more practical work – organizational or in-house – should be foreseen in the next period.

R.23. There is room to develop a more strategic approach in cooperation with other stakeholders in programme performing.

R.24. Finally, it is recommended to establish a robust monitoring, evaluation and impact assessment (M&E) system for this Programme support.




Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

A.16. Analysis of the Work Programme for next year and, with the cooperation of interested parties, determination of the priority of calls.

A.17. Establishment of working groups to promote selected public calls and activities under EIP

A.18. Permanently inform stakeholders about the conditions of participation in public call for proposals, assistance in the preparation of project proposals.

A.19. Maintenance of internet-themed presentations and networking with stakeholders' websites.

A.20. Media promotion of the participation of the Republic of Serbia in the CIP-EIP programme (media articles on the show "Euronet", "Production Group Mreža", and journal "Ekonomist", etc.).




Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

A.21. Payment of financial contributions to the Republic of Serbia.

A.22. Regular organisation of Info Day in collaboration with development agencies, Chamber of Commerce and the Regional Chambers.

A.23. Regular participation in the EIP Programme Committee.

A.24. Strengthen activities aimed at finding a partner to sign the tender.

A.25. Keep correspondence with representatives of the Directorate General for Enterprise and Industry of EC.

A.26. Regular up-date of database on participants in the EIP in: registration applications and approved projects.




Recommendations and Proposed Corresponding Actions

EU FP7 Programme




Recommendations and Proposed Corresponding Actions

- The integration of Serbia's R&D system into the European Research Area (ERA) system is a need, desire and the destiny of the vast majority of researchers in Serbia. The results of survey present the facts why it is good that the creative sector of Serbia becomes part of the European Research Area and thus contribute to the development of national economy and society as a whole. This good spirit and motivation of national science can, and should be used as a motivational factor for the faster integration into European Union and all other sectors and countries as a whole.
- But, there is still missing one important link in the chain of technology transfer processes – SMEs. Facts about low participation of SMEs from Serbia in FP projects urged on action. The problem is recognized within Ministry for Science and Technology Development, Department for international cooperation and European integration and National Contact Point (NCP) system, but still stays unsolved. It is also unclear how the problem will be treated within the new organization of the Ministry of Education and Science.




Recommendations and Proposed Corresponding Actions

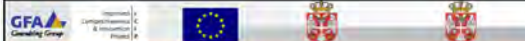

A. In the field of effectiveness and efficiency of programme

R.25. Interaction with other stakeholders within national innovation infrastructure is recommended

R.26. Promotion of building partnerships between R&D institutions and SMEs is desirable. In this context, dissemination of the information about FP7 among SMEs should be intensified.

R.27. Linkages between NCPs and Enterprise Europe Network Serbia should be more developed and encouraged

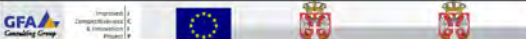

R.28. It is recommended to establish robust monitoring, evaluation and impact assessment (Monitoring and Evaluation - M&E) system for this Programme support

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

A.27. To inter-connect all relevant EU funded projects to support innovation of SMEs in Serbia with the aim to make final beneficiaries (SMEs) familiar with them. As a first step, set up of the links toward the relevant web sites of the mentioned programs are recommended. Link toward the FP7 should be set up on i.e. the website of the MoERD.

Recommendations and Proposed Corresponding Actions

Business Incubator Network




Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.29. National Programme for incubators with tenants – companies which are technology based/oriented, should be governed by the Ministry responsible for Science and Technological Development (at the moment MoES – Ministry of Education and Science). This Programme should provide support to incubators, stable source of funding and liability of reporting, monitoring and evaluation of them. In addition, MoSTD should propose adequate instruments for cooperation between Universities and other R&D organizations and Incubators in order to improve innovation capacities of the tenant companies;

R.30. National Programme for incubators with tenants – companies which are business oriented - should be governed by the Ministry of Economy and Regional Development. This Programme should provide support to incubators, stable source of funding and liability of reporting, monitoring and evaluation of them. MoERD should propose adequate instruments for improvement of business performance, visibility in business community as well as networking in business clusters of tenant companies

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.31. Incubators that are even partially state-owned must be accountable and cooperative with their founders, considering monitoring and evaluation of activities and social responsibility within local and national economy;

R.32. Incubator's administration should establish functional cooperation with national partners responsible for functioning of European Enterprise Network in Serbia;

R.33. It is necessary to create mechanisms for better cooperation between management of Incubators with institutions that can help to improve performance and operations of incubators and tenants, providing training programmes, certification and accreditation procedures, access to international funding schemes, etc.

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

A.28. Consultative meetings of MoERD and MoES (Ministry of Education and Science) should be organized on regular bases with the aim to ensure compatibility of the strategic development of the incubators in Serbia.

A.29. Registers of the technology based and business based incubators should be made as corresponsive.

A.30. Set up the criteria for establishing of the business incubators based on the "best practices" from EU and launch the accreditation procedure, which will distinguish business incubators from the associations and clusters.

A.31. Establish the effective selection criteria and mechanism of tenants which will promote the best applicants for start-up credits. This action implies good communication between banks, awarding institutions (NARD, MOERD, MoES, and Development Fund etc). Launching this practice will contribute to avoiding developed business existing within the incubators

Recommendations and Proposed Corresponding Actions

Innovation Fairs

Recommendations and Proposed Corresponding Actions

- Innovation fairs in Serbian economy are still linked to the exhibition of the inventions, organized mostly by the national and local associations of inventors. Accordingly, these exhibitions are organized individually or as an integral part of Business Base or other relevant fairs in sectors such as: healthcare sector, agriculture, food processing, energy efficiency and mechanical engineering. It is obvious that the activity of these associations, which usually have in their title "invention" or "innovation", is promoted and exhibited separately from the innovations of the SME's at the sector's fairs, which indicates that the inventors and innovators are not only "physically" but also practically, excluded from the core innovation activity of the SME sector.
- On the other hand, innovations created by SMEs are usually promoted as a part of company-innovator's campaign, but not as a market innovation itself. This facts show that there is not an appropriate innovation fair which would bring together innovative industries, start-ups, research labs and investors.

Recommendations and Proposed Corresponding Actions

- It is pretty clear that a developed methodology and procedure to evaluate the potential of invention to be developed into innovation and to become "marketable" does not exist. Also, there is not such kind of authorized body, which would be able to implement such a procedure. It seems that there is also lack of the mechanism to inter-link inventions with the potential to be developed into innovation with the investors, as inventors and innovators usually have a lack of the financial resources.
- There is a need to develop new concept of the innovation fairs which will be accordingly branded and positioned as state-of-the-art tool to promote new technologies and solutions in dominantly creative industries.

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

R.34. Repositioning of the concept of the innovation fairs from the old-fashioned perception refers mostly to the non-profitable projects of the inventors into the promotion of the cutting-edge technologies and achievements in profitable sectors.

R.35. As a part of the new concept of the innovation fairs, online-matchmaking and networking should be organized through the web portal developed for the purpose of the continual activity which will be performed in the period between two annual innovation fairs.

Recommendations and Proposed Corresponding Actions

A. In the field of effectiveness and efficiency of programme

A.32. Link the innovation fairs to the promotion of the "best practices" examples that will come out from the either direct innovation support provided by the relevant governmental unit in charge for Science Policy, or regular innovation support grant schemes organized by MoERD and NARD.

A.33. Online-matchmaking and networking should be organized through the web portal developed for the purpose of the continual activity which will be performed in the period between two annual innovation fairs.

A.34. Integration of the "Competition for Best Technology Innovation" into the new concept of the innovation fairs and encouraging greater use of commercial sponsorship.

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Concluding remarks



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Concluding remarks:

Because of:

- Undeveloped market economy;
- Global economic crisis;
- Inherited characteristic of national cultural context;
- ...

It is necessary to support development of NIS through institutional measures!



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Concluding remarks:

National Innovation policies:

- Education, R&D,
- Financing of innovation,
- Cooperation and networking for innovation,
- Social dialogue,
- Regional development:
 - Entrepreneurship and Innovative SMEs
 - ...



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Building of innovation capacity and innovation culture in companies:

- Networking between R&D and Economy;
- Integration of NIS into EU IS.



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Pessimist vs. Optimist view:

- Faculty of Technical Sciences, University of Novi Sad: 60+ spin-offs



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Questions


&


Answers



13. PANEL DISCUSSION

The Panel Discussion was moderated by:

- Ms Nada Dragovic, Assistant Minister – Ministry of Education and Science
- Ms Katarina Obradovic-Jovanovic, Head of the SME Policy Unit, Ministry of Economy and Regional Development

KATARINA OBRADOVIĆ – JOVANOVIĆ

Ms Obradović-Jovanović pointed out that the Ministry is fully aware of weaknesses, but that she would prefer not to watch everything from the pessimistic side, calling attention to good practise examples which should also be emphasised. Ms Obradović-Jovanović said that, at least declaratively, innovation is recognized in the MoERD, and as such included in the Strategy for the Development of SMEs. Moving on, Ms Obradović-Jovanović pointed out that, for the past three years, Ministry is implementing a programme to support innovation, with modest means, but which acts in the sphere of incremental innovation, and is aimed at companies which are not innovation oriented. This programme represents a mechanism to indicate that more companies should think about innovation.

MoERD finances small, perhaps insignificant activities, e.g. the introduction of new products, such as vitamin supplements or some new products to protect vines. This is not a grand innovation, but it is important to change the way of thinking. We would like to, based on positive results, get more funding in the budget for innovation. At the same time, by preparation and implementation of various projects, such as ICIP and similar projects, Ministry of Economy and Regional Development and the Ministry of Education and Science are trying to raise the level of knowledge of employees to be able to deal better with this area.

We are trying to catch up with the European trends, even if we cannot compare with EU countries. Ministry is financing the preparation of data for European Innovation Score Board where Serbia is now located, also. We try not to be bad gardeners, because we are aware that we need to know whom are we helping, therefore, one of the important components of ICIP is to scan innovative companies, through which we will get to know better those who want to be supported.

BRANISLAV BUGARSKI – Director, Vojvodina Investment Promotion

In Vojvodina, there are 5 business incubators, and we have decided to establish the new set of instruments to support the enterprises, i.e. entrepreneurs with an idea of what they want to do and how they want to develop the idea. The question raised in this workshop is whether one should support companies that have already reached certain level of innovation and are in need for funds for its further development, or one should support those companies with entrepreneurial potential that can generate innovation ideas. The market has showed us that we should go the other

way. Through these incubators, for which we get less than 10 million dinars per year from the provincial government, and that amount is for about 50 companies, we are focusing on micro and small enterprises. The main problem faced by those companies is access to finance and the taxation policy. To ease the access to finance, it is necessary to change the education system, to facilitate the links with the world and to depoliticize the instruments of support.

VOJIN ŠENK – Full-time Professor, Faculty of Technical Science, Novi Sad

Mr. Šenk replied to the question of why there is no demand of SMEs for research and development when research institutes and universities have technologies to offer, and those kinds of technologies that can be implemented. He believes that scientists need to be forced to behave like entrepreneurs in order to encourage the entrepreneurial spirit.

He then said that he considers that there is no technology transfer as such, but rather embedded technology. Money for research and development should be given only to companies, not to R & D institutions. Companies can use that money to pay scientists to do something for them, and in such way the money comes to academics, which, in addition to their salary, can earn extra money. On the other hand, proposes Šenk, company can start to use financial assistance only when they invest the extra money.

Šenk believes that SMEs have a tradition in Serbia and that there is potential in them that we are not aware of and that this potential is not sufficiently promoted.

MILENKO MILINKOVIĆ – Academician SAIN, President of Milinkovic Company

Mr. Milinkovic wanted to present the hard work that is in front of entrepreneurs on the path from an idea to the final product. Until now there was not enough support available, either financial or the expert one, in order to ease the path from the idea, through research and development, prototype and testing to the final product. Milinkovic Company went through the process 10 years ago and fortunately had sufficient funds on its own to come to the final product. During that period company has invested about 2 million Euros, which is a huge sum for a small company like ours, but we succeeded anyhow. This year they started commercial construction of two buildings of their products which are classified among the top 10 products for sustainable construction in Europe.

Mr. Milinkovic said that the problem is when a company like his engages all its resources for the production of one product, and then has no available funds or human resources to search for funds that can help in some other processes from idea to the final product (certification, patent protection...). However, it seems that we start to build institutions and projects that could provide more support on this bumpy road.

SUREN HUSINEC – Chemist, Institute for Chemistry, Technology and Metallurgy, owner of the company “Duochem”

Mr. Husinec, in addition to his scientific work, has started his career as entrepreneur 10 years ago and is competent to comment on the status and the challenges from two sides, economy and scientific side of the picture. According to the Professor Šenk, Mr. Husinec is the best example of how a scientist can also make living from the application of his knowledge in the economy. Mr. Husinec is the owner of “Duochem” company, specialised for the production of chemical products, which was established with the aim to materialize his own research. Mr. Husinec says that, at the time, the economy was not ready to embark on investments in his projects that have proved to be sought in the market.

During the panel discussion Mr. Husinec said that as a man who was only a scientist and now is also an entrepreneur, knows just how difficult it is to make money. Mr. Husinec also pointed out that nowhere in the world you cannot see examples of science being financed only from the state budget. At the same time, he criticized the Ministry of Education and Science, saying that the money which is coming back from his earnings into the science again, is not well used.

At the end, Mr. Husinec concluded that the biggest problem is that there is no dialogue between innovative companies and policy makers, and stressed that this workshop attracted his attention, among other things, because it was titled “Innovation Support Dialogue – Innovation for Competitiveness”, with emphasis on the word dialogue.

ALEKSANDAR RODIĆ – Mihailo Pupin Institute, Robotics Laboratory

In his reply to the statement of Professor Šenk that professors and scientists in Serbia are paid too much, Mr. Rodic says he believes that the introduction of the Bologna Declaration has decreased the quality of studies. Based on his personal experience gained during the postgraduate studies in Germany, Mr. Rodic mentioned that there, the teachers are seen as respected figures who are adequately rewarded. He said that he disagreed with the thesis that all professors (scientists) should also be the entrepreneurs, because in that case, in the pursuit of profit, studies i.e. scientific institutions would suffer.

When it comes to the development of innovation in Serbia, Rodic considers that both government institutions and scientific community should be oriented towards the State’s priorities and that the whole innovation process should be directed towards that.

ANNEXES

Annex I: Programme



This Project is funded by the European Union



Republic of Serbia
MINISTRY OF EDUCATION AND SCIENCE



Republic of Serbia
MINISTRY OF ECONOMY AND REGIONAL DEVELOPMENT

Improved SME Competitiveness and Innovation Project

Ministry of Economy and Regional Development,
Ministry of Education and Science
in cooperation with the EU funded Improved SME Competitiveness and Innovation Project

organise the 'Innovation Support Dialogue' Workshop on

Innovation for Competitiveness? Assessment of Serbian Innovation and Competitiveness Support Programmes

Thursday, 29 September 2011

10:00 – 13:00h

“Mihailo Pupin” Institute – Conference Hall

Volgina 15, 11060 Belgrade, Serbia



09:30 – 10:00 Registration

10:00 – 10:30 Opening Session

Welcoming Remarks

- **Vladan Batanović** – Ph.D., El.Eng., Director, “Mihailo Pupin” Institute
- **Jose Antonio Gomez Gomez** – Head of Operations II, European Union Delegation to the Republic of Serbia

Opening

- **Dragijana Radonjic Petrovic** – State Secretary, Ministry of Economy and Regional Development

10:30 – 11:45 Keynote Speakers

- ***Introduction; Innovation for Competitiveness?***
Jurgen Henke – Team Leader, EU funded Improved SME Competitiveness and Innovation Project (ICIP)
- ***Science-industry links in central, eastern and south-eastern Europe; conventional policy wisdom faces reality.***
Slavo Radosevic - Centre for Comparative Economics, University College London
- ***What makes collaboration between science and industry happens?***
Gerd Meier zu Koecker – Director, Institute for Innovation and Technology, iit, Berlin
- ***Assessment of Serbian Innovation and Competitiveness Support Programmes; main findings***
Djuro Kutlaca - Head of Science and Technology Policy Research Centre, "Mihailo Pupin" Institute, Belgrade

Panel discussion to follow

11:45 – 12:45 Panel Discussion

Introduction and Moderation

- **Nada Dragovic** – Assistant Minister, Ministry of Education and Science
- **Katarina Obradovic Jovanovic** – Head of SME Policy Unit, Ministry of Economy and Regional Development

Panel Members

- **Vojin Šenk** – Full Professor, Faculty of Technical Science, Novi Sad
- **Ljiljana Kundakovic** - PhD, Managing Director, Innovation Fund
- **Branislav Bugarski** – Director, Vojvodina Investment Promotion
- **Milenko Milinkovic** – Academician SAIN, President of “Milinkovic Company”
- **Keynote Speakers**

Reception

Annex II: Profile of Keynote Speakers

- **Prof. Slavo Radosevic** – Centre for Comparative Economics, School of Slavonic and East European Studies, University College London (UCL)

I am Professor of Industry and Innovation Studies with research interest in science, technology, industrial change, foreign direct investments and innovation policy in central and Eastern Europe. My research is based in neo-Schumpeterian, evolutionary and institutional economics. I favour empirically oriented and policy relevant research focused on countries of central and Eastern Europe. I am involved in several European research networks and policy consultancy activities in these areas.

I obtained my PhD from Zagreb University (1988) and studied in Netherlands (1986) and Denmark (1988/1989). I have a long standing experience of research in the area of innovation studies as well as significant policy making experience in Croatia and ex-Yugoslavia. I worked as department director at the Republic Institute for Planning (Croatia), as a researcher at the Institute of Economics Zagreb (Croatia), and as Federal Under-Secretary for Development in the last SFRY government. From 1993 to 1999, I worked as a Senior Fellow at SPRU, University of Sussex where I am now Visiting Fellow. I joined SSEES UCL in 1999.

I am acting as an expert for the various EC DGs, as consultant for OECD, UNESCO, UNIDO, World Bank, UNECE and Asian Development Bank, and I have worked on technical assistance projects with Ernst & Young and TNO.

- **Dr. Gerd Meier zu Köcker** is Managing Director of the Institute for Innovation and Technology, iit, Berlin.

Dr. Gerd Meier zu Köcker made his PhD in Material Science in 1995 and joined VDI/VDE Innovation + Technik GmbH in 1999, where he currently acts as deputy General Manager. Since 2007 he leads the Agency Competence Networks Germany on behalf of the Federal Ministry for Economy and Technology. In 2009 he also became Director General of the Institute for Innovation and Technology, Berlin.

Dr. Gerd Meier zu Köcker has led many innovation policies and cluster projects in several parts of the world, has widely written about innovation, technology transfer and clusters, and is a frequent speaker on innovation policy, innovation management and cluster in Europe, Africa and Asia.

He is serving on various advisory boards - European Cluster Observatory, European TACTICS project, Danish Cluster Initiative REG X, KEEN Region and the French Network Euro-Mediterranean Innovation – and is member of the European Commission's Europe Cluster Policy Group. In addition, he is member of the German Ministry of Education and Research (BMBF) selection committee Health Regions of the Future as well acts as key expert in several European Innovation support programmes, like for the BRIDGE Programme (Austria) or the BMBF Spitzenclusterprogramm. In former times he contributed to the European Cluster Memorandum as member of High Level Advisory Group on behalf of the European Commission.

- **Prof. ĐURO KUTLAČA**, Ph.D., Scientific Counsellor, Head of the Science and Technology Policy Research Centre, "Mihajlo Pupin" Institute, Belgrade .

He is born in Zagreb, on December 16th, 1956. He received B.Sc. degree (5 years studies) in 1980 and M.Sc. in 1986 at the Electrical Engineering Faculty, University of Belgrade, completed PhD dissertation in 1998 at the Faculty of Organizational Sciences, University of Belgrade. Since 1981 has been a research associate at Mihajlo Pupin Institute, Belgrade, Serbia. Present position: head of S&T Policy Research Centre, Scientific Counsellor, Professor at University Metropolitan, Belgrade, teaching Project and Innovation Management.

As visiting researcher in innovation policy matters he has been twice to FhG Institut für Systemtechnik und Innovationsforschung, Karlsruhe, Germany; first visit January-April 1987 (Innovation infrastructure: government policy, building, promotion and use, monitoring and evaluation) and the second, November 1991-January 1992 (Involved in research project: "Public Measures to support Innovation Consultancy Services in Europe", financed by Commission of European Union, DG XIII-C). From July to December 1996 and July to August 1997 visiting fellow at Science Policy Research Unit, University of Sussex, Brighton, United Kingdom, as member of research team on the project: "Restructuring and reintegration of Science and Technology systems in economies in transition", financed by Commission of European Union, DG XII, under Fourth Framework Programme "Target socio-economic research" (TSER). From July 2001 to the end of October 2002 visiting fellow at Science Policy Research Unit, University of Sussex, Brighton, United Kingdom, as member of research team on the project: "Sectoral effects of macroeconomic policies in Central and Eastern European countries", financed by Commission of European Union, DG XII, under Fifth Framework Programme.

Former member of NESTI (National Experts for Science and Technology Indicators) group at OECD, from September 1988 until May 1992, included in preparation procedure for the following methodological documents: TBP Manual 1990; Oslo Manual, 1992; Frascati Manual 1993, also, co-author of "Science and Technology Policy in Yugoslavia", National Report prepared for OECD S&T Policy Outlook (1990).

His scientific disciplines are: (1) Operations research; (2) Information theory; (3) Organization and management in Research and Development. Specific research subjects of his interest are: (a) science and technology and industry development and policy, (b) metrics in science, technology and innovation (Scientometrics, Technometrics), and (3) Innovation theory and practice.

During 30 years of research experience, he was a member of research teams in 40 large R&D projects, has published 29 scientific papers, and presented 125 papers at international and national scientific conferences, author of 2 and co-author of 23 books.