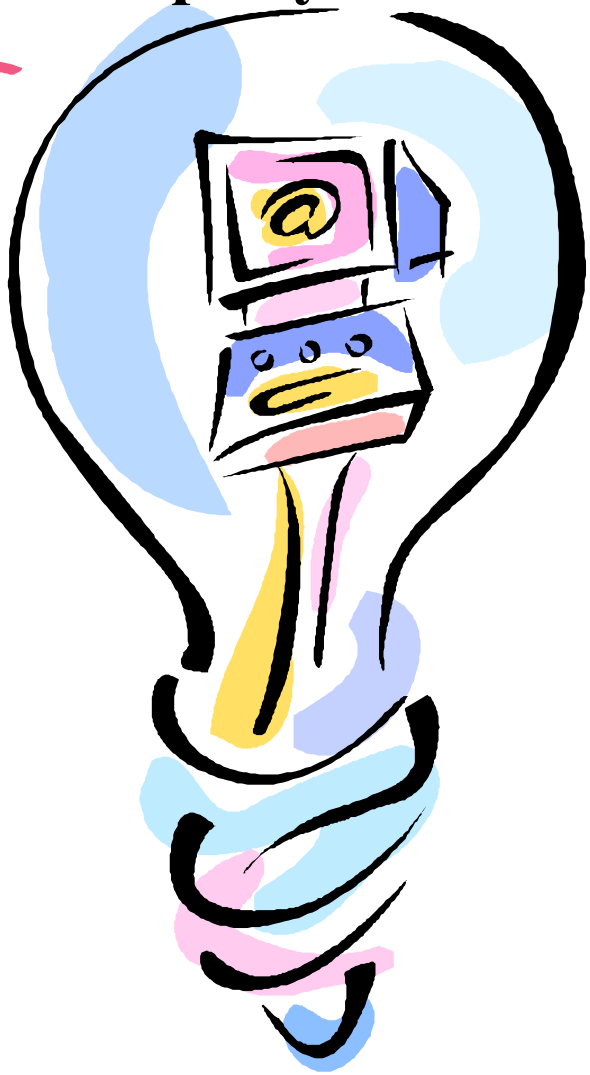
Center for Development of Entreprenurial Society

Small and Medium-sized enterprises and Intellectual Property



Author:
Igor Brkanović

Associates:
Ranka Miljenović
Ivan Brkić
Svetozar Matić

This Study is prepared with the support of World Intellectual Property Organisation

Special contribution to
the Study "SMEs and Intellectual Property"
has been made by the experts of
Intelectuall Property Office of Serbia (IPO).
All data related the current status
of intellectual property protection in Serbia
have also been provided by IPO.

Table of content

LIST OF ABBREVIATIONS

GAV– gross added value
GDP – gross domestic product
CEFTA – Central European Free Trade Agreement
CESID – Centre for Free Elections and Democracy
CIP – Framework Programme of the European Union for Competitiveness and Innovation
EEN – European Enterprise Network
EFTA – European Free Trade Agreement
EIC – Education and Information Centre
EIP – Enterprise and Innovation Programme
EIS – European Innovation Scoreboard
EC – European Commission
EU – European Union
EUR – Euro
EC – European Communities
EPO – European Patent Office
FP7 – Seventh Framework Programme of the European Union
ICT PSP – Information and Communication Technology Policy Support Programme
ICT – Information and Communication Technologies
IPA – Instrument for Pre-accession Assistance of the European Union
RD – research and development
IP – intellectual property
IT – information technologies
MERD – Ministry of Economy and Regional Development
IMF – International Monetary Fund
MSTD – Ministry of Science and Technological Development
SMEs – small and medium enterprises
NARD – National Agency for Regional Development
NBS – National Bank of Serbia
SRO – scientific and research organisations
OECD – Organisation for Economic Cooperation and Development
OEM – original equipment manufacturers
SCC – Serbian Chamber of Commerce
IA – Interim Agreement
RS – Republic of Serbia
RSD – dinar
RSO – Republic Statistics Office
RDB – Republic Development Bureau
USA – United States of America
SBAN – Serbian Business Angels Network

FDI – foreign direct investments
WEF – World Economic Forum
OJ RS – Official Journal of the Republic of Serbia
SIEPA – Serbian Investment and Export Promotion Agency
OG SM – Official Gazette of Serbia and Montenegro
OG FRY – Official Gazette of the Federal Republic of Yugoslavia
OG SFRY – Official Gazette of the Socialist Federal Republic of Yugoslavia
SAA – Stabilisation and Association Agreement
TRIPs – Agreement on Trade Related Aspects of Intellectual Property
UNMIK – United Nations Mission in Kosovo
USAID – United States Agency for International Development
USD – US dollar
IPO – Intellectual Property Office
WIPO – World Intellectual Property Organisation

Summarry

In the era of globalisation of world's market, with accelerated development of technologies and increasing competition, intellectual property and its' protection have become even more important. Still, intellectual rights don't have economic value per-se. Productive exploatation and commercialisation of intellectual property is what brings economic and utility value to the legal framework. In this sense, and realising that legal protection is not of importance without economic exploitation, some new forms of intellectual property protection have appear, such as business secret.

In their everyday business, SMEs are, somehow, "forced" to continiosuly innovate in order to survive on the market. Therefor, they are guided to creation of new products or services, new processes, improvement of existing ones, creation of new design, i.e. they are directed more and more to economic value of intellectual property.

Serbian legal system has almost been completely harmonised with international standards, and above all European legal achievements and completed with law and by-laws that regulated all intellectual property chategories. This has specially been stresses in the Annuall Report on of the Eureopan Commission on the progress of European integration.

The Republic of Serbia became a part of international system for protection of intellectual property. It ratified all relevant international conventions in this area and incorporated their provision into national legal system, and in bilateral and multilateral agreements on free trade stressed importance of intellectual property and its' protection, too.

Intelectual Property Office of Serbia, as the key institution in this area conducts specialised activities and administration procedure related to: patent and petty patent, trademarks, industrial designs, indications of geographic origin, topographies of integrated circuits, copyrights and related rights. IPO of Serbia is also in charge for Implementation of international contracts in the area of protection of intellectual property as well as presenting and representing the interests of the Republic of Serbia in specialised international organisations for protection of intellectual property.

Having in mind how important are SMEs investment into development of innovativeness, and in that sence protection of intellectual property rights, the Governments aligned its sectorial policy and strategic documents with the relevant EU policies.

On these bases, "Strategy of Scientific and Technological Development 2010-2015" set as its' objective establishment of a national innovation system, and aims to establishment of cooperation between economy and scientific and research-institutions, i.e. to commercialisation of innovation. Also, "Strategy for Development of Competitive and Innovative SMEs 2008-2013" development of culture of SMEs investment into innovation through improvement of technological and non-technological innovation of SMEs; support to investment into ICT and participation of enterprises in innovation programmes of scientific-research organisations and EU programmes.

Besides FDIs, SME sector in Serbia is an engine of economic development and employment, and important factor for reduction of great regional disproportionalities. SMEs significantely contribute to all economic indicators, starting from the number of enterprises, share in total turnover, GVA, import and export of Serbian economy. Still, since they suffer the most due to

the changes in their business environment, they also experienced negative effects of global economic crisis in the past two years whic affected their growth and development.

SMEs in Serbia are awared their low technological and innovative level, and are faced with the fact that their development can't be based on violation of intellectual property rights but on accelerated chatching up towards development of entrepreneurial economy based on knowledge. Still, SMEs investments into innovation, especially technological, which is close connection with intellectual property, are very low. Even when favourable public sources for financing of innovation exist, SMEs more often decide to introduce non-technological projects, rather then to cooperat with SRO. This leads to lower competitiveness at domestic and international market.

Through the analisys of seven key sector for development of Serbian economy, defined as priorites in different strategies or for attraction of FDIs, it could be concluded that cooperation of SRO with economy, and especially with SMEs is on low level. Positive correlation between state investments into science and increased number of patents has been achieved only in ICT and electronics sectors. Sectors with the largest number of approved patents for the period 2006-2009, are electronics, medical instruments and construction. According to the number of petty patents the most important sectors are electronics, mechanical engineering and furniture. Positive correlation between the increased number of patents and GDP was achieved only in the sectors of pharmaceuticals and ICT as a result of FDIs. When it commes to the correlation between increased number of small batents and GDP, it is positive in the sector of ICT, wood processing and partially agro-industry, as a result of SME growth.

At the end of this Study, conclusions have been summarised and they point that, although the awareness of SMEs in Serbia on the importance of innovation and intellectual property has increased, they still lag behind development of innovativeness and thus improvement of competitiveness. Lack of *triple helix* connection makes this situation worst to a large extent.

With the aim to establish and develop economic cooperation between scientific-research organisations and SMEs, only those SRO that in their projects have clearly defined or already established cooperation with SMEs should be supported through the budgetary resources. To strengthen the link between science and economy it is important to have in mind that only applied innovation have the importance for development.

Intelectual property protection in scientific institutions and at the universities should be the result of increased commercialisation of innovation, developed through close cooperation with economy. It is necessary to improve methods for assessment of economic value of economic operators and affirm business transaction with intellectual property.

Introduction

In the twenty-first century, the idea of market globalisation and integration of national economies into a world economy has gained its full meaning. All economies are trying to speed up liberalisation of their business conditions by carrying out regulatory reforms, deregulating business environment, simplifying and reducing the costs of various types of administration procedures, which would have, to a significant extent, an impact on competitiveness of enterprises, and economy as a whole. Favourable business conditions contribute to the growth of local enterprises, but also invite companies of the world to export to this emerging market, or to develop their products and services through direct investments. This means that local SMEs[1], even if they do not have the intention to operate on the world market, will be facing the world competition anyway on the national market, in the same way as if they were exporting. By beating the competition in their own backyard, the SMEs will be ready to perform on the international market as well. In this process, regulatory mechanisms are losing slowly the meaning of a development component, but they are rather creating conditions where knowledge, creativity and innovation are essential to competitiveness and development of knowledge-based economy.

In different stages of business development, an entrepreneur is facing the need to cooperate with the representatives of public, financial and private sectors, and to, willingly or not, be forced to share his ideas and knowledge with others. Nowadays, especially with the development of new technologies where transaction costs of the movement of goods and services are low, exchange and realisation of business ideas is picking up the pace with only one goal – commercialisation on the market. Therefore, intellectual property has gained in importance more than ever in the development of the world economy to date.

Intellectual property maybe defined as a form of property consisting of immaterial goods that are a product of creative human effort. It refers to creativity of mind: inventions, literary and art works and symbols, names and images used in trade.

Term and aspects

Intellectual property may be viewed from legal and economic aspects.

Legal aspect of intellectual property is basically the set of rights protecting certain form of intellectual property, under legally prescribed conditions and with certain legal restrictions.

Economic aspect expands the concept of intellectual property to those forms of intellectual property not regulated by law, and which may be used as the means to protect an investment. The most obvious example of this expanded concept is a business secret or various information and knowledge that have practical use and quick commercialisation through placement ofproduct on the market.

Development component

[1] For the purpose of this Study, term SMEs – small and medium-sized enterprises, defines both the legal entities and entreprenurs

Intellectual property in its narrower, legal sense is not the mean of the economic development if it is not used in the economy. In other words, none of the intellectual property rights has economic value per se. What turns an intellectual property right into an economic value is its productive use and commercialisation.

Economic view on intellectual property focuses on property value lying with intellectual property and which can be materialised only if it is used in the economy, regardless of whether it is legally protected or not.

Intellectual property brings benefit to the society, especially to consumers, by enhancing the value and ensuring quality guarantee. Trademarks and indications of geographic origin enable consumers to distinguish between the goods and services of various producers and to choose the ones whose reputation they trust the most. They also represent a permanent relation between the producer and his product and encourage them to be responsible for the efficiency and quality of the product.

Therefore, even intellectual property not protected by any of the intellectual property rights, with economic use, may bring profit to its owner. In some situations, it is strategically better for a business to resort to so-called soft intellectual property, that is, protection of certain intellectual property in form of a business secret, rather than legal protection in form of a patent.

In transition countries such as Serbia, the intellectual property right has an additional function, which, from the point of view of current economic policy, is sometimes even the main one. This is the function of attracting foreign direct investment. Efficient legal protection and especially efficient implementation of intellectual property rights undoubtedly encourages foreign companies to transfer their production and services into the country, based on new technologies, renowned trade and service marks, as well as so-called creative industry.

Economic benefit of intellectual property from the macroeconomic aspect is manifold because it stimulates economic development, leads to GDP growth, increase of exports of higher value goods, stimulates research and development, reduces brain drain, attracts FDI and results in new jobs.

Categories of intellectual property

Intellectual property right can be divided into two categories:

1. Copyright and related rights and
2. Industrial property right

The first group, ***copyright and related rights***, comprises the rights of authors, performers, producers of phonograms and videograms, producers of shows and producers of database.

Industrial property right is, pursuant to the current national legislation, related to:

- Patent protection
- Trademark protection
- Industrial design protection
- Indication of geographic origin protection
- Topography of integrated circuit protection and
- Plant varaeties protection.

Patent is an exclusive right recognised for an invention of a product or procedure that provides **new** technical solution of certain problem that has inventive level and is industrially applicable. Fulfilment of those conditions is examined in the procedure of essential testing. It provides protection for the invention to the patent owner, which is recognised for a limited period of 20 years. To excercise this exclusive right for economic exploitation of protected invention, the patent owner has a right to prevent every third person who has not their agreement to:

- Produce, offer, , place on the market or use product that has been made according to the protected invention or to import or store with the above mentioned purposes that product;
- Apply or offer the procedure protected with patent;
- Produce, offer,lace on the market, use, import or store product directly obtained in the procedure protected with patent;
- Offer and deliver the products that constitute important elements of the invention to the persons that are not authorized to use that invention, in the case that the bidder or supplier is for should have to be familiar that the product is designed to apply someone elses invention.

Petty patent is the right protecting new industrially applicable invention, which has an inventive level lower that the inventive level required for the patent, but which exceeds the routine use of the state-of-the-art by experts in certain area of technic. The subject of the petty patent protection is a solution related to the construction of a product or set up of its integral parts. For petty patent there is not a detailed assessment of the invention, the procedure is completed with a formal assessment. The application of a petty patent is not published. Petty patent has limited time of duration, 10 years, with remark that request for essential testing has to be submitted before sixth year is ended, after which it can be extanded with application for 2+2 years.

Trademark is a differentiating mark identifying certain goods or services, such as those produced or provided by an individual or an enterprise. Its origin derives from ancient times when artisans used to reproduce their signatures or “marks” on their art or usable products. ***Protection of a trademark*** also prevents unfair competition and counterfeiting and prevents that such marks are marketed, which can can confuse consumers.

Industrial design is ornamental or aesthetic look of an object. Design may consist of three-dimensional features, such as a form or a surface of an object, or two-dimensional features, such as samples, lines or colours. In order to be protected, the industrial design has to be new or original and non-functional. Industrial design is what makes certain object attractive and appealing, thus it complements the commercial value of the product and improves its sales on the market.

Geographic indication is a mark used on goods already having specific geographic origin and having the qualities and good reputation, which is mostly the result of that place of origin. Normally, geographic indication consists of the name of the place of origin of the goods. Consumers understand geographic indications primarily as a special emphasis on the origin and quality of the product, that is, a specific feature.

Intellectual property and SMEs

One of the pillars of the world economy, especially of transition economies, is small and medium enterprises. They provide majority of jobs and create new ones, have the biggest share in added value, turnover, profit, and in the most developed economies, in exports.

Today, in the conditions of dynamic development competition, small and medium enterprises are looking for a chance to survive, to grow and to develop on available specific knowledge and

skills, flexibility, invention, and in the quickness to respond to market signals and changes in business environment. In this process, SMEs find it more difficult to grow in isolation, without cooperating with the knowledge centres (universities, institutes, laboratories etc.), consultancies, public institutions, and at the same time with other SMEs, associating very often in various forms of business associations. Considering different stages in development of a product or service and the number of actors in business environment, intellectual property and its protection are more and more significant in daily business operation of SMEs.

Development of competitiveness at domestic and foreign markets has become an imperative for SMEs. All definitions of competitiveness stress, as its integrated part, the role of innovation. Development of innovation in SMEs is practically inseparable from intellectual property. Intellectual property and protection of its rights presents capitalisation of innovation through creation of a new product, service, process or mark, but which does not have value and meaning if it not commercialised on the market.

How much are SMEs aware to recognise the significance of intellectual property in the transition countries such as Serbia? Especially, taking into account the previous decade and isolation of the Serbian market when violation of intellectual property rights was in the function of generating profit for many of the SMEs. At the same time, this decade was the confirmation of dramatic changes in the world economy oriented towards the economy of knowledge, at the time when majority of Serbian SMEs did not have access to new technologies and information and relations with various actors; it was a period of lagging behind. Nowdays, Serbian SMEs are aware that they are at the low technological and innovative level, and are faced with the fact that their further development can't be based on violation of intellectual property rights, but on accelerated catching up towards development of entrepreneurial economy based on knowledge.

Bearing all this in mind, the role of the public sectors should be based on raising the awareness of the SMEs on the significance of protection of intellectual property, but also on creating proper conditions so that the procedures for protection would be simple, affordable and available according to the capacities of future and existing SMEs. At the same time, the segment of intellectual property protection policy needs to be completely integrated and to be a part of support policy for innovative SMEs, that is, the SMEs policy in general.

I. Intellectual property in the economy of Serbia

1.1. Macroeconomic environment

Creating a modern European and competitive market economy presents top development priority and the basic principle of EU integration. Serbia has demonstrated its commitment to conduct legal and economic reforms and has made progress in creating a more favourable business environment. Still, Serbian economy is characterised by ***low level of competitiveness***. According to the recent analysis of the World Economic Forum ***"Global Competitiveness Index"*** Serbia ranks 96th(out of 139 countries), and according to the research of the World Bank ***"Doing business"*** 88th (from 183 economies)

After several years with positive macroeconomic indicators, since mid 2008 Serbia has started to experience ***the impact of the world economic crisis***. There has been decline of foreign currency liquidity and depreciation of dinar, as well as slowing down of economic activity, exports and imports. After GDP growth in 2008 of 5.4%, in 2009 there was a decline –from 3%. The

unemployment rate increased from 13.6% in 2008 to 16.1% last year. In relation to the period 2006-2008, last year there was decline of investment activity (from 23% share in GDP to 18.4% in 2009).

Gross domestic product of the Serbian economy in 2009 was 41.6 billion USD[2] (decrease of 3.1% in relation to 2008), whereas per capita it was 5,690 USD.

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
GDP, real growth	5.6	3.9	2.4	8.3	5.6	5.2	6.9	5.5	-3.0
GDP per capita, EUR	1,709	2,137	2,313	2,549	2,729	3,144	3,900	4,547	4,215
Employed, growth	0.2	-1.7	-1.2	0.5	0.9	-2.1	-1.1	-0.1	-5.5
Net earnings, growth	16.5	29.9	13.6	10.1	6.4	11.4	19.5	3.9	0.2
Productivity of work, growth	5.3	5.7	3.6	7.8	4.7	7.5	8.1	5.6	2.6
Unemployment rate (labour survey)	12.2	13.3	14.6	18.5	20.8	20.9	18.1	13.6	16.1
Inflation, end of period	40.7	14.8	7.8	13.7	17.7	6.6	10.1	6.8	6.6
Inflation, average of period	91.8	19.5	11.7	10.1	16.5	12.7	6.8	10.9	8.4
Investments, % GDP	10.7	12.4	16.7	19.2	19.0	21.0	24.0	23.2	18.4
FDI, mill. EUR	184	500	1,194	774	1,250	3,323	1,821	1,824	1,372
Curr.Acc.bal.of pay.*% GDP	2.2	-4.2	-7.8	-13.8	-8.8	-10.1	-16.0	-18.2	-5.7
Budget deficit, % GDP	-0.5	-2.6	-2.7	0.7	1.0	-1.6	-1.9	-2.5	-4.1
Foreign debt, % GDP	98.3	67.2	62.7	54.4	64.3	63.9	61.8	65.2	75.0
Exports of goods, % GDP	14.8	13.7	14.0	16.4	19.4	21.7	21.8	21.7	18.9
Imports of goods, % GDP	37.1	36.9	37.8	46.0	42.1	44.5	45.7	45.2	35.4
Foreign trade deficit, % GDP	-22.3	-23.2	-23.8	-29.6	-22.7	-22.8	-23.9	-23.5	-16.5

Table 1: Main indicators of economic trends[3]

From 2001 to 2008, there was ***growth of economic activity*** at the annual average rate of 5.4%. The biggest contribution to the GDP growth in 2008 is generated by the sectors of transport, warehousing and connections (especially telecommunications), wholesale and retail trade, sector of financial agency and agriculture.[4] The physical scope of industrial production in 2008 in relation to 2000 was bigger by 17%, and the level of processing industry by 18.6%. In the nine-year transition period, ***total inflation***, measured by retail price increase was reduced from 40.7% in 2001 to 6.6% in 2009.

[2] According to the data of the Republic Statistics Office
[3] *Source:* RSO, NBS, Ministry of Finance, RDB
[4] Report on SMEs for 2008

Table 2: Structure of gross added value, 2001-2008[5]

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Agriculture, hunting, forestry, fishery	15.8	15.3	14.1	15.5	14.1	13.2	11.4	12.0	12.6
Industry - total	25.0	24.3	23.2	22.9	22.0	21.7	21.2	21.0	18.9
Extraction of ore and stone	1.7	1.7	1.8	1.7	1.7	1.6	1.5	1.6	1.5
Processing industry	19.6	19.0	17.7	17.8	16.9	16.8	16.6	16.3	14.1
Production of electricity, gas and water	3.7	3.6	3.7	3.4	3.4	3.3	3.2	3.1	3.2
Construction	3.8	3.5	3.8	3.7	3.6	3.6	3.8	3.2	3.2
Services - total	55.4	570	58.8	57.9	60.4	61.5	63.6	66.2	68.6
Wholesale and retail trade, repairs	7.2	8.3	9.2	9.9	11.5	12.0	13.5	14.0	13.1
Hotels and restaurants	1.1	1.1	1.1	1.0	0.9	0.8	0.8	0.8	0.7
Transport, warehousing, connections	8.1	8.2	8.9	9.6	11.2	13.7	15.4	16.9	16.5
Financial agency	3.9	3.8	3.7	3.6	3.9	4.1	4.4	4.8	5.2
Real estate affairs	15.9	16.1	16.4	15.4	15.2	14.9	14.3	14.7	15.3
Other services	19.2	19.4	19.6	18.4	17.6	16.1	15.2	15.1	15.7
Gross added value	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Industrial production in the Republic of Serbia in August 2010 was higher by 3.4% in relation to August 2009, and in relation to the average in 2009, it was lower by 0.1%. In the period January-August 2010 in comparison to the same period in 2009, there was growth of industrial production of 4.7%. The following sectors had the biggest impact on the growth of industrial production: production of chemicals and chemical products, production of petroleum products, production of foodstuff, production of tobacco products, and production of machinery and devices, except electrical appliances.

From 2001, **the reform of public finances** has been carried out, thus making the entire area more transparent, simpler, and the state aid rules have been introduced.[6] Although in 2004 and 2005 there was stabilisation of the public finances and realisation of surplus, the period 2006-2008 witnessed deterioration of fiscal position and growth of deficit of consolidated balance of the public sector (in 2008, 59.8 billion dinars).

Labour market is characterised by imbalance between supply and demand of workforce, intensified by discrepancy in qualification, age and professional structure. The unemployment rate is well above EU average (Serbia 16%, EU 9.0%), with high structural and long-term unemployment, high unemployment rate of youth age 15-24 and high unemployment rate of persons with elementary or secondary level of education[7]. As the result of the transition processes, in the period 2001-2008 total employment was declining on the annual average rate of 0.6%, and unemployment was growing at the average annual rate of 1.6%.

[5] *Source:* RDB
[6] Law on State Aid and accompanying Decree harmonised the legal framework with EU rules
[7] *Source:* RDB

Growth of ***foreign trade activity*** has led to an increase of foreign trade deficit, which poses the biggest threat for maintaining macroeconomic stability. Due to domination of the products of lower stage of processing (raw materials and semi-finished products), the exports is characterised by unfavourable structure, which significantly influences its competitiveness as well. Foreign trade exchange in goods of Serbia in the period January-August 2010 shows increase of 11.5% in relation to the same period in the previous year. The export of goods is 4.5 bill. EUR, which is an increase of 20.3%, imports is 8 bill. EUR, which is by 7.0% higher than in the same period last year. Deficit is 3.42 bill. EUR, which is by 6.8 % less in comparison to the same period last year. The coverage of imports by exports is 57.2%.

Budget funds for science and technology did not mark significant progress and remained on about 0.3% of the gross domestic product (GDP) and there were not any bigger investments in the scientific infrastructure.[8] In comparison to the developed countries we are very much lagging behind. In 2007, the funds for science in USA were 2.6% of GDP, in Japan 3.3%, in China 1.3%, in the Russian Federation 1.1%, and the average in the European countries was 1.84%. The biggest concern is the fact that we are very much behind the countries in the region, which, apart from Albania, allocate over 0.5% of GDP, and Slovenia, the Czech Republic and Croatia over 1% of GDP.

Weak connection of universities and research and development institutions with the businesses has resulted in insufficient and limited flow of knowledge and know-how, lack of application of scientific and technological research to increase the level of innovation (in the areas of products, production, design, marketing) and modernising technical and technological process of production. It has not been in the function of enhancing the competitiveness of the economy.

Overall, Serbian economy is still in the stage of compensating for the deep decline in the last decade of XX century. In 2008, Serbia's GDP was of the level of about 80% of GDP from 1990, industrial production of about 50% of the then industrial production, and investments were on the level of about 45% of realised investments in 1990. Many obstacles to economic development are still present: relatively low level of total economic and investment activity, high level of unemployment, issues of foreign debt, high foreign trade deficit, high social tensions, and low level of competitiveness of the economy.

1.2. Competitiveness of Serbian economy

According to the research of ***the World Bank "Doing business 2010"***, Serbia improved its ranking by two places in relation to 2009, and is now 88th on the list of 183 economies[9]. From the countries in the region Serbia places better than Croatia (103) and Bosnia & Herzegovina (116), and worse than Hungary (47), Romania (55), Slovenia (53), Macedonia (32), Albania (82) and Montenegro (71). Comparative analysis of the dynamics and pace of improvement of business indicators with the countries in the region indicates slowing down of economic reforms in Serbia. In 2005, Serbia was the leader in conducting reforms, in 2007 there was no progress in any of 10 main indicators, whereas in 2008 progress was reported in the area of registering property.[10] The poorest result in the research for 2010 was marked in the area of "Paying taxes" (136), whereas the best result was achieved in the section "Getting credit", where Serbia ranks fourth. However, this demands caution and thorough study of the methodology of the World

[8] Strategy of Scientific and Technological Development of the Republic of Serbia for the period 2010-2015

[9] http://www.doingbusiness.org/ExploreEconomies/?economyid=206

[10] Ibid

Bank used in this research, because some indicators were not taken into account such as interest rate, level of collateral, availability of banking products, but rather availability of credit information.

In the report of **the World Economic Forum "Global Competitiveness Index"2010-2011**[11], which covers 139 countries, Serbia ranks 96th with the score of 3.84. In the area of protection of intellectual property, Serbia ranks even lower, 111th, and in the pillar related to innovations, according to the innovation capacity indicator, we are 82nd, according to the quality of scientific and research institutions 56th, and according to the funds earmarked by companies for research and development 108th, in the area "Cooperation of universities and economy in research and development" (71), and in "Application of patents per million inhabitants" (78).[12]

1.3. Serbia in the European integration process in 2010

The Progress Report of the European Commission for 2010 is positive in principle, but points out certain problems in implementation of economic reforms and fulfilment of economic criteria:

According to the EC assessment, the further progress towards establishment of functional market economy was limited due to the economic crisis. Serbia has to put additional efforts in restructuring of economy in order to manage the pressure of competition and market forces in EU in middle term.

Despite serious effects of economic and financial crisis, Serbian economy improved in 2010. Increased import and timly adopted measure in agreement with IMF were the key factors in re-establishing of macroeconomic stability.

However Serbia additionaly postponeded the reforms to struggle structural defaults. Labour market continued with its weakneses. Privatisation of social enterprises regresses because a great number of purchase contracts have been canceled. Business environment is still burdened by complicated administrative procedures and weak rule of law. Also, the lacks in the area of competition and infrastructure bottlenecks remain the barriers to the businesses.

Report stresses progress in haromonisation of legislation with European standards and states that Serbia continued to implement provisions of Interim Agreement and to exercise progress in fulfillment of SAA requirements in the number of areas, including agriculture, science and research, statistics.

Still, further efforts should be made to harmonise legislation and policies with European standards and full enforcement and implementation of adopted law related to EU issues should be ensured.

Report notes smallprogress in development and implementation of modern industrial policy, with remark that industrial development strategy still hasn't been adopted. In the area of SME development policy, Serbia continued with progress and switch from policy formulation to policy implementation, especially in the area of support to innovative SMEs and start-ups. However, European Commission warns that cut in human resources in institutions incharged for SME policy could affect good level of SME policy implementation performed in the previous period.

[11] Global Competitiveness Index of the World Economic Forum

[12] http://gcr.weforum.org/gcr2010

2. Priorities of economic development

The Economic Development Strategy 2006-2012[13] may be considered a general document, which defines the priorities of the development of the Serbian economy. Strategic documents adopted at a later stage that define certain sector policies, such as the Exports Growth Strategy, Strategy of Development of Competitive and Innovative SMEs, Regional Development Strategy, Scientific and Technological Development Strategy of the Republic of Serbia, elaborate further these objectives and focus on realising sector priorities.

2.1. Economic Development Strategy 2006-2012

According to this Strategy, the Republic of Serbia has the main long-term competitive advantage in knowledge, which it will use through reform of education with stronger emphasis on research and application of innovations as well as with faster development of new information and communication technologies.[14] The essence of this Strategy is raising the overall competitive capability of the Serbian economy through unwavering conduction of all transition and reform processes that may trigger development potentials of the country (human, material and natural) and make the Republic of Serbia attractive for rapid development of the national private sector and increased arrival of foreign capital. The basic priority is to establish market economy in order to maintain inner and outer macroeconomic balance (stability of prices and balance of payments).

This Strategy however has never reached its full implementation, but the priorities it defined continue to be formed further through other strategic documents or sector policies: *Growth and restructuring of exports; Increase of national and foreign direct investments; Favourable investment climate; Growth and development of small and medium enterprises; Balanced regional development; Sustainable development; Continuous process of education and application of innovations.*

2.2. Exports Growth Strategy 2008-2011

The objective of this strategy is to realise the growth of exports of goods and services and to change the exports structure in order to increase the share of products of higher processing phase, i.e. that in total exports capital consumer goods are represented with 65 percent, instead of current 43 percent. It also envisages conquering of new markets, as well as that the number of enterprises that export annually in the value higher than 10 million Euros increases from 66 to 120 by 2011. After the analysis, the key markets for exports were presented, which are, besides the European Union, signatory countries of the CEFTA agreement, then Russia, Ukraine, Belarus and Kazakhstan, as well as the countries of the Middle East and North Africa.

Realisation of these objectives relies on two pillars: capacity building of small and medium enterprises (primarily medium enterprises) for exports; establishing the system of incentives for inflow of foreign direct investments that are export-oriented. The Strategy does not define priority export sectors.

2.3. Strategy of Development of Competitive and Innovative SMEs for the period 2008-2013[15]

[13] Drafting of the new strategy that will define priorities of economic development of the Serbia till 2020 is in progress. This document will be harmonised with EU Strategy Europe 2020

[14] Economic Development Strategy 2006-2012

[15] Strategy is addressed in detail in section 6 of this part of the study

The vision of the Strategy is to create entrepreneurial economy, based on knowledge and innovation, with the main ***goal*** *to create the framework for establishing a sustainable, internationally competitive and export-oriented SMEs sector*.

2.4. Scientific and Technological Development Strategy of the Republic of Serbia for the period 2010-2015

The Scientific and Technological Development Strategy of the Republic of Serbia for the period 2010-2015 set up the vision for Serbia as an innovation country where scientists reach European standards contribute to overall level of knowledge of the society and advance technological development of the economy with the focus on the list of national scientific priorities.

As the ultimate goal, it defines setting up of a national innovation system as a complex network of public enterprises, companies, universities, research and development institutes, professional associations, financial institutions, educational and information infrastructure for development and application of scientific and technological knowledge and establishing a knowledge-based economy.

The Strategy defines seven national priorities in the domain of science and technology: biomedicine, new material and nano-science, environment protection and climate change; energy and energy efficiency, agriculture and foodstuff, information and communication technologies, and improvement of state decision-making and affirmation of the national identity.

2.5. Regional Development Strategy 2007-2012

The Regional Development Strategy for the period 2007-2012 presents the first strategic development document in the area of regional development and it defines the main development priorities of regional development of the country and the ways to achieve them. This strategy sets the goal of reaching regional development of Serbia through raising regional competitiveness, reducing regional discrepancies, and building institutional regional infrastructure.

The Strategy is based on the following principles of regional development:

- Comprehensive regional policy for entire Serbia, with the focus on regional incentives according to the development problems of particular regions,
- Partnerships between local self-governments in the regional development process,
- Gradual provincial decentralisation,
- Harmonising the activities of the Ministry with EU and WTO (World Trade Organisation) legislation and other international partners,
- Stability of financing the system for balanced regional development.

2.6. Poverty Reduction Strategy

The Poverty Reduction Strategy defines strategic directions for reducing poverty in Serbia. Directions are based on attracting FDI, creating new jobs, reducing unemployment, and raising competitiveness of the Serbian economy, especially small and medium enterprises. This strategy also points out the importance of innovation for creation of new market advantages and economic growth.

2.7. Strategy of Vocational Secondary Education Development

Competitiveness of the national economy on the global labour market requires high level of expertise and competence of workforce. Therefore, it is of great significance to define education profiles and professions according to the needs of new economic reality and principles of

sustainable development. The Strategy envisages rationalisation of the secondary vocational school network in accordance with the needs of the economy, labour market, local communities, demands stemming from the directions of social and economic development, as well as in accordance with the wishes and abilities of the students. Vital knowledge and skills leading to employment, among others, include business and entrepreneurial skills and knowledge (entrepreneurial abilities, creativity and innovation, self-employment).

3. Legal and institutional framework for development of protection of intellectual property rights in Serbia

In the last two years, Serbia made progress in strengthening legislation in the area of protection of intellectual property rights and building the capacities of the institutions responsible for surveillance of obeying and enforcement of the law. In October 2007, the Government appointed the Intellectual Property Office (IPO) the coordinator of the activities related to intellectual property law in the process of euro-integration, and on 1 October 2010, Serbia became a member of the European Patent Organisation. The priority now is the enforcement of the legislation, especially in the sense of capacity building of the inspection bodies and specialisation of the judges.

Intellectual property rights is under the responsibility of several institutions in the public administration system of the Republic of Serbia, as follows: IPO (copyright and related rights, patents, trademarks, industrial design, indications of geographic origin, topography of integrated circuit), Ministry of Agriculture, Forestry and Water Management (GI for wine and spirits, protection of plant sorts, i.e. protection of plant breeders' rights), Ministry of Economy and Regional Development (protection of undisclosed information).

Serbia has long tradition of legal protection of intellectual property (it was one of the 11 states that established Paris union for protection of intellectual property in 1883). Always open to introduce high protection standards, Serbia has followed and implemented a great number of international convencions from this area in its regulations. Especially after 2000, in the context of European integration, Serbia has intensified harmonization of domestic regulations with legal acts of EU.

In its current legislation, Serbia fulfills membership obligations transposed from universal international convenctions.

Regarding the institutional basis for protection of intellectual property, it is necessary to have in mind that subjective copyright and related rights are acquired based on the fact of orgins of the intellectual good that is under the process of protection, meaning there is no administrative procedure for acquisition of rights. Oposite to this, all subjective rights of industrial property are acquired in the administrative procedure.

Central administrative body for protection of intellectual property is Intelectual Property Office of Serbia (IPO), which conducts administrative procedure for acquisition of all industrial property rights, except for the new plant varaities rights, which is acquired in the procedure under the Ministry of Agriculture. Also, based on current regulations, Ministry of Agriculture, together with the IPO, has a jurisdiction to conduct administrative procedure for protection of indication of geographical orgin for vine, brandy and other alchocol based products.

3.1. Legislation governing the area of intellectual property in Serbia

1. Law on Copyrights and Related Rights

This law regulates the rights of authors of literary, scientific, professional and art works, right of performers, right of the first publisher of a free work, right of producers of phonograms, video-grams, shows and data bases, and rights of publisher of printed editions as rights similar to copyright (related rights) as well as manner of exercising copyrights and related rights and court protection of these rights.

Author work is an original intellectual creation of an author, expressed in certain form, regardless of its artistic, scientific or other value, its purpose, size, content and manner of expression, as well as allowing public communication of its content. Author work especially is considered the following: 1) written works (books, brochures, articles, translations, computer programmes in any forms of their expression, including preparatory material for their production etc.); 2) oral works (lectures, speeches, orations etc.); 3) drama, drama and musical, choreograph and pantomime works, as well as folklore based works; 4) music works, with or without lyrics; 5) film works (cinematography and television works); 6) fine arts works (paintings, drawings, sketches, graphics, sculptures, etc.); 7) works of architecture, applied arts and industrial modelling; 8) cartographic works (geographic and topographic maps); 9) plans, blueprints, models and photographs; 10) theatre direction.

Copyright and legal protection does not include general ideas, procedures, work methods or mathematical concepts as such, as well as principles and guidelines contained in the author work. It is not considered an author work: 1) laws, bylaws and other legislation; 2) official material of state authorities and bodies performing a public function; 3) official translations of legislation and official material of state authorities and bodies performing a public function; 4) submissions and other acts in administrative or court procedure.

The law defines: author, co-author, who exercises the right on the author work whose author is unknown, content of copyright, restriction of copyright, legal license, transfer of copyright, author contract and other types of contracts related to copyrights and their realisation, author work created during employment, duration of copyright, application of the law to foreign nationals, rights related to copyrights, exercising copyrights and related rights, establishment of collective organizations, collective organization work licences issuing, procedures and rules for establishment of tariffs, obligations of collective organizations and users obligations, supervision of competente body under the work of collective organizations, jurisdiction of Commission for copyrights and related rights, composition and appointment of Commission for copyrights and related rights, as well as the procedure before the commission and its tasks, records of author works and subjects of related rights, protection of copyrights and related rights and penal provisions.

2. Law on Patents

This law governs legal protection of inventions. Patent is the right recognised for an invention in any technical area, which is new, has an inventive level and is industrially applicable.

The subject of the invention protected by patent may be a product (e.g. device, substance, composition, biological material) or procedure and may be related to: product consisting of biological material or containing biological material; procedure through which the biological material was produced, processed or used; biological material which was isolated from natural environment or was produced through a technical procedure, even if it existed in nature.

In the Republic of Serbia there is a possibility to protect inventions and smallers technical improvements with petty patent that could protect onlt a product, not the procedure, and the ones with less inventive level then it is requested under rhe procedure form protection of invention with patent.

This law defines also the exemptions from patentability, requirements for patent protection, right to patent obtaining, procedure for patent recognition, rights of patent holder, scope of patent protection, restriction of patent right, duration and termination of the patent righrs, enforcement of certificate on additional patent protection as well as right to patent trading. Besides, the Law on patents defines the rights and acting of the Intelectual property office under the European application of patent or European patent, based on the European Patent Convention, as well as the international application submitted based on the Patent Cooperation Agreement, as well as the conditions for registration in the agents registry.

Domestic citizens or legal entites can act in the procedure at IPO with or without representative, while the Law prescribes that a foreign natural or legal person, in the procedure before the administration body (the Government) responsible for intellectual property affairs, needs to be represented by an agent registered in the Agents Registry kept by the responsible body or a lawyer-Serbian national.

Bylaws regulate more closely the affairs of keeping the agents registry, as well as taking of the professional exam for agents.

3. Law on Trademarks

The Law on Trademarks regulates the procedure of obtaining and protecting the right to a mark in trading of goods, i.e. services. Trademark is the right that protects the mark that serves in trading to differentiate goods, i.e. services of one natural or legal person from the same or similar goods, i.e. services of other natural or legal person. Trademark is considered also the trademark that is internationally registered for the territory of the Republic of Serbia, pursuant to the Madrid Agreement Concerning the International Registration of Marks, that is, the Protocol accompanying the Madrid Agreement. This law defines the subject and conditions of protection, protection procedure and entry into the Trademarks Registry.

4. Law on Legal Protection of Industrial Design

This law governs the procedure of obtaining and protection of the right to a look of industrial or craft products. Under the look of a product it is considered overall visual impression that a product makes on an informed consumer or user.

The law defines: the term of industrial design, requirements for protection of industrial design, individual character of industrial design, industrial design of a product as an integral part of a complex product, availability of industrial design to the public, industrial design that cannot be protected, right to protection of industrial design, duration of protection, procedure of industrial design protection, registries, international registration of industrial design, agency, agents registry, application and request for recognition of the right to industrial design.

The provisions of this law apply to the procedure of obtaining and protection of industrial design, which is internationally registered for the territory of the Republic of Serbia pursuant to the Hague Agreement on International Registration of Industrial Design, in all matters not governed by the Hague Agreement.

5. Law on the Protection of Topographies of Integrated Circuits

This Law regulates the procedure for acquiring of protection (administrative and juridical procedure), as well as the subject, conditions and entities of protection of topographies of integrated circuits, the rights of the entities and manner to exercise them, right of company or other legal person where the topography was created, as well as the restrictions related to protection of topographies of integrated circuits. Topography is any three-dimensional setup of elements, of which at least one is active, and interconnection in an integrated circuit, or such three-dimensional setup prepared for production of certain integrated circuit. For that reason, an integrated circuit is defined in a way to identify topography that is integraly shaped in and/or on the peace of material and that could perform electronical function and determines a product. Product can be in a finished condition or semi-finished product. The term of integrated circuit should be considered in it's widest sense i.e. it covers all complex electronic components whose structure is characterised by certain topography. This law does not protect the technology used in the production of topographies or integrated circuits, information kept in integrated circuit, ideas, procedures, processes, systems, work methods, concepts, principles or discoveries, regardless of the way they are described or explained. Only topography that is the result of u1080 of intellectual effort of its maker can be protected, and which in the moment of its creation was not generally known among the creators of topographies and producers of integrates circuits. Topography that consists of a combination of elements and interconnections that are generally known will be protected only if, overall, it meets the requirements prescribed by this law.

The protection of topography may be requested within two years from the date of its first commercial use anywhere in the world. If the topography has not been commercially used, the protection of topography could be requested within 15 years from the date of its creation. The right to protection of topography lies with its creator, i.e. his legal successor or employer, i.e. his legal successor. If more creators create the topography, they have a joint right to protection. To the topography created during employment consequently the provisions of the law governing patents, apply.

Legal protection of topography is exercised in the administrative procedure led by the authority in charge of intellectual property affairs. The decisions of the responsible authority are final and one cannot initiate an administrative dispute against them.

Also this law regulates the procedure for protection of topography, application of the nationals abroad, contents of application and assessment of application.

6. Law on the Protection of Breeders of Plant Varieties

This Law regulates conditions, manner and procedure for protection of breeders of plant varieties and covers conditions for assignement of breeders rights, breeder rights (a range, exceptions from breeders rights, exhaustion and preevious protection of breeders rights), transfer of breeders rights and transmittion of the rights to use protected varaity, termination of breeders rights, as well as civil and legal protection of breeders rights. The procedure for acquisition of rights of breeders of plant varieties is conducted at the ministry of Agriculture, Department for recognition of varaities.

The Law applys on all plant families and varaities.

7. Law on Indications of Geographical Origin

The Law regulates the procedure of obtaining and protection of indications of geographic origin. The indications of geographic origin are the name of origin and geographic mark. The provisions

of this law do not apply to wine, brandy, and other spirits in the part where obtaining and protection system, as well as exercising the right to use indication of geographic origin on those products, are governed by special legal acts within the responsibility of the Ministry of Agriculture, Forestry and Water Management.

The Law especially defines the following: term of the name of origin, term of geographic indication, what is considered indication of geographic origin, origin of raw material, names that cannot be protected, procedure of legal protection, registries and registration, issues of availability of documentation, international registration of indication of geographic origin and registration of indication of geographic origin on the EU level, data content on specific product characteristics (specification and eleborat), quality control and special features of products and evidence of those, procedure on application for recognition of indication of geographic origin, procedure on application recognition of the status of authorised user of the indication of geographic origin, as well as changes related to those users, content and scope of their rights, usage of indications of geographical orgins, as well as illegal acts, declaring null and void the Decision on recognition of indication of geographic origin, i.e. the Decision on recognition of the status of authorised user of the indication of geographic origin, cessation of indication of geographic origin, cessation and termination of the status of authorised user of the indication of geographic origin, temporary measures, as well as penal provisions.

3.2. Institutional infrastructure for implementation of intellectual property rights in Serbia

In the development of intellectual property system Serbia opted for a strategic approach. The Draft National Intellectual Property Strategy, which is currently in public consultation process, contains a vision of the intellectual property system until 2015 and specific measures for its realisation. The Draft Strategy was done with the support of the World Intellectual Property Organisation. A working group for drafting the strategy was established and the submission of the draft to the Government for adoption is planned for the fourth quarter of 2010. The objective of drafting the Strategy is to create better environment for comprehensive activities in this field. The Ministry of Science and Technological Development, that is, the Intellectual Property Office is in charge of preparing the proposal of the Strategy. The working group for drafting of the National Strategy comprises the representatives of the line ministries, institutions and organisations, as well the representatives of the private sector. Draft strategy defines aims, measures and directions for development of short-term, medium-term, and long-term system of intellectual property in Serbia to be compatibile with development interst of the country.

The Intellectual Property Office (Art. 40 of the Law on Ministries) conducts specialised activities and public administration affairs related to: patent and petty patent, trademark, industrial design, indications of geographic origin, topographies of integrated circuits, copyrights and related rights; implementation of international contracts in the area of protection of intellectual property, and presenting and representing the interests of the Republic of Serbia in specialised international organisations for protection of intellectual property; surveillance over work of the organisations for collective exercising of copyrights and related rights; development in the area of protection of intellectual property; information and education activities in the area of protection of intellectual property, as well as other affairs determined by law.

The institutional framework for enforcement of intellectual property rights in the Republic of Serbia comprises:

- The Ministry of Interior: Special Department for Fight Against High-end Technological Crime, which consists of the **Division for Fight Against Crime in the field of IP**, and

which is organisationally placed within the Department for Fight Against Organised Crime of the Criminal Police Directorate; as well as the Department for Fight Against Economic Crime, which includes the **Division for Fight Against Frauds and Abuse in the field of IP**.

- The Department for Protection of Intellectual Property of the Customs Office, within the Sector for Control of Customs Legislation, deals with the protection of intellectual property at the border of the Republic of Serbia.
- Since 29 May 2007, the Tax Police has been conducting checks of legality of the use of computer programmes (software) and databases by economic operators.
- The Market Inspection of the Ministry of Trade and Services is authorised to conduct inspection surveillance over production and trading of goods and services violating intellectual property rights.

4. International commitments of Serbia in the area of IPR

The Republic of Serbia is a part of the international system for protection of industrial property. It has ratified all relevant international conventions in this area that have been integrated in the national law. The exception is the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), considering that Serbia is still in the process of joining to the World Trade Organisation.

4.1. International conventions

The Paris Convention for the Protection of Industrial Property is the oldest and the most important source of international industrial property law. It was concluded in 1883 and underwent several reviews. Each country is obligated to set up a special institution for protection of industrial property, which will provide information on the state-of-the-art in the world and publish a newsletter with the information on applied and registered rights. The pillar of the development of the international industrial property protection law is certainly the Convention on Establishing of the World Intellectual Property Organisation (WIPO), as the convention that combines industrial property right and copyright. The Convention was enacted in 1967. Serbia become the member of Convention on European Patent and full member of European Patent Organisation in 2010.

International conventions, related to different categories of intellectual property, have been transposed into legal system of Serbia. Not just formally, because the great number of those convenctions was ratified, but also in respect to materially-legal aspect, due to the fact that the provisions of those conventions have become the part of national law. From the moment of ratification, one convenction represents even more powerfull legal source then national legislation. Those convenctions are important because they represent mandatory standard of intellectual property protection. The list of all international convenction and agreement that Serbia have ratified is in Anex I.

Based on this national and international regulations that define legal regulations in this area, we can see that Serbia has quality legal basis for enabeling domestic and foreign subject to access intelectual property protection, and this legal system coresponds to high international standards. Still, a need for further improvement and establishment of coherent legal foundation for intelectual property protection exists, especially if in the context of Serbian accession into World Trade Organisationa and European integration. More concretelly, according to the Stabilisationa and Association Agreement (article 75 and 139) and Interim Trade Agreement (article 40 posture 3) Serbia has an obligation to assure the level of protection similar to the one that exists in

European Community, including the efficient means for implementation of those rights.[16] This should be finished in the period of 5 years from the date Interim Agreement was put into force, ending with 31. 12. 2013.[17]

4.2 Free trade agreements

Besides international conventions and treaties that directly regulate the area of intellectual property protection, there are numerous free trade agreements which indirectly or partly tackle this area.

The Stabilisation and Association Agreement (SAA) and the Interim Agreement on Trade-Related Matters between EC and the Republic of Serbia were signed in April 2008. Since February, the following year Serbia has been implementing the Interim Agreement, while ratification of SAA is in progress. Two most important obligations that Serbia has undertaken with this agreement are establishment of the free trade zone and harmonisation of the legislation with acquis communautaire.

The Interim Trade Agreement envisages gradual establishment of free trade on industrial and agricultural products in the next six years. Three groups of industrial products have been defined according to sensitivity, for which liberalisation will be realised after a period of two, five i.e. six years. It is ensured that key sectors of the national industry (such as car industry, toys, footwear, ceramics…) remain on high level of protection during the transition period of five i.e. six years.

Within the free trade area, Article 75 of SAA (Art. 40 PTC) and Annex VII are related to intellectual, industrial and commercial property. From entering into force of the SAA, the parties (EU and Serbia) will mutually guarantee to companies and citizens of the contracting parties the treatment not less favourable than that given to third parties in bilateral agreements. Serbia is obligated to ensure, 5 years from the entering into force of SAA i.e. PTC at the latest, the level of protection of intellectual, industrial and commercial property corresponding to the level of the protection in EC and provide effective mechanisms for exercising of the rights. Within the same period, Serbia should join multilateral conventions signed by EU Member States or applied de facto by them, and which are defined in Annex VII.

The CEFTA agreement was signed on 19 December 2006, and it includes Albania, Bosnia & Herzegovina, Croatia, Kosovo under the UNSC Resolution 1244 (UNMIK), Macedonia, Moldova, Serbia and Montenegro. The agreement enables expansion of the market for all products, but also trading under the same conditions for all producers, expanding and modernising the domain of free trade.

The agreement envisages provision of appropriate protection of intellectual property rights according to international standards, liberalisation of public procurement and attracting investments to signatory countries, and it increases the chance to enter European markets at preferential treatment. Social section is dedicated to protection of intellectual property, thus Article 37 defines intellectual property rights and their scope, Article 38 sets the objectives of protection of intellectual property in this agreement, whereas Article 39 stipulates that if one of the parties, after entering into force of the Agreement, offers a third party additional benefits or advantages in terms of intellectual property rights above what was agreed in this agreement, that

[16] According to the Common Declaration that accompanies article 40 of Interim Agreement (article 75 of SAA), parties agreed to consider under the level of protection defined in posture 3 of this article" ... availability of measures, procedures and means stipulated in EP and Council's Directive 2004/48/E3 from 29. 04. 2004. on implementation of intellectual propertu rights.

[17] The Commitee for implementation of Interim report confirmed that implementation of all commitments and interim deadlines started on 1st January 2009.

party will consult with other signatories in order to expand these benefits or advantages to all of them based on mutuality (the principle of most favoured nation).

Other bilateral and multilateral trade agreements signed by Serbia (EFTA, with Russia, Turkey etc.) regulate the area of intellectual property protection, mostly in such a way that the parties undertake obligation to provide appropriate and effective protection of intellectual and industrial property in compliance with the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs) and other international agreements.

4.3 Annual EC Report on European integration

In the area of intellectual property law, EC progress report for 2010 stresses the following:

"Progress has been made in the area of intellectual property rights. The Intellectual Property Office (IPO), which plays the role of national coordinator for intellectual property rights, has set up an in-house education and information centre. However, the financial sustainability of the IPO has been a source of concern. Discussions on the long term financial sustainability of the IPO have been ongoing but no solution has yet been found. The national intellectual property rights strategy needs to be finalised.

A new law on copyright and related rights was adopted in December 2009 and was followed by implementing legislation. It establishes a Commission on Copyright and Related Rights empowered to decide on the tariffs if no agreement is reached between the associations for collective management of copyrights. However, the members of the Commission have not yet been appointed by the Government. The law on optical discs remains to be adopted.

Progress was made in relation to industrial property rights. As of October 2010, Serbia has become member of the European Patent Organisation. In line with the Interim Agreement, some international conventions including the European Patent Convention as well as the International Union for the Protection of New Varieties of Plants Convention were ratified. Legislation on industrial design, on topography of integrated circuits and on indications of geographical origin has been adopted, in line with the Interim Agreement. The new law on trademarks introduces an administrative procedure for appealing against IPO decisions. A newly adopted Strategy for Scientific and Technological Development fosters a number of innovative activities, and provides an indirect impetus to raise the number of patent applications. However, the law on patents has not yet been adopted.

Some progress was made in the field of enforcement. Serbia has set up specialised units (high-tech crime prosecutor, police cyber unit, specialised customs unit, tax unit and tax police) aimed at enforcing the legislation in this area. The length of investigations has been shortened. The frequency of checks by tax inspectors has risen, whereas the number of cases brought for prosecution has dropped, pointing to better compliance overall with the law. Seizures by market inspectors have further improved. The customs administration has continued to make progress in enforcing intellectual property rights. It fully updated an electronic database of customs offences in the field of intellectual property rights and introduced electronic handling of requests for protection of Intellectual Property Rights. A Memorandum of Understanding has been signed between the Intellectual Property Office and the Judicial Academy to provide specialised training.

However, specialisation of judges and court panels in this area needs to be ensured. Inadequate storage space for counterfeited and pirated goods that infringe copyright and related rights or other industrial property rights continues to be a problem.

Overall, Serbia's preparations in the area of intellectual property law remain moderately advanced. Further efforts are needed in terms of alignment with the acquis. Concerning enforcement, better co-ordination among relevant agencies is required, as well as substantial investment in specialised judicial training."

5 Intellectual property in the function of economic development

Taking into account the relevance of the findings and recommendations of the European Commission, Serbia makes every effort to harmonise all relevant policies with EU policy. Although all policies and strategies mentioned in Section 2 – Priorities of economic development – directly or indirectly affect the development of innovation and protection of intellectual property in Serbia, ***still for the purpose of this study, as the most relevant we can point out the Scientific and Technological Development Strategy 2010-2015 and the Strategy of Development of Competitive and Innovative SMEs 2008-2013.***

5.1. Strategic documents

Based on the analysis of scientific areas in Serbia, ***the Scientific and Technological Development Strategy 2010-2015*** has identified seven national priorities:

• Biomedicine
• New materials and nano-sciences
• Environment protection and climate change
• Energy and energy efficiency
• Agriculture and foodstuff
• Information and communication technologies
• Improvement of the state decision-making and affirmation of the national identity

Future Action Plan would envisage undertaking of the following measures:

- Amount of investments of enterprises in projects engaging SRO, and co-financed by MSTD, are not subject to company profit taxation;
- Employing young researchers on MSTD projects in the private sector enables that their earnings (paid by the enterprise) is exempted from contributions and taxes for two years;
- If the enterprise enrols an employee to PhD studies, MSTD would cover up to half of tuition fee;
- A young researcher registered in MSTD who would found his own company would be exempted from paying salary and income taxes until the age of 30;
- Costs of patent application and other forms of protection of intellectual property rights in the IPO on all projects co-financed by MSTD would be covered by MSTD.

As the ultimate goal, the Strategy states ***establishment of the national innovation system***.

Scheme: Example of the national innovation system[18]

The national innovation system implies a complex network of public institutions, companies, universities, scientific and research institutes, financial institutions, education institutions, as well as other actors connecting of which is aimed at development and application of scientific and technological knowledge.

The Strategy emphasises that the Programme for establishment of risk capital funds should be especially defined and its realisation planned, which should stimulate setting up of private risk capital funds and one state risk capital fund: *Innovation Development Fund*.

In terms of equity capital market we should point out that in 2010 the Serbian Business Angels Network (SBAN)[19] was formed aimed at connecting business people who want to invest in new projects and entrepreneurs with developed business plans and capable teams to realise their ideas, and where protection of intellectual property presents a very important component of the project realisation.

The Strategy of Development of Competitive and Innovative SMEs 2008-2013 recognised the significance of innovation for raising competitiveness of the economy. Fostering the practice of innovation is a condition for survival of enterprises within the global market. Regardless of the form of innovation, innovations are the key factor for development and competitiveness of enterprise. Business innovations mean introduction of new production and information systems, improvement of production process, improvement and upgrading of products and services, new product packaging, new work methods, and finding new markets.

In Serbia, the following shortcomings are identified in this area:

1. low level of public investments in research and development;

[18] Source: Scientific and Technological Development Strategy of RS 2010-2015

[19] http://www.sban.eu

2. innovation activities are limited to procurement and purchase of equipment, machinery and software;
3. number of expert engineers, business investments in research and development, and number of employees in high-tech industry and services are lagging behind the average of 27 EU Member States;
4. low share of high-tech production;

Therefore, the Strategy stipulates in Pillar 4: Competitive advantages on export markets determine the priorities of development of SMEs innovation capacities. Activities within Pillar 4 will help to strengthen the competitiveness of SMEs though stimulating more investments in technical and non-technical innovations in SMEs; connecting SMEs and scientific and research institutions; support to investments in ICT; promoting relations of domestic enterprises with foreign partners through transfer of knowledge and know-how; providing financial sources and subsidising innovations, and participation in the initiatives of the European Commission related to innovation.

5.2. Scientific and research workforce – Serbia's capacities in the area of intellectual property

According to the data of the Republic Statistics Office, in Serbia there are a total of 10,220 researchers, 8,800 of whom are engaged on the projects of the Ministry of Science and Technological Development. Average age of the researchers is 44.3 years, which is more than average age of the population and indicates the need to undertake activities on creating scientific and research offspring. Out of the total number of researchers 43% are women, which makes the gender structure of scientists positive and much better in relation to most countries in Europe. However, current 8% of highly educated people in relation to total population generate future scientific potential of Serbia. Transferring to the education system according to the Bologna Declaration, despite significant initial difficulties, the efficiency of studying will enhance, and new programmes of PhD studies will result in scientific researchers of much younger age structure.

One of the main problems to preserve and strengthen the scientific community is the departure of highly educated people from the country. In the period 1990-2000, about 17,000 university graduates left Serbia. The most common reason for emigration of scientists, beside better salaries, has been better conditions for scientific and research work. The departure of students for completion of their master and PhD studies also makes a large portion of the young who are leaving the Republic of Serbia (14% of highly educated emigrants). After year 2000, the brain drain continued and about 2,000 highly educated people left Serbia. The biggest number of the highly educated citizens who left the country is from the areas of technical and technological sciences (information technologies) and natural sciences.

6. Stimulating the development of the SME sector

As previously mentioned, small and medium enterprises represent one of the pillars of economic development of Serbia. In the period 2003-2010 Serbia has demonstrated, in accordance with its capacities and with huge assistance of donors, commitment to establish an efficient process of creating the support policy for development of SMEs, as well as necessary instruments for its implementation, from the national to the local level.

6.1. SMEs policy

The Strategy of Development of Competitive and Innovative SMEs 2008-2013, adopted by the Government of Serbia in October 2008, is an integral document which defines the priorities of SMEs development policy in a comprehensive manner, as well the instruments for their realisation.

Successful implementation of the Strategy should contribute to achieving the following ***results***: higher number of new enterprises, more dynamic transformation of micro enterprises into small, and small into medium enterprises, increase of exports, higher employment, significant improvement of foreign trade balance, and consequently more even regional development.

In drafting this Strategy real needs of SMEs sector development were taken into consideration, starting from the approach adopted by the EU countries in the "Small Business Act" policy (Act on Small Enterprises for Europe), which identifies the principles for action in the SMEs sector in the EU countries.

The Strategy is based ***on five key pillars*** related to:

- Promotion and support to entrepreneurship and founding of new enterprises;
- Human resources for competitive SME sector;
- Financing and taxation of SMEs;
- Competitive advantages of SMEs on export markets;
- Legal, institutional and business environment for SMEs in Serbia.

An integral part of the Strategy is the Operation Plan, based on which annual action plans for its realisation are defined.

For the area of development of innovation, and in that context protection of intellectual property rights, significant is the Pillar 4 (Competitive advantages of SMEs on international markets), which includes four modules. Module 1 deals with development of the culture of investing of SMEs in innovation through upgrading technical and non-technical innovation in SMEs; support to investing in information and communication technologies and support to participation of enterprises in innovation programmes of scientific and research organisations and EU innovation programmes.

Within implementation of the Strategy, and the Pillar 4 Competitive advantages of SMEs on export markets, few programmes have been executed so far, of which we single out the Project of stimulating enterprises to invest in strengthening innovation; the Ministry of Science and Technological Development carried out the Programme of technological development; the European Entrepreneurship Network was open; the Programme of support to clusters was implemented, the competitiveness development programme, and the Contest for the best technological innovation was organised.

6.2. European context of the SME policy

Since 2003, Serbia has been fully committed to implementing the EU principles in the policy of support to SMEs defined until 2009 by the European Charter for Small Enterprises, and today with the Small Business Act.

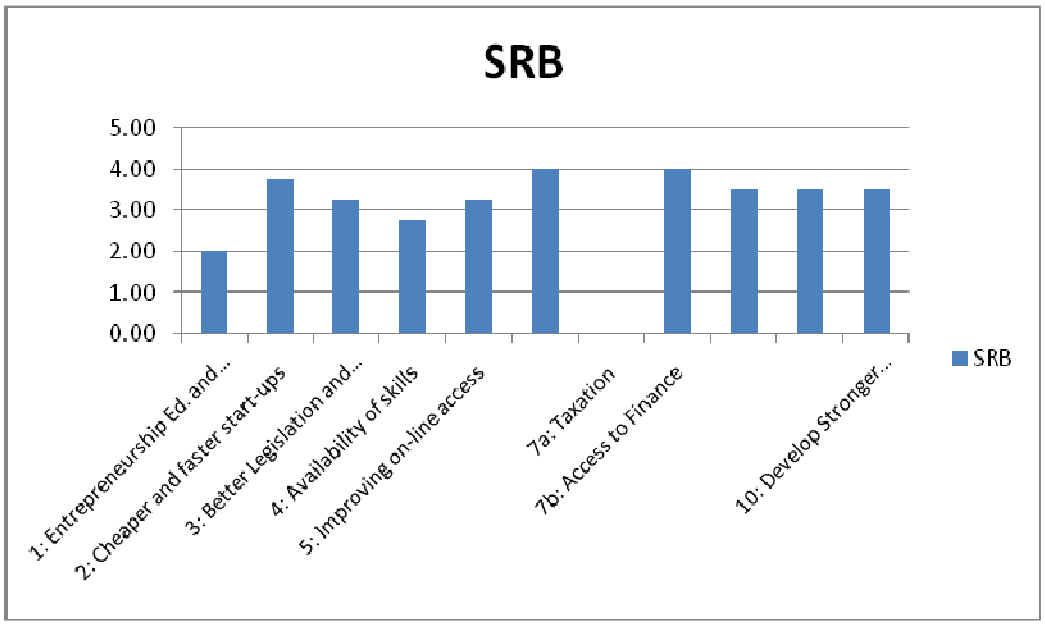
European Charter for Small Enterprises

The European Charter for Small Enterprises is a document of the European Commission which the governments of the Western Balkans adopted in 2003, and from then onwards it has been the

main instrument of the policy of promotion of entrepreneurship development. The Charter contains 10 basic dimensions providing the way to continuously monitor the progress in creating and enforcing the SME policy, at the same time enabling mutual comparisons of the participants in this process in the Western Balkans.

Key finding of the review in 2009 was that in Serbia in the previous two years there had been a significant progress within a large number of the dimensions. Thus, in the process of enforcement of the European Charter for Small Enterprises on the Western Balkans Serbia made the biggest progress, separating itself from the other group of countries and got closer to a leading Croatia. In addition, it was especially stressed that the country very quickly transferred from the stage of policy making and defining strategic goals to the stage of policy realisation, especially in the areas such as support to innovative enterprises, start-up enterprises, providing business services, and disseminating information via on-line services, promotion of dialogue on SMEs policy between public and private sectors. In addition, all the time Serbia had been constantly improving its results in a number of areas where it had already had a positive realisation trend, such as registration of enterprises and export promotion.

Chart 1: Implementation of the European Charter in Serbia by dimensions



The weakest result Serbia has performed in the area of Entreprenurial Education, with the mark 2. This represents one of the worst scores in overall ranking of Western Balkans countries, since only Bosnia has weaker result.

Small Business Act

In June 2008, the European Commission adopted the Small Business Act for Europe, which was confirmed by the European Council in December 2008. Similarly to the European Charter, this document also contains 10 principles i.e. areas of interest for SMEs development, and presents a transfer from guidelines to specific targeted activities.

Similarly to the European Charter, the Small Business Act also defines 10 principles, and the principle VIII, defines as the priority promotion of the strengthening of knowledge and skills of the employees in SMEs and all forms of innovation. ***It also emphasises the significance of the***

intellectual property rights for SMEs. In that sense, it states that the Commission continues to work on efficient, cost-effective, high-quality and legally secure patenting system on the European level, including so-called Community Patent and jurisdiction over patents on the entire territory of the EU.

Since June last year, when the regional ministerial conference on the European Charter for Small Enterprises for the Western Balkans was held in Brussels, it was decided that the countries of the region also enter the process of implementation of the Small Business Act.

6.3. Instruments for implementation of the SMEs policy

Institutional infrastructure

The Ministry of Economy and Regional Development, Sector for Regional Development Policy and Promotion of Entrepreneurship, is in charge of creating SME development policy, defining measures and instruments for support, as well as monitoring their implementation. Within the responsibility of the Ministry is also the network of agencies having within their scope of work the aim to support development of SMEs through specific programmes and projects:

- The National Agency for Regional Development (NARD), in charge of implementation of the policy of SMEs sector development through various activities and programmes;
- The Development Fund deals with crediting potential and existing SMEs
- The Serbian Investment and Export Promotion Agency (SIEPA) supports Serbian export SMEs and assists foreign investors to start their business in Serbia.
- The Agency for Export Insurance and Financing (AEIF) deals with financing, insuring, and factoring for export-oriented enterprises.
- The Serbian Business Registers Agency facilitates start of business operation through the project "one-stop shop".
- The National Employment Service realises programmes for self-employment and starting your one business.

Besides these national institutions, SMEs may get support from AP Vojvodina (Vojvodina Investment Fund), as well as through local self-governments (offices for local economic development). For non-financial assistance there are SMEs development agencies, as well as regional chambers of commerce and business incubators.

In Serbia, there are more than 20 business and innovation incubators[20]. However, this form of support to SMEs is still underdeveloped. Although there are examples of good practice, such as Belgrade Business and Technological Incubator of Technical Faculties, most incubators put the emphasis on the facility itself, while the content they provide to their tenants is secondary. At the end of 2008, there were 5 innovation centres, 24 centres for research and development, 53 research and production centres, 2 technological parks and 3 technological incubators registered with the Ministry of Science and Technological Development.

Programmes of financial support to SMEs development

In 2010, even with the world economic crisis, all programmes of support to SMEs continued, but with reduced funds.

[20] According to the unofficial data of MERD. Due to different forms of establishment of incubators, there is not any centralised system for their registration and the exact number is unknown.

Through **the Development Fund,** several credit lines are in realisation:

- Credits for beginners without mortgage and start up credits for entrepreneurs and legal persons, in 2010 1,367 credit applications have been approved.
- Credits for entrepreneurship development support all production and service activities, and in 2010 the amount was 800,000,000.00 RSD.
- For crediting SMEs in the area of tourism, the budget for 2010 earmarked 400,000,000.00 RSD
- **Programme of mitigating negative effects of the world economic crisis** is realised through Liquidity Credits and Investment Credits. In 2010, 11,823 liquidity credits were approved in total value of 887,369,000 EUR, and 926 investment credits in the value of 111,468,984 EUR;

Through The Agency for Export Insurance and Financing - **AEIF** there are three ongoing programmes for support to SMEs:

- Credits for export, within which in 2009 131 SMEs were supported with 32.9 million EUR, and the value of realised exports was 220 million EUR.
- Through insuring short-term debts abroad from commercial and non-commercial risks in 2009, 40 contracts on insurance of debts as concluded with 334 foreign buyers;
- Through factoring last year 23 medium and 19 small enterprises were supported with turnover of 44 million EUR.

The Ministry of Economy and Regional Development supports SMEs through:

- Project for stimulating enterprises to invest in strengthening innovation, within which, in 2009, grants were allocated in the amount of about 37 million RSD for co-financing of innovation activities of 71 SMEs. This year for these purposes 40 million RSD was earmarked. The project supported non-technological and technological innovation in SMEs;
- Programme for development of clusters, through which in 2008 and 2009 27 clusters were supported (new and existing) with about 70 million RSD. In 2010, 30 million RSD was earmarked for support to clusters.

The Ministry of Science and Technological Development, within **the programmes in the area of technological development**, from 104 applied projects financed 28 of them. Also in 2009, two public calls were issued within the **Programme of innovation activity** (for innovation projects and natural persons-innovators). The competition for "The Best Technological Innovation" in Serbia has been organised since 2005. The mission of this competition is to promote entrepreneurial climate in high technologies. In 2009, the competition was organised in the following categories: Innovative ideas, Potentials, Realised innovations, and Energy efficiency. The prize money was 12.0 million RSD.

The programme of support to development of competitiveness in SMEs was carried out by **the National Agency for Regional Development**, subsidising up to 50% costs of consultancy services. In 2009, 556 requests was realised in the amount of 132.5 million RSD, and this year 320 enterprises received the funds in the amount of 60 million RSD.

SIEPA has been conducting the Programme of internationalisation of companies for several years. In the period 2006 – 2009, 644 applications were approved in total amount of 318,812,121.40 RSD.

The National Employment Service provides support to potential or existing entrepreneurs through subsidies for self-employment (allocates an unemployed person the lump sum of 160,000.00 RSD). The subsidy for opening new jobs is approved to employer who opens new jobs to employ unemployed persons registered with the NES. For each newly employed person, a lump sum from 80,000 to 160,000 RSD is allocated.

EU funds

Apart from the national programmes and projects financing the activities of SMEs, economic operators may use the support of the European programmes.

Competitiveness and Innovation Framework Programme (CIP) is the programme of the European Community aimed at stimulating competitiveness of the European enterprises, primarily small and medium enterprises. The programme supports innovation activities, including eco-innovations, facilitates access to capital and services for support to business. The programme stimulates wide use of information and communication technologies and contributes to development of sustainable, competitive and comprehensive information society. *CIP* consists of three sub-programmes, especially important is the First Pillar, *Entrepreneurship and innovation Operation Programme (EIP)*, with total budget of 2.1 billion EUR, including 430 million EUR for eco-innovations.

Serbia joined EIP – Entrepreneuship and Innovation Programme (November 2008) and ICT PSP (October 2009). The coordinator of the entire CIP programme, as well as the first pillar (EIP), is the Ministry of Economy and Regional Development, whereas for the second pillar (ICT PSP) it is the Ministry of Telecommunications and Information Society. So far, several projects have been approved – Enterprise Europe Network, Environment Protection Services for SMEs, Satellite Accounts for cooperatives and Associations, Serbian Network of Female Entrepreneurship. SMEs did not participate directly in any of the so far approved projects.

Enterprise Europe Network (EEN) was founded by the European Commission in 2008 by joining Euro Info Centre (EIC) and Innovation Relay Centres (IRC). The new integrated network functions on the "one-stop shop" principle and stimulates business cooperation, internationalisation of small and medium enterprises, raising awareness on the possibilities for financing from the European Union funds, technical cooperation, transfer of know-how, and innovation technology, is present in 47 countries and gathers more than 600 partners.

The Enterprise European Network – ***EEN in Serbia*** opened in June 2009 within the EIP programme in order to combine services of support to business and innovation in the small and medium enterprises sector in Serbia. The network has three modules: Information on EU and business cooperation, Innovation and transfer of expertise, and Research projects and disseminating information on research and development programmes. Through the network one can get information on the conditions for entering and conducting business operations in EU; export possibilities; public procurements and tenders in EU; new technologies; potential new partners, and opportunities for research and technological development and EU programmes.

Seventh Framework Programme (FP7) is the main mechanism for financing research in EU in the period 2007-2013, with the budget of 50.5 billion EUR. Wide field of objectives of FP7 may be classified into four categories: **Cooperation**, **Ideas**, **People** and **Capacities**. For each area there is a prepared specific programme covering the main areas of EU research policy. The programmes are directed at promotion and stimulation of research excellence in the EU and

encourage participation of SMEs. So far, over 200 projects, involving partners from Serbia as well, were financed from the Framework Programme.

Apart from the area of international cooperation, which covers activities in many thematic fields, the most projects are in the area of ICT, then Food and Environment. Health, Social Sciences and Material have a lesser, but still important, role. Majority of organisations from Serbia that were involved in the past, and today, in the FP projects are universities and public organisations. According to latest available data, 8 SMEs from Serbia participated in FP7 projects(5 of them in the area of ICT). Still, with this 8 SMEs, Serbia is among the top 10 among the associated and third countries by participation of SMEs.

Key findings:

- Economy is characterised by low level of competitiveness and innovation
- In the area of protection of intellectual property rights there has been progress in creating regulatory environment and harmonisation with EU legislation was carried out
- Creating IPR protection policy is based on strategic development approach, integrated also into sector policies
- The Intellectual Property Office has undertaken responsibility and coordinating role in enforcement of the intellectual property rights
- Policy of support to SMEs has gone from the stage of creation to the stage of implementation
- Incentive to development of innovation is one of the priorities of SMEs policy and scientific and technological development policy.
- Implementation of SMEs and innovation policy is not sufficiently coherent and integrated
- Established full cooperation with the international community and strong commitment in adopting international principles of development of IPR and SMEs policy

7. International projects of support to development of intellectual property and SMEs

Considering the extraordinary importance that the area of **protection of intellectual property rights** has, as well as full commitment of the Serbian institutions to integrate world principles in this field into the national law and policy, in Serbia, the following programmes are supported by the international institutions and organisations, as well as on the bilateral level with some governments:

- Project "Technical Support to the Intellectual Property Office" financed by EU, aims at strengthening the protection of intellectual property rights in Serbia, thus stimulating economic development in the country and attracting foreign investments. The main purpose of the project is to improve internal infrastructure of the Serbian Intellectual Property Office and its capacity to recognise the intellectual property rights and support innovations in the country. The project was implemented in the period 2005-2009 with the budget of 900,000 EUR;
- Support of the United States Trade and Development Agency (USTDA) to the Intellectual Property Office through technical assistance of 465,857 USD. The project assisted the Intellectual Property Office to improve technical ability and quality of operation in order to act as a self-financing agency.
- Regional Programme on industrial and intellectual property for the Western Balkan country and Turkey is financed from the Multi-beneficiary IPA. The overall objective of the programme is to support economic development of the beneficiary country through protection

of intellectual property rights, and the purpose is to facilitate future EU membership for the beneficiaries, i.e. harmonisation with EU acquis, administrative capacity building, improvement of efficiency in fighting piracy, upgrading data exchange and automatisation of the intellectual property rights.

- Support to the Intellectual Property Office in establishing the Education and Information Centre (EIC), implemented in cooperation with the European Commission and the European Patent Office (EPO). The purpose of the project is to assist the IPO in the mission of **raising general awareness and developing professional abilities in the area of intellectual and industrial property rights**, whereas overall objective is to provide support to Serbia in meeting the requirements within the Stabilisation and Association process in the area of intellectual property. The project has started in 2009 and it spans three years.
- In February 2010, realisation of the project of technical support to Serbia in the area of intellectual property has begun, financed by the Swiss Confederation Government. One of the objectives of this project is strengthening the systems of protection of indications of geographic origin. In addition to consultancy support in form of advice for improving legal framework in this area, the Project envisages also the activities on direct support to producers in the procedure of protection of indications of geographic origin, and in the development of marketing strategies of their products.

In the last five years, many international **Projects of support to SMEs sector** are realised:

- "Improved SMEcompetitiveness and innovativeness of " is the project financed from IPA 2008 programme in the value of 3 million EUR. The project has started in May 2010, and the objectives are: (i) improvement of quality, scope and availability of business services in Serbia by establishing standardised model of services and upgrading of infrastructure for support to SMEs, and (ii**) strengthening institutional capacities in order to raise the level of innovation in SMEs.**
- Within IPA 2007 there is an ongoing project "Support to Enterprise Competitiveness and Export Promotion", in the value of 3.5 million EUR. **The objectives of the project** are: (i) developing capacities for support to SMEs through development of clusters, supply chains and export promotion; (ii) enhancing competitiveness of Serbian enterprises through of cluster development; (iii) strengthening integration of Serbian SMEs into local and global supply chains and (iv) strengthening export activities of SMEs.
- Project "Technical support to enterprise policy and innovation" was implemented within CARDS 2006 programme with the budget of 1.5 million EUR. The project's objectives were: (i) building institutional capacities, (ii) support to development of internationally competitive and innovative enterprises, and (iii) raising competitiveness of SMEs through cooperation with SRO (scientific and research organisations).
- From CARDS 2006 the project "Turn-Around Management (TAM), Phase III"was implemented in the value of 4 million EUR. The project supported restructuring and development of 72 SMEs in the priority sectors and training for more 100 SMEs.

Apart from EU support, development of SMEs sector was supported by other donors as well: USAID Programme for development of competitiveness, USAID MEGA programme, GTZ project for development of business services, WB project "Regulatory reform on local level", LEDIB project of the Danish Government, BAS project financed by the Dutch Government, Norwegian support through ENTRANCE project, within which the current active programme of support to clusters in Serbia in Serbia was developed, as well as "Development of youth entrepreneurship".

II. SMEs and intellectual property

1. SME sector in Serbia

1.1. Share of SMEs in Serbia's economy

SMEs present the framework of economic growth of Serbia, and, with FDI, have great importance for economic and social progress, provide crucial contribution to even regional development, they are stable source of employment and have social and cohesion role, especially in underdeveloped areas which are not interesting for multinational companies and FDI.

SMEs sector in Serbia includes most of enterprises i.e. 314,827 or 99.8% (identical percentage as in EU). Within this sector micro enterprises are dominant with 95.7% (in EU 92%), employing almost half of the number of employees. SMEs realise 66.6% of total turnover (4.380 billion RSD), 59.1% GDP (819,205,622 RSD), 45.9% of exports and 60.5% of imports of Serbian economy (275.3 billion RSD of exports and 627.1 billion RSD of imports).

1.2. Number of enterprises

Judging from previous three years, it can be stated the tendency of decreasing the number of founded companies and increasing the number of companies that stopped operation. In the Republic of Serbia in 2008, 11,386 companies were founded, which is 16.3% less that in the previous year, and 5,682 were terminated, i.e. 35.8% more in relation to 2007. According to the data of the Republic Development Bureau and Republic Statistics Office for the last two years there was mild growth of the number of micro companies (for about 1000), while small and medium enterprises (and large) marked decrease. This indicates that the transformation of micro into small and medium enterprises is still not fast enough.

In 2008, on average per ***1,000 people 41 SMEEs operated,*** and there were a bit over 7 newly founded enterprises. When it comes to active population from age 15 to 64, per 1,000 people there are 61 SMEEs. According to the density of SMEEs Serbia is on the level of the European Union, where 41.2 SMEEs operate per 1,000 people, and within EU the biggest ratio have the Czech Republic (90.9), and the lowest Romania (19.9).

1.3. Employment in SMEs

SMEs employ 872,540 workers or **2/3** of all employed in Serbia. They are net creators of new jobs both cumulatively and per year they are managing to create more new jobs then there are lost through privatisation. This sector managed to neutralise the effects of reduction of the number of employees due to restructuring and privatisation in large companies.[21].

1.4. Foreign trade business operation

Analysis of foreign trade activity indicates that SMEs may be considered relatively significant holders of foreign trade exchange in the sector of enterprises. In 2009, the sector SMEs realised exports in the value of 275.3 billion RSD and imports of 627.1 billion RSD, which presents **45.9% of exports and 60.5%** of imports of non-financial sector. Judging from the size, the biggest number of exporters (8,288 or 62.0%) and importers (16,326 or 70.4%) are micro

[21] 163,620 of employees was laid off in the course of privatisation, and SMEs hired some over 187,000 workers in the period 2004-2008. Source: Report on SMEs for 2008

enterprises (including entrepreneurs), but the biggest value of exports and imports is realised in small and medium enterprises (4,703 enterprises – 35.1% of exports; 6,409 enterprises – 44.8% of imports of non-financial sector). However, the satisfactory level of internationalisation has not yet been reached.

Sector distribution of SMEs is extremely concentrated because 73.9% of the number of enterprises, 78.6% employed, 85.3% of turnover and 80.1% of GDP of the SMEs sector in 2008 were realised by four sectors: trade, processing industry, real estate affairs and construction. Highly technological sectors (medium technological sectors and highly technological sectors) generate 17.9% employees, 24.2% turnover, 24.2% GDP, 24.1% exports and 36.6% of imports of SMEs in total.

In the exports structure dominant are products of low technology sectors (foodstuff, textile production, production of metals and metal products), while highly technological sectors generate 24.1% of exports of SMEs.

Low level of activity of small and medium-sized enterprises is caused by the following problems: insufficient level of development of knowledge and skills; discrepancy between financial needs and existing financial instruments; regional inequality in development; insufficient use of new technologies and innovation; inadequate representation of interests of SMEs.

1.5. Regional distribution of SMEs

Almost 40% of all SMEs are on the territory of the City of Belgrade or South Backa County. This unfavourable regional concentration is even more evident if only companies without entrepreneurial actions are considered. According to these indicators, more than half of companies operated on the territory of the City of Belgrade and South Backa County (41.2% i.e. 11.3%), while the smallest number of companies operated in Toplica (0.4%), Zajecar (0.7%) and Pirot counties (0.7%).

1.6. Financing and investments in SMEs

Although in the last couple of years there were significant improvements in reforming the financial sector, which is recognised in assessment within the enforcement of the European Charter, as well as in the World Bank competitiveness report, SMEs are still facing difficulties in financing their operation. Research showed that a vast majority of SMEs finance their operation from their own sources, that a very small number of SMEs use credit from banks, and total available funds in public sector are minimum in comparison to the needs of SMEs. Favourable credit lines that are realised through public institutions do not meet all needs, whereas banking products are still expensive, not available in sufficient degree, and require large collateral for SMEs. Other forms of financing, such as venture capital and business angels are underdeveloped. If we consider three basic criteria for financing of SMEs, availability, accessibility and affordability of funds, we come to a conclusion that SMEs in Serbia have serious problems in securing capital for maintaining, growth and development of their operation.

Additional challenge that SMEs are facing, not only in Serbia, is the world economic crisis. SMEs face decline in trading, reduced solvency and reduced liquidity, which in certain sectors hinders maintaining of business on the reached level. In 2010, over 12% of the credits for SMEs are late with repayments more than 90 days. Prior to the crisis, this percentage was 4 or 5. The Government's measures had positive effect, but could not fully amortise the negative effects of the economic crisis. Another problem that is more and more relevant is payment of debts,

especially by big companies and systems, but also within SMEs sector. Payment mechanisms are undeveloped or inefficient, and courts are very slow. Many enterprises, facing this situation, relinquish debt payment, which strengthens their tendency to develop their business in grey zone.

SMEs sector in the structure of **investments of the economy participates with 48.1%**, and in the structure of non-financial sectors with 58.7% (51.2% in 2006). Almost 41% of the value of SMEs investments were realised in medium-sized enterprises, where investments of medium-sized enterprises were the biggest (total, per employee, per company) and with the biggest share in GDP (52%). Half of investments of this sector were placed in equipment, which is the basis for growth of production and services.

Comparative analysis of investments per employee and investments per enterprise in the neighbouring countries and EU-27 indicate significantly lower level; of these indicators in Serbia, both for SMEs sector and overall economy. Investments per employee in SMEs sector are 4,100 EUR (EU average 7,400 EUR), and investments per enterprise 12,200 EUR (EU average 31,700 EUR).

1.7. Competitiveness and innovation of SMEs sector

Low competitiveness of SMEEs sector still impedes its more dynamic involvement on the international market. Size and quality of the investments are the most important long-term indications of economic growth and competitive progress. It has already been mentioned that SMEEs sector participates with 58.7% in the structure of investments of non-financial sector, while the share of investments in GDP increased to 40% in 2007.

The reforms to date have improved business environment, however it is still not adapted to the needs of rapid development of the market economy. Market liberalisation enabled greater presence of imported products, where domestic enterprises and their products are mostly not competitive with either price or quality. The competitiveness of the Serbian enterprises is mostly related to the export of subcontracting services, with application of import technologies. The share of raw materials and operationally demanding products in export structure is still high (over 60%).

The SMEEs sector marks the above average values of the average operating and operating costs per hour in all years, which indicates its better cost competitiveness. Presented through the indicators of unit labour costs (ratio of costs of earnings and gross added value), in the SMEEs sector in the period 2004-2006 there was deterioration of competitiveness, but in 2007 and 2008 there was mild increase of competitiveness, which is now on the level of overall non-financial sector.

Although the foreign trade activity of highly technological products records the fastest growth, Serbian economy still depends on the exports of the branches of low technological intensity. In the SMEs sector, the situation is also unfavourable: the object of foreign trade is mostly low technological products, which mark the fastest growth since 2005. Exports based on these products cannot provide respectable competitive position of enterprises in the long run.

Application of modern ICT in the function of competitive operation of a modern enterprise shows that, according to equipment and use of computers in SME operation, Serbia is slightly behind the EU-27 average and developed countries. Nevertheless, when it comes to use of the Internet, Serbian SMEs are lagging behind the average, as well as behind most of EU Member States, with the most frequent use of Internet for the purpose of providing banking and financial services, whereas electronic business (sales and purchase) is not present enough.

The number of clusters in Serbia increases year after year and now there are over 30. However, clusters in Serbia are weak in general in comparison with European context, and significant growth is needed especially within the third stage of development (share of clusters in total employment of a region). Also, Serbian clusters that are involved in joint commercial activities do not manage to improve significantly total turnover.

Enhancing competitiveness of the SME sector to a large extent depends on the level of innovation activities. Overall, the Serbian economy and SME sector are characterised by poor activity and lack of business innovations, lack of innovation network, lack of research, bad reputation of domestic products, insufficient financial and infrastructural support, low number of laboratories and research capacities, as well as absence of the key factor – infrastructure network for innovation development. Main activities need to be directed at establishing adequate structure of innovation achievements of enterprises, interconnection (especially with knowledge centres), forming critical mass of innovation enterprises, implementation and abiding by internationally valid standards and creating conditions fro internationalization of business innovation in economy.

In application of information and communication technologies (ICT) which are closely connected with innovations, according to the report of WEF, the Republic of Serbia ranks 79th among 104 analysed countries, which is significantly lower in relation to EU and new EU Member States.

Current situation is the result of insufficient horizontal and vertical connection of the SMEs sector, both mutual and with big systems and scientific and research institutions. This reflects on very poor application of innovations and new technical and technological improvements in business, and thus insufficient enhancement of productivity and competitiveness.

1.8. Intellectual property and SMEs in selected sectors

Although intensive growth of some of the analysed sectors is mostly the result of big foreign direct investments, small and medium enterprises in these sectors also mark mild growth in the period 2005-2008. The biggest growth of GDP was realised by the sector of electronics, about ten times (from about 16 billion RSD to even 107 billion RSD).[22] After electronics, according to GDP growth in SME sector come food and chemical[23] industry, where scope of growth was seven times. These two sectors are by far the most important according to the share in GDP of small and medium size enterprises. Lumber, textile and automobile industry record significant growth of GDP, while in agriculture and electricity production this growth is negligible (if we take into account decline of exchange rate and inflation, we can even state decline of GDP in these sectors for SMEs).

The exports of small and medium enterprises marked the biggest increase in the automobile sector. Foreign investments in medium enterprises in this sector may take the credit for this, countries from the region, primarily Slovenia, but part of is also the contribution of nationally owned SMEs. Electronics and chemistry mark approximately the same growth of almost three times, while behind, with a slightly lower growth, are lumber, textile and food industry. Agriculture marks nominally the exports growth, but really marks decrease, while in the electricity production there is no export of the SMEs sector. Poor growth of SMEs in this sector is precisely the result of absence of adequate legislation and complicated procedures for

[22] Inflation and decline of exchange rate were not taken into account. This growth is really smaller, but still very important.
[23] On the level of total industry, about 50% of GDP by the chemical industry is generated by pharmacology. The estimate is that there is similar ration in SMEs sector.

production of energy from renewable sources. Resolving these problems may open the path for development of innovative small and medium-sized enterprises in this sector.

If we compare the data on the share in GDP of small and medium enterprises with the number of patents and petty patents in these sectors, we may notice that the sector with the most patents, electronics, realised the biggest GDP growth and among the biggest in exports growth. Lumber and automobile industries, which are behind electronics according to the number of petty patents, also are within fast growing sectors. Although the pharmacology sectors do not have big number of petty patents, there is significant number of patents of domestic residents in this sector.

2. Are SMEs aware of the significance of IPR?

In the course of 2009 several public opinion surveyed were conducted in SMEs sector, in order to get and overview of the SMEs stands on the current SMEs policy, instruments for its implementation, as well as the problems and needs of SMEs which they were facing in daily business operation.

The National Agency for Regional Development (NARD) prepared the Survey on state, needs and problems of SMEs. The survey was done on the sample of 3,000 SMEs, and included questions on importance of innovation, investments in innovations and on protection of intellectual property. Stratification of framework units for selection of the sample was done according to areas of activity (selected groups of activities), number of employees and territorial representation (county level). The sample contains 32% micro, 25% small, 14% medium enterprises and 29% entrepreneurs.

CESID conducted a research of SMEs' public opinion on the sample of 888 interviewees, and in this research the attention was paid to innovation. The sample contains 64% small, 7% medium enterprises and 29% entrepreneurs.

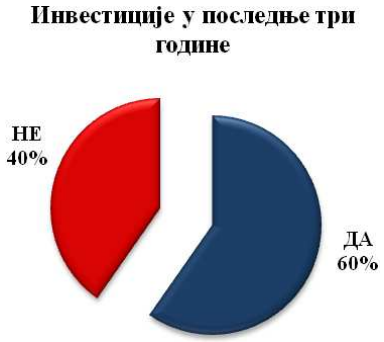
The Republic Statistics Office conducted the survey Innovation activities of SMEs in the period 2006-2008 in order to get an overview of the real relation of business policy of an enterprise toward innovation activities in order to identify type, scope and quality of these activities in enterprises. This research provided data on the activities of enterprises non-innovating products/services, innovating processes, innovation in organisation of he enterprise and innovations in marketing. The survey was conducted on the sample of 3,000 SMEs and in two stages.

2.1. View of SMEs on their own development based on knowledge and innovation

According to the data of the NARD survey[24], relatively developed needs for improvement of technical and technological business conditions are indicated by the fact that 60% of the surveyed realised **investments in the last three years**, investing the most in procurement of equipment (58%).

[24] "State, needs and problems of small and medium enterprises and entreprenurship", NARD, 2009

Chart 2: SMEs investment in past three years



The future of SMEs in Serbia is connected with the issue of investing in various forms of innovation, developing new technologies, different communications etc. CESID[25] investigated innovation on three levels: investment in workforce, investment in new technologies, and investment in improving communication. It is invested the most (more than two fifths of enterprises) in development of new technologies and licenses, and the least in workforce (seminars, trainings) – every third enterprise.

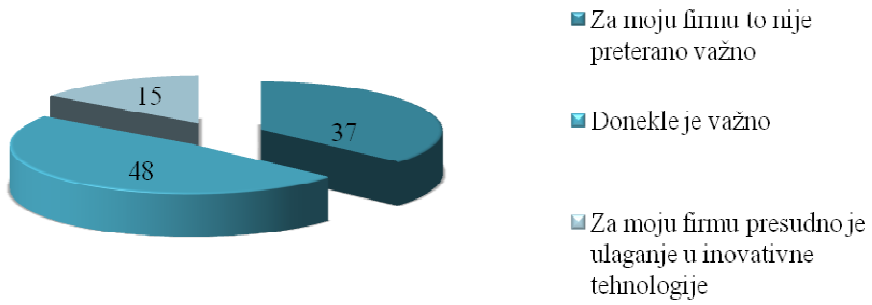
Table 7: Investment in innovation in %

	Investment in workforce (additional qualifications, training)	Investment in purchase/development of new technologies, licenses...	Investment in improvement of communication
I do not invest	67	58	62
I invest	33	42	38
Total	100	100	100

For 15% of the enterprises investing in innovation technology is of vital importance. These are probably the enterprises dealing with IT technology, computers, software development etc. For most enterprises in Serbia (almost a half) investing in innovation is important to some degree, while 37% private owners considers this, mostly, not very important for them.

[25] Survey of public opinion of the representatives of small and medium enterprises and entrepreneurs, CESID and NES, January 2010

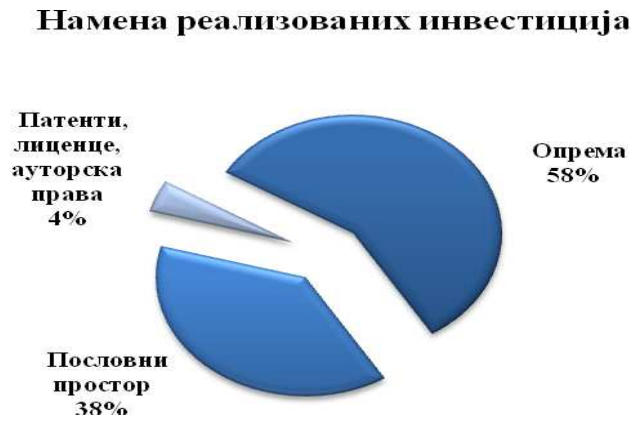
Chart 3: Importance of investing in innovation in %



From this results, we can conclude that Serbian SMEs haven't still been awared of the fact and the need to invest into human resources which is, in a long-term perspective, more cost-effective and enables sustainability to SMEs.

The funds for procurement of patents, licenses and copyrights present a negligible part of total investments with the value of 1.8%, with shops and up to 4.6% with small enterprises.

Chart 4: Purpose of realised investments



According to activities, the liveliest investment activity was happening with interviewees operating in the area of transport, graphic activity and information technologies, and the weakest was with personal services and retail. A small number of interviewees practise more permanent forms of innovation cooperation. According to the NARD survey, only 9% of companies replied that they had contracts on cooperation in the field of innovation of business operation with appropriate institutions or enterprises. Within medium enterprises, this type of cooperation was practised by 17%, and with shops only 5% of the interviewees.

To the question whether the enterprise introduced new product/service or technological process, 30% replied yes. Introducing innovation in organisation of business operation and marketing activities was conducted, according to the obtained replies, 26% interviewees.

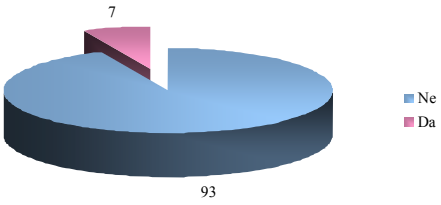
Carrying out procedure for protection of intellectual property in domestic conditions is not a widespread occurrence, mostly due to lack of information of SMEs, but also due to the extremely slow juridical procedures and high costs of the procedure itself.

Chart 5: Investment into intellectual property protection

Only 11% of the interviewees protected a form of intellectual property. More than half of the protected rights related to trademarks, and 15% on patents and industrial design each.

It is a devastating fact that within SMEs sector there is no practice of upgrading your own business through cooperation with SRO and on those grounds investment in development of innovation potentials.

Chart 6: Does your enterprise cooperate with SRO?



According to the research of RSO, when it comes to representation of introducing certain type of innovation according to the six of SME-innovator, it can be noted that the biggest share of innovations is in the organisation of enterprise, total of 28.49%, in small 28.01%, as well as in medium enterprises 28.97%.

Table 6: Uncompleted or abandoned innovation activities on introducing products and processes of SMEs-innovators

	Total	Small	Medium
Innovation activities abandoned or suspended prior to their completion	6.45	3.95	9.60
Still ongoing at the end of 2008	21.41	16.32	27.81

Source: RSO

As the answer to the question whether SMEs-innovators had any innovation activities in 2008, which did not result in innovation of product or process, 6.45% SMEs-innovators replied that the investments were abandoned, and 21.41% that they were still ongoing at the end of the year.

Table 7: Innovation activities on introducing products and processes conducted by SMEs-innovators

Activities	Total	Small	Medium
Internal activities of research and development	32.89	34.42	31.22
External activities of research and development	14.56	14.65	14.47
Procurement of machinery, equipment and software	**49.39**	51.86	46.70
Purchase of other forms of knowledge	17.96	18.84	17.01
Education and training	40.17	43.49	36.55
Introducing innovation on the market	32.65	36.51	28.43
All design forms	19.90	21.16	18.53

Source: RSO

The biggest investments of SMEs in development of innovation are primarily related to technological innovations, through purchase of new equipment or software. Also, share of revenue gained from innovation activities in total company profit, **shows that less than 1% of revenue belongs to innovation of products/services that are new for the market, and about 2% for enterprise, 97 % of revenue was from unchanged production of products and services.**

According to the research conducted by the Republic Statistics Office, **of all surveyed SMEs innovators, the most significant share in protection of intellectual property rights has protection of trademark with 6.74%** SMEs protected a trademark, **16.28%** of enterprises stated time advantage in relation to other components as a significant method to protect innovations.

3. What is the reality?

In Serbia, there is a big demand for various innovation activities. From the aspect of enterprises, even 68% of enterprises have requests for financing innovation services that are not available on the national market. However, in the structure of innovation services only 8% of enterprises show interest in IP and development of products, while demand for transfer of know-how is somewhat higher (11%). Organisation of support is related to the function of SMEs needs, with dominant technological support, for development of new products, installing ICT equipment and new production process, as well as export promotion. Little importance has the support related to organisation of innovation activities (managerial activities, design etc.) and human resources. Due to weak interconnection of enterprises, universities and public research institutes, less than 20% of surveyed enterprises use various sources of knowledge as information for their innovation activities.

For the purpose of stimulating transfer of know-how by the scientific and research institutes toward small and medium enterprises, the Ministry of Science and Technological Development through public calls finances joint projects of scientific and research organisations, research and development and innovation centres on the one hand, and enterprises – users of research results, on the other, on resolving specific problems in the field of applied research. Basic criteria for selection and cofinancing of projects contribute to competitiveness of products and technologies, relevance of research, energy and ecological effects, as well as contribute to overall development and advancement of the Republic of Serbia.

In this sense, the amendments to the Law on Innovation Activity are very important with the provisions related to scientific research. Namely, the Law, among other things, envisages:

• Strategic change in financing, which is partly oriented towards economic operators as holders of innovation projects.

• Regulating very important issue of protection of intellectual property rights through joint projects of businesses and SRO, and financed party by MSTD, i.e. investment fund with majority state ownership. The provisions of intellectual property shell entitle as the owner of such created intellectual goods an employer or a customer. Significant part of the profit would go to inventors (not less than 50%).

• Establishment of joint investment funds for financing of the projects.

The state secured efficient intellectual property system, transferred the ownership on intellectual property created in research financed from the state budget on institution where that research had been conducted and regulated the issue of division of income made upon usage of those inventions.

Currently, the following activities are being performed: establishment of Fund for Innovation Activity, establishment of criteria for usage of economic measures and incentives for physical persons and legal enteties (article 51) to be used for both, application of modern technologies and placement on market innovative solutions or realization of patent solutions and for investment into and development of innovativeness and inventions, development of human resources capable to support technology transfer process, establishment of Center for technology transfer at the Belgrade University, analisys and strainghtening of teaching on intellectual property at higher level of education. It is planned to prepare Codex for management of intellectual property in scientific-research organizations.

3.1. Is this enough?

Nevertheless, even when certain financial instruments do turn up that may be used to procure patents or other form of protection of intellectual property, SMEs in Serbia are showing low interest for those activities and rather turn to some less complicated ones, which belong to non-technological innovations.

The Ministry of Economy and Regional Development in 2009 executed a pilot Project of incentives for enterprises for investing in strengthening competitiveness. One of the activities, for realisation of which the Ministry cofinanced 50% of total costs, related to purchase of the right to patent and patent documentation. **Out of 194 SMEs, which applied for the public call, only three requests were related to the stated activity. Since these three enterprises did not meet formal requirements of the call, they were disqualified in the first stage of the selection so the purchase of the patent right and patent documentation was the only activity for which realisation the funds were not allocated. Within the Support programme for**

SMEs for strengthening innovation in 2010, none request for purchase of patent right and patent documentation was submitted.

In this context, it is important to mention that in 2007 the Development Fund had a special **credit line "From innovation to an end product"*.** Interest of SMEs was very low, and majority of submitted requests were not innovative and did not meet the request of the call. In 2008, the credit line was cancelled, and the funds were transferred for other purposes.

3.2. Raising awareness and availability if necessary information

Within the Intellectual Property Office, the Education and Information Centre was established. The activities of the Centre include organising training and lectures (workshops etc), promoting cooperation with all stakeholders, preparing, translating and disseminating publications of the Office and international organisations, with the Serbian Chamber of Commerce, regional and local chambers, National Agency for Regional Development and the network of its' regional agencies/centers. scientific institutes, faculties, enforcement bodies etc. The centre provides the latest technological, legal and other information relevant for successful commercialisation of intellectual property. In addition, the Centre has a key role in raising the general level of knowledge on intellectual property and its significance for social and economic development of the society, as well as raising awareness on the harmfulness of piracy and counterfeiting.

IPO, its' Education and Information Center, has started to offer the service of intellectual property diagnose from the second half of 2010. Diagnose of intellectual property is the service establilshed by the Franch intellectual property office in 2004, and since then it was accepted by the different members of European patent organization and EU members as a service created especially for SMEs. This service has been created for all enterprises that want to assess their intellectual property goods and to raise enterprise awareness on the importance of the management with intellectual property goods. The process of intellectual property diagnose requires preparation, i.e. collection of information about enterprise and then team made of two experts pays the visit to the enterprise where it performs the interview with the management team member responsible for development of that company and in that way experts are getting familiar with the business and future development strategy. Based on the interview, all aspects of business are considered: types of products, rechnology, service, R&D in the company, suppliers, human resources etc. and the report on diagnose gives the recommendations for protection and management of intelectuall property goods, both the ones that underlie registration but also the goods of "soft intellectual property" which include business secret, classified information and "know-how". Focus is on the SMEs with potential for development in areas that are considerd to be priorites of national strategy of development based on knowledge. The Intellectual Property Office and the National Agency for Regional Development signed the cooperation agreement. The institutions will work together on developing competitiveness and innovation of small and medium enterprises in Serbia, as well as on raising awareness on significance of intellectual property in Serbian society. The goal is for SMEs to understand the importance of innovation and intellectual property for business, for which purposes IP can be used and how to exercise the protection of IP, especially taking into account that the Office tends to provide more support to small and medium enterprises and scientific institutions in order to commercialise inventions.

The Intellectual Property Office signed a memorandum on understanding with the Serbian Chamber of Commerce and 10 regional chambers of commerce. Signing of the memorandum marked the official participation of SCC and the chamber system in realisation of the project

"Establishing Education and Information Centre in the Intellectual Property Office of the Republic of Serbia". The goal of this cooperation is to raise the awareness of economic operators on importance of intellectual property, and innovation in general, for growth and development of competitiveness. From May till the end of November 2010, 6 seminars in regional chambers of commerce on the fundamentals of intellectual property rights targeting economic operators from the region were held. The aim of this education is to bring closer the term of intellectual property to all target groups, as well as to explain that intelectuall property, besides the fact that it provides exclusive right to use invention, trademark, design, writing or artwork, enables the company to achieve other business objectives (and in that way to encourage development of intellectual property management strategy). Those enterprises that put their resources in intellectual property management becomes in great deal more competitive on the market.

In early October, there was a TAIEX seminar on intellectual property in SCC On patent protection, where IPO and Education and Information Center was coorganiser and participated in the lectures. Besides this seminar, in May 2010 IPO participated at regional claster fair in Nis, in August at entrepreneurship fair INOKOP in Zrenjanin and supported few more events targeted on SMEs with their lectures. IPO also participated at the tradicional entrepreneurship fair BUSINESS BASE in December.

Based on educations it was noticed that the awerenes on the importance of intellectual property amongst innovative SMEs is increasing. It has become evident that the need for intellectual capital and intellectual property exists in order for company to control its' knowledge and maintaine advantage those knowledge bring.

At the beginning of November 2010, four – day seminar for 23 representatives of regional chambers of commerce and regional development agencies was held in IPO. The seminar was designed to be a training of trainers that will later on be in position to offer basic information on intellectual property and intellectual property goods management which are important for the successful conducting of the business among the enterprises in their region. This seminar was also the opportunity to create the network of contact in the regionas of Serbia, working in the institutions that support the SMEs.

For several years, within the competition for "The Best Technological Innovation", the participants who pass the first stage of the selection go through various types of trainings. Among others, this includes the area of protection of intellectual property, its significance, protection process and procedures.

III. Intellectual property and industry

The level of protection of intellectual property may affect the development of individual sectors and branches of economy of a country, especially in developed market economies. However, even on the low level of economic development the lack of protection may have a negative effect on development by impeding orientation towards commercialisation of inventions and innovations.

Protection of trademarks provides incentive for arrival of new companies and development of new products, even in poor countries. Successful trademark leads to raising the quality of products, which makes product recognisable at the market, and has a positive impact on consumer protection. This is especially important in production of beverages, foodstuff, medicine, pharmacology. It is similar with copyrights. The sectors that are dependant on

copyrights, such as publishing, music, film, (recorded entertainment) and software, will have reduced arrival of new companies, unless the copyrights are protected.

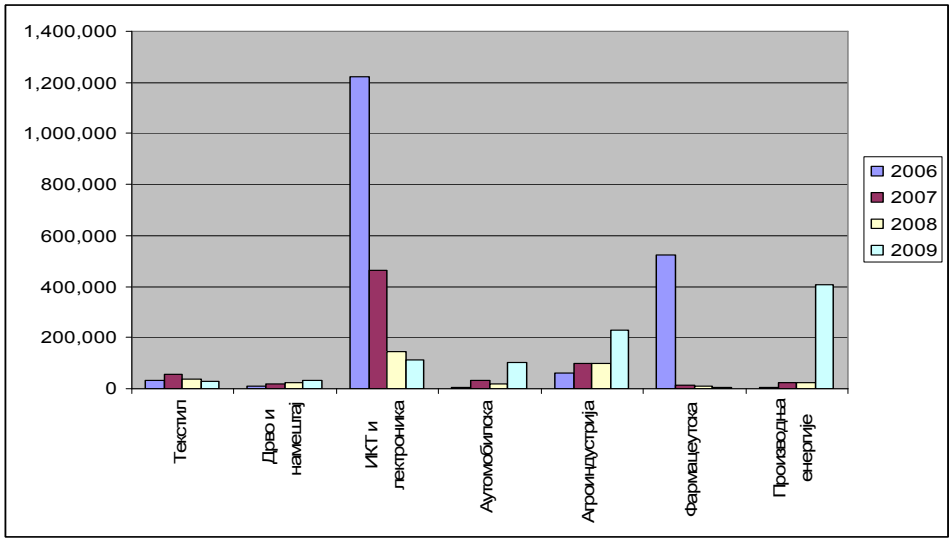
Foreign investments, joint investments and contracts on licensing technologies help transfer of knowledge in production. Research shows that big companies limit their investments in the countries with low level of protection and small number of registered patents. At the same time, the level of transfer of know-how depends on the ability to exercise control over technology through adequate protection of intellectual property. High level of protection increases the number of registered licenses, which reduces the costs of contracts. All this affects the development of competitiveness of certain sectors and economy as a whole.

1. Industrial sectors and protection o intellectual property

There are two groups of economic sectors in Serbia, which depend to a significant extent on the level of protection of intellectual property. The first group is made of sectors, which are the most important in the area of research and development of SRO, and are marked as priorities in the Strategy of Scientific and Technological Development, agriculture and food, environment protection and climate change, biomedicine, energy and energy efficiency, ICT, new materials and nano sciences.

Second group is presented by sectors that had the biggest inflow of foreign direct investments in previous years.

Picture 1: Foreign direct investments in Serbia in 2006-2009 per sectors



Source: NBS

Pursuant to the provision on conditions and ways to attract foreign direct investments, selected are automobile, electronic, IT and telecommunication sectors. In addition to these sectors, SIEPA (Serbian Investment and Export Promotion Agency) states as priority sectors also aircraft-industry, services (business process outsourcing, creative services), construction industry, pharmaceuticals, production of renewable energy, textile and furniture.

The Ministry of Science and SIEPA have recognised **agro-industry, information and communication technologies, electronics, energy production from renewable sources, biomedicine and pharmacology as priority branches,** which can be driving forces of

development of Serbia in the upcoming years. Therefore, the state invests great funds in development of science and attracting foreign investments in these sectors. Still, from the aspect of foreign investments, since 2008 the focus has been on **automobile industry**. Today this industry largely relies on electronics and use of information technologies. Two more branches are very significant in Serbia, from the aspect of a large number of employees, foreign investments and exports – **lumber and textile industry**. Lumber industry is the most important because of the possibility to use lumber waste as an energy source, while textile industry is important for protection of trademarks of products. **These seven sectors are marked as vital for the analysis of the impact of protection of intellectual property on economic development**. Other sectors do not have sufficient share in Serbia's economy to be a part of this analysis. The exception is construction industry, but it has been exempted from the analysis due to low importance in protection of intellectual property, considering that in the national economy civil engineering and rough constructions works are predominant, and without significant foreign investments. In production of construction material, there were several major foreign investments, but those are mostly resource-demanding sectors, such as cement production.

1.1. Agroindustry

Agriculture and agriculture-food sector traditionally play vital role in Serbia, considering very favourable natural conditions for diverse agricultural production, large number of producers, experts and scientific workers. In 2008, the share of agroindustry in GDP was 16.6% (agricultural production 12%, food industry 4.4%). Since 2005, the Republic of Serbia has been recording positive trade balance in exchange of agricultural-food products, the share of which in total export was about 13%, (about 10% in other countries of the region). In 2008, exports of foodstuff from Serbia were about 79 billion RSD, while imports were about 49 billion RSD.

The most important export products are raspberry, sugar, maize and wheat and they cover about a third of agriculture export of Serbia. Export of sugar is influenced dominantly by approved EU preferentials. The appeal of raspberry in processing results is encouraging many producers from other countries to start producing raspberry, which largely enhances the competition to national producers on the world market. Export of maize and wheat is important source of exports revenue, but it has to be stressed that these are the quantities that are proportionally small in world dimensions and their placement on the world market is realised only when bigger producers, Ukraine and Hungary, sell out their stocks at lower prices of the competitors due to lesser quality.

Processed products, such as confectionery products, make up only 4.56% of export value of the agricultural sector, which is the consequence of low competitiveness (result of low technological level of processing capacities) and non-compliance with the standards and requirements of sanitary and phytosanitary legislation.

What is important to point out is the export of seeds, because exported are sorts and hybrids created in our scientific and research organisations (over three million hectares are sowed/planted annually with our sorts and hybrids).

Statistical data show that a number of products are being exported in small quantities and values. Since small series increase related export costs, the necessity forces itself towards enhancing export quantities.

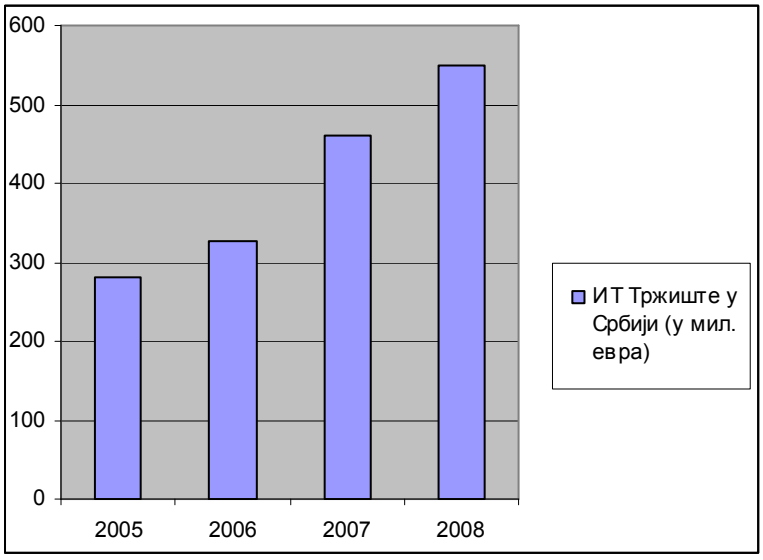
Research in agriculture and food are in the most direct connection with the development of agriculture and food industry of our country. The Ministry of Science increased investments in

research in this field over six times in relation to 2002, and it was 1.2 billion RSD in 2008. At the same time, this area is among the most visible ones worldwide. Therefore, in the Seventh Framework Programme of the EU, in the programme "Cooperation" within the field "Food, agriculture, fishery and biotechnology" the research groups from Serbia are on the level of the European average according to the success percentage (about 17% of success rate).

1.2. Information and communication technologies

In the modern world, rapid development of telecommunications and information and communication technologies has strategic nature. In the Republic of Serbia, the development of this sector in the last ten years was much slower in relation to other similar countries in the region. The level of development of the telecommunications market in Serbia is still on the lower level in relation to the standards existing in the European Union countries.

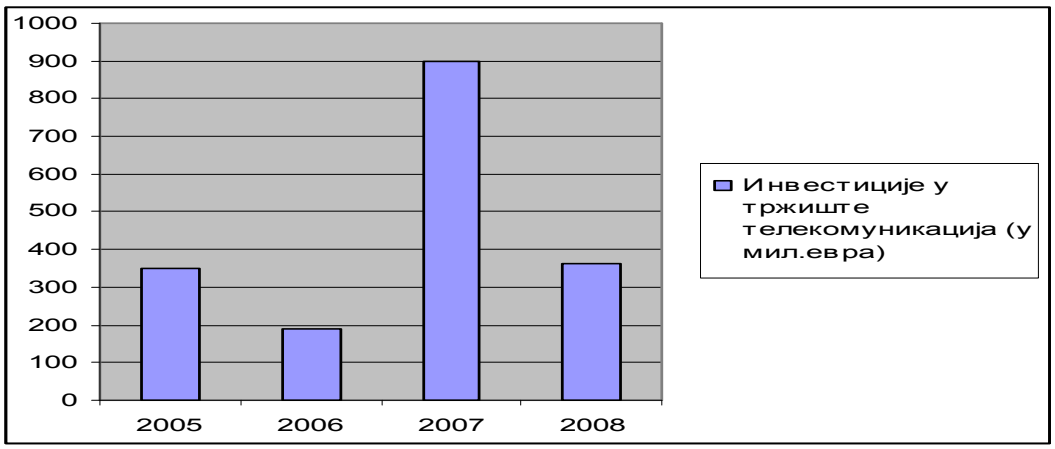
Picture 2: IT market in Serbia



Source: SIEPA

In the course of the last decade, domestic ICT entrepreneurs founded over 2,500 small and medium enterprises, and ICT presents a fast growing market. According to the MINECO analysis, the size of domestic ICT market was 545 million EUR. The biggest share belonged to hardware with 366 million EUR sales revenue. Software accounted for about 115 million EUR, while software services made 64 million EUR revenue. Production and export of software is difficult to monitor statistically because the largest share of the production includes *outsourcing* for big foreign companies. Nevertheless, the official statistics shows that the production of electric devices participated with 5.58% in GDP in 2008, whereas in the same year the export of electric devices was in the value of about 41 billion RSD.

Picture 3: Investments in the telecommunications market in the Republic of Serbia



Source: SIEPA

From 2004 to 2008, the investments in ICT per capita in Serbia increased from 31 to 74 EUR per capita (in Slovenia it is 334 EUR, in Hungary and Greece 222 EUR each, in Croatia 218 EUR, while in the Western European countries 813 EUR per capita). According to the OECD report, the ICT market presents 1.2% of GDP of the Western Balkans, with projected growth rate of 9% in the period 2007-2011 (similar growth rate is projected for East Asia and China). This includes both software and hardware.

When it comes to regulation of the telecommunications market, it is governed by the Law on Telecommunications. The Republic Telecommunications Agency is the regulatory body responsible for telecommunications development. From this year, fixed telephony is covered by two operators. Mobile telephony network in Serbia covers 90% of the territory and at the moment is operated by three mobile operators.

As an addition to this list of investments, national IT industry has incentives in returnees from Diaspora, who are establishing new companies to use their knowledge gained abroad and relatively low costs of domestic labour of IT experts. The business incubator at the Technical Faculty of Belgrade has 13 tenants and most of them are IT experts, returnees from abroad. For example, the company "Teleskin d.o.o." was founded with an aim to develop, produce and sell the combination of hardware and software solutions for biophysical skin diagnosis, especially for early diagnosis of skin cancer and melanoma. Since 2007, 59 Greenfield investments have come to Serbia.

The main advantage of the ICT sector in Serbia is considered the qualified workforce. Serbia has highly profiled experts and out of 16,000 graduates, on annual level, 2,000 of them are telecommunications engineers, and about 1,600 are electrical engineers. The Ministry of Science and Technological Development implements the policy in this area through two head committees – for electronics and telecommunications, and for industrial software and informatics. Approximately 700 researchers are engaged, and the state investments are on the level of 5.5 million EUR a year, whereas research equipment in the last three years was financed in the amount of half a million EUR.

1.3. Automobile industry

In 2009, the automobile industry in Serbia consisted of six manufacturers of motor vehicles and about 70 component suppliers. Domestic production of motor vehicles comprises manufacturers

of passenger and commercial vehicles, light, medium and heavy lorries and buses. These six vehicle manufacturers in Serbia employ about 7 thousand workers.

Manufacturers of vehicles in Serbia			
Company name	Location	Number of employees	Product
FIAT Srbija	Kragujevac	3400	Passenger vehicles
Zastava spec/automobili	Sombor	262	Commercial vehicles
Zastava kamioni	Kragujevac	850	Pickup trucks, lorries
FAP	Priboj	1611	Lorries, buses
Ikarbus	Belgrade	764	Buses
Neobus	Novi Sad	212	Buses

Although, according to the data of the Serbian Business Registers Agency, there are 180 companies registered for manufacturing parts and systems for motor vehicles in Serbia, according to the research by SIEPA, only 70 companies are currently capable for serial production as international OEM (*original equipment manufacturers*) or for manufacturing of spare parts.

Manufacturing of engine parts is predominant in the production of automobile components in Serbia, and it includes valves, axis, joint axis, connecting rods, flywheels etc. Still, these engine parts are manufactured mostly by OEM, with small percentage for the spare parts market. Significant share is made by plastic and rubber parts for vehicles, and domestic companies prevail in this sector. Manufacturing of electrics, electronic equipment and power supply is also significant (batteries, electrical engines, conductors), and the majority of manufacturers are foreign companies established in the last four years.

The Government of Serbia in 2008 established joint companies with FIAT, but the world economic crisis delayed full implementation. About ten foreign companies entered the sector of manufacturing automobile components in Serbia since 2005, which led to faster growing of annual turnover of the sector, especially in 2008. Turnover of socially owned companies increased constantly as the result of increase of the existing production. In parallel with the turnover growth, the export level grows steadily and 90% of the production of internationally owned companies is exported, while the export of domestic companies is about 45%.

In 2005, the automobile cluster was registered in Serbia, through an agreement among several Serbian manufacturers of automobile parts.

1.4. Biomedicine and pharmacology

Share of pharmaceutical industry in gross domestic product of Serbia is somewhat more than 3% and makes over 50% of the chemical industry in Serbia. Annual gross product of the Serbian pharmaceutical industry is over 25 billion RSD, and more importantly, for several years in a row this industry registers continuous natural growth of production. There are about 20 producers of medicines in Serbia employing about 7,500 workers.

Research and development in the pharmaceutical industry is concentrated mostly in three leading companies, Hemofarm, Zdravlje and Galenika, and their research centres. The Galenika Institute is the only one officially registered with the Ministry of Science and Technological Development. The company owns about 400 domestic trademarks, 37 trademarks registered

abroad, 20 patents, and 26 patent applications. The research centre of the Hemofarm Group covers the areas of pharmacology, technology, biology, chemistry and many others, and deals with development of new products and their registration in the country and abroad. Actavis's research centre is much smaller than Hemofarm's or Galenika's. It mostly deals with small research in the area of dosage and forms, whereas bigger research projects are done in the Actavis's head office.

Serbia has institutions dealing with medical researches. The most important one is the "Torlak" Institute, which deals with production of vaccines, serums and biopharmacology. The "Torlak" Institute complex includes laboratories for control, production centres, research and development laboratories and animal farm laboratories.

The Institute for Medical Research at the Faculty of Medicine in Belgrade also deals with basic and applied research in the fields of medicine. Orientation of the research is focused on cell and molecule mechanisms in psychological and pathological processes. The Institute employs over 50 research fellows working on programmes to improve understanding of various diseases and should contribute to development of new diagnostic and treatment approaches to their treatment.

1.5. Lumber industry and furniture industry

Lumber industry has a long tradition in Serbia, but its capacities are used significantly below the real level (40 - 50%). At the same time, there are significant investments in sawmill processing of lumber, so the capacities of sawmill processing are higher than available raw materials. This economic branch used to generate a significant surplus in foreign trade exchange (in 1990 over 160 mill. USD), in recent years generates deficit which is increasing by year. The reason for this deficit of lumber industry is doubled imports in relation to 1990. A positive fact is that the exports of final products increased significantly in recent years. The products of primary lumber processing are mostly exported to Italy, Greece, Germany, Egypt, Israel, and end products to the markets of Italy, Bosnia and Herzegovina, Germany, France, Macedonia.

Table 3: Exports and imports by subsectors of lumber industry

	Exports in USD		Imports in USD	
Subsector	2008	2009	2008	2009
Forestry	9,616,833	4,333,444	28,587,925	14,239,599
Lumber processing and wood products	111,414,264	74,656,107	167,958,124	96,961,436
Production of paper, publishing and printing	118,566,387	99,741,436	318,055,203	243,128,321
Other processing industry	99,252,844	68,580,084	83,194,771	59,106,510

Source: RSO

Lumber industry covers a relatively high share in GDP (about 1.2%) and industrial production (about 3.5%). It consists of about 2,500 companies, 1,500 of which are dealing with lumber processing and about 400 in furniture production. Very few foreign investments are in this sector (only 2% of all companies have foreign capital). Sawmills make about 60% of total number of companies in this sector, whereas their product, processed lumber, makes about 37% of exports in this sector. The majority of sawmills are small, but bigger sawmills account for 55% of production capacities in Serbia. Annual production is about 300,000 square metres.

When it comes to furniture production, domestic companies manufacture everything: furniture for households, offices, stores, hotels, restaurants, hospitals and schools. Majority of the production is covered by big companies (about 45%), while small companies cover about 30% of

total furniture production, although they make up 92% according to the number of companies. Medium-sized companies make up 7% of total number of companies in this sector, and manufacture about 25% of produced goods. The main export markets are the Russian Federation and the Middle East.

1.6. Textile and footwear industry

Textile industry in Serbia presents about 6% of industrial production, about 10% of industrial exports, employees about 150,000 workers with about 1,200 companies, predominantly SMEs. In addition, it is estimated that there are about 2,000 unregistered small clothes producers, operating as household businesses.

Domestic textile industry builds its competitiveness still on cheap labour, rather than on innovative products. Still, it is difficult to compete with manufacturers from India and China, so textile industry needs to reorientate to reducing series and deadlines for production and to respond quickly to changes in fashion trends.

Table 4: Exports and imports of textile industry by subsectors

	Exports		Imports	
Subsector	USD 2008	USD 2009		
Production of textile and textile products	317,801,650	340,708,398	532,200,719	386,405,695
Processing of leather and manufacturing of leather products	134,048,165	100,949,122	214,753,109	153,800,943
Other processing industry	4,494,393	3,840,236	31,455,625	19,964,860

The biggest concentration of producers is in the Western Serbia, around the towns of Arilje, Ivanjica and Novi Pazar. Bigger concentration also exists in Banat, while it gradually enhances in South Eastern Serbia.

Most of the raw materials for production, about 70%, is imported, mostly from Italy, Germany, Slovenia, Hungary, Romania, Bulgaria and Turkey. Production of raw materials for manufacturing and supply of local industry are one of the main challenges.

The level of modernisation of domestic enterprises in textile industry varies and depends on the products themselves. High level of modernisation is present in medium and large private companies, which continuously introduce new machines and they have begun with introducing computer systems for design of products and control of production process. Machinery is mainly imported from Italy, Germany and Japan, and their average age is ten years. Use of computer systems in production in small and medium enterprises is a positive signal and demonstrates the importance of the role of these companies in the entire sector.

1.7. Production of renewable energy and energy efficiency

Serbia has unexploited potentials for greater energy efficiency and production of alternative energy sources. With little approximation of legislation, this may enable private enterprises to produce enough biofuel for the needs of the national market, even partially for exports, thus creating about 24 thousand new jobs by 20202.

Serbia spends 2.7 times more energy than any of the OECD countries. In 2007, 15 million tonnes of energy products were spent, 52% of which 52% was created by consuming highly polluting

sources, such as coal, 27% of oil, 14% of natural gas, and 7% of hydro sources. According to the data of Energy Efficiency Agency, Serbia imports most of oil and gas that it uses, 37% of energy is imported in order to meet the needs of population and economy.

Serbia does not use great potential it has in production of biofuels, especially biodiesel. Each year about 12.5 million tonnes of biomass is produced (60% comes from agricultural production, and 40% from forests) and most of it is not used efficiently. At the moment, from the waste material 2.6 million tonnes of energy products can be produced, which is about 19% of Serbia's consumption of "fossil" fuels. Among the options for alternative energy sources, biomass is the most cost-effective source and its production is the easiest to realise. Serbia has the capacity to produce about 200 thousand tonnes of biodiesel a year, which exceeds national demand and gives opportunity to export, especially to South Eastern Europe.

In addition, Serbia has the capacity to produce bioethanol from different types of field crops and waste products containing cellulose. Nevertheless, as with the production of biodiesel mixtures, here the lack of legislative framework is blocking the development of this particular branch.

In Serbia there is potential for production of wind energy. The Ministry of Science and Technological Development is making the wind map in Serbia. Still, the lack of legislation slows down the progress and development. Similar is with solar energy. The map for solar energy in Serbia is being drafted as well, but little has been done in developing production of this form of energy.

2. Impact of intellectual property on industrial development

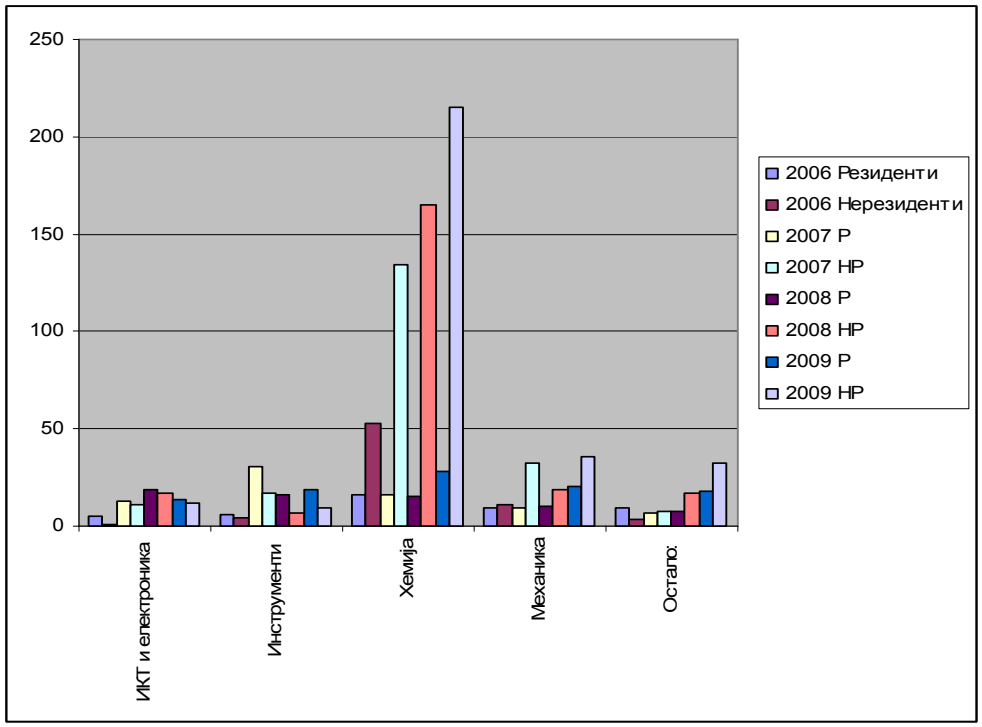
For the purpose of analysing the effects of protection of intellectual property on economic development, seven most significant sectors have been selected to be the subject of the analysis. Protection of patents in these sectors depends on investments of the state and companies in research and development in previous years, as well as from GDP and other features of companies and sectors. This analysis will try to measure the impact that the state's investments and foreign direct investment to date have had on the development of patent activities in certain sectors, as well as what the impact is of the number of patents in those sectors on GDP.

Methodology **of the assessment of impact of the IPR protection on development of individual sectors** consists of comparing growth trends per sectors, by covering the number of patents in the period 2006-2009 and comparing them with the state's investments in research in the period 2002-2008, considering that it takes several years from the start of the research to reach the patent. **The first part of the analysis will compare the state's investments in research and development in some sectors with the number of patents per those sectors**, in order to determine in what way the investments in research and development contributes to development of new patents. Since there are no data on investments of private companies in research and development, it is not possible to determine the impact of their investments on the number of new patents. **The first part of the analysis should demonstrate whether the new patents contribute to the GDP growth of selected sectors.** Comparison of the number of new patents and growth of GDP indirectly shows how much the state's investments in science contributed in the end to growth of GDP per sectors, i.e. how much the results of the scientific and research work are really commercialised. **The third part of the analysis is related to the impact of foreign direct investments on the patent number.** Here it should be taken into account that growth of foreign investments does not necessarily lead to increase of the patent number, especially if the investments are only in resources and operationally demanding sectors.

Also, the investments in these sectors help the growth of GDP, which should be taken into account in analysis of the impact of number of patents on the growth of GDP. Based on the complete analysis it is possible to get the picture on how much really the state's investments in research and development, on the one hand, and foreign investments on the other, affected the increased number of patents, as well as how much the number of patents has contributed really to the growth of certain sectors.

The following tables provide the overview of the number of patents per sector.

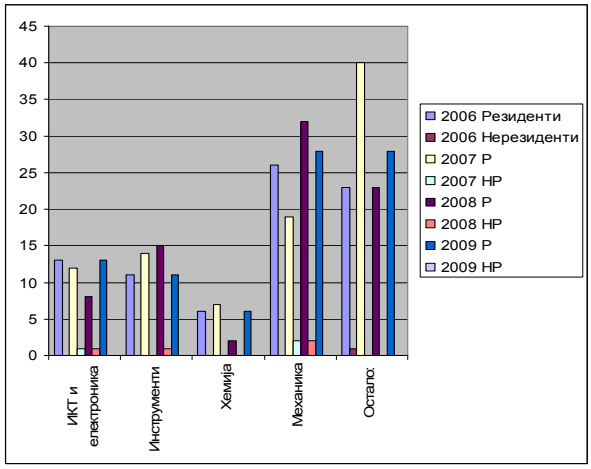
Picture 4: Number of patents per sectors for the period 2006-2009



Source: IPO

Unlike patents, where in majority sectors the non-residents are dominant in numbers, with petty patents the nationals and companies prevail, i.e. innovative small and medium enterprises. In the patent structure the sector of chemistry prevails, mostly organic chemistry and pharmacology, considering the large number of pharmaceutical companies that place and protect their products on the Serbian market. In petty patents predominant are mechanics, electronics and furniture industry. Most of these sectors in 2008 and 2009 marked decreased number of newly registered patents, except the subsector of electric appliances, which marked growth in this period. The most drastic decline in the number of newly registered patents was in the sector of furniture industry, with 16 in 2007, and only 4 in 2008. Similar situation is in the construction where after 17 newly registered patents in 2008, there were only 8 in 2009.

Picture 5: Number of small patents per sector for the period 2006-2009



Source: IPO

The world economic crisis did not affect the number of patents in the pharmaceutical industry, where there is continuous growth in the number of new applicants every year. All other sectors had smaller number of newly registered patents in 2008 and 2009. It is interesting that the number of newly registered patents increased in the area of pumps, engines and turbines, related to automobile industry. Five national residents and two foreign ones registered patents in 2009 in this field.

2.1. Impact of investments in research and development on creation of new patents

In developing countries, such as Serbia, private companies do not have long tradition of investing in research and development (R&D) and patenting. Patent protection is mostly done by foreign companies, which came to Serbia either through privatisation or Greenfield investments, and scientific and research institutions, for which the patent protection is the final stage of the project they are implementing.

According to the basic definition and purpose, the projects of technological development should have applied as their result technical solutions, patents, pilot assemblies, new types of innovations, technological improvements and results that are directly applicable. EIS shows R&D expenses of the state and companies according to GDP. The indicator shows that when it comes to the state the share of R&D expenses in GDP is 0.35%, whereas for companies it is 0.15%. Unfortunately, there is no information per sectors. In the previous period (2003-2007) in the area of technological development over 3,400 technical solutions were realised. Despite this high number, the number of applied patents by SRO in the period 2003-2009 was 54, and registered 18. With these results, the Republic of Serbia is almost the last in Europe. The following table give an overview of investments of the Ministry of Science and Technological Development in individual sectors through projects of SRO.

Table 5: Technological development projects from the funds of MSTD for 2002-2008

	Investments of MSTD (in RSD)	Number of technical solutions
Electronics and telecommunications	661,120,982	747
Industrial software and IT	161,724,985	80
Machinery	484,433,898	482
Transport, urban planning and construction	428,553,757	135

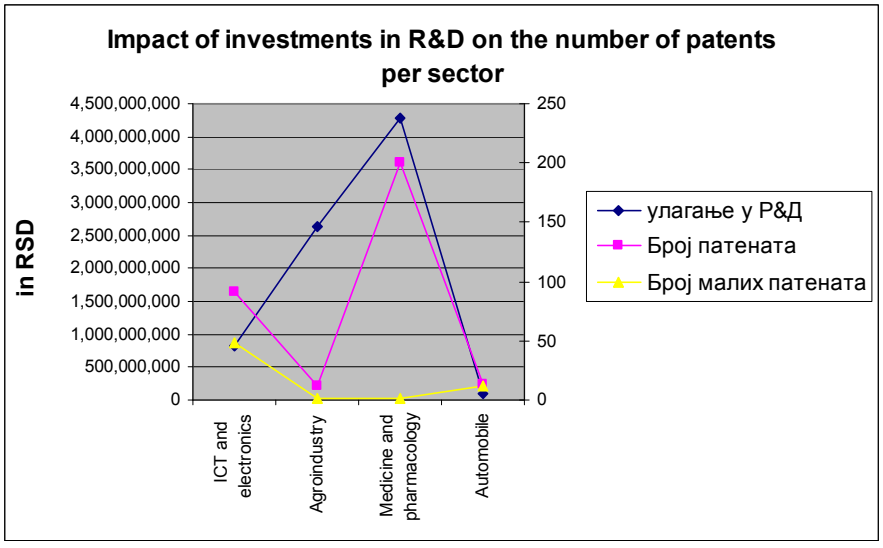
Biotechnologies and agroindustry	2,633,269,985	1161
Biomedicine and pharmacology	4,369,103,607	475
Energy efficiency, energy technologies and mining	941,926,637	392
Materials and chemical technologies	757,812,327	381
Waters and water management	156,371,032	4

Source: Ministry of Science and Technological Development

When we look at the impact of the state's investments in research and development on increase in the patent number in the most important sectors, we come to the conclusion that only in the ICT sector and electronics there is a positive correlation.

Despite large number of patents in the pharmaceutical industry, it should be pointed out that the majority is protection of patents of foreign companies on our market. Very few domestic patents (only 11) in this sector states the yet insufficient results of investments in scientific research. One of the reasons is that these researches are mostly in the area of basic researches and due to the luck of finances for development of application of those researches, they are not commercialised at the market. There is big discrepancy between the state's investments in research in agroindustry and their application in daily business operation. Very small number of patents proves this. The level of investments in research in automobile industry is low, so the results are meagre too. It should be emphasised that Zastava stopped manufacturing cars, and that Fiat still has not started the production capacities to full extent. Big investments in research in the area of energy production and efficiency did not yield more significant results in this area, which is indicated in the small number of patents. Lack of legal framework is important obstacle to commercialisation of research and further development of this sector.

Picture 6: Impact of the state's investments in research and development on the number of patents 2002-2009



Source: Ministry of Science and Technological Development

Key findings:

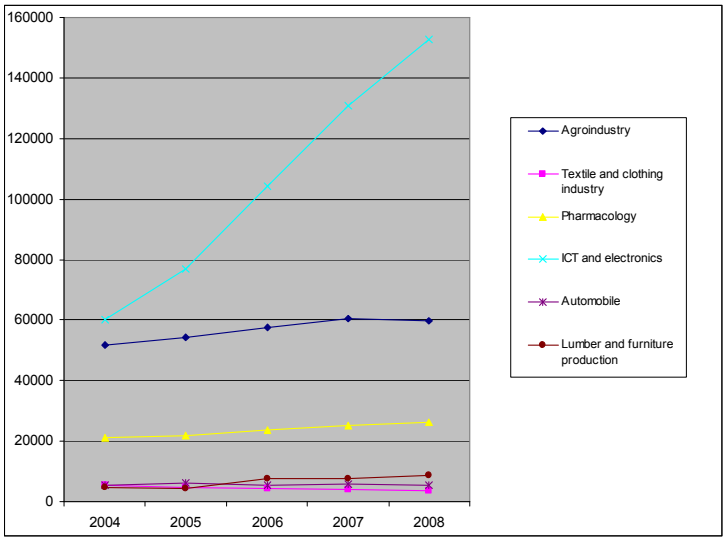
- Low level of investments of the state and companies in research and development
- Investments in SRO projects are mostly for the purpose of survival of SRO
- Realised technical solutions have not been turned into patents and their commercialisation on the market
- Insufficient cooperation between SRO and business, especially SMEs
- Established positive correlation between the state's investments in science and creating increased number of patents only in ICT and electronics sectors

Achieved technical solutions haven't been converted into patents and their comercialisation on market as a result of insufficient cooperation between scientific-research organizations and economy, especially SMEs.

2.2. Impact of new patents on growth of GDP per sector

From the start of the trade liberalisation process in 2001, real GDP in Serbia has been increasing constantly at the average rate of about 5.5%, all through to 2009. Growth has been big in sector of services and production, as leading sectors, whereas growth in agricultural sector has been much weaker. GDP per capita, as an indicator of productivity of the nation increased about 2.5 times since 2001, due to increased investments and improved technology with which the employees work.

Picture 7: Growth of GDP per sector in the period 2004-2008

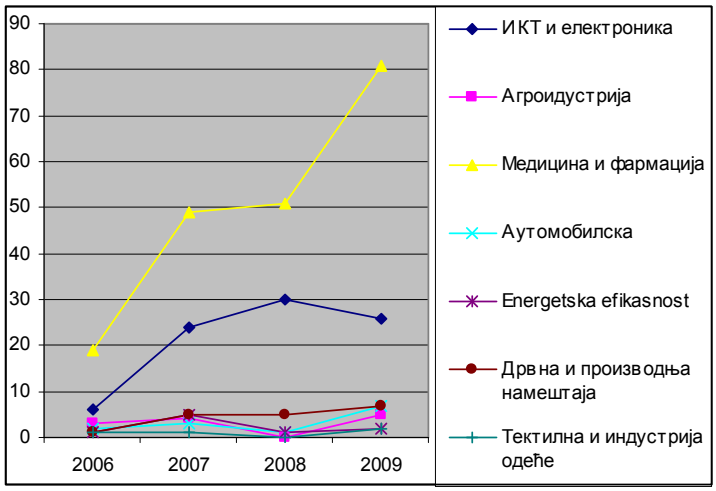


Source: Republic Statistics Office of Serbia

If we look at the growth of GDP per individual sectors, we will see that the sectors with the most patents, pharmacology and ICT, are the only one that mark constant growth in the monitored period. Still, we should notify that sectors of ICT and electronics mark significant growth primarily due to growth of the telecommunications sector, and however, IT sector itself records moderate growth in this period. After several years of growth, agroindustry in 2008 entered recession, this continued all through 2009. Insufficient investments in development of chemical products for agriculture and great dependence on imports in this sector affect significantly the

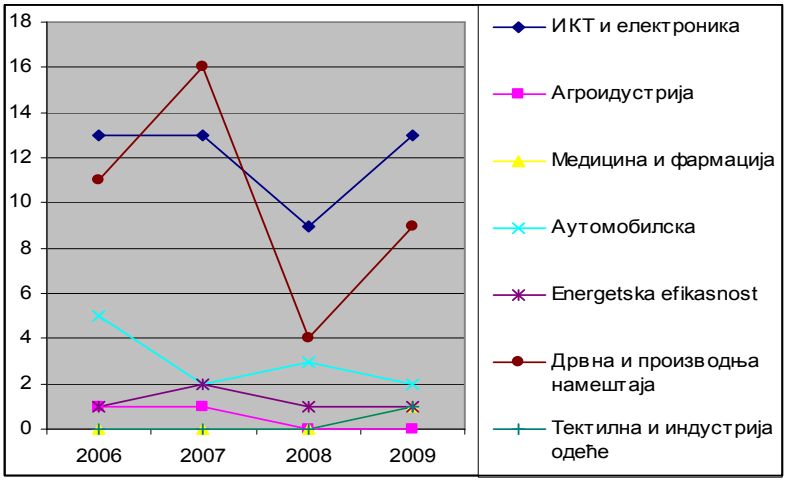
long-term competitiveness of agricultural products. In other three sectors, one may notice dependence on the number of patents, although their share in GDP is significantly smaller. Furniture industry records continuous growth of production, as well as increased number of petty patents in recent years. Automobile industry stagnates and the impact of FIAT investments on growth of share in GDP is yet to be expected and, indirectly, on the number of patents in this sector. Textile industry in Serbia is operationally demanding and now there are no capacities for new innovation products that would improve the productivity in this sector. Maybe this is the reason for continuous decline in production in recent years. Mild growth in production of energy and energy products is the result of big investments by the state in modernisation of capacities.

Picture 8: Number of patents per sector in the period 2006-2009



Source: IPO

Picture 9: Number of petty patents per sector in the period 2006-2009



Source: IPO

Key findings:

- From 2001 there was constant growth of GDP, which stopped in 2009 with the world economic crisis
- Growth of GDP was realised on the basis of the growth of SMEs sector and FDI
- The biggest growth of GDP was in the sectors of pharmacology, ICT etc.
- Positive correlation between the increased number of patents and GDP was established in the pharmacology and telecommunications sectors as the result of FDI
- Positive correlation between the increased number of petty patents and GDP was established in the information technology sector, lumber industry and to some extent in agroindustry, as the result of growth of domestic SMEs

2.3. Growth of foreign direct investments and development of new patents

For developing countries such as Serbia, foreign direct investments enable local economy easier access to capital, advanced technologies and know-how, management skills, global partnership networks and the best systems in the corporate management practice.

Among ten biggest investments in Serbia, majority of them are from agroindustry (4), two are in the field of telecommunications, whereas one is in the field of automobile sector, energy, pharmacology and banking respectively. Even with significant incentives for investments, a number of investors come to Serbia because of cheap qualified labour. These are mostly investors in operationally demanding sectors, such as textile, agriculture, processing of metal and parts of lumber and automobile industries. None of the studies dealing with foreign direct investments in Serbia deals with economic forces, such as development of information technologies, creation and protection of intellectual property, having trained labour and stable market of capital, which should be developed in Serbia to attract FDI.

Table 6: the biggest individual foreign direct investments in Serbia

Company	*Country of origin*	*Activity*	*Type of investment*	*Invested in mill EUR*
Telenor	Norway	Telecommunications	Privatisation	1,602
Gazprom Neft	Russia	Energy	Privatisation	947
Fiat Group	Italy	Automobile ind.	Joint investment	940
Philip Morris	USA	Tobacco ind.	Privatisation	630
Mobilkom	Austria	Telecommunications	Greenfield	570
AB InBev	Belgium	Food ind.	Takeover	530
Banca Intesa	Italy	Banking	Takeover	508
Salford Inve. Fund	United Kingdom	Food ind.	Takeover and privatisation	500
Stada	Germany	Pharmaceuticals	Takeover	475
Agrokor	Croatia	Food ind. and retail	Privatisation and Greenfield	450

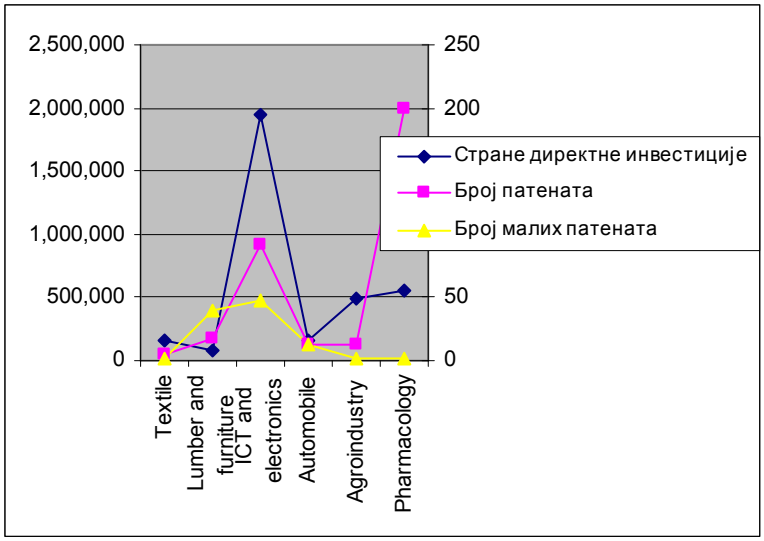
Source: SIEPA

ICT sector certainly attracted the biggest portion of foreign direct investments, primarily because of big investments in the field of mobile communications. However, the arrival of big IT companies like *Microsoft*, *Oracle* etc. speaks about Serbia as an interesting location for big

multinational companies in IT sector. Pharmacology is the second of six sectors according to the inflow of foreign direct investments. Arrival of foreign companies mostly went through privatisation of domestic pharmaceutical companies (Hemofarm, Zdravlje), while Greenfield investments were almost non-existent. Serbia as an agricultural country, with high share of this sector in GDP and exports, did not manage to attract foreign direct investments to this sector, especially in related branches, such as agricultural machinery and production of chemical products for agriculture. In these sectors imports from developed countries is still dominant and has significant negative effect on the trade balance of the country.

Arrival of FIAT contributed to investments of several multinational companies of producers of car parts, but those investments were in the operationally demanding parts of the automobile industry. Automobile industry today is mostly based on electronics, where there are not any significant investors in Serbia. Arrival of a bigger investor would open the door to a number of small and medium enterprises in Serbia dealing with electronics, to specialise for this sector and become suppliers of the auto industry. Among significant investments in the lumber industry, Kronospan and Tarkett stand out, while there are no significant investments still in the furniture industry. Arrival of the Italian company Golden Lady to Valjevo and Loznica and German Falke to Leskovac are the biggest investments in textile industry. On the list of the biggest investments in energy sector Russian companies lead the way. Gazpromneft bought Petroleum Industry of Serbia and this is the second biggest investment in Serbia, while Lukoil bought Beopetrol. The third one, according to the size of the investment, is German Messer, which bought Tehnogas. There are still no investments in renewable energy sources, and domestic investments are modest due to above-mentioned reasons.

Picture 10: Impact of foreign direct investments on the number of patents in the period 2005-2009



Source: NBS, IPO

Effects of the world economic crisis

The research of the number of patents per sector shows that various external factors affect differently the number of patent applications. In some sectors, such as pharmacology, the number of domestic and foreign patents increases despite the world economic crisis. On the other hand, there is minor decline in metallurgy, electronics and medical instruments. According to the research results, ICT sector has also felt the negative effect of the world economic crisis, so the patent activity in 2009 slightly decreased in relation to 2008. Nevertheless, this level is still much higher than in the period before 2007.

Key findings:

- Arrival of foreign direct investments contributed significantly to increased number of patents in the last few years,
- In sectors such as ICT and pharmacology, the impact of FDI was great,
- Impact of FDI is negligible in some sectors such as e.g. agriculture,
- In sector of automobile industry significant impact on increased number of patents of FDI
- A part of foreign investments is directed towards operationally and resource demanding sectors which do not have big impact on the growth of innovation and protection of intellectual property.

3. Examples of good practice

What is missing as the confirmation of the importance of protection of IPR are examples of good practice, both of commercialisation of IPR and efficient enforcement of protection of IPR. In that sense, rare is the feedback through successful business ventures in the foundation of which lays the protected IPR.

One of the successful examples of protected IP is a family enterprise "**RPC Pešović**" (www.peshovich.com) which bases it business operation on new and patent- protected products in the last three decades. In August 2002, the director and founder Mr. Predrag Pešović was awarded by WIPO for outstanding invention of advanced technology of manufacturing plastic products, especially faucets ("Nautilus"), which counts him among 25 leading producers in this field and in Europe. New products based on new technical solutions are accompanied by trademarks and successfully applied know-how.

As another example of good practice may serve "**SYSTEM DC90"** (www.dc90.co.rs), the enterprise founded in 2000 by holders of patented solutions for testing and equipment for protection of seismic activities. The enterprise is registered also as an innovation organisation, and on that hand has access to the funds of the Ministry of Science for further development and application of their solutions. Although there are difficulties in commercialisation on the domestic market, these solutions are very successfully applied on the Northern American market (Canada), as well as in restoration and securing buildings all over the world.

"Euroicc" was founded in 1998, and it is 100% nationally privately owned. "Euroicc" is export-oriented enterprise and about 80% of annual revenue comes from foreign market. In 2005, the enterprise established cooperation with the Swiss company "Belimo" and the company "Horan" from USA.

For "Belimo" they produce RingBus fire system, which is the subject of patenting. They entered the process of patent registration last year, and they are expecting protection on the international level. In addition, "Euroicc" is a member of the IC cluster.

"Agrounic" is an SME widely known for its natural microbiological fertilizers for organic and classic production of all types of fruit and vegetables and field crops. The company is registered with the Ministry of Science and Technological Development as a development production centre dealing with research in biotechnical sciences. The owner of "Agrounic" received an award for the best entrepreneur in 2008 by the jury of representatives of Banca Intesa, SCC, MERD, NARD and SIEPA.

"TeleSkin" is highly technologically developed private company founded in Serbia, the main activity of which is development of simple hardware and software solutions intended for doctors as auxiliary means in better diagnosing melanoma, skin cancer and biophysical conditions of skin in non-invasive methods. The projects carried out by "TeleSkin" are supported both by private and state funds, and in 2010 they are preparing new research and development and production venture. The owner of "TeleSkin" represents Serbia in the official brochure of the SME Week, the initiative of the European Commission, for 2010.

Another example of good practice in management of IP goods, although it does not belong to the SME category, is the pharmaceutical company "Hemofarm", in privatisation of which i.e. sale to German company "Stada", the IP goods (at that time patent applications, known trademarks, and now patents) were for the first time in Serbia valued as other material goods in estimating the value of the company.

Due to lack of uniform database of court decisions related to IPR, and due to lack of specialisation of the courts, the sources of good practice in enforcement of IPR in our judiciary are less available to the public.

Key findings:

- SMEs are not aware of the importance of investing in development of innovation-based business
- Low level of cooperation of SMEs with knowledge centres
- Ongoing programmes of the state to stimulate development of innovation give limited results
- SMEs are not aware of the importance of protection of intellectual property
- SMEs see the protection of intellectual property as a defence instrument for business operation
- Established system of intellectual property in Serbia itself is not enough to encourage creation of innovation which are one of the main drivers of development in each society
- Adequate legal and institutional infrastructure is not enough, there is the need for organisations to include in their business planse and strategic documents intellectual propertu management

- Developed countries, as well as the countries in transition, put the acent on the intellectual property management, and the national offices for intellectual property are the key instrument of support.

IV Conclusions and recommendations

In Serbian industry, the impact of intellectual property on business is gradually enhancing. However, it is still far below the developed countries. This is proved by data from the competitiveness report of the World Economic Forum for 2010, where according to the protection of intellectual property Serbia ranks 111th. Among the countries in the region, only Bulgaria and Bosnia and Herzegovina are ranked lower.

The SMEs sector gradually understands that protection of intellectual property is important in today's knowledge-based economy and that it helps the enterprises fight fierce competition on the market. However, innovation and creative potentials are not exploited to the full, since most SMEs do not have appropriate knowledge on the intellectual property system and the protection it provides. Raising awareness and prompt information on importance of the intellectual property system is vital contribution to competitiveness development of SMEs based on knowledge and innovation. Efficient developing management of intellectual property implies approach of enterprises to this area as to strategic investments. Information of SMEs through the use of data bases of patents and trademarks, presents an analysis of competition and introduction to new technological innovations. Such access may significantly affect decision making on new investments and opportunities for return of investments in suitable periods, having in mind what the competition is doing. At the same time, SMEs that commercialise their innovations and opt for protection of their rights, strengthen their competitive position on the market and reduce different risks in business operation. In that process, IPO has an important role and has recognised SME sector as its priority client and also a partner. Further work of employees in IPO is focus on emphasis of the fact that protection of intellectual property is only the first step that is not enough for profit achievement, and that only efficient management of intellectual property is what enables companies to use their ownership under intelectuall property ith the aim to increase innovation, competitiveness and achieve strategic advantages.

The investments of the state and companies in research and development and growth of trading in certain sectors are in direct correlation with the increased number of patents in those sectors. In addition, foreign direct investments in some sectors follow the increased number of patents, obtained by non-residents. This percentage is not proportionate to the amount of foreign investments in some analysed sectors (automobile, energy production), first of all because these are investments in operationally demanding production.

Key challenges:

- Increase of protected intellectual property still does not pose a development model of the national economy and is not incorporated in the economy with a long-term vision.
- Identification, recording and registration of intellectual property does not present a part of daily business operation, nor is it a part of SMEs development plans.
- Investment of the state in scientific research is not conditioned to sufficient extent by commercialisation of the research results and registration of patents.
- Sectors with the biggest number of approved patents in the period 2006-2009 are electronics, medicinal instruments and construction. According to the number of petty patents, the most important sectors are electronics, mechanical engineering and furniture manufacturing. Big investments of the state in the science for pharmacology, agroindustry and biotechnology have not been followed by a large number of patents.
- In the fields of electronics and IT higher number of national applicants got patents than the foreign ones. Similar is the relation when it comes to instruments, while in other sectors the number of foreign applicants is much higher. Especially high is the number of foreign applicants that acquired patents in the pharmaceutical industry, where this difference increases year after year.
- There is not a strategic approach to attracting foreign direct investments in technologically demanding sectors that would enable development of local suppliers in the sector of innovative SMEs.
- Energy efficiency and development of environmental technologies do not have a visible growth, not even in the number of patents, due to inadequate legal framework.

On the bases of all mentioned, it is obvious that todays companies, in order to survive on the market, should focus on knowledge creation, knowledge and technology transfer, joint ventures, as well es protection and exploitation of non-material, intelectual property i.e. intelectual capital.

One of the important instruments that enables companies to function in this manner is the system of intellectual property rights and management of intellectual property, since it is well known that intellectual property encourages creation of new knowledge and secure fairly knowledge and technology transfer, as well as the benefit from joint ventures.

Recommendations:

Intellectual property protection policy

- In order to maintain and improve the trend of patent activities, the policy of development of science and technologies should be further improved so that the process of catching up with the technological progress would accelerate, and our economy transfer from the stage of users to the stage of producers of technologies.
- It is necessary to ensure well-established mechanism of permanent harmonization of domestic legal acts with new EU regulation in the area of intellectual property, as well as their effective enforcement;
- It is necessary to constantly maintain and improve standards and administrative procedure*s* for protection of intellectual property in compliance with international norms, in order to maintain and stimulate inflow of foreign direct investments into the

country, especially of highly technological industries. For this purpose, it is necessary to affirm intellectual property protection in the courts and juridical system and to build capacities of these institutions to ensure faster and efficient disputes resolution.

- It is necessary to support further development of IPO according to the models of intellectual property offices in developed countries (further ICT development, new services);
- To stimulate foreign direct investments in technologically demanding sectors of economy and involving innovative SMEs into their supply chains. To organise *matchmaking* events to bring closer multinational and big companies with SMEs and establishe their business links;
- In defining and approving scientific and research projects better "listen" to the needs of the business, in the process of cooperation of the state, science and business (in theory this cooperation is defined as triple helix model), as well as establishing special institutions or bodies to deal with innovation development.
- Introduction of intellectual property in curricula at all faculties teaching the law, engineering, economy, agriculture, art or management;
- It is necessary to improve assessment methods of economic value of economic operators and affirm business transactions with intellectual property.

Programmes for support cooperation of SRO and SMEs

- With the aim to establish and develop economic cooperation between scientific-research organizations (SRO) and SMEs¸ only those SRO that have clearly defined or already established cooperation with SMEs in their projects, should be supported through the budget resources. Often researches are performed for researches, without comercialisation of the results, with patent inventions that have never been used. To strainghten the link between science and economy it is important to have in mind that only applied innovation are important for development;
- Intelectual property protection in scientific institutions and universities should be a result of increased commercialization of innovation development, emerged through the close cooperation with industry. For that purpose, it is necessary to establish centers for technology transfer at the universities or scientific institutions, ready to develop this kind of approach in the policy of intellectual property protection;
- To identify in systematic way the incentives for companies to register their inventions through tax reliefs that means fully implement provisions on the law on innovation, article 51;
- To intensify development of the instruments that would provide covering of the part of the costs in creating intellectual property. This means different types of subsidies, but also innovative financial instruments, such as *business angels or venture capital.*
- To encourage dialogue between small and medium enterprises and scientific and research institutions in order to harmonise the work of the scientific institutions with the needs of the economy. To establish a special state institution to deal with encouraging this dialogue and generating joint projects between science and economy. In that sense, development of clusters is a key instrument for better cooperation between, economy, science and state authorities.
- To organise specialised trainings for SMEs in order to make them procedure for protection of intelectual property and it's chategories familiar and closer.

Promotion

- Companies should be more clearly familiarised with the concept and methodology of examining intellectual property to understand better the real value of intellectual property, which is maybe not recognised as a potential value of those enterprises. With this regard, the Government should maintain and intensify public awareness campaigns on intellectual property in national economy.
- It is necessary to bring closer the activities of the Intellectual Property Office to SMEs through much stronger and visible promotional campaigns. To enable that IPO disposes of financial instruments that would enable creating the package of services or SMEs and their daily business operation – intellectual property as a development model for SMEs.
- State should support programmes that promote innovation and include different forms of competitions perfomed under strict and highly expert criteria;

Anex I

Legal framework for protection of intelectual property in Serbia

National legislation

a) Laws

- Law on Copyright and Related ("Official Journal RS" 104/09);
- Law on Patents („OG SMN", 32/2004 and 35/2004 and „OJ RS", бр. 115/2006);
- Trademark Law ("Official Journal RS" 104/09);
- Law on Legal Protection of Industrial Designs ("Official Jurnal RS" 104/09);
- Law on the Protection of Topographies of Integrated Circuits ("Official Jurnal RS" 104/09);
- Law on the Protection of Breeders of Plant Varieties ("Official Jurnal RS 41/09);
- Law on the Indications of Geographical ("Official Jurnal RS" 18/10);
- Law on Vine („OJ RS", 41/2009);
- Law on brandy and other alchocolic drinks („OJ RS", 41/2009);
- Law on special authorization for effective protection of intellectual property rights („OJ RS", 46/2006 and 104/2009);
- Custums Law („OJ RS", 73/2003, 61/2005, 85/2005, 62/2006, 63/2006, 9/2010 and 18/2010);
- Law on General Administrative („OG FRY", 33/1997, 31/2001, „OJ RS", 30/2010);
- Law on the Republic Administrative Fees ("OJ RS", 43/2003, 51/2003, 61/2005, 101/2005, 5/2009 and 54/2009);

b) By-laws

- Regulation on conditions that semples of copyright works and related rights items that are deposited should fulfill, entering into records and depositing of copyright works and related rights items and the content of records of deposited copyright works and related rights items at the competent bodies („OJ RS", 45/20);
- Regulation on determination of the list of technical appliances and items for which special fees should be paid to the owners of copyright and related rights („OJ RS", 45/2010) ;
- Regulation on the procedure for legal protection of inventions („OG SMN", 62/2004);
- Regulation on the content of a register of applications and register of trademarks, content of application and proposal that are submitted in the procedure for recognision and protection of trademark and data published in official gazzete of competent body („OJ RS", 43/2010);
- Regulation on the content of a register of applications and register of industrial design, content of application and proposal that are submitted in the procedure for recognision and protection of industrial design and data published in official gazzete of competent body („OJ RS", 43/2010);
- Regulation on the content of a register of applications and register of topographies and the content of request for recognision of rights on topography in the procedure for legal protection of topography of integrated circuits („OJ RS", 45/2010);
- Regulation on registration into Register of representatives kept in Federal Intelectual Property Office („OG FRY)", 39/1995);
- Rulebook on the manner of special exper exam for the persons dealing with representation in the procedure of protection of inventions, trademarks, models, semples and indications of geographical orgin („OG FRY", 48/1995);

- Rulebook on the list of the agricultural corps varaities that are exempted from the breeders rights and on the elements for determination of small farmers („OJ RS“, 38/2010);
- Decision on the fees of special costs of procedure made by Intelectual Property Office and fees for information services of Intelectual Property Office („OG SMN“, 3/2006);

International conventions and treetes

a) General convention and treetes

- Convention establishing the World Intellectual Property Organization (WIPO Convention, Stockholm, 1967, as amended in 1979);
- Paris Convention for the Protection of Industrial Property (Stockholm Act, 1967 and amended in 1979);

b) Copyright and related rights

- Berne Convention (Literary and Artistic Works), since June 1930;
- Geneva Convention (Unauthorized Duplication of Phonograms), since June 2003;
- Brussels Convention (Distribution of Program-Carrying Signals Transmitted by Satellite), since August 1979;
- Rome Convention (Protection of Performers. Producers of Phonograms and Broadcasting Organization), since June 2003;
- Phonograms Convention, since June 2003;
- Satellites Convention, since April 1992;
- WCT (WIPO Copyright Treaty), since June 2003;
- WPPT (WIPO Performances and Phonograms Treaty), since June 2003

c) Patents

- Patent Law Treaty, (”Official Gazette RS” 19/10);
- Patent Cooperation Treaty (Washington, 1970, as amended in 1979 and modified in 1984);
- Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (Budapest, 1977, as amended in 1980);
- Strasbourg Agreement Concerning the International Patent Classification (Strasbourg, 1971, as amended in 1979);
- Convention the Grant of European Patents (European Patent Convention) (”Official Gazette RS, int. agreements” no.5/10)

d) **Trademarks**

- Madrid Agreement concerning the International Registration of Marks (Stockholm Act, 1967 and amended in 1979);
- Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks (Madrid Protocol, 1989**);**
- Trademark Law Treaty (Geneva, 1994);
- Singapoure Trademark Law Treaty, Regulations for the Implementation of the Singapoure Trademark Law Treaty and the Resolution of the Diplomatic Conferrence amending Singapoure Trademark Law Treaty, Regulations for the Implementation of the Singapoure Trademark Law Treaty, (”Official Gazette RS, int. agreements” no.5/10);

- Vienna Agreement Establishing an International Classification of the Figurative Elements of Marks (Vienna, 1973, as amended in 1985);
- Nice Agreement concerning the International Classification of Goods and Services for the purposes of the Registration of Marks (Geneva, 1977 and amended in 1979);
- Geneva Act of the Nice Agreement Concerning the International Classification of Goods and Services ("Official Gazette RS" 19/10);
- Nairobi Treaty on the Protection of the Olympic Symbol (Nairobi, 1981);

e) Industrial design

- Hague Agreement Concerning the International Deposit of Industrial Designs (London Act, 1934 and The Hague Act, 1960);
- Geneva Act of the Hague Agreement Concerning the International Registration of Industrial Designs Adopted by the Diplomatic Conference on July 2, 1999;
- Locarno Agreement Establishing an International Classification for Industrial Designs (Locarno, 1968, as amended in 1979);

f) Topography of Integrated Circuits

- Washington Treaty on Intellectual Property in Respect of Integrated Circuits (Washington, D.C., 1989);

g) Indication of Geographical Orgin

- Lisbon Agreement for the Protection of Appellations of Origin and their International Registration (Lisbon, 1958, as revised at Stockholm in 1967, and as amended in 1979;
- Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods (Madrid, 1891, as revised at Washington in 1911, at The Hague in 1925, at London in 1934, at Lisbon in 1958, and amended by Additional Act of Stockholm, 1967);

h) Plant Varaities:

- International Convention on the Protection of New Plant Varieties (UPOV Convention) from 1991, ("Official Gazette RS" 19/10);

Anex II

Owerview of the protected patents and petty patents in the Serbian industry
Period 2006. – 2009

Statistics of registreted patents in Serbia

Source: IPO

Technology area		2006(49460-49576)		2007(49577-49854)		2008(49855-50147)		2009(50148-50550)	
		Residents	Non-residents	Residents	Non-residents	Residents	Non-residents	Residents	Non-residents
I: Electrical Engineering		**5**	**1**	**13**	**11**	**19**	**17**	**14**	**12**
1	Electrical machines, appliences and energy	5	1	9	7	11	9	7	5
2	Audio visual technologies	0	0	1	1	1	4	0	4
3	Telecommunication	0	0	1	1	4	0	3	0
4	Digital communication	0	0	0	1	0	0	1	0
5	Basic communication processes	0	0	0	0	1	0	0	0
6	Computer technologies	0	0	2	1	2	3	3	3
7	IT management methods	0	0	0	0	0	1	0	0
8	Semiconductors	0	0	0	0	0	0	0	0
II: Instruments		**6**	**4**	**31**	**17**	**16**	**7**	**19**	**9**
9	Optical	1	0	2	0	0	0	1	1
10	Measurements	2	0	5	0	3	1	3	4
11	Analisys of biological materials	0	0	2	0	1	0	0	1
12	Control	1	0	1	2	4	1	5	0
13	Medical Technologies	2	4	21	15	8	5	10	3
III: Chemistry		**16**	**53**	**16**	**134**	**15**	**165**	**28**	**215**
14	Organic chemistry	5	19	4	56	5	76	2	96
15	Biotechnologies	2	6	0	8	1	14	0	18
16	Pharmaceuticals	4	15	3	46	1	50	3	78
17	Molecular chemistry and polymers	0	1	0	0	0	0	0	1
18	Foodproccessing chemistry	2	1	3	1	0	0	4	1

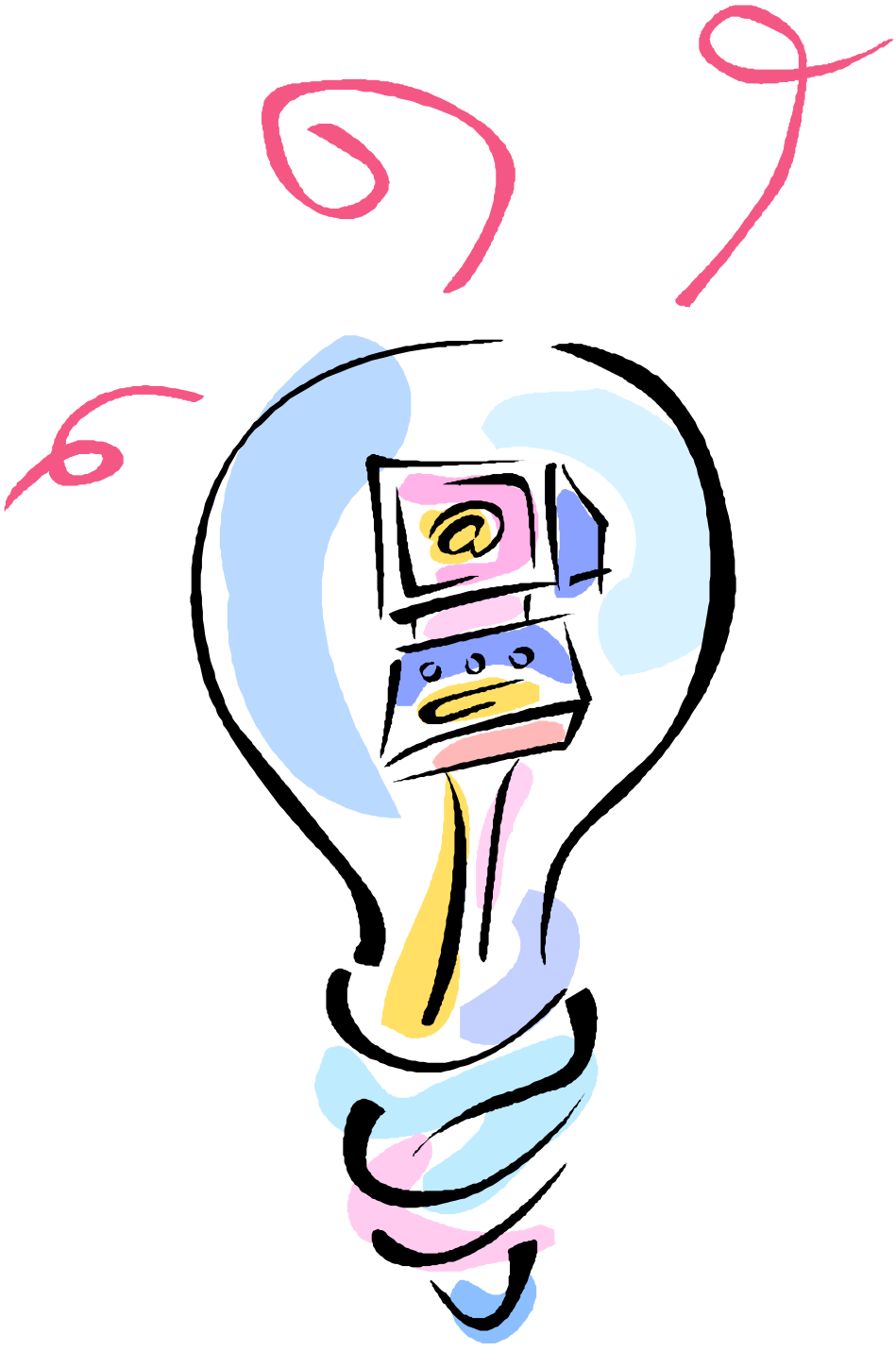
19	Basic chemical materials	1	4	2	7	3	7	15	10
20	Materials, metalurgy	2	3	1	7	4	9	3	7
21	Technlogy for surfaces lining and protection	0	0	0	1	1	6	0	1
22	Microstructures and nanotechnologies	0	0	0	0	0	0	0	0
23	Chemical engineering	0	3	2	4	0	2	0	2
24	Technology for environment protection	0	1	1	4	0	1	1	1
IV: Mechanics		**9**	**11**	**9**	**32**	**10**	**19**	**20**	**36**
25	Technologies for material processing	0	2	0	21	0	4	2	18
26	Tools machines	0	3	1	1	2	6	0	3
27	Engines, pumps and turbines	2	0	3	0	1	0	5	2
28	Textile and paper machines	1	0	1	0	0	0	1	1
29	Other specialised machines	2	2	3	3	2	5	2	4
30	Termal processes and appliances	0	0	0	3	4	1	7	5
31	Mechanical elements	1	4	0	4	0	2	1	1
32	Transport	3	0	1	0	1	1	2	2
V: Other areas		9	3	7	8	**8**	**17**	**18**	**32**
33	Furniture, entertainement	1	0	4	1	1	4	2	5
34	Other customer goods	1	2	1	5	1	1	2	7
35	Construction engineering	7	1	3	2	6	12	14	20
In total		**45**	**72**	**76**	**202**	**68**	**225**	**99**	**304**

Statistics of registreted petty patents in Serbia

Source:IPO

Technology area		2006(49460-49576)		2007(49577-49854)		2008(49855-50147)		2009(50148-50550)	
		Residents	Non-residents	Residents	Non-residents	Residents	Non-residents	Residents	Non-residents
I: Electrical Engineering		**13**	**0**	**12**	**1**	**8**	**1**	**13**	**0**
1	Electrical machines, appliences and energy	6	0	5	0	5	1	8	0
2	Audio visual technologies	4	0	6	1	3	0	5	0
3	Telecommunication	1	0	0	0	0	0	0	0
4	Digital communication	0	0	0	0	0	0	0	0
5	Basic communication processes	0	0	0	0	0	0	0	0
6	Computer technologies	2	0	1	0	0	0	0	0
7	IT management methods	0	0	0	0	0	0	0	0
8	Semiconductors	0	0	0	0	0	0	0	0
II: Instruments		**11**	**0**	**14**	**0**	**15**	**1**	**11**	**0**
9	Optical	0	0	0	0	0	0	1	0
10	Measurements	2	0	2	0	2	0	3	0
11	Analisys of biological materials	0	0	0	0	0	0	0	0
12	Control	0	0	4	0	1	0	0	0
13	Medical Technologies	9	0	8	0	12	1	7	0
III: Chemistry		**6**	**0**	**7**	**0**	**2**	**0**	**6**	**0**
14	Organic chemistry	0	0	0	0	0	0	0	0
15	Biotechnologies	0	0	1	0	0	0	0	0
16	Pharmaceuticals	0	0	0	0	0	0	1	0
17	Molecular chemistry and polymers	0	0	0	0	0	0	0	0
18	Foodproccessing chemistry	1	0	1	0	0	0	0	0
19	Basic chemical materials	0	0	0	0	0	0	0	0
20	Materials, metalurgy	1	0	0	0	0	0	1	0
21	Technlogy for surfaces lining and	0	0	1	0	1	0	2	0

	protection								
22	Microstructures and nanotechnologies	0	0	0	0	0	0	0	0
23	Chemical engineering	3	0	2	0	0	0	1	0
24	Technology for environment protection	1	0	2	0	1	0	1	0
IV: Mechanics		**26**	**0**	**19**	**2**	**32**	**2**	**28**	**0**
25	Technologies for material processing	6	0	3	2	7	1	7	0
26	Tools machines	3	0	3	0	6	0	3	0
27	Engines, pumps and turbines	5	0	2	0	3	0	2	0
28	Textile and paper machines	0	0	0	0	0	0	1	0
29	Other specialised machines	6	0	1	0	6	0	6	0
30	Termal processes and appliances	4	0	4	0	2	0	1	0
31	Mechanical elements	1	0	2	0	3	0	3	0
32	Transport	1	0	4	0	5	1	5	0
V: Other areas		**23**	**1**	**40**	**0**	**23**	**0**	**28**	**0**
33	Furniture, entertainement	10	1	16	0	4	0	9	0
34	Other customer goods	3	0	5	0	2	0	11	0
35	Construction engineering	10	0	20	0	17	0	8	0
In total		**79**	**1**	**93**	**3**	**80**	**4**	**86**	**0**



12. December, 2010

This Study is prepared with the support of World Intellectual Property Organisation