

**BULGARIAN ACADEMY OF SCIENCES**

**DEMAND FOR KNOWLEDGE  
IN THE PROCESS OF EUROPEAN  
ECONOMIC INTEGRATION**

**Edited by  
Rossitsa Chobanova**

**2008**

Bulgarian Academy of Sciences

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## **EDITORIAL PREFACE AND ACKNOWLEDGMENTS**

***Assoc. Prof. Dr. Rossitsa Chobanova***

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Demand for knowledge has become the main engine for knowledge driven economic development. In this respect, to make national and European initiatives effective, it is necessary to define the demand for knowledge, able to contribute to European dynamic development. With regards to solution of this problem, the main objective of this thematic collection is to gain a better understanding of demand for knowledge in the process of European economic integration as an engine for innovative development in a globalized world. The collection is also oriented to define problems and possible solutions for governmental, business, educational, academic, non-governmental and international institutions, which could be used as a background for their policy-making.

The main topics discussed here are:

- Demand for Knowledge in Modern Development;
- Sectoral and Regional Aspects of Innovation;
- Institutional Dynamics of Demand for New Knowledge;
- Legal Framework for Developing Demand for New Knowledge;
- Demand for Social Sciences and Humanity;
- Human Factor in Knowledge Society.

The collection consists of 28 papers presenting results of research of 37 authors from 3 Austrian, 1 British, 11 Bulgarian, 1 Finish, 1 Hungarian, 1 Rumanian and 1 Turkish academic organization.

A debt of gratitude is owed to authors, all of which took the challenge to discuss the demand for knowledge from the perspective of social sciences and humanities.

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## INTRODUCTION

***Member Corresp. Atanass Atanassov  
Bulgarian Academy of Sciences***

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The end of the 20<sup>th</sup> century and the beginning of 21<sup>st</sup> are indicative for science in Europe. In March 2000, the European Commission issued the Communication for establishment of the European Research Area, thus laying the beginning a new strategy for introducing a more comprehensive approach to science development and technology research in Europe. So, as Philippe Busquin, the EC Commissioner for Research at that time said, Europe embarks on its journey towards knowledge-based economy. This transition requires research and development, as a generator of knowledge, economic resources, employment and social cohesion. In the long-run the European Union sets an important strategic objective of the present decade – to become the most dynamic and competitive knowledge-based economy in the world.

Economic development – that is the striving of every nation, because it provides real wellbeing and good perspective for the people, and the years of such development remain as golden years in country's history.

Today, a great community of countries, united in the European Union, aim for better economic development. And probably for the first time, this development is so closely connected to knowledge. Moreover, knowledge is recognized as the foundation of economic development.

I think that there are three dimensions of knowledge as a foundation of the economic development – the creation of new knowledge, the transfer of knowledge to economy, and the use of knowledge for economic development. The interaction of these three dimensions is a powerful driver of the innovation processes at regional, national and international level of development.

The discussion and exchange of ideas is the best way to follow the academic tradition of scientists' contribution to the development of a knowledge-based economy and society. Here, social sciences – economics, sociology, psychology, law, etc. – could play a vital role in the acceleration of innovation processes with their cognitive potential. In this connection it is worth to answer the question: Could social sciences in Bulgaria suggest a model of “knowledge-based economy and society?” The review of the papers in this collection shows that this question could at least raised for discussion. Bulgaria and its Academy of Sciences possess research potential, capable of giving a positive answer to the above question.



**PART I**

**DEMAND FOR KNOWLEDGE  
IN MODERN DEVELOPMENT**



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# DEMAND FOR KNOWLEDGE IN A NATIONAL ECONOMY

*Assoc. Prof. Dr. Rossitsa Chobanova  
Institute of Economics at Bulgarian Academy of Sciences*

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## 1. Introduction

Since the beginning of the new millennium all countries face the new global environment, defined by the accelerating process of globalization, and by transforming knowledge into main source for economic development. Taking into account the globalizing supply of knowledge, an economy could be developed as national one on the base of specific for this economy need of knowledge. Recognition of that need by policy makers here we define as demand for knowledge. This demand could influence definition of priorities of innovation for strategies and policy at national level. In this respect, the problem is how to identify the level of the demand for knowledge in a national economy and its sectoral and institutional dimensions as a starting point for formulation of priorities for a policy toward its knowledge-based development.

On the other hand, the issue how with limited knowledge resources, which change their content and value in time and space, to run economic processes aiming to satisfy the increasing and changing needs and interests of the society in certain periods and on certain territories, becomes a central economic problem. The solution of this problem is connected with evaluating the level of demand for knowledge and formulating contemporary decisions for the public impact on the acceleration of the creation, acquiring and use of new and newly acquired knowledge in the economic practice, which could lead to increasing the demand for knowledge as an engine for modern development.

## 2. Identifying the Demand for Knowledge in a National Economy

The modern science, technology and innovation policy, understood as policy for knowledge-based economic development, meets the challenge of increasing the demand for knowledge.

Government legislation and policy could have a wide range of impacts on research

and innovation. Amongst other factors, the ability to precisely identify the sectoral and institutional priority dimensions for research and development investments determine the scale and scope of these impacts. The contemporary methodologies, applied for science, technology and innovation policymaking have limited capacity to identify science areas, economic branches and institutions to be supported by public funds. They do not offer measurement of supply and demand of knowledge as a practical tool for better identification of sectoral and institutional tendencies and priority dimensions for public support on national level of policy making.

#### *Methodology – state of the art*

The recent methodologies applied in the area of science, technology and innovation policymaking are based on 'positioning indicators' as indicators for input, output, and outcome of innovation. The most influential methodologies are built in the framework of the World Bank and the European Commission as a practical tool for policy-makers and scheme managers in the area of knowledge-based economic development and innovation.

The research team of the World Bank has developed *Knowledge Assessment Methodology (KAM)* as an interactive benchmarking tool, created for the Knowledge for Development (K4D) program to help countries to identify the challenges and opportunities they face when making the transition to the knowledge-based economy (Chen D.H.C., C.J.Dahlman, 2005). The unique strength of the KAM methodology is its cross-sectoral approach, which allows the user to take a holistic view of the wide range of relevant factors, rather than focus on one area. The KAM-2006 consists of 80 structural and qualitative variables to measure the 128 countries' performance on the four key pillars:

- Economic incentive and institutional regime for efficient use of existing and new knowledge, and the flourishing of entrepreneurship;
- Educated and skilled population to create, share and use knowledge well;
- Efficient innovation system of firms, research centres, universities, consultants and other organisations to tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new technology;
- Information and communication technologies to facilitate the effective creation, dissemination, and progressing of information.

Innovation is a priority of all member states and of the European Commission. Throughout Europe, hundreds of policy measures and support schemes aimed at innovation have been implemented or are under preparation. The diversity of these measures and schemes reflects the diversity of framework conditions, cultural preferences, and policy priorities in the member states. The "First Action Plan for Innovation in Europe," launched by the Commission in 1996, provided for the first time

a common analytical and political framework for innovation policy in Europe. Building upon the Action Plan, the *Trend Chart on Innovation in Europe* is a practical tool for innovation policy makers and scheme managers in Europe, which serves the benchmarking and the “open policy coordination approach,” laid down by the Lisbon Council in March 2000. Run by the European Commission (Innovation Directorate of DG Enterprise and Industry), the Trend Chart on Innovation in Europe pursues collection, regular updating, and analysis of information on innovation policies at national and Community level. This methodology in its 2005 edition focuses on:

- Innovation drivers – to measure the structural conditions, required for innovation potential;
- Knowledge creation – to measure the investment on human factors and research and development (R&D) activities, considered the key element for a successful knowledge-based economy;
- Innovation and entrepreneurship – to measure the efforts towards innovation at microeconomic level;
- Application – to measure the performance, expressed in terms of labour and business activities, and their value added in innovative sectors;
- Intellectual property – to measure the achieved results in terms of successful know-how, especially referring to high-tech sectors.

In 2005 the 26 indicators, used for measuring the above five areas, for the first time were summarised as input and output indicators. The summary indicator for innovation input includes 16 indicators for innovation drivers, knowledge creation, innovation and entrepreneurship. The summary indicator for innovation output includes 10 indicators for application (to measure performance, expressed in terms of labour and business activities, and their value added in innovative sectors) and intellectual property.

On their basis a summary innovation index for each country is defined. This approach allows making attempts to measure the effectiveness of the national innovation systems, i.e. their ability to transform their innovation inputs into innovation outputs. The capacity of this methodology also allows identifying and benchmarking the recent state of the art of innovation process performance on macro and micro level, also some trends, strengths, weaknesses, opportunities and threats in fostering this process.

The results obtained by these methodologies, KAM and Trend Chart, outline the level of development of the knowledge-based economy in different countries. However, they do not allow the policy-makers to define precisely the priorities for public investment for research and development by economic sectors, science areas, and institutions.

### *A new approach*

The separate measurement of solvent demand and supply of knowledge is a necessary step towards solving the problem of identification of priorities for R&D investments as public demand for knowledge in a market economy. The basic arguments for offering that approach have two origins. The first one is the globalisation of market economy, which also leads to a speeding globalisation of demand and supply of knowledge. The second origin is based on the specificity of the national context of economic development in the global economy. This specificity is defined by evolutionary and institutional factors and reflects the characteristics of demand for knowledge that could lead to a modern development.

As mentioned above, the existing methodologies do not allow identification of the areas of science and industrial sectors, which should be a priority for public R&D investment. In order to determine these priorities, I suggest a new typology of science, technology and innovation indicators positioning them as indicators of supply and indicators of demand. Each of these groups has to be further separated into micro, macro, and international levels for both explicit and tacit knowledge. Each level consists science, technology and innovation indicators for basic institutional sectors (public sector, business sector, university and research institutes' sector, and non-governmental sector), also for branches, products and services. The data used for the indicators and analysis has to be guided by OECD/Eurostat Frascati family manuals requirements (OECD, 2002, 1997, 1995).

Application of this approach, based on positioning science, technology and innovation indicators as indicators of demand and supply of knowledge, allows the priority (mainly institutional sectors, but also branch, product and services) dimensions for public funding research and innovation projects to be identified. It also discloses the micro (mainly firms) foundations of the macroeconomic innovation performances. The benchmarking of demand for knowledge in a national economy based on EU-average level supposes some conclusions to be made on the level of the country performance for each indicator. It also allows the general tendencies of demand and supply of knowledge in any country to be summarized.

### *Concept for setting priorities for public impact for increasing demand for knowledge*

Definition of economically argued policy decisions for increasing the demand for knowledge through investing in creation, acquiring and use of new and newly acquired knowledge in the economic practice requires concept for development of the society and its economy. This concept have to answer the question how to identify the set of priorities for public investment in research and development by sectors, branches and institutions, which is the objective and which are the criteria for its achievement.

In this respect the accepted concept is based on requirement for accelerating the innovativeness of economic activity in areas of social life related to:

- long-term strategic goals for development, defined as preservation and development of the national identity in a globalizing world;
- economic growth;
- the specifics of participating in the global economic and public life, defined by the absolute and comparative competitive advantages;
- the behavior of key actors in the innovation process inside and outside the country.

### **3. Demand for Knowledge – the Case of Bulgarian Economy**

The demand for knowledge as an engine for modern development of Bulgarian economy could be characterized through benchmarking the level of national innovation performance and through tendencies of demand and supply of knowledge in that economy. Further, applying the above concept and instrumentation, some dimensions for public impact for increasing demand for knowledge and in this respect to meet contemporary challenges to national innovation policy are identified.

#### *3.1. Innovation performance of the Bulgarian economy*

The innovation performance of the Bulgarian economy, defined according to the European trend chart 2005 methodology, relative to the average of European Union countries innovative performance, is not satisfying. Based on the Summary Innovation Index 2005, Bulgaria ranks on 26<sup>th</sup> place out of 33 countries. Improving the innovation performance becomes crucial problem for Bulgaria in the process of dynamic European economic development.

#### *Innovation input performance*

An evaluation of the *innovation drivers, which characterize the structural conditions for innovation for Bulgaria*, is possible to be made for 4 of 5 European innovation scoreboard indicators. It could be assumed that comparatively good is the country performance according to population with tertiary education – the share of the population with tertiary education for the age group 25-64 for 2004 is 21.7%, which is 99% relative to the average of the countries of European Union (EU). The same as EU average (99% relative to EU-average) is the innovation potential of the country according to the youth education attainment level. The share of the population in the age group of 20-24 with secondary degree of education is 76%. Considerably lower is the country innovation potential according to the level of the science and engineering graduates in the age group 20-29. It is 8.3% in 2003 and performs 68% of the EU-average level.

Extremely low level has the share of the population of the age group 25-64 participating in the long-life learning – only 1.3%, which is 13% of the EU average.

*Knowledge creation* of innovation input is evaluated as: level of public and business research and development (R&D); investment share of medium and high technology investment in R&D and as enterprises receiving public funding. It could be assumed that the knowledge creation is on low level. This statement is confirmed by the following arguments.

The public investments for R&D are insufficient. The R&D expenditures are only 0.39% of the GDP in 2003. This level is a result of stable tendency of a slow decline – from a level of 70% of EU-average in 1998, the level of the public R&D becomes 57% in 2003. Even more unfavorable are conditions for knowledge creation, which depend on the business. The share of business R&D in GDP is 0.1%, which is 8% of the EU-average. Approximately well Bulgarian economy is performed in respect to the share of R&D in medium and high-technology sectors – 85.9% in 2002, which is 96% of the EU-average. But this level does not mean that the innovation input is on high level in the country, since the total R&D expenditures are on very low level. This fact has to be taken into account in commenting the high level of the business R&D investments in universities – 33.2%, which is 16 times higher than the EU level. In addition, it has to be considered that the level of the total business expenditures for R&D as share of GDP is very low – only 8% of the EU-average. Very low is the share of enterprises, receiving public funding – 1%, which is only 12% relative to EU-average.

The *entrepreneurial input* is an important microeconomic characteristic of the innovation performance, but it is on very low level, taking into account available data for Bulgaria. The level of innovating in small and medium-sized enterprises in the country is 36% relative to EU-average. Only 2.3% of the small and medium-sized enterprises cooperate for the purposes of reaching innovation output with others, which is 25% relative to EU-average. Innovation expenditures are on the level of 38% of the EU-average. Only the level of information and communication expenditures is higher than EU-average – 137%. The small and medium-sized enterprises using non technical change are 8.5% for 2004, which is only 20% relative to EU-average.

#### *Innovation output performance*

The innovation output summarizes the evaluation of the innovation performance from the point of view of the application of new knowledge and intellectual property development. The level of Bulgarian innovation output performance is good, but not satisfying, relative to the EU-average.

The *application of new knowledge*, according to Trendchart methodology – 2005, could be evaluated as high-tech employment and sales. The share of the employment in high-tech services in Bulgaria – 2.69%, as an innovation output is on a good level (84%) relative to EU-average. The share of the medium- and high-tech sectors is 4.66% of total, which is 71% of the EU-average. But the sales of the new to the market products as a share of the total is only 2.1%, which is only 35% relative to the EU-average. The sales of the new to the firm, but not to the market products are only 3.8%, which is 32% of the EU-average. Unfavorable is the country performance according to the high-tech export. Its share in the total export of the country is only

2.9%, which is only 16% of the EU-average.

Very weak is the country innovation output performance in *intellectual property* development. The share of the new registered with European patent office Bulgarian patents for 1 billion of population is 3.7%, which is 3% relative to the EU-average. The share of the new registered with USPTO patents for 1 billion of population is 0.8%, which is 1% of the EU-average. The registered new community trademarks on 1 billion of the population is 0.8%, which is 0% of EU-average, and Bulgarian new community designs on 1 billion of the population is 0.9%, which is 1% relative to EU-average.

It could be assumed that Bulgaria is not well performed according to the levels and transformation of innovation input into innovation output. The country is better performed in high-tech employment than in high-tech and new to the market sales and intellectual property development. This state of the art defines the necessity of national innovation policy, which is able to overcome the unsatisfied innovation performance.

### 3.2. Policy challenges

Overcoming the weak innovation performance of the Bulgarian economy is the main challenge to national science, technology and innovation policy. In this respect, national strategy documents and mechanisms for innovation policy delivery have been elaborated, but nevertheless actual policy delivery and the provision of adequate resources remains relatively poor. Hence, the measures proposed in strategy documents and draft laws are either lacking the necessary resources, or are not supported by enough political will in the legislative process.

At present four main challenges for the National innovation policy of Bulgaria with respect to R&D intensity could be identified:

1. to foster the overall R&D funding base;
2. to initiate a recovery of R&D in the business enterprise sector;
3. to strengthen the human resource base of the Bulgarian economy;
4. to enhance the interactions between the actors of the science, technology and innovation system.

#### **Challenge 1: To foster the R&D funding base**

The necessity of fostering R&D funding base is defined by the fact that R&D intensity (R&D expenditures as percentage of GDP), which is the main indicator for innovation performance, is on a very low level. It has to be taken into account that about 20 years ago the R&D intensity was on higher level, but has declined heavily during the transformation period (see fig. 1 and 2). For the period 1990-1992 the performance of

R&D intensity in Bulgaria was close to the EU-15 and the New Member States, and after that it was sharply worsen. Until 1996 the dynamics of the R&D intensity was negative, after that for two years 1996-1997 it was positive, and further – until today - more or less stable with a tendency of slight decline, keeping the level of 0.5%.

Figure 1  
R&D intensity (R&D/GDP) in Bulgaria for the period 1981-1999

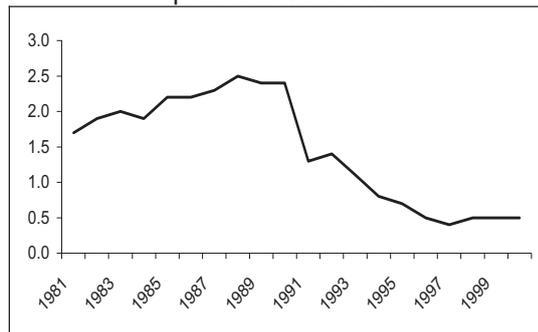
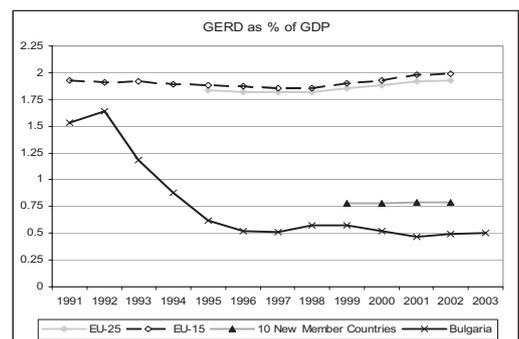


Figure 2  
Dynamics of GERD/GDP (1990- 2002)



Source: National Statistical Institute – Bulgaria, Eurostat

Table 1 presents figures of the slight decline of R&D intensity for the period 1996-2002, though an increase in the absolute sum of R&D expenditures appears. This state points to the fact that the overall economic growth had a faster pace than R&D recovery.

The needed measures to meet the challenge of fostering R&D funding base are connected with development of a demand for nationally performed R&D activities and results. Taking into account that the highest R&D intensity appeared in 1988, when the highest volume of the foreign trade turnover also took place, it could be concluded that the main instrument for fostering the R&D funding base is to increase foreign demand for goods and services embedding domestically developed new technologies, products and services.

Table 1

Total gross domestic expenditures on R&D (GERD)

Year	GERD	PPP (\$)	GERD (% of GDP)	GERD per capita (in PPP\$)
1996	9 148 000 <sup>b</sup>	236 850	0.52	28,3
1997	88 591 000	221 769	0.51	26,7
1998	127 598 000	258 547	0.57	31,3
1999	134 449 <sup>b,y</sup>	264 158	0.57	32,2
2000	131 098	249 386	0.49	30,5
2001	129 721	235 951	0.44	29,4
2002	158 327	278 313	0.49	34,9

PPP: Purchasing power parity

b – break in series

y – denomination change

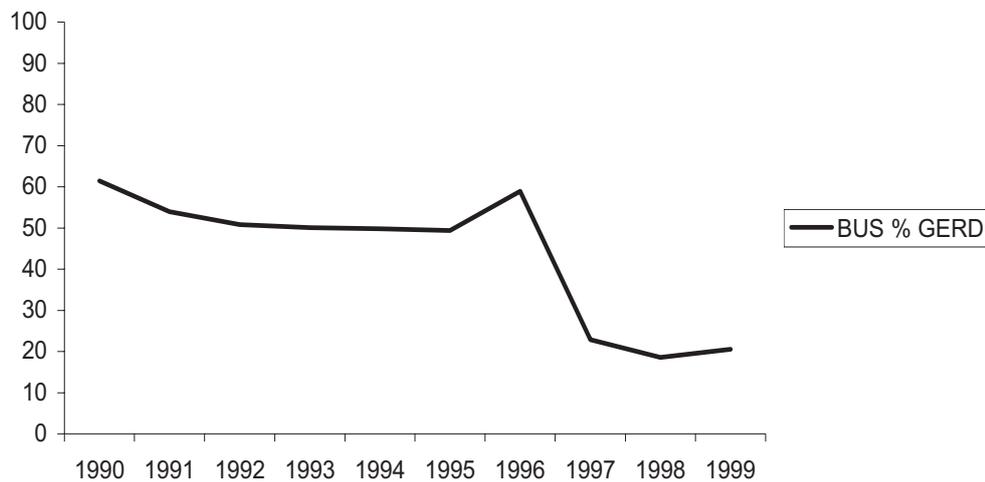
Source: Eurostat

## Challenge 2: To initiate a recovery of R&D in the business enterprise sector

The R&D investment in the business enterprise sector is one of the main stimuli for better national innovation performance. The most striking result of the collapse of R&D performance is in the business enterprise sector. By 1999, the share of the business R&D had dropped by about a factor of three since the early 1990s. The long-term development of business R&D is shown in fig. 3, reinforcing the notion of an especially sharp decline in 1997. As compared with the common tendencies for Central and Eastern European transition countries, perhaps the only surprising fact is that the share of business R&D remained at levels of 50% to 60% of GERD until 1996. This state of the art results from the delay of institutional transformation and applied rules for collecting data, but it does not mean that the level of the business R&D was so high.

Figure 3

Share of business enterprises performing R&D, Bulgaria, 1990/1999



Source: Calculations by Chobanova, based on unpublished data supplied by the NSI.

As the share of higher education has not changed much and the share of NGOs is negligible (see table 2), the other side of this coin is the rising share of the state sector in carrying out R&D. A big shift in R&D performance occurred in 1997, when inflation and a redirection of macro policy hit the country and a sharp decline in total R&D expenditures occurred.

Since then, questions concerning the efficacy of relying increasingly on the state sector for pursuing R&D continue to arise, especially as privatisation and marketisation are key policy issues. It is expected, that the drastic decline in business R&D expenditures will have serious consequences for technological accumulation over the longer term. Overcoming this tendency is a serious challenge for national innovation policy and its coordination with the European one in the process going deeper the European economic integration.

Table 2

Sources of funds for R&D in Bulgaria

Years	Business enterprise (%)		Government (%)		Higher education (%)		Private non-profit (%)		Funds from abroad (%)	
1996	60.4	b	35.1	b	3.8	b	0.4	b	0.3	b
1997	23.3		67.8		2.4		0.9		5.7	
1998	23.6		69.7		2.7		0.2		3.8	
1999	22.8	b	69.7	b	3.2	b	0.2	b	4.1	b
2000	24.4		69.2		0.9		0.3		5.3	
2001	27.1		66.2		0.7		0.3		5.7	
2002	24.8		69.8		0.2		0.2		5.0	

b – break in series  
Source: Eurostat

### Challenge 3: To strengthen the human resource base in the economy

Strengthening the human resource base is a crucial factor for improving the national innovation performance in the process of knowledge-based economic development. The developments during transformation period in Bulgaria have shown that the policy-makers neglect this fact. Since 1990, the total number of R&D personnel has declined by a factor of about 6. The data in table 3 shows that only for the period 1996-2003 the number of total full-time employed (FTE) R&D personnel declined by approximately 40%, the number of researchers – about 35%. The decline after 1997 has continued, which is one more argument that the sustainable GDP growth after 1997 is not knowledge-based one.

Table 3

Human resources in R&D

Year	Total R&D Personnel FTE	Female R&D	Researchers FTE	Female Researchers	Technicians & equivalent staff FTE	Female Technicians	Other supporting staff FTE
1996	26 158	13 788	14 751	6 114	8 169	5 462	3 238
1997	18 625	10 078	11 980	5 431	4 550	3 166	2 095
1998	19 116	10 148	11 972	5 321	4 862	3 295	2 282
1999	16 087	8 374	10 580	4 656	3 829	2 578	1 678
2000	15 259	8 106	9 479	4 354	3 833	2 441	1 947
2001	14 949	7 907	9 217	4 247	3 786	2 355	1 946
2002	15 029	8 106	9 223	4 353	3 713	2 374	2 093
2003	15 453	...	9 589	...	...	...	...

Source: Eurostat

The structure of the human resources (see table 4) has shown that the female researchers represent approximately half of the total R&D personnel, taking a higher share in technicians and equivalent and supporting staff than in researchers. This fact is resulting from the lower level of salaries in R&D sector, which is still more acceptable for women than men.

Table 4

## Human resources in R&amp;D – indicators

Years	Researchers (FTE) per million inhabitants	Technicians (FTE) per million inhabitants	Total R&D Personnel (FTE) % Female	Researchers (FTE) % Female
1996	1 765	978	52.7	41.4
1997	1 441	547	54.1	45.3
1998	1 450	589	53.1	44.4
1999	1 289	466	52.1	44.0
2000	1 160	469	53.1	45.9
2001	1 149	472	52.9	46.1
2002	1 158	466	53.9	47.2

Source: Eurostat

The necessity to strengthen the human resource base is also defined by the very strong process of brain drain from the R&D sector in Bulgaria. This state of the art is affected by lower level of salaries and lack of enough demand for R&D activities and results in the country.

The lack of a clear strategy for transformation of the Bulgarian S&T sector and its European and international integration has especially affected adversely higher educated and skilled personnel. Since 1992-1993 the share of Bulgarian higher educated emigration has started to increase. The major factor motivating this emigration is a higher living standard and possibilities for better professional and personal realization abroad. Better social relations are another important factor affecting this tendency.

The first survey on emigration, made at the beginning of the transformation period (1991), has shown that the main direction of Bulgarian high educated emigration was Europe – mainly Germany, but the second one, covering the period of 1995-1996 shows that the USA have become the main direction for high educated emigration. Furthermore, an increasing share of young people emigrating characterizes Bulgarian emigration (COST, 1997; Калчев Й., 2001).

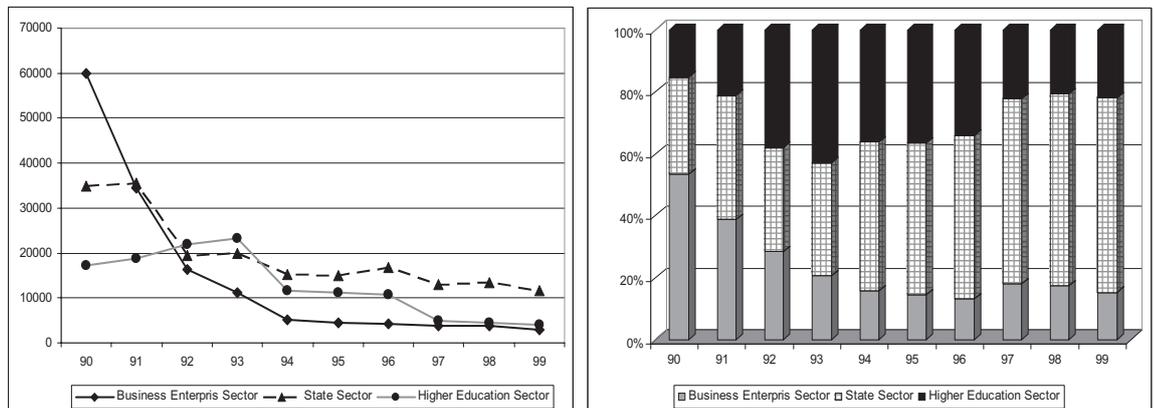
According to a feasibility study on the immigration of higher educated people, immigrant flows are to be neglected comparatively to the emigration phenomenon and mainly connected with personal reasons. The country has lost one small town of 55-60 000 of its higher educated and skilled population each year during the last decade. However, a lack of data availability is burdening the detailed analysis of this process. In this respect, it is extremely important to launch a survey on this topic in order to collect much more facts on flows.

Another argument for our assumption that a strengthening of the human resource base is needed concerns the structure of the R&D personnel by performing sectors (see fig. 4). The absolute numbers show a very sharp drop in personnel in business-enterprise R&D employment until 1994, then a slower decline. Personnel in government R&D also has dropped, but less sharply, and mostly in 1992. Personnel in the higher education sector raised somewhat until 1993, but then fell very sharply until

about 1997.

Figure 4

R&D personnel by performance sectors (levels and shares of total)



Source: Calculations by Chobanova, based on unpublished data supplied by the National Statistical Institute.

The right panel of the fig. 4 shows proportions in each of the performing sectors. The sharper decline in business enterprise R&D employment has changed drastically the structure of the R&D employment in the country. The recent structure has shown that public demand for knowledge is higher than the business one. This state could be evaluated as negative one, taking into account that the predominant part of economic activities in the country is private.

The challenge to the policy is not to make the R&D employment in government sector lower, as it was proved it is on low level relative to EU-average, but to increase the business enterprise R&D employment performance.

**Challenge 4: To enhance the interactions between the different actors of the STI system**

The number and consistence of the interactions between different actors affect the speed of the contemporary complex innovation process. The institutions play a basic role for meeting the innovation policy challenges. The main Bulgarian institutions in the field of innovation remain quite stable and there is a clear division of responsibilities between them. As stated in the Trendchart report for Bulgaria (2005), the innovation governance system is currently better developed in terms of structure, better established in terms of legislation and better coordinated than it was just a few years ago. Nevertheless, there are still weak horizontal and coordination mechanisms between the main national innovation system institutions on central level. Table 5 displays the strengths, weaknesses, opportunities and treats (SWOT) analysis of the Bulgarian innovation system.

Table 5

SWOT Table of the Bulgarian innovation system

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Adequate network of institutions;</li> <li>• National innovation strategy in place;</li> <li>• Progress in implementing measures set in the Strategy (National innovation fund started in March 2005);</li> <li>• Involvement of main stakeholders in policy making and in policy consultation;</li> <li>• Evaluation process for internationally financed projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Weak horizontal links and coordination mechanisms between the main NIGS institutions on central level;</li> <li>• Slow implementation of measures in National innovation strategy because of insufficient resources;</li> <li>• Involvement of stakeholders rather formal;</li> <li>• Lack of stakeholder involvement in delivering measures;</li> <li>• Lack of political will to encourage venture capital enterprises;</li> <li>• Evaluation process is not systematic and transparent;</li> <li>• Slow legislative process;</li> <li>• Slow implementation of the positive measures set in the laws and National innovation strategy;</li> <li>• Lack of vertical coordination between central and local priorities (and especially in innovation).</li> </ul>
Opportunities	Treats
<ul style="list-style-type: none"> <li>• Improved efforts for communication between stakeholders;</li> <li>• Debate on 0% corporate profit tax rate on reinvestment of profit and on flat tax introduction going on;</li> <li>• Some demand side measures in place (faster depreciation for PCs and software);</li> <li>• Pilot foresight initiatives launched by NGOs.</li> </ul>	<ul style="list-style-type: none"> <li>• No policy to foster high-tech employment;</li> <li>• Further delay in delivering regional innovation strategy initiatives;</li> <li>• Further delay in PPP rules and regulations adoption, which delays stakeholder involvement on delivery level.</li> </ul>

Source: Trendchart Report Bulgaria 2004-2005

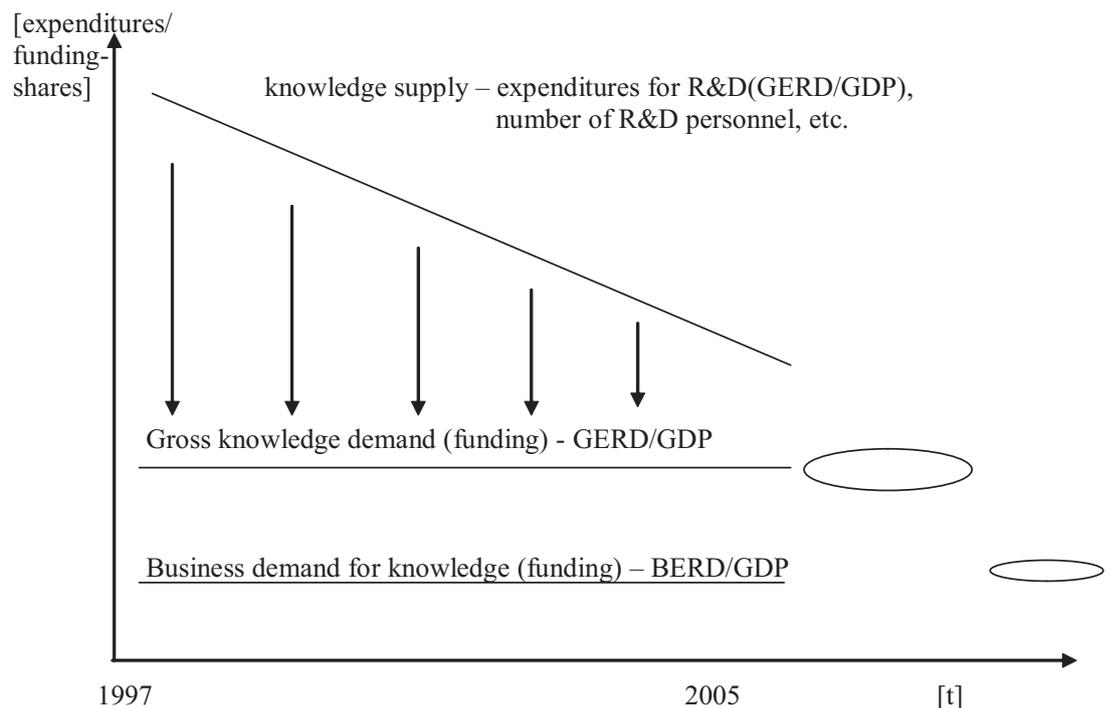
It could be summarized that the Bulgarian science, technology and innovation system has more or less well-developed organizations but with not enough mature interactions between the state/higher education R&D system and the business sector in Bulgaria. According to the results of a survey of 371 enterprises innovation performance, it could be concluded that their inclusion in the international innovation networks is very weak. This state of the art hampers speeding the innovation processes in the country and is a barrier for modern economic development. Taking into account that the policy measures have to be country specific for improving of interactions between different actors their definition and implementation is a very big challenge for national innovation policy development and its coordination with the European one.

In conclusion, it could be summarized that the contemporary challenges both for policy and economic actors, defined as objectives and priorities of the R&D policy of the country, are as follow:

- to increase both the internal demand and supply for domestic R&D activities and outcomes;
- to foster foreign demand for domestic R&D activities and outcomes;
- to improve the quality of R&D potential and quantity of R&D personnel;
- to foster domestic and international innovation networks alignment;
- to increase the R&D in industry.

Positioning science, technology and innovation indicators as indicators of supply and demand allows summarizing the tendencies in demand and supply of knowledge in a national economy. Using the meanings of indicators for Bulgaria, a negative tendency for knowledge-based development is identified (fig. 5). To overcome the further lowering of the demand and supply of knowledge respective policy is needed.

Figure 5  
General tendencies in demand and supply of knowledge in Bulgaria (1997-2005)



First of all, the analysis shows that both the supply and the demand for knowledge

need public support in order to reverse the process of losing the potential for knowledge creation (including also the brain drain phenomena).

Second, the solvent demand for knowledge is at a lower level than the knowledge supply and needs more support. It is suggested that a substantial foreign demand is very important for creation of knowledge in a small and open economy like the Bulgarian one.

The public intervention is needed as it is not possible to reach equilibrium between the solvent demand and supply in the frame of national economy. The impossibility of equilibrium of demand and supply of knowledge is determined by combining the global supply, which compete with the national one, and nationally determined demand. In relation to this, two scenarios about raising the innovativeness of the national economy are identified – an optimistic and a pessimistic one. The pessimistic one is connected with continuing recent tendencies and respective policies, which could lead to decreasing the role of national economy and society. The optimistic one suggests public impact on the development of a dynamic national knowledge driven economy through innovation of those sectors, branches, product and services, that are able to preserve and develop national identity of the Bulgarian society, to further enhancing the comparative competitive advantages in international trade, to accelerate the economic growth and to meet the identified innovative needs of the firms.

#### **4. Conclusions and Policy Implications**

Increasing demand for knowledge has become the core of policy mix for a modern development of national economy. The main challenge for the national innovation policy is to increase the national innovation performance, which requires development of a focus on designing a well balanced policy mix in a globalised context. However, there cannot be a general formula on optimal research policy mix because this also depends on linkages with other policies like education, employment and competition. The quest for a well-balanced *policy-mix for increasing the demand for knowledge* in national economy will be a revolving cycle of identifying strategic policy priorities, implementing policy measures, evaluating their impact, and adapting these activities in the light of new challenges.

In this respect there is a call for a coherent strategy in international R&D cooperation. Globalization, the neighborhood policies in Europe, the global mobility of enterprises with regard to knowledge and resources, member states' bilateral and multilateral relations, cross-border regional research activities provide ample reasons for an international strategy that puts Bulgaria on an equal footing with its partners. Within the EU, Bulgaria should strike a good balance between EU and national and/or regional research policies.

It is clear that public research organizations have to pay more attention to an increasingly competitive and open environment in academic research, education and innovation. Universities and other public research institutions will only be able to react adequately to global competition and the need to commercialize their results if they

develop a clear profile of their core competences, critical mass, quality of research training, and a sufficient degree of flexibility to adapt or modify their strategic goals over time.

The public investment into the R&D system increases the demand for knowledge but rarely shows immediate effects and these effects are not always tangible. Issues concerning the ability of national research system to apply increased funding or respond to R&D incentives in an effective way can also arise. The country will therefore have to carefully consider the *absorptive capacity* of its national innovation system when determining its response to meeting the 3% Lisbon EU objective. That is why the identification of priorities for public support of increasing the demand for knowledge is so important.

Bulgaria has to use supportive instruments with a view to attracting the best and most talented people in the world to carry out research in specific areas in the country. The policy measures already in place need to be thoroughly evaluated with regard to their effectiveness in promoting *brain circulation* on a global market for researchers. Specific attention should be paid to policy measures that would intensify the mutual exchange of researchers between more R&D intensive countries and other EU Member States as well as between the public and the private sector. Both within and between national innovation systems, further efforts need to be made to create or strengthen policy frameworks for career development of researchers, which are coherent, open, and flexible and merit based in order to ensure the fullest and most effective participation of talented people from all backgrounds, in particular younger researchers, women, and internationally or inter-sectoral mobile researchers.

The importance of *setting precise priorities* in research and innovation policy has to be realized. Given the budgetary constraints, the great variety of possible thematic focuses, instruments and target groups of specific measures holds the inherent danger of trying to satisfy all needs at once, which can easily lead to fragmentation of the national innovation system and reduced impact. The best way to counteract fragmentation is to set up a coherent policy strategy with clear overall objectives as well as strategic action lines with the appropriate corresponding milestones, resources and responsibility. After scientific argumentation of the set of priorities, it will be crucial for the acceptance of them as policy decisions to involve the scientific community, the business sector and other stakeholders in the decision-making process.

The *Structural Funds* are seen as a powerful instrument for improving the level of demand for nationally based knowledge and research. In this respect national measures need to be combined with adequate EU programmes and instruments in order to unfold their full usefulness as R&D policy measures. The diversity of Member States' technological specializations and industrial structures and therefore also their research policies implies that the relative importance of EU level policy instruments and programmes differs between Member States. It is needed the country to identify the specifics of its national policy in this respect.

The set of instruments developed in the context of the European Research Area (e.g. ERA-NET, ERA-NET plus, Article 169 initiatives, Technology Platforms, Joint

Technology Initiatives) is increasingly relevant for the country. The potential effect of these mechanisms will be to enhance the level of coordination and the creation of better competitive advantages for specific technologies by combining the efforts of public and private stakeholders, and the steady development of a more coherent European research policy framework. In research policy, specific internal *coordination mechanisms* will be appropriate for the required level of cooperation between politics and administration.

Improvement of the innovation policy mix, emphasizing the key role of demand for knowledge as a generic promoter of growth and development, will lead to a higher competitiveness and social cohesion in the long-term.

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# THE ROLE OF INNOVATION IN PERIPHERAL COUNTRIES' CATCHING-UP

*Assoc. Prof. Dr. Andrea Szalavetz  
Hungarian Academy of Sciences*

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## 1. Introduction

Year by year new countries appear on the “map of the world economy”, i.e. on the map of global production networks – as documented in the yearly World Investment Reports of UNCTAD.

It has long been a commonplace that foreign direct investment (FDI) integrates previously forgotten, uncharted locations into the world economy, accelerating thereby host countries' modernization and development. This type of modernization can be referred to as *modernization through network integration*.

As a consequence of information and communication technology (ICT) revolution this process has gained momentum. The world map of countries specialized in high-tech, especially in ICT production, and displaying revealed comparative advantage in high-tech products has become more diversified than before and includes several developing countries.<sup>1</sup>

In addition to efficiency seeking (assembly oriented) investment in ICT, developing countries have also gained huge business opportunities through FDI in ICT-related services.

Ever since the first success stories, the questions to what extent and through which channels ICT revolution facilitates peripheral countries' catching-up process have been subject to widespread investigations. Can peripheral countries harness the global knowledge revolution, or they can just benefit from significantly increased FDI flows as locations with relatively cheap blue collar labor force?

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<sup>1</sup> See: INTECH [2000]: Export of High-Technology Products from Developing Countries 1988-1998 Data on CD-ROM, Maastricht, United Nations University.

As opposed to some euphoric expectations,<sup>2</sup> a more pessimistic assessment is justified by the fact that despite the increased diversification of the pattern of world high-tech production, and despite the rapid diffusion of ICT technology, the composition of global R&D has remained highly concentrated.<sup>3</sup> High-tech production and export in peripheral countries is thus not related to any local R&D efforts, or putting it differently: high-tech production has no local R&D basis. Furthermore, although network participation offers plenty of development opportunities for local subcontractor-subsidiaries, local operational units' embeddedness in the host location is minimal in high-tech industries.<sup>4</sup> Local value added is low, which is best demonstrated by the huge difference between the gross and net export (values and ratios) of these facilities.<sup>5</sup>

This paper investigates the channels for catching-up in a knowledge-based global world economy. Our argumentation unfolds as follows. Section two provides a tentative answer to the question through which channels ICT-revolution has facilitated peripheral (middle-income) countries' (among others new EU members' and candidate countries') catching-up. It shows that innovation and the switching to a knowledge-based economy do not play a similar role in these countries' catching-up performance as in advanced economies. The engine of growth and technological upgrading is different in the case of these countries than in advanced economies. Section three analyzes some policy implications of this finding focusing on the role and the potential of innovation policy. Section four provides conclusions.

## 2. Channels of Catching-Up in the Era of ICT Revolution

The catching-up potential of ICT revolution is manifest through three main channels.

The first and for peripheral countries the most frequent one is specialization in ICT-related manufacturing, facilitated in most cases by FDI. Consider the example of Costa Rica, where Intel invested in an assembly plant in 1997. By 2000, this investment generated 3000 jobs and turned the country from specialized in exporting coffee and bananas into a high-tech exporter (the components produced by the Intel subsidiary amounted to 40% of total export).<sup>6</sup> The flip side of the coin is that this

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<sup>2</sup> Recall for example Cairncross' [1997] view on the death of distance, according to which ICT breaks with the fate of location. ... "Information will bring power, education, health and wealth." (p. 50 in 2001 edition)

<sup>3</sup> Recall Singer et al. [1970] who in the so called Sussex manifesto noted, that less than 5 % of global R&D takes place in the developing world. In 1991 the combined share of developing countries, South East Europe and the CIS still accounted for no more than 2.5 of world R&D spending (rising to 8.4 % by 2002). (Source: UNCTAD: World Investment Report p. 106) Nevertheless this increase is due to a handful of new countries on the global R&D map: among developing countries, the ten largest spenders accounted for 97 % of total R&D spending in developing countries. (Source: *ibid.*) See also Sachs [2002].

<sup>4</sup> The industry-specific features of ICT component manufacturing can explain this also. As it was persuasively demonstrated in Belderbos et al. [2001], industry characteristics have a significant effect on the extent of local vertical linkages. The authors studied the country-specific, parent firm-specific, and sector-specific determinants of local content ratios in the production of 272 Japanese companies in 24 countries along with their willingness to establish local linkages. Such linkages are less frequent in high-tech sectors than in mature ones.

<sup>5</sup> See Mani-Romijn's [2004] analysis and data in this respect.

<sup>6</sup> Source: The Mesoamerican Region: OECD Territorial Reviews, Paris OECD, 2006, p. 125

dependence makes the host countries highly vulnerable. This is the reason why we can claim that the high-tech share of exports does not show a very tight correlation with the countries' development level. Several high-income, advanced economies show below-the-average values of this indicator, while countries, with above-the-average values are not always the most developed ones.<sup>7</sup>

What is more, this type of specialization does not produce a "knowledge economy": integration takes place according to classical rules of industrial capitalism.<sup>8</sup> Investors improve recipient countries' productive capability, not their technological capability. Nevertheless, this type of FDI boosts economic success indicators (growth, export, employment) and its demonstration effect encourages further investors to locate similar activities to the region. As it requires non-negligible investment into human capital<sup>9</sup> even in case of divestment, the recipient country may attract new investors that may compensate for lost jobs.

The second channel of modernization is the possibility to benefit from ICT's high technological complementarity. ICT is a general purpose technology characterized by high level of technological complementarity.<sup>10</sup> Complementarity means, that ICT, being a radical, new paradigm creating technology, is manifest in many product and process innovations, which on their turn may be integrated into existing, old, brick-and-mortar technologies and industries. Being utilized and integrated by these latter industries, the new technology upgrades, renews, and in some cases radically transforms the old technologies. In this way the total factor productivity and the competitiveness of mature and traditional industries increases, as well as the value added of the individual products.

Since the integration of new technology increases old industries' skilled-labor and capital-intensities and requires non-negligible investment, this channel of modernization can rarely be detected in relatively underdeveloped, peripheral countries. Its role is important in advanced economies capable to finance and implement the transformation and renewal of traditional industries that are losing their competitiveness. In peripheral, catching-up economies the solution for these industries' crisis is rather specialization away from them, "a benign neglect" the consequence of which is the exit of their representatives from the market. This process, together with the quick expansion of FDI-related high-tech industries, explains the rapid and spectacular structural upgrading of these economies.

Advanced economies on the other hand elaborate long-term technological programs

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<sup>7</sup> As for Hungary, the high-tech share of exports was 21.7 % in 2004, while the value of this indicator in Germany for example was 15.4 %. (Source: Eurostat)

<sup>8</sup> In the traditional organizations of industrial capitalism, the ownership of assets is the source of authority. Hierarchical coordination continues to exist as opposed to trust-based horizontal, network forms of intellectual capitalism. (Szalavetz [2003])

<sup>9</sup> Irrespective of the fact that the processing of high-tech components is a typically low-skilled activity, and requires skills that can be learned on the job within two weeks, these skills are still higher than in the case of an agricultural activity. In the case of Costa Rica, policy efforts to attract Intel included the setting up of a national technical educational system. Following its entry, Intel has also forged additional links with local universities. (Source: *ibid.*)

<sup>10</sup> See: Bresnahan–Trajtenberg [1995]

to upgrade their crisis-ridden traditional industries, the result of which manifests in the numerous industry (and sector) success stories (among others in the textile and steel industries, in mining, and agriculture, etc.).<sup>11</sup>

Another aspect of the above-described renewal process is the fact that the production and export specialization of some developing countries is more technology-intensive than that of selected advanced economies (Mani–Romijn [2004]), which points to the weak link between meso-structure and macro-performance.

The third channel for catching-up is modernization through the development and expansion of knowledge-intensive business services (KIBS). According to OECD [1999] KIBS constitute an emerging sector with exceptional business and economic potential. This sector possesses enormous catching-up potential<sup>12</sup> as well, and is a key determinant of competitiveness.

Besides the global structural shift towards services, KIBS sector's rapid expansion can also be explained with the tertiarization of manufacturing industries, i.e. with the ongoing integration of manufacturing and service activities. In the new business model of the "new economy" the value of goods is determined more and more by intangible elements, like brand name, or the complexity of services related to the products etc. The number, the complexity and the importance of external, product related services have rapidly increased. Product-related services, i.e. the intangible part of the output, accounts for an ever increasing share of the total value of manufacturing products. The fragmentation of the value added chain concerns not only the processing phases of manufacturing products, many production and product related services can be outsourced as well, i.e. they can be performed at geographically diversified locations.

Specializing in product-related services is an important opportunity for foreign investors' local manufacturing subsidiaries: they can thereby upgrade their activity, increase local value added and become competence centers.<sup>13</sup> Nevertheless, specialization in specific KIBS unrelated to any local manufacturing activity is also an increasingly frequently chosen option by developing countries' entrepreneurs.

Consider the unprecedented growth of India's software industry. Analyzing the case from the point of view of catching-up channels, two conclusions can be drawn. Firstly, that, as opposed to the past catching-up experiences of economic history, modernization can be implemented not exclusively through industrialization. The usual development cycle of climbing up the technological ladder by specializing first in light

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<sup>11</sup> Some case studies on how new technology transforms old ones: in mining: [www.min-con.com](http://www.min-con.com); in agriculture: Prospective Analysis of Agricultural Systems. European Commission Joint research centre & Institute for Prospective Technological Studies, Brussels, Luxemburg, 2005; in the textile industry: Loo [2002]; in the steel industry: „Bethlehem's Chief on how steel got back into shape" Business Week, April 3, 2000

<sup>12</sup> Multinational companies offshore several types of white collar services to developing countries, among others they have established call centers in countries like Argentina, Colombia, Mexico or the Philippines. About services offshoring and developing countries' activities and opportunities see the comprehensive survey in UNCTAD World Investment Report, 2004 (The Shift Towards Services)

<sup>13</sup> About the theories of subsidiary evolution see: Birkinshaw [1996]; Birkinshaw–Hood [1998]

industries, later in capital-intensive heavy industries (steel, chemicals, etc.) and later again to technology-intensive electronics can be leapfrogged. Worldwide, ICT-related hardware manufacturing presented the first leapfrogging opportunity: FDI recipient countries – as shown by the example of Costa Rica – could start their industrialization on the “top level” of technological specialization. India’s specialization is an example for the second type of leapfrogging: at some risk of exaggeration we can claim that manufacturing in itself can be leapfrogged: the past decade of rapid modernization has been driven mainly by KIBS in India.

The second conclusion is that, as opposed to the quantity type of advantages of specialization in ICT hardware manufacturing, specialization in KIBS in general and in the software industry in particular, has many quality types of benefits. One of them is the almost unlimited possibility of upgrading the activity and increasing local value added, as demonstrated by the Indian example. The country is successfully moving away from low value adding software programming (coding) to higher local content programming and solution providing, as well as to consulting, and to packaged software (Kumar [2005]). Another beneficial feature of this channel of catching-up (i.e. modernization through specialization in KIBS) is the low physical capital requirement of this sector. In principle, stand-alone local firms may compete head-on with large international actors of the industry, provided they possess sufficient human capital. In practice however, local firms in the software industry also face capital constraints: marketing their products requires a huge amount of current capital, stand-alone local entrepreneurs usually do not possess.

Rapidly growing, promising, local software development firms therefore often become subject to the technology acquisition efforts of the international actors of this industry: sooner or later they will be bought up by the industry’s key players. On the other hand, the new owners will afford to finance the international marketing of the newly developed software.

### **3. Policy Implications**

The survey of the channels, through which ICT revolution facilitates the modernization of peripheral economies, reveals the crucial importance of catching-up countries’ own innovation efforts, as well as that of institutional development.

Both innovation activity and related institutional development ought to be regarded in broad terms, including learning and technology absorption. Enhancing modernization through the first channel does not require scientific activities and R&D, although national innovation system (NIS) studies usually remain in this narrow conceptual framework. Instead, the relevant conceptual framework is institution development that facilitates learning to meet the requirements of exogenous technical change. Education system should be developed in line with the requirement of developing local subsidiaries’ production capabilities, technology assimilation and incremental improvement capabilities.

Besides the education and the training of the labor force, an effective national learning

system (Viotti [2002]) includes institutions, programs and incentives aiming at facilitating technology acquisition. Technology acquisition (through direct purchase of the technology as well as through import of capital goods) is particularly important in the case of the second channel of modernization (i.e. modernization through integrating new technology solutions into old technologies and old industries and thereby upgrading them). The example of the textile and garment industries in several high-performing South East Asian economies shows that instead of abandoning industries that are losing their competitiveness, investing in modern technology and increasing their capital-labor ratio offers good returns (Meyanathan [1994]). It is not surprising that according to Loo [2002] in 1999 the top 15 textile exporters included 10 high-income economies (plus “middle income” ones like Korea or Taiwan).

R&D promotion and the support of R&D-intensive firms in general and KIBS firms in particular are also important, in particular from the point of view of the third modernization channel.

A common argument in (relatively) poor countries against granting public funding to new technology based domestic startup firms is the following. Generally one or two years after the innovative domestic firms had made good use of public funds, and had managed to grow as a result of the successful commercialization of their invention, they are bought up by foreign investors. The mentality that makes this argument emerge should be changed in relatively poor catching-up economies. This mentality considers innovation a *unique fortunate event*, the *outcome* of a publicly funded process that is later “stolen”, i.e. subject to private appropriation.

The proposed mentality instead is to consider innovation not an outcome but a well-organized *process*. The number of fortunate outcomes of this process depends on the intensity and the efficiency of the process itself. In this sense it is the activity, the innovation potential that has to be supported, i.e. the capability to carry out the process ought to be strengthened. *Innovation financing should not be considered a “direct business transaction”,* i.e. paying public money and receiving an invention later. Innovation financing ought to be considered an *indirect capability strengthening process* – though of course it takes the form of the support of a concrete research project.

In this sense, the foreign appropriation of the research results is not a loss for three reasons. First, selling a growing and promising new technology-based firm is a transaction that usually offers considerable profit for the seller. Second, foreign investors usually continue the commercialization of the invention and they have much better financial means to accomplish this objective than the domestic firm. In some cases the former owner becomes the CEO of the acquired firm, and of course the researchers will not be fired following acquisition. In most cases the acquired firm continues its activity in its home country. Thus, in spite of the foreign acquisition, several channels remain that provide domestic income. Third, considering innovation as a process (and not as an outcome) we have to acknowledge that any research support (even if the actual results are appropriated by private domestic or foreign investors) strengthens the country's innovation potential.

#### 4. Conclusions

The main message of this paper is that the catching-up potential of ICT revolution is manifested through different channels in the center of the world economy, i.e. in advanced economies, than in the rapidly catching-up periphery.

Although some relatively underdeveloped countries that have managed to attract and absorb foreign investment into industries with high technological opportunity (this channel is referred to as modernization through network integration, based on ICT-related manufacturing) show an unprecedented rapid growth and the improvement of several of their economic success indicators is spectacular, this usually comes at a high price. The consequence is the emerging dualistic character of their economies, as well as the increasing vulnerability of modernization.<sup>14</sup> The spectacular expansion is due to an industry-specific feature of ICT-related manufacturing: the exceptional worldwide concentration of component manufacturing.

Modernization through the upgrading of mature and traditional industries with the help of high-technological-complementarity ICT is characteristic only in advanced economies, which leads to a further weakening of the relation between the extent of high-technology specialization and economic performance. A high share of high-technology or ICT products within total output or export does not refer to above the average competitiveness in itself. It may be the sign of pure cost competitiveness. This is well-demonstrated by the fact that structural change in developed countries is usually not restricted to inter-industry rearrangement. Quality upgrading within industries, i.e. specialization in the more knowledge and technology intensive segments of the individual industries and in higher value added products within the individual segments is highly important in these economies.

As for the specialization in KIBS, this modernization channel is important in both country groups. For catching-up countries the main barrier to modernization through KIBS is the low local demand for sophisticated service activities. Although local KIBS firms have a higher chance to become suppliers of foreign subsidiaries than local manufacturing firms, they still face considerable demand constraints.

The importance of innovation shows wide disparities in the individual modernization channels. In the case of ICT-related FDI-driven manufacturing, it is the absorption of the transferred technology, i.e. technological learning that is the most important. As Meliciani [2002] has shown, the link between countries' technological specialization and technological potential may be weak. Countries can be specialized in fast-growing technological fields and at the same time have a poor overall technological basis, and they can also become specialized in fast-growing fields by simply decreasing their activities within the other fields.

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<sup>14</sup> Nevertheless, as empirical experience has shown, for most countries this is the only way of stepping on a development path, and the question of "What would happen without these investments?" should be asked each time, when assessing the price of modernization and the negative side-effects.

Innovation in the second channel of modernization, in the case of ICT-using traditional industries is highly important, just like in the case of KIBS. KIBS are not only 'per definitionem' highly innovative but are also the most important elements of knowledge transfer.

The fact that in middle-income catching-up economies the importance of the latter two modernization channels is far inferior to that of the first channel shows that for peripheral countries ICT facilitated the leapfrogging of locational constraints, but not that of the institutional ones.

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# NEW TRENDS IN INTERNATIONAL TECHNOLOGICAL COOPERATION, PERSPECTIVES FOR KNOWLEDGE CREATION AND ECONOMIC DEVELOPMENT

*Dr. Liliana Mateeva  
Institute for Advanced Studies, Vienna, Austria*

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## 1. Introduction

The research interest in the new trends of international technological co-operation is related to their complex character, focusing on the influence of current boost of economic globalisation, of the new systemic process of innovation and the increasing role of knowledge and technological advance for economic performance.

In particular, the deployment of international economic relations represent a shift from an interaction on the level of international trade, i.e. the distribution level, to a more complex and in-depth forms of international economic interactions related to the level of production processes and innovation activities, e.g. transfer of technologies and know-how through foreign investments, subcontracting, R&D contracts, license contracts, joint-ventures, multinational corporations (MNCs), etc.

The international economic interdependency is to a great extent influenced by the third global technological change, which is the booming development of technologies such as computing, telecommunications and transportation fostering the development of an unbounded and interconnected framework for economic activities. This process contributes to the emergence of knowledge-based economy - the deployment of knowledge and high skill-based industries and services in the advanced economies. The innovation achieved by creating and introducing new technologies or services, as well as the exploitation of new markets, become driving forces of the economic growth on national and international level. Also, the human potential and knowledge skills, needed to create these technologies and services, acquire a key role for the economic performance and competitiveness of national economies (cf. Neef 1998, 2).

This process is subsequently accompanied by the shift of low-skill labour-based production to lower cost areas, and, respectively, by the establishment of a division of the world economy, based on the technological advance (cf. Sachs 2000, 1).

The growing internationalisation of innovation, production and trade activities, as well as the development of technological infrastructure of the “networked economy” are accompanied by the deployment of new systemic concept for the innovation process, namely defining it as interaction between various institutional agents taking part in the creation, transfer and implementation of new technologies within an innovation system. This system is observed at various levels - national (cf. Freeman, 1988; Nelson 1988, 1993; Lundvall 1992), regional (cf. Malerba, 2004), as well as on supra national – European (cf. Katz, 2006; Andersen and Brændgaard, 1992; [www.cordis.lu](http://www.cordis.lu)) and international level, i.e. including the involvement of international institutions, as well as multinational corporations (MNCs) in the global economy (cf. Lundvall, 1992; Delaplace, 1999).

Thus, an evolution is observed of the economically relevant institutional forms within the process of economic globalisation. At international level the market, the traditional institutions mechanism integrating international relations between producers and consumers from different national economies, deploy into a “technological interdependent” “global industrial system” (cf. Lower 1994, 423). The deepening of international economic relations respectively evokes the development of new global institutional forms – multinational corporations (MNCs) with their internalisation of economic activities, institutions on European and international level, international agreements, regulations, politics and programs, international techno-economic networks, as well as the inclusion of a large number of institutions and social structures in the economic processes. The international economic relations transform into “inter-social relations” (cf. Adams 1994, 424f.).

In general, the area of inter-company technological co-operation deploys into innovation system on trans-national level. The interactions of information exchange, learning and resources acquisition among different institutional actors within this system create prerequisites for the evolution from technology transfer into technological interchange and innovation development.

## **2. Deployment of International Inter-Company Technological Cooperation Area and Scope**

With the globalisation of the economic activities and the interactive systemic implementation of innovation process, the international inter-company technological co-operation takes place within an extended environment and its scope and nature acquire new dimensions including more intensive knowledge exchange, learning interactions and common innovation activity.

### *2.1. Innovation System in Open Economies*

The concept of innovation system represents a new systemic understanding of innovation as a system process. This concept differs from the linear approach, which understands the innovation process as consequences of stages. The new view of innovation includes the interactions between different institutions for the creation, diffusion and implementation of new technologies and knowledge: research institutes, universities, technological intermediaries, firms, financial sector, patent offices, public

institutions, etc.

In the recent economic literature the innovation system is presented at different levels. The national innovation system (NIS) includes, according to Lundvall, "organisations and institutions involved in searching and exploring – such as R&D departments, technological institutes and universities". He introduces furthermore a broader definition encompassing "all parts and aspects of the economic structure and the institutional set-up affecting learning as well as searching and exploring – the production system, the marketing system and the system of finance present themselves as sub-systems in which learning takes place". Lundvall stresses on the crucial importance of relationships between the elements of the innovation system. Moreover, differences between national economies, their structure of production system and the general institutional set-up should also be taken into account (Lundvall, 1992, p. 12-14).

Nelson (1993) proposes a comparative analysis of the NIS in different countries. NIS characterises the innovation potential of different countries, their technological advance and national science and technological policies (Nelson, 1993).

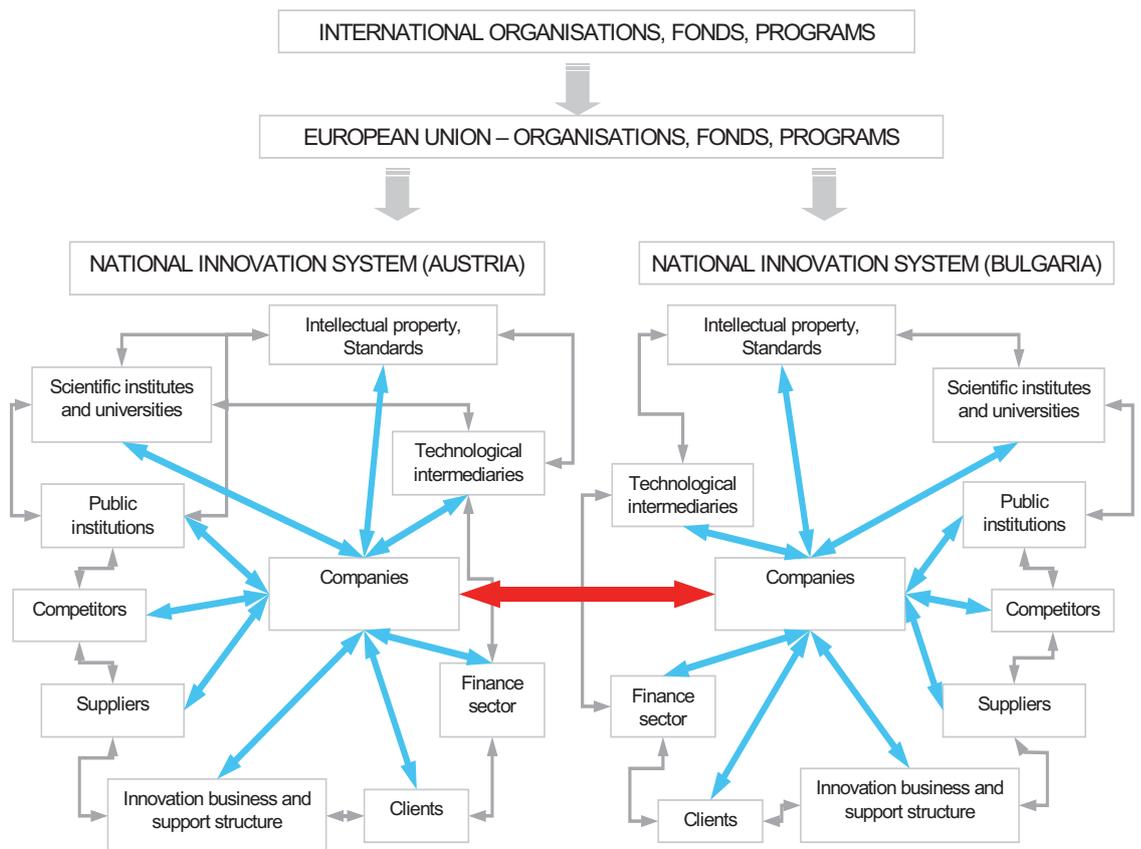
Arnold and Bell (2001) present a scheme of NIS encompassing institutional actors and economic activities necessary for the realisation of innovation contributing to economic development. The interrelated elements of NIS within this scheme are: framework conditions, financial environment, taxes and preferences, propensity to innovation activity and entrepreneurship, trust, mobility, educational level, demand, supply, intermediary consumption, business system, technological intermediaries, education and science system, financial sector, infrastructure, patent and standards offices, information system.

The new systemic approach of innovation process corresponds furthermore with the modern conception of production based on knowledge, as well as with the understanding of development of knowledge-based economy (Gibbons, 1994).

According to the view of numerous scientists, the innovation system could be understood not only within the national borders, and with regard to the conditions of growing internationalisation of economic activities. The innovation system is open to include relationships between institutions from different countries. The process of innovation has increasingly become multinational and trans-national (see Lundvall, 1992; Chesnais, 1992). In general, the analysis of the companies' behaviour, and in particular the behaviour of MNCs, cannot be limited to the institutional framework of a national state (cf. Delaplace, 1999). Thus, a broader understanding concerning the area of technological co-operation and innovation activities of companies from different countries is of crucial importance for the analysis of international inter-company co-operation. This area has to encompass the institutions taking part in the innovation process and their interchange on different levels – national, European, international. Scheme 1 below reflects the wider area of technological cooperation activities (supra national space) on the basis of co-operation between companies from two countries, e.g. Austria and Bulgaria (Mateeva, 2004). This formal presentation does not reflect the degree and strength of relations between institutional agents,

neither the differences between both countries. The focus is on the integrated innovation system at supranational or trans-national level, which integrates the innovation systems of both countries, as well as the organisations on European and international level. This scheme is developed on the basis of the NIS scheme proposed by of Arnold, E. and Bell (2001).

Scheme 1  
Supra National Space of Technological Inter-Company Cooperation



### 2.2. International Inter-Company Technological Cooperation by Foreign Direct Investment (FDI)

The FDI is a traditional wide-spread way of technological co-operation through internal channels (Chobanova, 1996, 43-45). The FDI are not only financial investment flows, but they are associated with a foreign firm keeping control over the investment project, thereby being able to apply its technology to the project (Ekholm, 2003, 35). According to Krugman and Obsfeld (1994) “the main point of FDI is to allow the formation of multinational organizations”.

The FDI by multinational corporations (MNCs) in different countries are related to the relocation of economic activity in other countries or regions. This process includes the transfer of new technologies and know-how, affects the economic structure of home and host countries, as well as the demand of labour force and economic development.

The incentives of the MNCs to do FDI are multiple. They tend to be “market seeking” when better access to a larger market is concerned - horizontal FDI (EBRD, 2004, p. 37). Krugman and Obsfeld stress that location motives of multinationals are the same as those behind all international trade – the availability of resources. However, the internalisation motives are, according to the current theory, related to two main motives: the need for a way to transfer technology and the advantages in some cases of vertical integration in order to avoid problems such as monopoly positions of the firms and consequences for the price level, problems of coordination, if demand or supply is uncertain, etc. (Krugman and Obsfeld, 1994, pp. 160-161; 165-166).

In its eclectic paradigm Dunning (1979, 1988) reveals the comparative corporate advantages when undertaking international expansion. At first, the *ownership advantages* of the foreign company compared with the local firms are related to possession of material and immaterial assets (e.g. specific technical knowledge, production design, innovation activities, technologies, patents, production differentiation or advantages through elimination of transaction costs (e.g. networks). Secondly, *location advantages* are related to the presence of unfavourable conditions for foreign trade (protectionism, high transport costs, etc.) or favourable conditions such as low production costs or better market access. Thirdly, the *internalisation advantages* realised through FDI are related to the internal use of ownership advantages and elimination of transaction costs, as well as to better control over the production process and market opportunities, elimination of the uncertainty related to transfer of complex technologies (Dunning, 1979; 1988).

Very important factor for FDI is the proximity to the target location – the “gravity” factor (Shatz and Venables, 2000).

Deepening and institutionalisation of economic relations between firms from different countries take place through FDI and the formation of MNCs. This allows for an increase in the efficiency of production processes, market realisation, but also limits the uncertainty by transferring of complex technologies and exchange of know-how and best practices.

However, the further development of the host company that is adopting and implementing the technology, i.e. as adopter or innovator, respectively the further developer of these technologies, is of crucial importance for the impacts of FDI.

Vernon’s product cycle theory predicts that new products and technologies are primarily developed in the advanced countries, intended for their internal market (where customers have relatively high average income, labour costs are higher and technological level is advanced, etc.). During the product’s mature stage its production is exported to countries, where production costs are lower, e.g. to less advanced countries or developing ones. Thus, these countries represent adopters of new

technologies and products created in the investor countries. Furthermore, the investor could import the goods produced in the adopters' countries or export them to third countries (Vernon, 1966, 190-210).

In this regard, an important question is if the new plants or production facilities are built as replica of the mother company in order to use the local market, natural resources and lower production costs, or if the affiliates develop technological capabilities and evolve to more specialised and creative functions by taking advantage of the local human, technological, institutional resources and geographically-confined inter-company networks (Cantwell and Bellak, 2000).

In order to achieve mutual positive effects for host and home countries, the FDI has to allow sustainability of the investment project, create opportunities for deployment of technological achievements, knowledge base, human potential and innovation potential.

### **3. Foreign Direct Investments (FDI) in Bulgaria**

#### *3.1. FDI Inflow Trends and Sectors*

During the last two decades the FDI has grown far more rapidly than trade (Gaston, and Douglas, 2001). Within the process of EU integration the FDI from the EU 15 to the New Member States, including Bulgaria has increased.

The FDI in Bulgaria plays a crucial role in the economic transformation, the institutional structure reforms, and the transformation of the old techno-economic networks<sup>1</sup> into new ones. It also helps the harmonisation of national standards to the European and international ones. Foreign investment has positive impact on competitiveness of national enterprises and economic development of the country.

FDI inflow to Bulgaria indicates a growing trend after the financial and economic stabilisation, i.e. since the second half of 1998. After stagnation in 2001, considerable growth of FDI is observed between 2002 and 2004 (Figure 1). FDI originates from different countries. The biggest foreign investors in Bulgaria are Austria, Netherlands, Greece, UK, Germany (1992-2006). During the last few years Austria reached the position of biggest foreign investor to the country. FDI from Austria to Bulgaria grew during the period (1998 –2004), with the highest increase being in 2004 (Figure 1). In general, the FDI flows from Austria to the New Member States from Central and Eastern Europe are increasing, taking into account the traditional economic relations and the geographical proximity. Moreover, Austria is seen by the MNCs as a platform for investment in the CEE region (see ABA, 2005).

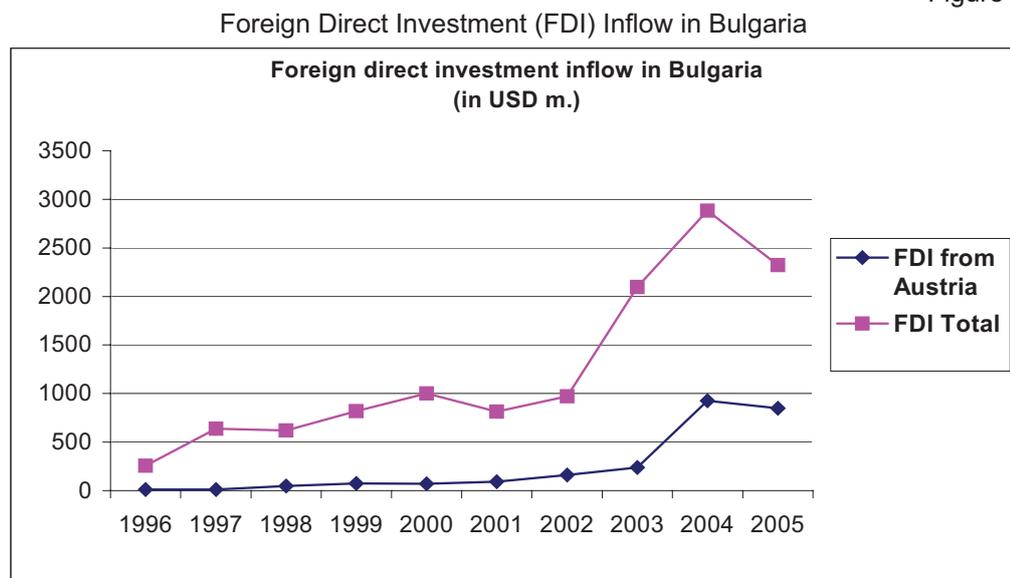
Attraction FDI to Bulgaria in some economic sectors is influenced by the policy

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<sup>1</sup> According to the definition of Radocevic (Radocevic, 1997)

priorities regarding structural change of the national economy, the priorities of investment policy and the technological co-operation, as well as the strategic interest of foreign investors.

Figure 1



Source: Ministry of Finance (1996-1998); Bulgarian National Bank (1999-2005), cited by Bulgarian Investment Agency.

The main sectors with substantial FDI in Bulgaria for the period from 1998 to 2005 are: financial activities, trade and repairs, telecommunications, electricity, gas and water. FDI from Austria as the larger investor to Bulgaria in the last years, covers also the sectors of telecommunications, financial activities, electricity distribution, and in addition - trade, machine building, paper industry and software development. When observing the whole period after the economic transformation, Austrian investment are made also in the sphere of building materials and transport (Bulgarian Investment Agency, 2006).

Factors affecting the FDI are related not only to the favourable economic environment, but also to the institutional framework of economic and innovation activities, which has to be an integral part of the European and international ones.

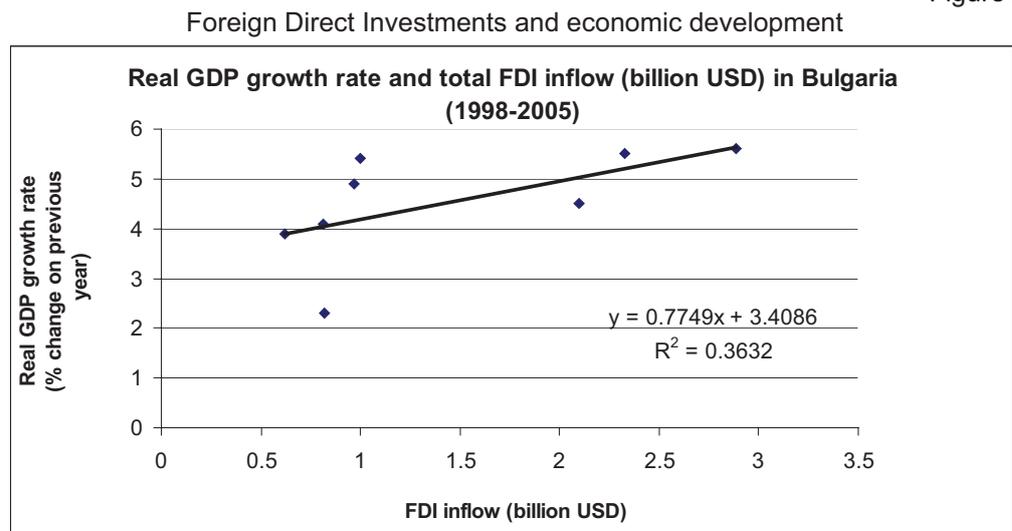
### 3.2. *Implication of FDI on Economic Development and Knowledge Creation Prospects in Bulgaria*

According to the economic theory and empirical studies, the FDI and the economic development are interrelated. FDI affects the economic growth through the implication of new technologies and financial resources, if favourable economic conditions, human capital and absorptive capacity are available (Grossman and Helpman, 1991;

Borensztein et al., 1998). Respectively, the economic development promotes the FDI inflows by creating favourable environment attracting FDI.

In Bulgaria the total FDI inflow and economic growth are highly correlated ( $R= 0.60$ ) in the period after the economic and financial stabilisation of the country. FDI inflow has positive effects on economic growth (Figure 2).

Figure 2



Source: GDP growth rate data - from Eurostat (Nov. 2006); FDI inflow data – Ministry of Finance (1998); Bulgarian National Bank (1999-2005), cited by the Bulgarian Investment Agency.

However, the effects of FDI on economic growth should be examined taking into account several other economic and institutional factors. Moreover, FDI inflow will have sustainable effect only if they contribute to technology and knowledge exchange, promoting the development of innovation potential. FDI in knowledge-intensive services and industries promote knowledge creation, deployment of knowledge-based economy and innovation potential. According to OECD classification technology and knowledge-based activities include not only high-technology industries in manufacturing, but also activities which make use of high technology and/or which have relatively highly-skilled workforce. These are service activities such as finance, insurance and communication (OECD classification, OECD, 1999). Thus, the main sectors of FDI inflow in Bulgaria concern knowledge-intensive activities, which is a favourable condition for knowledge creation and deployment of innovation potential. FDI contributes also to the development of the modern service sector in Bulgaria.

#### 4. Conclusions

The paper reveals the necessity to widen the understanding of international technological co-operation within an innovation system on trans-national level. This understanding takes into account the intensification of international economic relations which encompass production processes and innovation activity. It related also to the

deployment of the modern systemic model of innovation process including intensive knowledge exchange, learning interactions among different institutional agents. These processes create conditions for an evolution from transfer of technology to technological exchange and innovation development.

FDI as a widespread international technological co-operation includes transfer and exchange of new technologies and know-how and has implications on the economic structure and economic growth of home and host countries. These implications are positive, if the investment project is sustainable, promotes further development of the transferred technology, creates further jobs and ensures the deployment of knowledge base and human potential.

FDI in Bulgaria has played a crucial role during the economic transformation, the institutional reforms, the harmonisation of national to European and international standards. The inter-relations between FDI and economic growth are complex and intermediated by the influence of a range of economic and institutional factors. After the economic stabilisation, the FDI in Bulgaria has had a growing trend and positive effects on economic growth. Moreover, the investment in knowledge-intensive industries and services creates prospects for investment sustainability and positive economic effects.

The new trends and the extent of international technological co-operation and its implications on economic growth, knowledge creation and innovation give some new insights to economic and innovation policies.

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# SOCIAL SCIENCES AND HUMANITIES IN THE REALITY SHOW OF TRANSFORMATION

*Assoc. Prof. Dr. Nikolina Sretenova  
Institute for Philosophical Studies at Bulgarian Academy of  
Sciences*

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## 1. Introduction

During the so-called transitional period Social Sciences and Humanities in the post-communist countries including Bulgaria are challenged by different developments taking place on the international/global scale on the one hand, and on the other hand - by transformation's processes going on regional and/or local scale.

In the first part of this paper I discuss briefly the challenges coming from the international scale, in particular the emergence of a new style science-society dialogue and the very possibility of building European Research Area for Social Sciences and Humanities, while the second part of the paper deals with challenges stemmed from transformation's processes on regional and/or local scale.

## 2. The emerging of a new style dialogue between science and society

Traditionally the public image of science has been constructed and articulated within ***an epistemological frame***. According to this image *science is independent, objective and neutral and serves public good; it stands above any interests, passions, values, etc. In their turn scientists are viewed as impartial truth seekers authorized to speak Truth in the name of Nature.*

Nowadays an economic frame of discussions on science enterprise gradually replaces the epistemological frame. The economic dimension of scientific activity took a lead in the current re-thinking of science through the lens of social studies of science. The new public image of science is build on concepts and visions like *science as enterprising, commercialization of knowledge, contract culture, public accountability, entrepreneurship, managerial skills, interdisciplinary, etc.*

Helga Nowotny, an internationally recognized Austrian expert in the field of science studies argues in a recent publication that the public nature of science is changing in a

twofold way:

- One is through the increasing *proportization* of scientific data with follow-up concerns about the issue of Intellectual Property Right (IPR). Nowadays researchers are viewed as 'knowledge owners' rather than 'knowledge workers'; various kinds of limitations replace the former free access and free exchange of knowledge;
- The demand for the democratization of scientific expertise accompanied with distrust of the independence and impartiality of scientific expertise; the public claims to be involved in the process of decision-making in techno-scientific issues in the new and controversial domains of biotechnology, biomedicine, nanotechnology, energy production and environmental issues as well as in the priority-setting of scientists' research agenda.

The Nowotny's argument is placed within the **economic frame** of re-thinking science enterprise.

The new style dialogue between science and society dominated by the economic frame of thinking might affect the very way of doing Social Sciences and Humanities on a global scale and is likely to re-shape the priorities of research agenda of scholars involved in the respective research fields.

The other challenge of international drive for Social Sciences and Humanities is related with the very possibility of implementation of European Research Area (ERA) for these research domains. As it is well known the ERA concept was elaborated within the FP6 of EC in order to strengthen the efficiency of research at the European level. Indeed the possible creation of ERA for Social Sciences and Humanities can serve as a powerful leverage for their reorganization and for restructuring the research in the respective areas at the national levels in order to produce a kind of **synergy** of their functioning at the European level.

The major challenge here is that Social Sciences and Humanities are strongly dependent upon different national settings, national research traditions and cultural contexts, which results in their **fragmentation** at the European level. Then how an ERA could be build for them?

In order to tackle the issue the EU policy-makers designed within the FP6 a new and innovative instrument for building ERA in all fields of research including Social Sciences and Humanities research area. The name of this instrument is 'ERA-NET' scheme which aims at supporting of transnational networking and coordination of national research programmes i.e. the scheme's participants are programme managers working in national Ministries and funding agencies. The objective of the 'ERA-NET' scheme is to set up cooperation and coordination of research activities (i.e. programmes) carried out at national or regional level in the EU member states and associated states through the networking of research activities including their 'mutual opening' and the development and implementation of joint activities.

In short the new ERA-NET's ultimate ambition is to establish an instrument of common research programmes on topics with shared priority among all members, with joint calls and shared evaluation systems.

It deserves noting that during the first Call for SSA (Specific Support Action) under this scheme 32 ERA-NET projects received initial funding (preparatory grant) from the EU FP6 in order to prepare proposals for ERA-NETs in different research areas. Among these 32 successful ERA-NET projects there is one ERA-NET in the field of Humanities and one ERA-NET in the field of Social Sciences research.

### 2.1. ERA-NET in Humanities "The Humanities Speaking with One Voice" (ERCH project launched by an association of European Research Councils)

The key terms of this ERA-NET are: *Ethics, values, culture and gender*.

According to the applicants of this ERA-NET project the scope of the humanities ranges wider still. Such issues as *ethical standards, values, culture and gender* are widely debated at all levels, and academic research in these important areas requires support to ensure closer contact between researchers and society. Parts of the humanities are still weak in cross-border co-operation. Europe has always had an outstanding tradition of research in the humanities but, unlike science and technology, these efforts have been largely confined within national borders. This is no great surprise since studies of language, culture and history have strong associations with individual nation states and are traditionally bound up with concepts of national heritage and identity. Change is in the air, however.

The annotation of this project states:

*The humanities are closely associated with national heritage and identity, but can also contribute insights into broad issues of ethics, values, culture and gender – key issues for Europe's progress towards a competitive and sustainable economy. ERCH will collect information about national practices and programmes, and will suggest possible joint research themes and infrastructure projects to be implemented through a future ERA-NET in the research field of humanities.*

The ERA-NET project in Social Sciences is titled "The Next Step for Social Sciences" (New opportunities for research funding co-operation in Europe – a strategy for social sciences).

Bulgaria currently participates in one ERA-NET project: 'SEE-ERA.NET' ('Integrating and Structuring the European Research Area in Southeast Europe') This is a networking project aimed at integrating EU-member states and Southeast European countries in the ERA. The project is co-ordinated by Austria and involves 17 institutions from 14 European countries, including all countries from the Balkan region.

The objectives of SEE-ERA.NET are stated to be:

- to enhance research cooperation in Europe by fostering integration of Southeast Europe into the growing European Research Area;
- to add value to existing bilateral S&T agreements through multilateral coordination;
- to improve interregional research cooperation following the principles of the stabilization and association process in Southeast Europe;
- to contribute to the 'EU-Balkan countries Action Plan in Science & Technology' adopted at the Thessaloniki Ministerial Conference in 2003.

The SEE-ERA.NET objectives will be met through:

- systematic exchange and dissemination of information and best practice models on bilateral RTD activities. This will contribute to a sound understanding of research systems and policy approaches in the SEE-ERA.NET partner countries;
- needs analyses from the viewpoint of researchers, RTD organizations, as well as policy-makers in the target countries, concentrating on international RTD cooperation;
- support of the policy dialogue on ERA integration of countries, referred to as West Balkan countries, and related awareness raising activities in the European Union;
- identification of complementary approaches followed by the implementation of joint instruments and initiatives, including a joint evaluators database and joint calls for research proposals in 2007 and 2008.

**The transformation's processes of R&D sector at regional and/or local level and their impact on Social Sciences and Humanities: The Impact of EU FP for reshaping research agenda of EU countries**

J. Smith identifies five types of national funding arrangements for Social and Human Sciences research in the 'old' EU member countries and analyzes how they have accommodated the EU FP priorities in the respective national programs. They are as follows:

- A. Strong research council system with both initiative and responsive mode<sup>1</sup> funding schemes – Denmark, Finland, Netherlands, Sweden and United Kingdom; (Norway and Switzerland as well);
- B. Strong research institution funding from several national sources – France and Italy;
- C. Strong research council and institution funding with dominant responsive mode – Germany;
- D. Mixed (but more limited) research council and institution funding with both initiative and responsive mode funding – Austria, Belgium, Luxembourg, Portugal and Spain;
- E. EU Framework Programs playing major role in the funding of research community activities and projects – Greece and Ireland.

## 2.2. Funding Social Sciences and Humanities in the 'new' EU Member States. The Bulgarian Case

None of the described above five types of national funding arrangements operates in the 'new' EU member countries. To obtain a complete picture of the funding arrangements for Social Sciences and Humanities in Bulgaria we have to trace the distribution of researchers *across R&D sectors* and *across fields of science* and to connect these data with the respective R&D expenditure by sectors and fields of science.

Table 1  
Distribution of Bulgarian researchers *across R&D sectors*, head count and %, 2000

Bulgaria	Business Enterprise (BES)	Higher Education (HES)	Government (GOV)	Private Non-profit PNP	All Sectors
Total	1225 (11.6%)	2 488 (23.6%)	6 763 (64.2%)	51 (0.5%)	10 527 (100.0%)

Source: European Commission, ENWISE Report, 2003

Table 2  
Numbers of researchers (and % of women among them) by main field of science of GOV+HES in Bulgaria, 2000

Field	Natural Sciences	Engineering & Technology	Medical Sciences	Agricultural Sciences	Social Sciences	Humanities
Bulgaria	2 720 (51%)	2 122 (28%)	1 063 (50%)	965 (50%)	504 (47%)	934 (57%)

Source: European Commission, ENWISE Report, 2003

<sup>1</sup> Here 'responsive mode' funding schemes mean open grant schemes where topics are not predetermined or specified. Research communities determine the research topic proposals to be submitted. 'Curiosity-driven' research or 'science-driven mode' are another common terms used to describe the responsive mode research funding. The 'initiative mode' funding means calls for proposals for grants/contracts where the research topics are predetermined and specified. These topic choices are made therefore on the 'initiative' of funding bodies. 'Targeted research' or 'policy-driven mode' are another common terms used to describe 'initiative mode' research funding.

Table 1 shows that **64.2%** of the Bulgarian researchers are employed in the GOV R&D sector and 23.6% – in sector ‘Higher education’. Social and Humanities scientists are more likely to be found in the GOV research and HES institutions than in enterprise (BES sector). Table 2 shows that Bulgarian researchers are concentrated mainly in ‘Natural Sciences’ and ‘Engineering & Technology’. Only 504 social scientists and 934 humanity scientists are employed in Bulgarian GOV and HES sectors, i.e. the research community is relatively small. Let us now connect these data with R&D expenditure by sectors and fields of science *per capita researcher* and *in Euros* (Romania, Czech Republic and Slovenia and taken for comparison).

Table 3  
R&D expenditure, Euros per annum, *per capita* researcher and by R&D sector, 2001

Country	Sector	BES	HES	GOV	Total
Bulgaria		12 470	2 830	7 254	6 791
Romania		8 854	2 832	4 853	6 301
Slovenia (for comparison)		105 651	16 718	40 137	45 313

Source: European Commission, ENWISE Report, 2003

The data presented in Table 3 show that the financial resources available *per capita researcher per annum* in Bulgaria and Romania are comparable – 6791 Euro and 6301 Euro respectively, but they are very low in comparison with Slovenia – 45313 Euro and indeed incomparable with the EU-15 average of 178868 Euro *per capita researcher per annum*.

Table 4  
R&D expenditure, in Euros per annum, *per capita* researcher (women + men combined) and by fields of science in HES and GOV sectors in 2000

Field Country	Natural Sciences	Engineering & Technology	Medical Sciences	Agricultural Sciences	Social Sciences	Humanities	Total
Bulgaria	5 584	5 700	2 661	20 247	4 264	4 606	6 753
Romania	3 975	6 857	7 892	10 194	7 662	3 173	5 841
Czech Republic	35 333	43 057	42 079	35 052	26 781	22 287	35 909
Slovenia	55 192	51 191	34 791	40 528	37 142	28 390	44 589

Source: European Commission, ENWISE Report, 2003

Tables 3 and 4 show that the access of a Bulgarian researcher in the GOV R&D sector to research funding is approximately 6 times less in comparison with his/her Slovenian colleague, while the respective figures for a Bulgarian social and humanity scientist in GOV and HES sectors are respectively 8.7 and 6 times less. Table 4 also shows that the gap in resource allocation between *hard* and *soft* sciences is very narrow in Bulgaria and Romania, which is not the case in Slovenia, Czech Republic and the other ‘new’ EU member states.

The presented data are indicative that all Bulgarian researchers (both in *hard* and *soft* sciences), employed in the GOV sector, face the same trouble concerning their access to financial resources. The research, carried out in the GOV sector, is funded by the state budget via Bulgarian Ministry of Education and Science. As a matter of fact the allocated resources to the GOV R&D sector cover only researchers’ salaries

and partly the function of the research infrastructure (the cost for phone, electricity, heating, etc.). The so-called 'research money' in practice do not exist in Bulgarian GOV R&D sector. It means that the attraction of finances from the EU Framework Program and other EU funding bodies are *a matter of survival* for the researchers employed in this sector, be they engaged *in hard* or *in soft* sciences research. Therefore in medium-term perspective the scenario 'E' of the above national funding arrangements of the EU-15 seems closer to the Bulgarian case.

### *2.3. Emergence of New Funding Mechanism for R&D Sectors in the Region*

After the political change in 1989 new grant-giving bodies, i.e. new funding mechanisms for R&D on the basis of a grant system, were introduced in all post-communist countries, including Bulgaria, within the respective Ministries of Science. However, the support offered by these granting bodies should be considered additional income towards the resources allocation to the GOV R&D sector, which is financed mainly by the state budget.

For example in the Slovak Republic 0.59% of GDP in 2002 was allocated to the R&D sector, from which 0.30% of GDP was financed by the state budget. The special state bodies – *Agency for Science and Technology* and *VEGA* (Scientific Grant Agency) deliver research grants on the basis of competitions.

In Hungary governmental R&D financing constitutes about 65-70% of the total funding of the Academy and the universities. The grants awarded by different governmental granting bodies such as *OTKA* (*Scientific Research Fund*), *MŰFA* (*Technological Development Fund*) and *NKFP* (*National Research and Development Programme*) contribute to this funding.

In Bulgaria the subsidy from the state budget comprises about 80% of the income of the Bulgarian Academy of Sciences and the grants from the *National Research Fund* (a state body, which deliver grants on the basis of competition) are about 3% annually.

### *2.4. Emergence of Private Non-Profit (PNP) R&D Sectors in the Region*

Immediately after the political change in Central and Eastern European countries emerged new research institutions funded by private resources mainly from USA but not only which shaped the Private non-profit (PNP) R&D sector and provided stimuli to develop SSH fields. Some innovative Private non-profit R&D<sup>2</sup> emerged outside the GOV R&D in all post-communist countries.

For example in Poland, following the introduction of a market economy, private R&D institutions came into being, and independent branch institutes were established. New,

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<sup>2</sup> According to the Frascati Manual, the R&D activities are heading under the four sectors of economy: Higher Education sector (HES), Government sector (GOV), Business and Enterprise sector (BES) and Private non-profit sector (PNP).

autonomous research centers, such as the A. Smith Institute in Warsaw or the Case Foundation, were also set up. The institutions mentioned here are set up as foundations, thus they are financed by private funds. They describe themselves as independent, private, non-commercial, non-profit institutions.

In Hungary the Bay Zoltán Foundation is the largest research foundation in the country. It was founded in 1993 by the National Committee for Technological Development and it has three research institutes: the Institute of Biotechnology, the Institute of Material Science and Technology and the Institute of Logistics and Production Engineering. It is financed by grants, R&D contracts and interests (non-governmental funding).

The Private non-profit R&D sector is still negligible in Bulgaria but currently it competes with the GOV R&D in attracting EU funding.

#### *2.5. Some Notes on Think Tanks Establishments on Regional and/or Local Level*

Think tanks are independent non-profit public policy research institutes aiming to bridge the gap between citizens and policy-makers. The think tank analysts are supposed to be suppliers of innovative public policy solutions. They must generate an original production of ideas, analysis and advice, which is to be communicated to policy-makers and public opinion.

Think tanks emerged in Central and Eastern Europe, including Bulgaria at the early 1990s as American-style institutions, which have been supported by US donors. They adopted and operated in the democratization paradigm of the American think tanks.

**Notre Europe** defined nine criteria that an organization must fulfill in order to qualify as a think tank. They need to be permanent organizations that specialize in the production of public policy solutions, thanks to in-house staff dedicated to research. They must generate an original production of ideas, analysis and advice, which is to be communicated to policy-makers and public opinion. Such organizations are not responsible for governmental activities. They seek, more generally, to maintain their research independence and not to be committed to particular interests. Their main activity should not be to train or grant diplomas, but their implicit or explicit goal is to contribute to the public good, unlike purely commercial ventures.

The best known Bulgarian think tanks are as follows:

- Center for the Study of Democracy (CSD);
- Center for Liberal Strategies (CLS);
- Institute for Market Economics (IME);
- Center for Social Practices;

- Center for Economic Development (CED);
- Economic Policy Institute (EPI);
- European Institute Foundation;
- Agency for Social Analyses (ASA);
- Institute for Regional and International Studies;
- Institute for Political and Legal Studies;
- International Center for Minority Studies and Intercultural Relations (IMIR);
- Institute for Security and International Studies (ISIS), etc.

I. Krastev provides a critical outlook for the activities of the regional think tanks in his article: 'The Liberal Estate: Reflections on the Politics of Think Tanks in Central and Eastern Europe'.

'In post-communist societies, a 'think tank' is something everybody hears but nobody studies: most of the new policy research institutes are better known in Washington and Brussels than in their own countries. New policy gurus are more interested in providing their influence with their donors than in reflecting on their roles. Western grants and increasing budgets are the major arguments for the policy value of 'fifth-estate institutions' in the period of transition. Some of the most respected East European think tanks exist because of their donors, on behalf of their donors, and for the sake of their donors, trapped in a classic vicious circle. They are inventive in producing proposals, ingenious in producing accounting reports, and professionals in not producing trouble.'

According to I. Krastev 'If the American think tanks were defined as 'universities without students' then the Central and East European think tanks might be described as 'public policy research institutes without research'.

There are some good and some bad news related with the current challenges and opportunities faced by the regional think tanks, in particular the Bulgarian think tanks.

The **good news** is that think tanks could be successful applicants to the EU FP, because of their pragmatic orientation. The social theories developed within the GOV and HE R&D sector in all post-communist countries, including Bulgaria, as a rule and by tradition have been and still are philosophically-oriented; the research focuses on

qualitative aspects and uses macro-analytical approaches, etc.<sup>3</sup> In other words the projects submitted to the EU FP by social scientists from the above two sectors are estimated as being too academic, which explains their low rate of success in the respective EU FP competitions. In addition the Bulgarian GOV R&D sector is conservative in creating new, flexible and temporary structures in the field of Social Sciences and Humanities.

The **bad news** seems to be related with think tanks *crisis of identity* and *crisis of funding*. What do think tanks really produce and what is their real impact on policies and public opinion? In short, the majority of think tanks need a local reason to justify their being set up in order to be seen as relevant by their own publics and policy-makers. According to the Austrian Institute for International Affairs "Most think tanks are in a permanent state of budgetary crisis".

At present social scientists employed in the GOV and HE R&D sectors, on one hand, and the social scientists employed in the think tanks, on the other hand, are involved in *two separate and co-existing networks*. However they can learn a lot from each other. The cooperation between the two networks requires some efforts to be done from both actors. For example, the academic social and humanity scholars should rebuild their research agenda through shifting the research focus from 'high theories' to more pragmatic issues (serving society and its citizens), while the think tank scholars should strengthen the research focus of their activities. In doing so they could meet each other and jointly apply for funding at the EU FP and utilize social sciences in order to solve particular social and economic and humanity problems.

Probably the survival of the Bulgarian think tanks depends on their:

- visibility (ability to communicate effectively their positions);
- impact (on policy-makers and public opinion);
- transparency (information about the interests behind the think tanks, not the least who funds their work);
- return to social science research and networking with researchers in GOV and HE R&D sectors.

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<sup>3</sup> See Pál Tamás. Followers or Activists? Social Scientists in the Reality Shows of Transformation. – In: Kaase, M. and V. Sparschuh (eds.) *Three Social Science in Central and Eastern Europe. Handbook on Economics, Political Science and Sociology (1989-2001)*. Social Science Information Centre (IZ), Bonn/Berlin and Collegium Budapest, Institute for Advanced Study, 2002.

### **3. Social Sciences and Humanities in the Reality Shows of Transformation: a cognitive dimension. What does doing research mean in Social Sciences & Humanities fields (SSH) within a small scientific community located on semi-periphery of Europe?**

After the political change in 1989 social scientists (both in East and some in West) have to switch their research agendas in accordance with the priority themes of transformation – democratization and privatization. Immediately after the change the foreign donors, in particular US donors, offered generous grants to Western scholars for carrying out large comparative sociological studies across all post-communist countries in the region, which demanded as a first step the collection of quantitative data and statistics.

In 1996 the Hungarian journal 'Replika'<sup>4</sup> appeared with a specialized issue titled 'Colonization or Partnership? Eastern Europe and Western Social Sciences'. In this issue a discussion and a provocative article titled "Acquired Immune Deficiency Syndrome in Social Science in Eastern Europe. The Colonization of East European Social Science" was published, written by two Hungarian scholars – György Csepeli and Antal Örkény and one American scholar Kim Lane Scheppele. The article criticizes a particular kind of *asymmetry* between 'West-East' research collaboration in the field of Social Sciences in Hungary and probably in all post-communist countries in the region, which was established during the period 1990-1995. The feeling is that Csepeli-Örkény-Scheppele essay presents the authors' own research experience in cooperating with Western sociologists, while other Hungarian sociologists could refer to similar or different experiences of their own. I provide below some excerpts of this provocative essay:

'In this article, we would like to focus on the effects of western intrusion into Eastern Europe in the field of social science research ... Western intruders were eager to gain access to earlier unattainable sources of data such as secret archives and classified data files, which became open and public following the collapse of the system, based on secrecy of information. Native social scientists were reduced to the role of opening the archive gates and bringing out the files without having the opportunity to do the analysis themselves. Another new service demand emerged in connection with creating new databases. A tremendous amount of western research grant money was invested in establishing comparative social survey research to be carried out in as many post-socialist countries as possible in order to explore the alleged characteristics of the transition process in dimensions of political culture, public attitudes, privatization motives, legal awareness, and behavior, etc. The ideological aim behind these efforts can be summarized as "Project Democracy", conceived as something to be implemented from above, following and copying western models.'

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<sup>4</sup> Replika (Replica) is a Hungarian journal published and edited by the Department of Sociology, Budapest University of Economic Sciences (Editor-in-chief: Miklós Hadas). Its Subject area is: Sociology; Social science; Society development. The journal is published in Hungarian. Since 1990 it is published quarterly. An English edition is published once a year. The journal is available in electronic format on Internet.

‘Native social scientists consequently were limited, on one hand, to the roles of data collectors and, on the other hand, data suppliers. In this capacity native sociologists became employees of "data export companies", supplying western social scientists with data in order to enhance their scholarly prestige and to prove their unique status in the eyes of government agencies in their home countries. The relationship between Western and Eastern scholars was based on asymmetry, dominated by the unequal distribution of symbolic and financial power between these two categories of actors. This situation has been created in such a way that Eastern participants are trapped with no autonomous way out.’

‘Western researchers, often not able to function in the languages of the countries that they are studying and often trying to study a half dozen or more countries at once, must rely on a "local" researcher to ensure that the research is being carried out according to Western standards and with Western research methods by people who know what the main researcher wants. The local researcher then becomes a research assistant – managing only a part of the project without the access to the whole. It is more important she/he to be fluent in English and to be able to act as a bridge between two worlds, than she/he to be capable of carrying out the research as a principal investigator. In other words, the Western researcher needs someone who can bring back data as if it never originated in another culture and another language, and in a system with different sorts of research obstacles. If the local researcher does this well, the Western researcher can ignore that there have ever been problems of cultural translation, so the Western researcher can then bracket such issues. And since the problems of cultural translation are no longer apparent in the data, it seems that the local researcher is not really necessary to understanding the data collected by the project by the time the major analysis is done. This enables Western researchers to walk away without helping the researcher from the East to do anything more. By the standards of research methodology and the limitations of most grant proposals on what can and cannot be paid for, the obligations of the principal investigator are over, once the local researcher is paid for the specific services rendered, which probably include only the physical act of data collection...’

‘The strategy of the inclusion of Western experts in the individual East European societies led to an unparalleled accumulation of information and data. The access, however, to this data was granted for practical reasons first and foremost to Westerners who had control over the international system files and data banks located in major Western centers of social research. This is not to assert that centralization would be unnecessary or sites of centralization could be replaced by similar Eastern European centers. The fact is that researchers of the individual post-socialist countries (due to a historical legacy of suspicion and distrust) are not able to cooperate with each other and in many cases they are unaware of each other's existence except through the mediation of Western centers of research on Eastern Europe...’

‘The aftermath of state socialism can be characterized by the incessant peregrination of Western experts of different sorts to Eastern Europe. There was at first a sense in the region of a kind of Marshall Plan in social sciences. Visitors said they came in order to help, assist, and develop, but in order to do so they had to get access to data. Later it turned out that the definition of help was not the same for Western and Eastern

scholars. The latter thought assistance would lead to their benefit and promotion while the former thought that help was something to be provided after those to be helped had first proven their merit. Waiting for accomplishments, the helpers first and foremost found it necessary to help themselves in order to hasten the time when those who were to be assisted...'

The major question raised in this article seems to be:

'What might be the focus of these new perspectives? Or, to put it in terms of economic rationality, what can Eastern Europe sell to the West, other than raw data or scientific commodities patterned to external standards?'

This provocative and controversial article met diverse reception and response among the scholar community in Hungary and in the region as a whole – from complete negation of author's argument to a partly agreement with it. Some consider that authors fail to provide any examples in support of their claims and make sweeping generalizations and rely upon irrelevant in the case metaphors of 'AIDS' and 'colonialism' to make their points. Others, like the sociologist Zuzana Kusá from the Slovak Republic, claim that the impressionistic essay of Csepeli György, Örkény Antal and Kim Lane Scheppelle fits perfectly the current state-of-the-arts in the scholar community of her own country and probably to all post-communist countries as well.

In this connection she states: 'I was astonished by the accuracy of the authors' analysis in regard to the state of the social sciences (certainly of sociology) in Slovakia, as if their analysis had been elaborated with the case of Slovak sociology directly in mind.'

Unlike the authors Zuzana Kusá believes that the intellectual tradition of 'small-size societies' in the cultural domain is related with the transfer of foreign theoretical models.

'The meaning of smallness is far from a bare recognition of the numerical population; rather "smallness" seems to represent the level of spirit anti-trust in national intellectual competence and creativity. The acceptance of "smallness" is nourished by historical experiences and the inherited notion that a society of such small size can only be changed and modernized by adopting outside patterns, not only in the domain of economy and techniques, but also in the cultural domain. This intellectual tradition has made Slovak intellectuals more open, flexible, and ready to adapt foreign ideas, but on the other hand, less trusting of their right to think independently. Calls for more careful study of our own cultural traditions are, at best, perceived as the product of romantics. This intellectual tradition substantially contributes to our readiness and voluntary acceptance of the western colonization of Slovak social science.'

My point is that Central and Eastern European Social Sciences and Humanities have cognitive chance in the global market of knowledge and skills if they succeed to define research priorities and identify their own particular research niche. My belief is that the post-communist countries, including Bulgaria, offer a unique laboratory and research topics for the factory of social sciences and humanities production.

The debate, raised by Csepeli-Örkény-Scheppele essay, dealing with the structural inequality of 'West-East' collaboration in the field of social research, seems to be over. The EU FP5 (1998-2002) opened the door for applicants from SSH and offered funding for the successful project proposals in the domain. The most important is that all scholars from the 'old' EU member countries, as well as from the then accession countries (nowadays 'new' EU member states), which are partners of the EU FP funded project, are treated *on equal footing*. It happened also scholars from the accession countries to act as coordinators of large projects. The same was true and even more visible within the EU FP6 (2002-2006).

Nevertheless, do Social Sciences and Humanities in Central and Eastern Europe have enough capacity to compete for EU funding? The completed EU FP5 funded project "*The State of Three Social Science Disciplines in Central and Eastern Europe (Economics, Political Science and Sociology)*" drew attention to features like: turbulent state-of-the-arts of SSH in the region, introduction of new theoretical and methodological approaches, but also a great *fragmentation* of research communities. The project was carried out by the Collegium Budapest, a Hungarian PNP research organization. Within this project a workshop was organized in Budapest, during which social scientists from all CEE countries debated on the *new research agenda building* related with the 'EU-entry' priority themes and issues and its potential impact upon the national funding arrangements in their fields. A key speaker at the opening of this workshop summarized the state of Social Sciences in the CEE countries with the statement: 'We are increasingly getting the grants but we do not have enough influence on the setting and content of the research agenda'.

#### 4. Conclusion

In summary, the challenges, as well as the perspectives of Social Sciences and Humanities in the region and those of the scholars doing research in these fields are related with their ability to:

- define a particular research niche within the global market of knowledge and skills;
- attract European funding;
- publish in referred international journals with high impact factor;
- join the existing international networks in the respective fields.

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# FORMING PROJECT FOR BULGARIAN MODEL OF KNOWLEDGE ECONOMY AND KNOWLEDGE SOCIETY

**Assoc. Prof. Dr. Nako Stefanov**  
**Sofia University “St. Kliment Ohridski”, Bulgaria**

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*The next informational revolution is well under way... It is not a revolution in technology, machinery, technology, software, or speed. It is a revolution in CONCEPTS...*

(Peter Drucker, 1998)

## 1. Introduction

In the last more than twenty years we have witnessed a discussion in the public space about “Knowledge Society” and “Knowledge Economy”. However, this is not mere theoretical discussion. It is a matter of formulating our roads to the future. For all of us now, it is clear that Information Age depends on us. The technology development cycle and its implementation is accelerating. The number of Internet users world-wide continues to grow steeply. More than 50 per cent of Gross Domestic Product (GDP) in major OECD economies is now based on the production and distribution of knowledge. We are leaving the Industrial Age behind and moving into the Information Age.

During the last two centuries, economists recognized only two basic productive factors: labor and capital. Today, the situation has changed dramatically. Now, we are witnessing deep changes in the entire environment, with regard to the frames in which the economic and non-economic organizations are functioning. The basic terms, which are reflecting these changes are information epoch, knowledge economy and knowledge society. Without any doubt, all this influences every aspect of society and economic philosophy, management and functioning.

It is well known that in the “Lisbon Agenda” or “Lisbon Process” EU countries have decided to develop the Knowledge Economy as concrete way for introducing the new technological Mean of Production – the so called Information Technological Mean of Production. The number is increasing of scholars and researchers who speak about knowledge as key factor in creative wealth. On that basis, knowledge economy and society understanding was born.

Frankly speaking, there are some discussions about how Knowledge Economy and its social version – the Knowledge Society have to be understood. Here, in the framework of this discussion we meet the “narrow” (as we call it) understanding of Knowledge Economy and Society.

In our work we are trying to explain the “broad” understanding as a real way to develop Knowledge Society and Knowledge Economy in Bulgaria, while the resources establishing such society and economy based on the “narrow” understanding are close to zero.

## **2. Starting Point for Creating Knowledge Society and Knowledge Economy**

The creation of social and economic processes, in the frameworks of which knowledge is becoming the key factor for positive dynamics, have given impetus to talk about new stage or new type of development. Gradually, terms and concepts have emerged and they have since been called “knowledge economy” and “knowledge society”. The term “knowledge economy” is made popular if not created by Peter Drucker in his book “The Age of Discontinuity” /1969, Heinemann, London/.

Some analysts have speculated over the existence of three interlocking driving forces at the bottom of creating new development model providing rules for new business and national competitiveness prerequisites:

- Globalization - markets and products are becoming more global. Products by Nike and Virgin are known all over the world. Today, even resourcing is becoming global. Thus many companies outsource manufacturing and software development to distant locations.
- Information / Knowledge Intensity - efficient production relies on information and know-how. Over 70 per cent of workers in developed economies are information workers. Many factory workers use their heads more than their hands.
- Networking and Connectivity - developments such as the Internet bring the 'global village' ever nearer.

In the range of English-speaking world authors such as the Stanford economist Paul Romer and others have started to develop a “New Growth Theory”. Based on some previous findings like those of Austrian Joseph Schumpeter and Robert Solow, winner of the Nobel Prize in economics in 1987, the authors drew the conclusion that traditional theory is incapable of explaining to the necessary degree the model of long-term growth. Because of that, they have included into the neo-classical model the knowledge and technology as inseparable part of the economic system. It was for the first time in English economic literature that the knowledge becomes the third factor of economic growth together with labor and capital (see Romer Paul, 1. "Increasing Returns and Long-Run Growth," *Journal of Political Economy*, Vol. 94, No. 5 (Oct. 1986), pp. 1002-1037 ; 2. "Endogenous Technological Change," *Journal of Political*

Economy, Vol. 98, No. 5, "Part 2: The Problem of Development: A Conference on the Institute for the Study of Free Enterprise Systems." (Oct. 1990), pp. 71-102.).

For a very short time, the ideas and the concepts of knowledge economy and knowledge society received a political base. The most notorious example was the development of the so called "Lisbon Agenda". The European Commission approved this document in March, 2000 in Lisbon as a plan or program for development of EU countries as a whole. This program was up-dated in 2005. Overcoming of the tendencies of decreasing productivity and economic growth stagnation in EU are among the basic goals. The main tool is formulating various political initiatives, which will give the impetus for development based on knowledge. Broadly, it aims at making "the EU the world's most dynamic and competitive economy" by the 2010. According to Euronews this is to be achieved by transforming Europe into the world's largest knowledge based economy by 2010. The main fields are economic, social, and environmental renewal and sustainability. The Lisbon Strategy is heavily based on the economic concepts of:

- Innovation as the motor for economic change (based on the writings of Joseph Schumpeter)
- The "learning economy"
- Social and environmental renewal.

Under this strategy, a stronger economy will drive job creation in the EU, alongside social and environmental policies that ensure sustainable development and social inclusion, which themselves will drive economic growth even further. (See in *Towards a Knowledge-Based Europe. The European Union and the Information Society*, European Commission, Directorate General for Press and Communication, October 2002, p.3).

Table 1 demonstrates the key parameters of National Knowledge Economy Strategies in some Leading Countries in the World.

Table 1

Key Parameters of National Knowledge Economy Strategies in some Leading Countries in the World

Country Strategy	Stated Priorities	Comments
Australia Information economy On-line Services strategy Networking the nation	On-line services development and use economy-wide; Government use of IT; Emphasis on industry self-regulation; Deregulation of telecommunications industry.	Policies have been co-ordinated through the National Office for Information Economy which was established in 1997. Government services such as customs and quarantine offered on-line. Government support for initiatives to boost SME awareness of e-commerce programmes to assist IT firms for access to venture capital. Extending benefits of the on-line economy to rural and remote areas.
United States	Funding next generation; Internet;	There has been a shift from a vision of national interconnected broadband networks to a focus

Information superhighway	Services and application development; Specific principles related to universal service and connection with health and educational institutions.	on the Internet as a backbone network. Developments are largely market-driven with some governmental funding, particularly of R&D.
Canada Information highway	Modernise existing infrastructure. Emphasis on promoting Canadian culture, content and access. Internet as central backbone; Recognition of the importance of benchmarking; Government as lead user, delivering services and on-line procurement	Uses a primarily market-driven approach, with significant government facilitation of R&D. The information highway development is explicitly linked to competition introduction across IT sectors. The government is providing Internet access to all schools, libraries, universities, and communities with a population of over 400.
European Union Information society Lisbon Process for Creating Knowledge Economy	Network interoperability and infrastructure development across Europe; Examination of the social implications of IT; Focus on pilot projects and promotion of collaborative, cross border research programmes; Acceleration of the uptake of IT by SMEs and creation international business strategies	The introduction of competition to IT markets is a core policy approach. Promotion of cross-border R&D is critical. Legislation protecting privacy and security will help overcome negative consumer perceptions.
United Kingdom Information society	Reduce the risk of non-tariff barriers to trade; Infrastructure competition; Strong link between IT development and economic development (partially regional one); Fulfil training needs of industry.	UK has a long-standing model of infrastructure competition. Cable infrastructure forms the basis of nationwide broadband network development strategy. The government has made clear statements on the benefits from on-line economy. Major stimuli for government, business, and community efforts to go on-line. Delivery of Internet-based training courses for SMEs.
France L'Informatisation de la Societe	Infrastructure development based on fibre optic rollout; Redress low cable penetration and infrastructure limitations that impede service deployment; Strengthening French language Connection between culture and commerce	Significant government direction of strategy. France Telecom has key role in fibre cable rollout and conduct of broadband trials. Includes promotion of French language multimedia content and use of IT across the arts.
Singapore Intelligent island IT 2000	Infrastructure to enable service and application developments; Attraction of trans-national value-added activities onshore; Focus on target projects and trials; Agenda includes target dates for fibre optic network developments and investment projects; Government-led legal framework on digital signatures and EDI	A strong government role based on long-term planning and Singapore Telecom as a key player. The introduction of competition is not central. Service developments focus on government applications. Singapore One broadband intranet for commercial and government services passes all households. Government trial of smart cards/readers.
Japan Informatisation of society	Infrastructure development via introduction of competition ; Aims to redress economic downturn, reduce urban concentration and re-	The policy agenda has centred on restructuring Nippon Telephone and Telegraph throughout the 1990s. In the late 1990s. the emphasis on infrastructure

Info-communications infrastructure	energise local IT industry ; Focus on broadband rollout, government funding of R&D and trials.Promotion of SME's use of the Internet	development has shifted to Internet and multimedia service developments. Government projects on electronic money, virtual shopping malls and secure payment.
Korea Informatisation	Infrastructure development based on two networks: public and private ; Strategy includes target dates for network developments and funding projections .	The agenda is influenced by strong business interests and different bureaucratic agendas. In the late 1990s the focus has shifted to the Internet as backbone for network development. Government-created community access and training centres.
Malaysia Information-rich society	ICT policies which are part of a broader modernisation programme; Multimedia Supercorridor Infrastructure	Has a high-profile agenda with strong Prime Ministerial support, attracting significant global attention.
New Zealand	A subset of wider economic and commercial sector policy.	Has a competitive deregulated telecommunications environment. Promotion of competition and market-led development are central to government policy. Has IT Minister and a private sector Advisory Group and recently established government e-commerce steering committee. R&D is largely provided by the public sector and focussed on primary production sector. Well established privacy protection. Public consultation through the "Five Steps" programme.

Sources: See 5.

### 3. The “Narrow” Understanding versus the “Broad” Understanding of Knowledge Society and Knowledge Economy

In connection with the above, we have to emphasize the existence of the so called “narrow understanding” of knowledge economy, which really encompasses the Western View. Its logic is the technocratic thinking. According to this “narrow understanding”, the knowledge economy and society are based on the development of:

- Information and Communication Technologies (ICT) – all kinds of software, hardware and communications are behind this term, on the basis of which information is created, communicated and used for multiple goals;
- “New” Technologies (NT) – here bio-technology, new materials, nanotechnology and some other are included;
- “High” Technologies (HT) – all kinds of highly-intensive technologies are here, such as Aero and Space, special and unique machine-building, precise machines, automobiles and many others.

The common feature of the above mentioned technologies is that they all need

enormous financial resources because they are:

- Highly intensive and expansive as research and development process;
- In need of developed material base;
- Need highly qualified and well paid long-term educated specialists.

We have to say that such “narrow” understanding, if keeping in mind the current socio-economic situation, especially in the field of science funding and technological progress in Bulgaria gives no chance to such countries like Bulgaria to create knowledge economy. But is this true?

In order to formulate working alternative is necessary to have a radical new, an opposite view to the “narrow” understanding. The radical new sense is in the view that the Knowledge Economy and Society are such reproductions of the material life and social interactions and social cohesion, in which the *innovations* become the decisive factors of these reproductions.

From that point of view, the above mentioned systems - the Knowledge Economy and Society - are created not only on the basis of Information, either “New” or High Technologies. Here come not only the possible, but also the necessary technologies such as:

- Intellectual Technologies (IT) – these are Low Resource and High Innovation-Based Technologies, which are in all areas of reproduction of material and social life of mankind. It is possible to use waste matters here, but adding to it some innovative value, to create high-level added value. This is, for example, the case of souvenir industry, where by enhancing the deep cultural layers products with very high symbol values are produced some times from scrap;
- Humanitarian Technologies (HT) – This is a very broad range of technologies which enhance all aspects of human life from various health therapies, fitness procedures to techniques such as sugestology which helps us to memorize in short time large volumes of facts, and so on;
- Organizational Technologies (OT), which means creating new paradigm of organizational functioning and development, that is very essential for putting into force the creative potential of groups of peoples. In recent years examples of such are the Virtual Organization, Holistic Marketing, Innovative Quality Management, CALS Systems (CALS – Continuous Acquisition of Life Cycle Support), Techno Sphere Management Systems, Amoeba Organization, Network Strategies, etc.
- Social Technologies (ST) have to be developed for all aspects of social life. For example, these may differ from technology for minimizing traffic accidents to technologies for prevention of natural and anthropogenic disasters and so on.

This “Broad” Understanding of the Knowledge Economy and Society really paves the way for all countries and peoples in the world to jump on new levels of economic and social life. Such “broad” understanding is in full harmony with the new theories of global development like the theory of chaos and the synergy approach. According to the latter, the goal for human actions must be maximum results with minimum efforts and resources. And, based on innovation, this is achievable. What is needed are not resources but creative impulse which is forming powerful positive effect on production, life and social process.

#### **4. Basic Conditions for Creation of the Broadly Understood Knowledge Economy and Society**

Basic condition for creating knowledge society is the initiation and support from the state. This point of view, called also neo-liberal thinking implying that the market forces only are the basic creator of development, is becoming more and more obsolete with each day.

The world experience shows us that the state, respectively the quasi state institution like EU are assuming the role of initiative and support in establishing knowledge economy and society. However, it is important to stress here that, in this role of supporter and initiator the state must not act as a bureaucratic structure, but as a partner. It means to follow the principle of solidarity and partnership, and not the principle of hierarchy. Following the principle of solidarity it will make it possible to create the broadly understood Knowledge Economy and Society.

Another important condition is to create a new type of organizational paradigm. The world practice shows us that the modern organization has to overwrite management philosophy, structures and practices that are characterized by vertical-hierarchical type of thinking and acting. The creation of horizontal networks based on project approach, including management participation and philosophy of solidarism and partnerships are necessary. Thus, organizations like the Double-Structured Organization, as well as the so called Network Organization, must be created as organizational forms for generating innovative ideas in the society and economy. As a result, new approaches are emerging like the Network Approach, the Synergetic Approach, as well the future so called Meta Approach.

Third key condition for creating knowledge economy and society is appearance of Homo creativus, i.e. Creative Man. This suggests a heuristic process of education which is anti-thesis of the current model of education formed on commanding standard values. The current model is based on such procedure as:

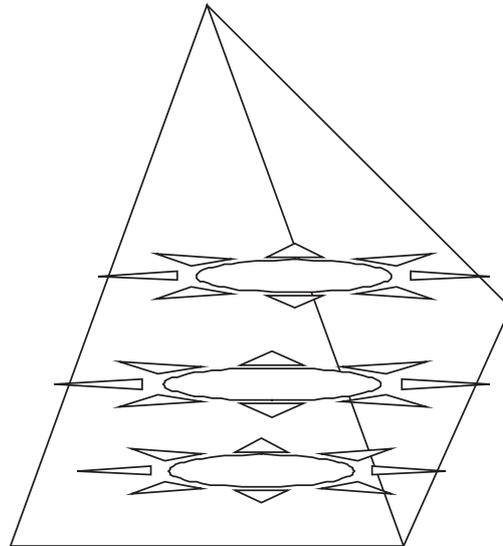
- Teaching standard situations, models, phenomena, etc, which is taken as normative and successful;
- Checking how the pupils, students or trainees have mastered this standard situation, model, phenomenon, etc;

- The pupils, students or trainees are reproducing in the practice the learned material.

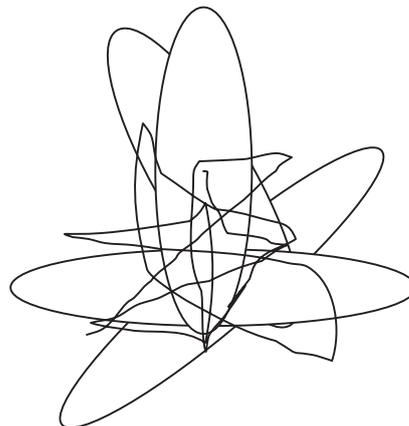
Figure1

### Double-Structured Organization and Network Organization

#### A. Double-Structured Organization



#### B. Network Organization



The problem is that such system used to work well in situations where the so called “Linear Paradigm of Development” was dominant. Nowever, now we have a non-linear, turbulent paradigm that is characterized with very high dynamics. What was successful yesterday is not so successful today, and will be probably mistaken and

harmful to copy tomorrow.

So we need to abandon the old standard paradigm of education. We need Educational Revolution. When the standard paradigm is not working, the only solution are creative ideas, that will be bearing the right solutions. The ultimate goal of such Educational Revolution is the creation of Homo Creativus. This means gradual transformation of Homo Sapiens into Homo Creativus.

## **5. As Conclusion**

As conclusion we shall assume that the establishment of Bulgarian model of knowledge economy presumes activities in the following areas:

1. Formation of state initiative to create the necessary financial mechanisms and resources in building-up of the minimum material base;
2. Building social and economic models of innovative development based on cheap, inexpensive technologies like the abovementioned Intellectual, Humanitarian, Organizational, Social, Information and Communication Technologies, etc., which are using the synergetic approach – with small inputs achieving enormous outputs;
3. Structuring the necessary information environment;
4. Executing education revolution and forming Homo Creativus.

Knowledge economy and society means also new economic and social philosophy.

The philosophy of partnership and solidarism, that creates positive climate of unity, is inevitable if we want to develop such economy and society where the creative work has to flourish. We hope that Bulgarian people will manage to apply the necessary will and intelligence to create knowledge economy and society as key mechanism for its progressive development in the future.

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**PART II**

**SECTORAL AND REGIONAL**

**ASPECTS OF INNOVATION**



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# INNOVATION IN TRADITIONAL SECTORS: FORESTRY IN CENTRAL EUROPE

*Anja Bauer*

*Dr. Ewald Rametsteiner*

*Dr. Gerhard Weiss*

*EFI PC INNOFORCE / University of Natural Resources and Applied  
Life Sciences, Vienna, Austria*

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## 1. Introduction

Innovation has become a bench-mark of policy strategies to increase the international competitiveness of national economies, promoting economic growth and employment, fostering the development of rural areas as well as reaching the goal of sustainable development. Innovation is central to the Lisbon Strategy of the European Commission for Employment, Economic Reform and Social Cohesion (2000) with which the European Union seeks to improve its international competitiveness and become the world's most competitive knowledge-based economy. Accordingly, European Member States have developed strategies and initiatives to promote innovation and have to different degrees restructured and reformed organisations and institutions of their education, research and innovation systems. In promoting innovation activities, policy makers especially rely on the indicator measuring the ratio of research and development (R&D) expenditure to turnover for a company, a business sector or the Gross Domestic Product (GDP) of a country. The goal of reaching an R&D to GDP ratio of 3% in all European Member States strongly reflects the focus on science and research processes as a basis for innovations and consequently the promotion of research-intensive or high-tech industries<sup>1</sup> (Hirsch-Kreinsen, Jacobson et al. 2005). High-tech and research-intensive sectors are regarded as the key drivers for innovation and are consequently in the centre of policy attention, while low-tech industries, mature or traditional sectors receive hardly any policy attention and innovation support. However, these sectors make no exception in their need for innovation, innovative strategies and innovation support respectively.

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<sup>1</sup> High-technology sectors ("high-tech") are those with a R&D intensity or more than 5 percent and sectors with complex technology ("medium-high-tech") with a R&D intensity between 3 percent and 5 percent. Industries which are not research-intensive ("medium-low-tech" and "low-tech") have a R&D intensity below 3 percent and are here re-ferred to together as low-tech and medium-low-tech (LMT) (Hirsch-Kreinsen, Jacobson et al.).

The role of low-tech sectors for the economic development and innovation is often strongly underestimated.

Forestry is not only a traditional sector but also a primary resource-based sector having faced multiple changes and challenges in recent decades. Forestry is an important source of income for the forest owners and for those employed in rural areas. The future of people, who make a living from forestry in rural areas, will considerably depend on the way individuals and institutions react to sectoral dynamics, on how forest owners and managers will obtain new knowledge and will manage to put it into practice in forestry, and how institutions, especially forest administration, extension services, forest research or other institutions could best deal with the emerging changes. Restructuring of forestry and development of wood prices tend to have a negative impact on employment. To compensate these negative impacts, new opportunities for rural employment can be provided through product and service innovations based on the multifunctional use of forest and on efficient use of the wood growing stock. Major changes will concern the activities of many forest owners, resulting in a shift from their traditional professional background in agriculture and forestry to professions within manufacturing or services, and the change from traditional view of raw material supplier to provider of various services. Also the developments in information technology will result in considerable organisational changes in the economic system and administration.

Transitions towards more competitive sustainable forest management will be necessary for Central European forestry in both former and new member countries of the European Union (EU). In this context, apart from the process innovations that conventionally attract more attention, a special focus should be placed on innovation for goods and services. While technical and organisational innovations foster the competitiveness of a firm or a sector through reducing the production costs, the development of new products and services creates new income and has therefore the potential to contribute to rural development.

Forestry, with its potential role for employment and its essential contributions to sustainable development, is an interesting example how to analyse innovations, actors, institutions and innovation system of a sector that is generally ignored when thinking about innovation.

The objective of this paper is to analyse innovation patterns and the forestry innovation system from the perspective of sectoral innovation system. In the following section the Sectoral Innovation System approach and main components in which sectoral systems differ will be introduced, along with some insights on innovation activities in low-tech and traditional sectors. In the next chapter the innovation behaviour, stakeholders and institutions of the forestry innovation system in Europe will be analysed by using this approach. The paper draws on the analysis of research result of the EFI Project Centre INNOFORCE<sup>2</sup> (Rametsteiner, Kubeczko et al. 2005; Rametsteiner and Kubeczko 2003; Kubeczko and Rametsteiner 2006; Rametsteiner

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<sup>2</sup> The EFI PC INNOFORCE is a research network of various European research organizations with the aim to gather and compare information on innovation in the European forest sector ([www.efi-innoforce.org](http://www.efi-innoforce.org))

and Weiss 2006). The main results are derived from a survey of large forest holdings in seven Central European countries<sup>3</sup>, an institutional level survey in the same group of countries, numerous case studies on different types of innovation activities in the sector in Europe and a policy survey among forest administrations and forest owners' associations in the UNECE region. The concluding section will summarize the results.

## **2. Sectoral Innovation Systems – How Innovation Varies between Sectors**

Innovation system approaches are currently the leading analytical models for describing and understanding innovation processes and for enabling institutional environment. The basic idea is that innovation does not occur in isolation in firms but innovation processes and innovating firms are embedded in a system of interacting stakeholders and institutions (Edquist 1997; Edquist and Johnson 1997; Lundvall, Johnson et al. 2002; Lundvall 1992; Nelson 1993). Knowledge, learning, actors, interactions, institutions and a systemic and wholistic perspective are the central elements of Innovation System approaches (Edquist and Johnson 1997). Innovation systems are analysed along different delineations - national, regional or sectoral. National Innovation System (NIS) approaches (Lundvall, Johnson et al. 2002; Lundvall 1992; Nelson 1993) focuses on the whole national economy, related institutions and actors. The central idea is that common culture, language and legislation within national boundaries strongly influence innovation behaviour and patterns. Regional Innovation System (RIS) approaches (Cooke, Christiansen et al. 1997; Cooke, Uranga et al. 1997) also use regional boundaries, but those of defined regions. The use of tacit knowledge is the main justification why spatial proximity is of importance for innovation processes. A third way the innovation systems approach is used refers to the sectoral delimitation (sectoral innovation system, SIS) (Malerba 2003; Malerba 2004; Breschi and Malerba 1997; von Tunzelmann and Acha 2003; Hirsch-Kreinsen, Jacobson et al. 2005). This is justified by the specificities of sectors in terms of knowledge and technological base, as well as stakeholders and institutions. Since this paper draws on the Sectoral Innovation System approach, it is further specified in the following section.

A sector is defined as a set of activities that are unified by linked product groups for a given or emerging demand, and which share common knowledge (Malerba 2003). For forestry we can add that the sector is further defined by the common resource base – the forests.

Breschi and Malerba (1997) define Sectoral Innovation Systems (SIS) as “system of firms active in developing and producing a sector’s products, as well as in generating and utilizing a sector’s technologies”. In particular, the approach focuses on the features and differences of various sectors and their innovation systems. The key elements of this approach are the differences in and the importance of the knowledge base and the learning process, the role of non-profit organisations and institutions and the co-evolutionary process changing the sector (Malerba 2004).

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<sup>3</sup> These countries include Austria, Czech Republic, Germany, Hungary, Italy (Trento), Slovakia and Slovenia.

Following Malerba (2004) three main factors affect the innovation activities and processes of different sectors:

1. knowledge base and technologies of a sector,
2. sectoral actors and networks, and
3. institutions.

Every sector has its specific knowledge and technological base which influence the sector's structure and firms in general, and define the opportunities but also constraints for innovations in the sector.

The knowledge and technological base is further specified by sectoral opportunities and appropriate conditions, the cumulativeness of technical knowledge, the nature of knowledge patterns and their transmission (Breschi and Malerba 1997). Favourable conditions refer to the likelihood for innovations based on resource input and sources for innovation. Opportunities for innovations in a sector may be low or high. In a sector, there may be a rich variety of technological solutions, or only few and limited ones. New knowledge may be applicable to a wide range of products or only to a few. Sources for knowledge and innovation vary considerably between sectors. In research intensive sectors the universities, research departments or similar organizations are of high relevance while other sectors rely more on consumers, customers and suppliers as knowledge sources. However, equally important, especially for mature sectors are the equipment, instrumentation and endogenous learning.

Appropriate conditions refer to the possibilities for protecting innovations and knowledge from imitation by competitors. Again, the level of applicability may be high or low, depending on the nature of knowledge and innovations and available institutions.

The cumulation of technological knowledge in a sector provides information about the degree of subsequent innovations and innovative activities, i.e. the likelihood for continuous innovation processes.

The characteristics of knowledge upon which the firms' activities are based may vary considerably between sectors. Knowledge may be explicit or tacit, generic or specific, complex and interdependent or basic. In addition, the accessibility of relevant knowledge further determines opportunities for innovations (Breschi and Malerba 1997).

Any sector is composed by a range of heterogeneous actors, being it firms or non-firm organizations (universities, financial organizations, government agencies, trade unions or technical associations) or individuals (e.g. consumers, entrepreneurs, scientists) (Malerba 2004, 2). These actors follow specific learning processes, competencies, beliefs, objectives, behaviour and structures. They interact through various market and non-market relationships, through processes of communication, exchange, cooperation, competition and command (Breschi and Malerba 1997). Sectors differ in

number and role of actors, their relevance and power, as well as the structure of actors. For example, a sector may be composed of many but small firms or may be concentrated with few larger firms; a sector may have good organized interest groups with frequent contact to clients or may be lacking representation. Also type and structures of interactions and relationships differ from sector to sector. While in one sector there may be strong interactions of firms with universities, suppliers or customers, but in another sector these actors may hardly interact. Relationships may be of contractual nature or based on trust.

The actors' cognitions, actions and interactions are shaped by institutions. Institutions may be formal, e.g. laws, norms or standards or informal, e.g. routines, habits, beliefs, etc. In different sectors specific institutions exist that form the rules of the game in the sector and shape actors' possibilities and opportunities. On the other side, the same national institutions may have completely different impact on various sectors and their innovation opportunities.

Besides, demand is a key part of a sectoral system. In general, the emergence and transformation of demand play a major role in the dynamics and evolution of sectoral systems.

The sectoral innovation system approach of Breschi and Malerba (1997) recognizes five major types of Sectoral Innovation Systems: traditional sectors, mechanical industry and their industrial district, automobile industry, the computer mainframe industry and the modern microelectronics industry<sup>4</sup>. Traditional SIS includes agriculture, textiles, shoes and clothes, wood and paper. Forestry also clearly falls into this category. According to Breschi and Malerba (1997) traditional sectors are characterized as follows:

- They are characterized by a low degree of technological opportunities, appropriate conditions or corporate cumulativeness.
- Their knowledge base for innovation is relatively simple, generic, and mostly embodied in equipment and materials.
- Opportunities to innovate are mainly related to the search for lower production costs, through the introduction of new capital goods, inputs, and materials coming from suppliers.
- In these sectors there is generally a low level of technological competencies and easy imitation of knowledge.
- The ability to innovate consists of the effective incorporation of new generic and codifiable knowledge into already existing products.

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<sup>4</sup> Other authors (Referenzen) use other classifications. However, the focus here is on traditional sectors or mature industries or low-tech sectors respectively.

- The appropriation of competitive advantages rests upon the use of less conventional means, like trade marks, aesthetic design. Competition is based on price as well as other non-price variables, like advertisement and post-sale service.
- There are limited Schumpeterian dynamics, i.e. hardly creative destruction processes.
- High degrees of geographical dispersion of innovators are likely to emerge. There is no sectoral concentration.

A few other authors have examined the patterns of innovation processes in low-tech or traditional sectors (Hirsch-Kreinsen, Jacobson et al. 2003; Hirsch-Kreinsen, Jacobson et al. 2005; von Tunzelmann and Acha 2003). For example, the PILOT project found that firms in low-tech industries are innovative and knowledge intense albeit without much engagement in research and development activities (Hirsch-Kreinsen, Jacobson et al. 2005). In addition the project showed the inter-relation between low-tech and high-tech sectors in modern economies. Low-tech industries are crucially important customers of high-tech sectors.

Von Tunzelmann and Acha (2003) similarly note that in low- and medium-tech industries little formal learning from science and technology takes place on corporate level. Innovation and adoption related learning activities would rather operate in practical and pragmatic ways. Basic strategies are learning by doing and learning by using.

Other authors (for example Utterback 1994) have found that mature industries which had developed a dominant design or enabled technology in their process, tend to be rigid towards technological discontinuities and focus on incremental innovations. Economic theory in general predicts that traditional sectors would focus on process innovation rather than product innovation.

The following chapter will present the innovation patterns and innovation systems of forestry in Europe. In studying the forest sector, it must be noted that path dependency and the non-market interactions are paramount in the formation of the sectoral systems of innovation. The different natural resources and production conditions of a region may influence the path of corporate development and the entire sector. Firms therefore operate within this particular structure and establish routines and norms, which generally are stable in the long run (Segura-Bonilla 1999).

### **3. The Forestry Innovation System in Europe**

#### *Innovation rate and areas*

According to a survey in seven Central European countries<sup>5</sup>, the level of innovation

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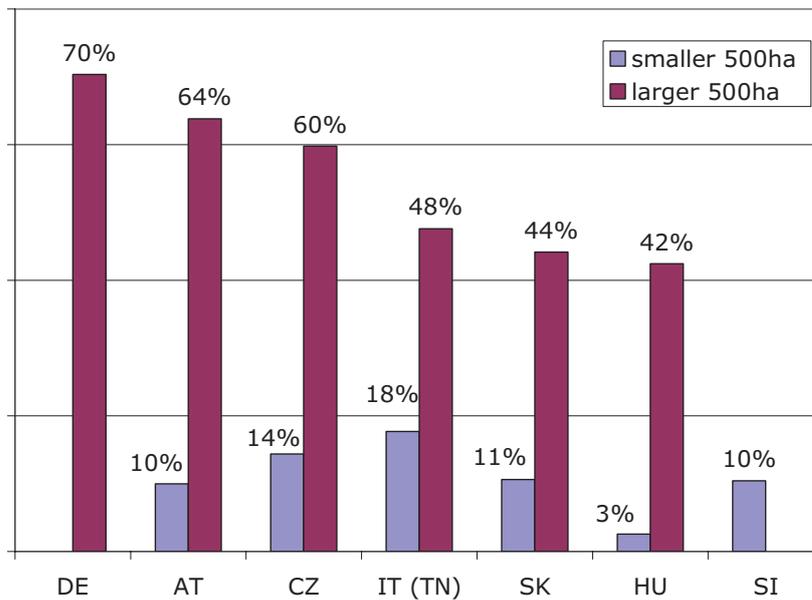
<sup>5</sup> These countries include Austria, Czech Republic, Germany, Hungary, Italy (Trento), Slovakia and Slovenia.

activities in the sector is generally very low. On average, only nine per cent of the forest owners and managers have introduced an innovation in the investigated period (selling a new product or service or having introduced a new technological or organizational innovation). Especially small forest holdings (with a forest size below 500 hectares) are hardly innovative. Forest holdings larger than 500 ha in contrast have a much higher innovation rate (see figure 1).

On average more than half of the holdings in this size class have introduced an innovation. The innovation activity of forest holdings thus clearly correlates with their size. In all surveyed countries, the percentage of innovative forest holdings larger than 500 ha is at least four times higher than the one of forest holdings below 500 ha. This reflects the difficulties of small forest holdings with innovation efforts on the one hand, but also, reveals a surprisingly high level of innovation in larger forest holdings, on the other. However, when looking at the degree of novelty of the introduced innovations, it becomes obvious that all innovations were of incremental nature and new to the firm. No innovation that was completely new to the sector in the country could be identified.

Figure 1

Overview on successful innovations in Central Europe (excluding Slovakia)



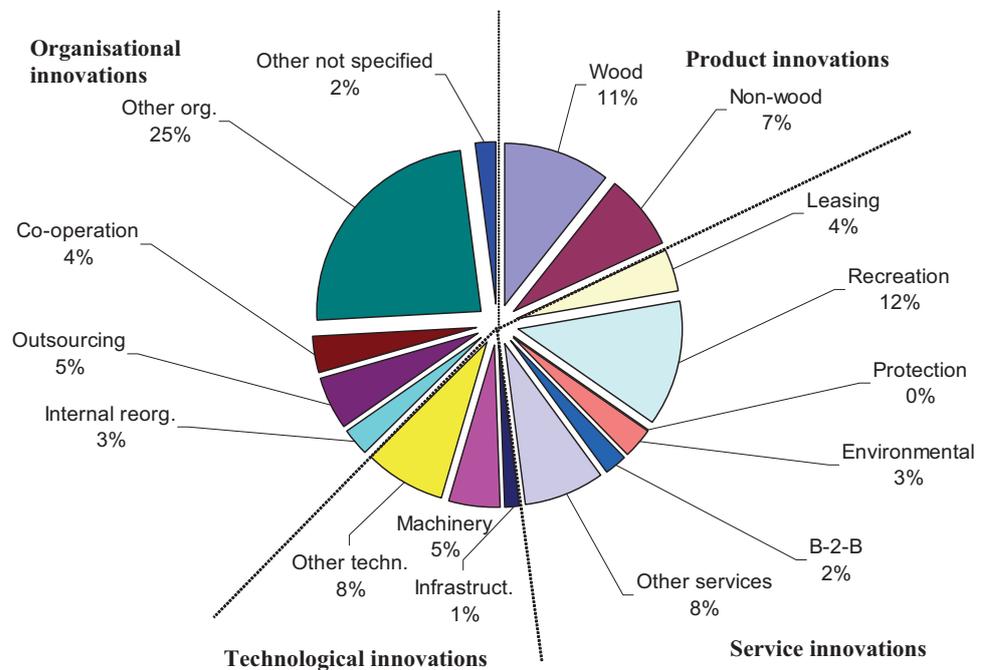
Source: Rametsteiner, Kubezcko et al. 200)

Figure 2 shows the distribution of successful forestry innovations in the four main innovation categories – innovation in goods, innovation in services, organisational and technological innovations.

Surprisingly, the picture shows a dominance of organizational and service innovations while economic theory would predict a much higher engagement in process innovations in traditional sectors. Recreation leads the field in non-process oriented innovations, followed by the introduction of new wood products. However, particularly new services are very often only provided under the pressure of public administrations or interest groups (e.g. mountain bike routes, nature conservation). The forest holdings would much strongly follow technological and organisational innovations in pursue of cost reduction than a development of new markets. The same is true for the engagement of other actors in the sector.

Figure 2

Overview of successful innovations in Central Europe (excluding Slovakia and Switzerland)



Source: Rametsteiner, Kubeczko et al. 2005

### *The knowledge and technological base*

In general, the forestry sector is characterized by a comparatively low degree of technological opportunities and technological solutions. The main developments of the past decades were connected with mechanisation and rationalisation.

In the last twenty years severe structural changes have occurred in forestry in Central European countries with long market tradition (e.g. Austria, Switzerland, Germany,

and Italy). The rise of labour costs and decrease of timber prices forced the sector to undertake rationalisation of production. Mechanisation of harvesting and personnel reduction cut the production prices. Harvesting work mostly is not any more done by forest workers employed by the forest holding, but is mainly performed by harvesting companies or contracted farmers. Thus, the main innovations in forestry were of technological and organisational kind (mechanisation, outsourcing). Actually, advanced logistic systems are in development in several countries (for example Austria, Switzerland and Germany). Significant innovations in new products and services are in the field of bio-energy use, forest education activities for the public and nature conservation by contracts.

The research results in the field shows that companies and institutional actors have better awareness of process innovations. The main efforts are directed towards technological and organisational rationalisation. In the field of technological innovations, the most prominent innovation areas concern mechanisation in harvesting and information technologies applications. The introduction of silvicultural systems that strongly rely on natural regeneration can be regarded as another technological innovation. In many cases, natural regeneration is the less intensive management option and is therefore chosen by the forest holding. Organisational innovations concern mainly staff reduction, outsourcing and cooperation with other forest holdings.

A typical by-product of the rationalisation process are “forest entrepreneurs” that offer “forest services” to forest companies. These forest services include technical services for forest holdings such as harvesting, GIS, forest inventorying, etc. A particular potential in the field of such forest management services are observed in connection with small and/or absentee forest owners in the Western European countries. In the Eastern countries many new forest owners have received their property back in the restitution process, but lack any experience in forest management.

An increasing potential for forestry is seen in the development of services, e.g. for recreation, nature protection, health, etc.

Appropriability conditions in forestry are rather low. Hardly any patent is applied by forest holdings and also secrecy is rarely an option for forest owners.

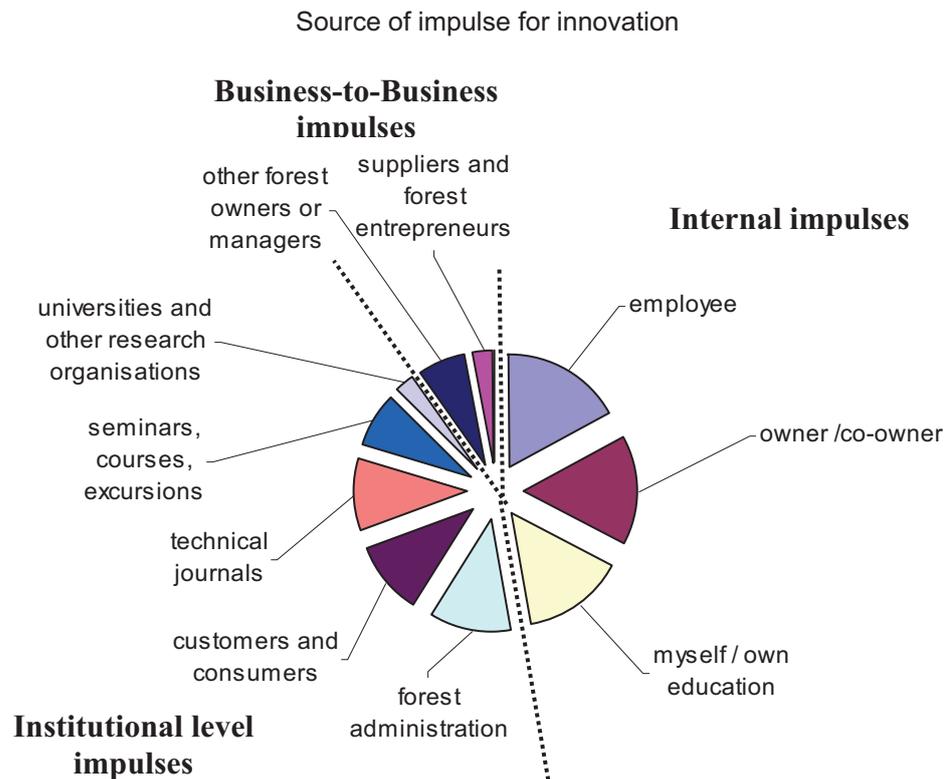
It is difficult to assess the nature of forestry knowledge . On the one side, knowledge of forest management is rather generic and explicit. On the other side, forest management includes the recognition of complex interdependencies between the ecological and economic systems and the increasingly incorporating social aspects in the management. Furthermore, specific tacit knowledge is embedded in the forest owner or manager in the local context, i.e. concerning a particular forest area.

Generally, no firm level research activities in forestry have been undertaken in Europe (except by very few and large, mostly state owned forest enterprises). Innovations are often based on endogenous knowledge and the interaction with other sectoral actors, but hardly on research activities or any scientific novelties.

When analysing the main sources of impulses (push or initiative) for starting an innovation project, it becomes obvious that the impulse for innovation most often came from inside the forest holding, i.e. from employees, owners or managers. Persons within the holding pushed almost half of the most important innovation projects forward. In large forest holdings employees are seemingly more important in the process than managers or owners (see Figure 3). Interestingly, technical journals were named almost as prominently as customers, consumers or other forest owners or managers, as main external sources of impulse. Also other activities from organisations on the institutional level such as informational events, e.g. seminars, courses, business trips or the work of universities and other research organizations, as well as suppliers and forest entrepreneurs, were reported to be important. Suppliers were considerably less important than customers.

Overall, it can be concluded that the organisations on the institutional level are more important as the impulse provider for innovations than the interactions between firms.

Figure 3



Source: Rametsteiner, Kubeczko et al. 2005

In practically all countries, internal sources are most important. In addition, apart from technical journals, which are considered as an important source of information in Slovenia and Slovakia almost all important sources of impulse seem to involve personal contacts.

Managers of large forest holdings mostly get impulses from the owners, their own educational background, from employees or other forest owners and managers. Therefore they rely quite little on external stimulating forces to initiate an innovation project. For small forest owners/managers the situation is quite different. This group is much more dependent on external forces to initiate some change. Although the main source of impulse is usually seen by the respondent him/herself, who is often the owner, this group stated that they obtained important impulses from technical journals, fairs, trips or customers. Forest administrations are identified to be more important as a source for impulses for the large rather than the small forest holdings.

These results confirm the high relevance of endogenous and tacit knowledge for innovations in the sector.

The most important informational sources for implementing the innovation, in contrast, are mainly found outside the forest holding (see Figure 4). About two thirds out of the ten most important sources come from outside the forest holding and other than other foresters or customers. Of all the sources, respondents named those that imply direct personal contacts more frequently than those that do not require such contact. This might indicate a high importance of customized information provision and a clear preference for information transfer arrangements that allow dialogue and interaction. It also emphasises that tacit knowledge transfer plays an important role compared to explicit knowledge. Furthermore, it is worth to note that despite of the existence of representatives of forestry interest groups and their information activity, in several of the surveyed countries, these were not clearly stated as important information sources for innovation projects. Representatives of forest administrations were ranked as the most important source for information related to innovation, overall for the region,.

On the EU average, and based on the results of the EU CIS2 survey (EU 2001), the most important information source for small manufacturing firms (<50 employees) are found within the enterprise. Almost half of all firms use internal sources as the most important ones. Clients or customers are the second most important information source. About 40% of firms name their customers as a very important source of information for their innovation activity. For about 30% of the respondents corporate seminars, conferences and trips play an important role. A further 19% identified their suppliers as important. For small, medium and large EU manufacturing firms, education related and public research sources are ranked very low. Less than 5% of innovators considered information from governmental or private non-profit research institutes a very important source of information, as well as from universities or other higher educational establishments.

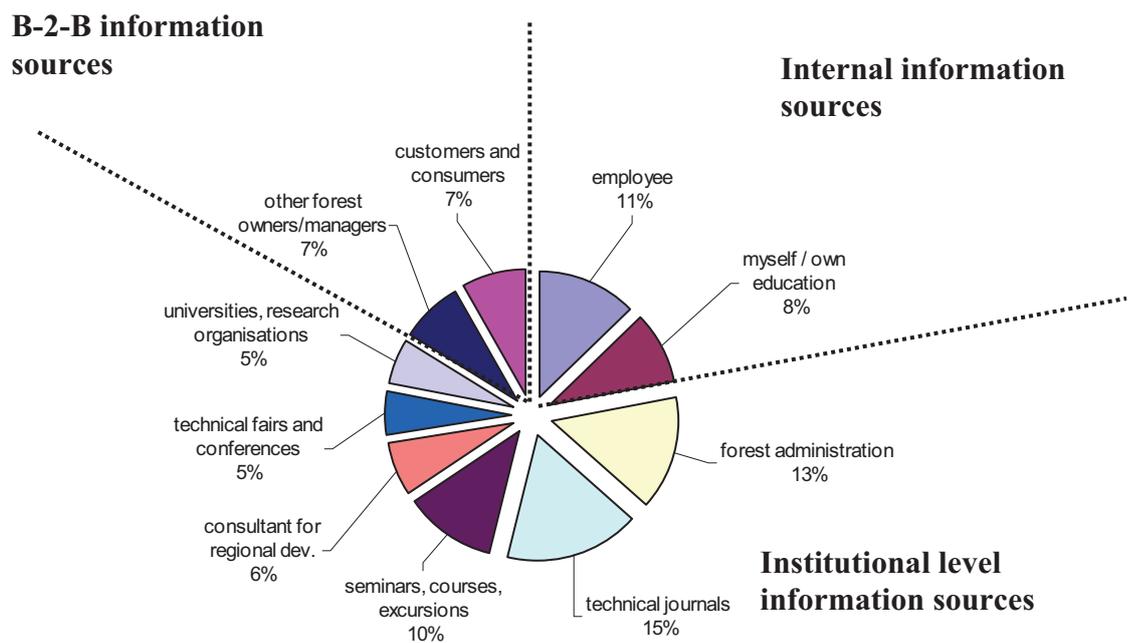
What becomes evident in comparison between the forestry and the EU manufacturing

sector is:

- the very low importance of customers and consumers as a source for the improvement of products, services or processes in forestry, i.e. the seeming lack of customer orientation,
- the very low importance of suppliers as a source of information for improvements in forestry,
- the comparatively low level of knowledge in an information in-house pool, which could be used as an internal information source,
- the strong role in several countries of administrative organisations as sources of information for improvements in forestry.

Figure 4

The ten most important sources of information; percentage denotes the share of the total results



Source: Rametsteiner, Kubeczko et al. 2005

### *Actors and networks*

The sectoral system of forestry is centred around many small and very small forest holdings. Size-related problems are consequently most important to firms' economic and innovation activities, strategies and behaviour. In the Central European region (excluding Italy), the average size of forest property is around 22 ha. The average size of private property in the region is very small (11 ha) compared to the average size of public properties (>500 ha). Average sizes of private properties in the Czech Republic or in Slovenia are even only 3 ha. More than one million, or around 98% of the total number of forest holdings in the region are privately owned. Together they manage about 50% of all forest area in the region. This magnitude of forest ownership fragmentation and sectoral division is an important obstacle to innovation.

Following the very low average forest holding size, very few people actually work full-time in forest management. Even for property sizes larger than 1,000 ha less than half of the respondents stated they worked full-time in forest management. Practically all of the work in small forest holdings <100 ha is done by family members, mostly in their spare time. There are strong indications that forest work remains simply undone if family members do not find the time. Many forests in European countries are practically not utilised any more – especially farm forests and small forest properties. A growing and yet quite substantial number of forest owners do not work in the primary sector and do not live near the forest in order to be able to maintain it in a traditional way ("absentee forest owners").

Income from forests usually is not the main income source for forest owners. The smaller the property size is, the lower the percentage of income from forestry. In Austria, the share of income from forestry in an average private forest holding of around 11 ha is usually less than 10% of the total income of a respondent. The share of income from agriculture is 40% of total income. Around 50% of total income is from sources other than forestry or agriculture. There is little indication that this situation is much different for private forest owners in other countries.

Low average size of forest holdings, little engagement in forestry work and little share of income out of forestry have strong impacts on the goals and strategies forest owners pursue and consequently their propensity to innovate.

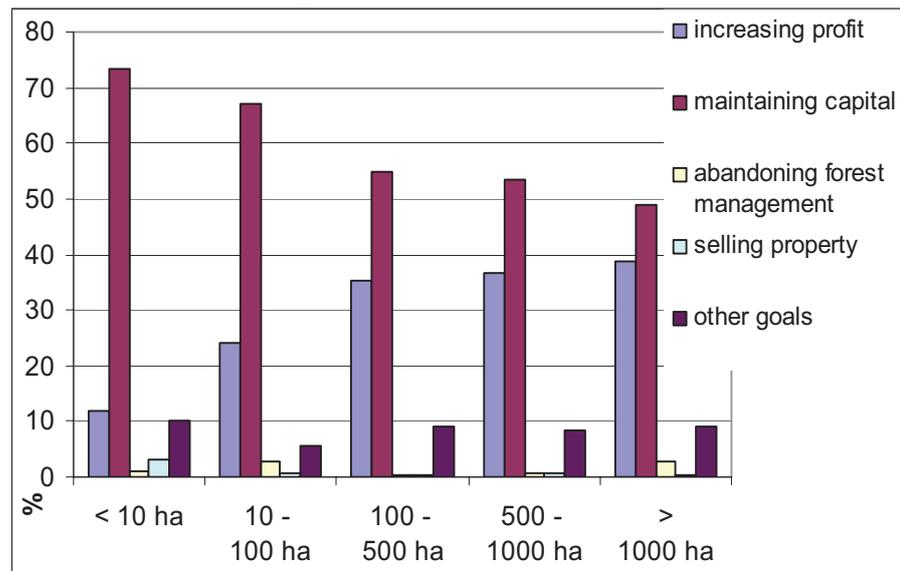
When asked about their goals for forest management, 'increasing profit' was only of minor importance for forest owners in all size classes (see figure 5). However, the share of those managing with a view to increase profit rises from about 10% in very small forest holdings to around 40% in forest holdings larger than 100 ha. Sustaining the capital is the dominating goal for all size classes of forest holdings but with decreasing tendency for larger forest holdings. Only very few forest owners or managers actually aim to sell property or to abandon forest management.

The dominating strategy of forest owners is consequently 'business as usual' (see figure 6). A solid majority of owners or managers of very small properties state the continuation of their practices as their strategy also in the future. The figure reveals as well that the range of strategies chosen by forest owners and managers is quite broad,

and becomes more diversified with property size.

Figure 5

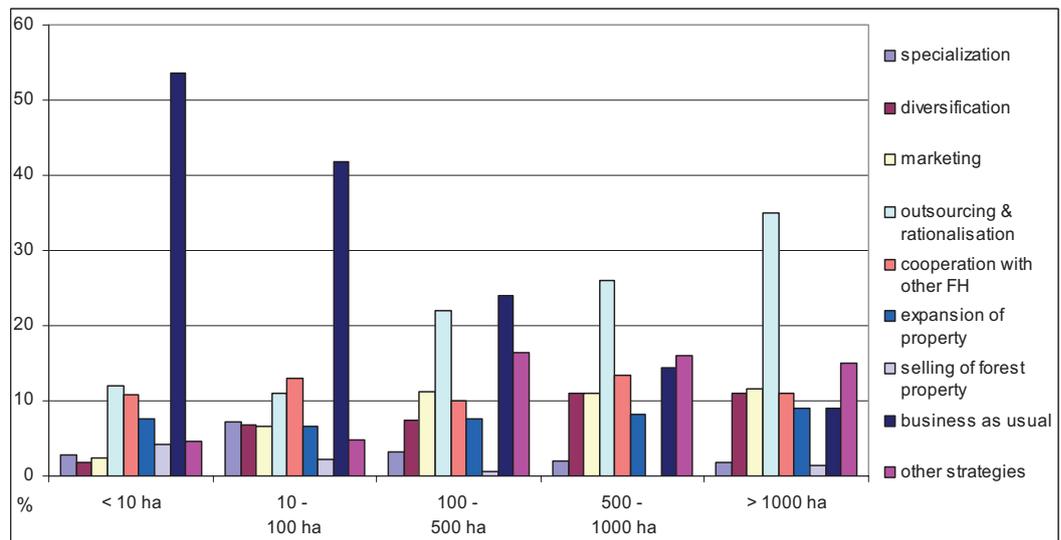
Goals of forest management by forest holding size classes in Central Europe (note: Germany is included from 200 ha onwards)



Source: Rametsteiner, Kubeczko et al. 2005

Figure 6

Strategies used by forest owners and managers in forest management in Central Europe (note: German forest holdings >200 ha included)



Source: Rametsteiner, Kubeczko et al. 2005

In all size classes, rationalization and outsourcing are further important strategies. These two combined become by far the most important strategy for forest holding sizes >500 ha. Co-operation with other forest holdings is considered or pursued by forest owners or managers across all size classes. While horizontal cooperation is already quite common, vertical cooperation with wood industries is hardly developed. Nevertheless, experts see a high demand for close cooperation of the forest and wood sectors in future.

When looking at the technological opportunities we see that the product mix offered by forest owners and managers clearly increases with the size of the holding. Small forest holdings rarely offer any other product except industrial wood or wood for bio-energy (if they offer any product at all on the market). With increasing the size of the holdings the range of offered products increases too. Large forest holdings offer a range of wood products, but often also game and services, especially renting (in some countries often hunting rights). Renting out rights, or offering a service, is the second most often offered “product” by forest holdings.

Results have shown a high fragmentation of the sector with many small and very small firms. Large forest holdings often are publicly owned. Further, and this might be unique for the forestry sector, often no economic activities are undertaken at all, although the resource is possessed. This fact is difficult to find in other sectors. Furthermore, a low affinity of the forest holdings towards innovation, risk and novelty was observed. Rather established practices and strategies have been kept.

Besides the forest holdings which had introduced innovation, a small set of diverse actors was involved in different cases of innovations in the sector. The relevant actors cover broad range of firms and non-firm organisations. Local forest agencies are the actors most regularly involved. In Austria, the district forest authorities and/or the district forest offices of the chamber of agriculture are always approached mainly by the forest owners. In Germany, the local forest office (forest authority) is regularly involved in innovation projects. Actors most often involved in Switzerland are representatives of the local and the cantonal (provincial) forest service (authorities) having public duties in addition to their operational management tasks. In some of the investigated countries, public organisations dominate the innovation system (e.g. in Switzerland); in other countries private actors (Slovenia, and partially Germany,) are more common. In the case of Switzerland this can be explained with the situation that most forests are publicly owned, and that public agencies have a strong role in the management of the forests in any case. In the Czech Republic and Slovenia, innovations are seen as being only of private concern. Research organisations do not play a major role yet, although a few cases have been documented where universities or other research institutes were involved. However, in all countries it is true that companies or their interest groups rarely maintain close long-term interactions with research institutions. While forestry actors prevail in process innovations, more actors from other sectors are involved with regard to the innovation process for products and services. Depending on the market field, actors from tourism, nature conservation, or energy supply played a central role in the development and implementation of the innovations.

Only a few actors are seen to be relevant to innovation aspects. Often, as in Italy or Austria, forestry interest groups dominate the picture while public administration and research and educational institutions are hardly mentioned. Only Slovakian universities and research institutions are regarded as central actors in innovation, however, forest owner's organisations have no significant role there.

The political and administrative system in forestry has relatively strict boundaries with other sectors, including wood industries and agriculture. As a result, the forestry innovation system is a closed system of specialised organisations with very poor interdependencies with other sectors. The forestry SIS is typically focused on forestry production, without taking into account the wood working or pulp and paper industries. Although forestry is very close to agriculture and many forest owners are in the first place farmers, links between the two sectors are rather weak in most institutions such as legal regulation and organisations like public administration, interest groups, education and research. Even less interactions take place with other sectors like tourism, energy production, etc.

There are virtually no contacts between forestry actors and governmental or non-governmental bodies or agencies dealing with innovation policies in the individual countries. Forest policy institutions and forest knowledge institutions have difficulties to implement or transfer innovation policies (that are designed across a range of sectors) into the forestry sector. Forestry actors hardly know about the programmes and opportunities that these might provide. Interaction between institutions constituting the main actors on innovation related aspects is often restricted to or characterized by what could be called "traditional coalitions".

While in countries with longer market tradition interest groups are of higher relevance for promoting innovation in the sector, in countries with economies in transition these institutions rarely play any role in innovation processes.

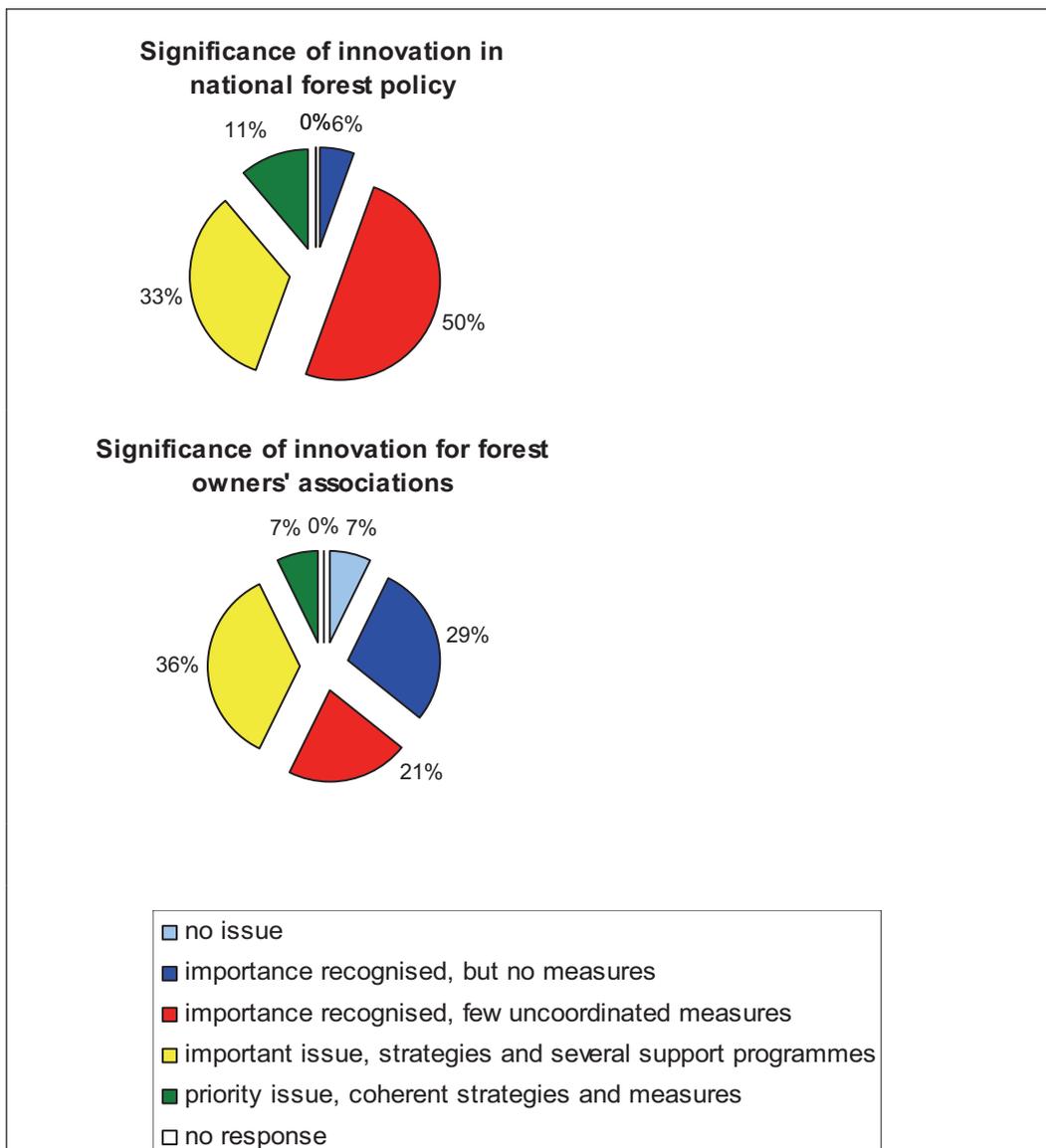
According to a recent survey among forestry administration and forest owners' associations in the UNECE region, the importance of innovation is well recognised by forestry administration and forest owners' associations. However, forest policy in most countries has only implemented few and uncoordinated measures to address innovation in forestry (see figure 7). Especially in countries with economies in transition there is a lack of strategies and programmes fostering innovation. Most countries address innovation in rather general forest policy documents and programmes, for example the National Forest Programme/Plan or Strategy.

While also the majority of forest owners' associations recognise the importance of innovation for forestry, around 1/3 of the forest owners' associations have no measures implemented to promote innovation in forestry. Another 20% offer only few and uncoordinated measures (see figure 2). Consequently, the vast majority (2/3) of forest owners' associations have addressed innovation in general policy or strategy documents. In countries with economies in transition the main part of forest owners' associations either state that innovation is not an issue to them, or that the importance of innovation is recognised but no measures are introduced. Here, other issues are considered as more important for the forestry associations, as private forestry, and

also associations are relatively young. Forest owners' associations in countries with a longer market tradition, in contrast, are much more engaged in innovation support.

Figure 7

The significance of innovation for forestry administrations and forest owners' associations



Sources: Bauer and Rametsteiner 2006 a; Bauer and Rametsteiner 2006 b

### *Institutions*

It is easy to identify a range of institutions which influence the economic and innovation opportunities in the forestry sector. For example, the forest law sets rules for forest management and defines everybody's right to free access to forests for recreational purposes in many European countries. In addition, environmental laws also provide for limits on how to use forests, e.g. Natura 2000.

Concerning institutional innovation support, the forestry sector in Europe is quite neglected. National innovation policies and support generally do not target forestry, and actors of forest policy recognize the importance of innovation but offer only limited innovation support and coherent innovation strategies (see above). No comprehensive innovation policies are formulated for the forestry sector. Innovation aspects are handled in diverse operational policies for specific issues, but are not dealt with in a coherent form.

What seems to be lacking quite often are instruments or support designed to provide incentives for overcoming barriers to change and counteract resistance to change. These barriers may include sectoral inertia, support to the early phases of innovation and the establishment of a culture that encourages trial of ideas. What seems to be covered much better by existing policies and programmes is support for areas which have been identified by opinion leaders on a national level, as promising future fields, i.e. the early adoption phase.

Examples of such kind of support are found in the sphere of wood chips and biomass heating in Austria, or the forest education activities in many countries. The collected cases for wood and non-wood products show that, with exception of the wood chips, there is no lively innovation activity and there are hardly any programmes to support new development. In the field of services, the main driving force is the strong demand from the public, which calls for recreation and environmental services from the forest. After a first phase of strong reluctance from the landowners, they have started certain offers now, particularly mountain bike routes, nature conservation contracts, etc. Many such services, however, strongly depend on public funding. Only very few cases are found, where the services are offered to private customers and without subsidies. The rare cases where forest services are marketed private-to-private show that a potential exists, but is currently not utilised almost at all.

The Central European countries with economies in transition face several further institutional challenges. They have experienced a dramatic change of the economic system. New forestry legislation was introduced but the goals for forestry often are not clearly defined and are not derived from the overall development goals of the respective country (Nilsson 2005). Often, the property rights regimes are not clearly defined and are not followed in practice. There are overlapping and unclear legal and institutional arrangements between governmental institutions with respect to forest policies (Nilsson 2005).

After more than ten years of adaptation many countries report fully developed timber market today. The general economic situation, however, is still very difficult and

unstable. In all countries, there is still a considerable state influence on the forest management, as the authority still prepares and prescribes management plans for private forest owners. In addition to legal regulations, restrictions and duties are prescribed in the forest management plans without providing any compensation. In these countries, the public forest services (forest authorities) see themselves as guards of the public interest and do not get involved in forest management from a business point of view. Profitability of forestry is more or less seen as a matter of the forest owners (private interest), and not of the society as a whole. Public institutions are gatekeepers whose responsibility is to ensure that interventions into forests are assessed from an ecological point of view. In Slovenia, the forestry profession's attitude towards a 'profitability of forestry' is described as being negative. The Slovenian forest service aims at a "close to nature" forest management. The situation for innovations in these countries is very difficult because of highly unstable economic conditions. After the most important innovation – the restitution of property itself – the investments are necessary for the development of forestry operations in the forest holdings or in the forest companies that offer technical services in forest management. In the Czech Republic, for instance, the economic problems such as high inflation rates, secondary payment inability, etc. mean a lack of capital for the forest owners. The capacity of the state to grant subsidies, as described, is very limited as well.

#### **4. Conclusion**

According to Malerba (2004) sectors differ with regard to the three main factors which affect their innovation activities and processes:

1. The knowledge base and technologies of a sector,
2. Sectoral actors and networks, and
3. The institutions.

The paper has illustrated that the degree of utilizing technological opportunities in the forestry sector is relatively low. Actors in the sector are particularly aware of opportunities in rationalisation and mechanisation. The high number of innovations in services can be traced back to the pressure from public administrations or interest groups outside the sector. Innovation in the forestry sector generally does not rely on research activities, but rather on endogenous knowledge and especially on the interaction with other stakeholders. While suppliers, customers, and research institutions hardly play any role, other forest holdings and especially forest administrations and forest owners' associations are of high relevance for impulses to innovate. Potential for further innovation is especially seen in activities, which cross the boundaries of traditional forest sector and involve actors from various sectors.

Regarding the forest sector's actors and networks, the paper has shown that the large number of small-scale forest holdings in Central Europe poses a particular challenge for innovation activities and innovation support in the sector. While large forest holdings are often regarded as an independent business, the big part of owners of small forest holdings focus their business activities either on the agricultural part, or do

not regard their forest land as a business at all. Accordingly, innovation activities in small forest holdings are much lower than those in larger forest holdings. Co-operation with other forest-owners and along the value added chain is an important strategy to overcome size-related problems. Besides forest holdings, a small group of other actors are important for innovation activities in the sector too. In countries with longer market traditions, forest owners' associations often support innovation activities of forest holdings. In countries with economies in transition forest owners' associations hardly play any role. Forest administration here is the most important actor, apart from the forest holdings.

Although the importance of innovation for the forestry sector in Europe is strongly recognized by actors, the sector lacks appropriate institutions which coherently support innovation. Innovation support is often fractioned and uncoordinated, and focuses rather on the diffusion of new products and processes, than on the development of new ideas and pilot applications. Especially in countries with economies in transition, the institutional frame for forestry is often not stable yet and does not provide a supportive environment for innovation.

Finally, research results have shown that developing innovations for forest owners often means leaving behind traditional sectoral boundaries and engaging in new fields of activities, involving actors from various sectors.

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# CAPABILITY BASE, INNOVATION ACTIVITIES AND PUBLIC POLICIES IN THE SOFTWARE INDUSTRY IN BULGARIA<sup>1</sup>

*Dr. Rossitza Rousseva  
Science and Technology Policy Research (SPRU)  
University of Sussex, UK*

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## 1. Introduction

Studies exploring the development of the software industries in the CEE have been scarce and predominantly focusing on the restructuring of the industry and the emergence of new private enterprises. Very few of the studies, however, have been exploring the issue of technological development of these industries. The most elaborate amongst them are Bitzer (2000) and Dyker (1996) for CEE, and Katkalo and Mowery (2000) for Russia in particular. Investigating the development of the software industry in CEE, Dyker (1996) and Bitzer (2000) give similar assessment about potential for further development. Both authors point out (although to a different extent) that the indigenous software industries in CEE will be challenged by the international competition. In this sense, it is worthwhile to assess in quantitative and comparative way the capabilities, which the indigenous software companies possess to compete on domestic and international markets, which has not been done to the moment and is the focus of this study. This paper explores the development of capabilities for software production on the domestic and international markets in an indigenous CEE software industry by taking the case of the Bulgarian software industry.

The paper is structured as follows: the next section lays down the theoretical framework of the research by discussing the concept of capabilities building and the specifics in applying it to the case of the software industry. Section three makes an

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overview of the development of the Bulgarian software industry. Section four presents the methodology and the results of the research about capabilities accumulation in the Bulgarian software industry. Section five disentangles external factors that influence development of the Bulgarian software industry. The final section draws conclusions and policy implications.

## 2. Theoretical Framework

Capabilities are the driver for developing indigenous software industries, as emphasized by a number of studies (Arora and Gambardella, 2005; Heeks and Nickolson, 2002; Schware, 1989; Steinmueller, 2001). Thus, the availability of skills and capabilities, adequate to the requirements of the world industry, is the major challenge, which the latecomers face in developing software industries with indigenous resources.

Capabilities for software development are difficult to accumulate in a latecomer context for two main reasons. First, accumulating technological knowledge is a complex process, which requires not only acquisition of codified knowledge but also, and more so, development of tacit expertise, i.e. deeper understanding about technologies. Second, in order to build capabilities to compete on international markets, the latecomers need to develop mastery over an array of highly complex skills and abilities, while the knowledge and expertise, which they possess, may be rather limited, and thus make the shift challenging, if not impossible. Thus, the success in building capabilities depends entirely on the latecomer companies' deliberate efforts to upgrade, although the outcome is not certain.

For the purposes of this paper the focus will be placed on the main capabilities associated with software production, which reveal the technical expertise accumulated in the companies. These represent the core capabilities, which latecomer companies need to muster, if they are to develop software activities with own resources. These are capabilities for: 1) software design, 2) software programming, 3) high quality assurance, 4) prompt delivery, 5) capabilities to develop specialized expertise in a particular domain, and 6) capabilities to diversify the products and services offered.

On the basis of detailed analysis of the enabling forces, underlying the successful development of the software industries in the latecomer context, Heeks and Nickolson (2002) construct a model of software export success for developing and transition countries. In it they outline the elements, which the latecomers need to develop and mobilize in order to successfully develop export-oriented latecomer software industries. According to the model the fundament for developing a latecomer software industry is the establishment of National Software-Related Infrastructure, comprising of skilful human resources, technological base, finance, R&D, etc. The authors assert, however, that the latecomers' efforts need to go beyond these, and have to involve development of a common *national* base. This involves development of a National Software Industry on the base of clusters, competition and collaboration among companies, which is based and backed up by National Software Vision, shared and supported both by the government and the industry. Once the national base is

established on the strength of these three national elements, the success of the industry depends on its links with the international markets and trust. The salient feature of the model is its explicit emphasis on the *interrelatedness* of multiple factors and the critical importance of establishment of a solid national base, supported by government and industry, and active collaboration and trust among companies.

The examples of successful development of a latecomer software export industry had revealed that public policies had a critical role to play in creating a favourable environment (Commander, 2005; Heeks and Nickolson, 2002). Heeks and Nickolson (2002) emphasize that governments in all three successful Is (i.e. India, Ireland and Israel) have acted to stimulate the supply of working and venture capital to software firms, and have used tax breaks, marketing subsidies, grants, loans, legislative updates, and to remove red tape by a combination of both liberalisation (less government) and promotional intervention (more government). Establishment of high-tech incubators (Israel) and high-tech parks (India) have helped to boost industry development.

It should be underlined, however, that the role of public policies does not exhaust only with the provision of abovementioned direct initiatives for the industry. As Heeks and Nickolson (2002) assert, a sense of a 'national project' is to be established to spur collaboration and development of the industry, and to signal commitment. If we are to summarize, the literature emphasizes that building capabilities is the cornerstone in developing a latecomer software industry, and in addition identifies other factors, like public policies and cooperation among companies, as important drivers in the process.

### **3. Overview of the Development of the Bulgarian Software Industry**

Bulgarian software industry offers a fruitful base for analysis of the identified issues. The Bulgarian software industry is predominantly domestic-owned (although in the last few years the industry sees an increase of foreign-owned companies), the share of indigenous companies prevails and is around 85% (Rousseva, 2003; 2005)<sup>2</sup> and Bulgaria has been developing ICT industries in the past.

Bulgaria was among the former command countries, selected (appointed) to develop an ICT industry within the COMECON, along with Russia, Hungary and former East Germany. The enrolment ratio in science and engineering is above the EU and CEE average<sup>3</sup> and Bulgaria ranked significantly higher than the international average in the International Mathematics and Science Study. Bulgaria's secondary education is among the best in the world: 5th in the world in sciences, 11th in mathematics (World Bank and The Economist rankings). Further, Bulgarian pupils regularly win Olympiads in Mathematics and Bulgarians are among the top university students worldwide (2nd in the world in SAT scores). These education potentials have been channeled into IT professional certificates. The Global IT IQ Report in 2002 by Brainbench Inc. ranks Bulgaria (with 8,844 Certified Professionals) 8<sup>th</sup> in a ranking of the top 10 countries

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<sup>2</sup> Author's estimations based on data from Bulgarian National Statistical Institute.

<sup>3</sup> Eurostat, European Science and Technology Observatory and UNESCO Yearbooks.

based on number of certified IT professionals. Bulgaria ranks 3<sup>rd</sup> worldwide by number of certified professionals as a percentage of the population.

Despite the availability of human resources the country has not been able to develop big and internationally renowned IT industry. The Bulgarian software industry remains predominantly domestically oriented and only a small percentage of the companies operate on international markets. The industry reveals a clear 'bifurcation' pattern with respect to its export intensity: around 80% operate only on the domestic market, while the rest of the companies work predominantly on the international markets, and very few companies position in the middle of the scale. Furthermore, most of the companies, involved actively in exporting, had entered the international markets straight from the very beginning, without serving the domestic market beforehand, as previous studies based on a survey and interviews revealed (Rousseva, 2001, 2005).

On the domestic market the indigenous software companies provide the whole range of software activities, like system integration, computer system software, networking software and web design, CAD/CAM/CAE software, intermediate telecommunications and wireless development software, application software, firmware. The high segment of domestic-oriented software activities involves creation of ERP systems, B2B and B2C solutions, document flow and project management solutions, CAD/CAM/CAE software, intermediate telecommunications and wireless development software, customized services, etc. Some of the domestic-oriented companies had already attempted entering the international markets but these remain with no or moderate success. Very few domestic-oriented companies have succeeded to enter the international markets and these are usually markets in neighbouring countries in South Eastern Europe and their export intensity remains around 5%. The low segment of domestic-oriented activities entails customisation and localisation, data migration, system integration, etc.

On the international markets the Bulgarian companies undertake significantly narrower range of software activities: some companies are outsourcing and few companies have succeeded to enter the international arena by offering their own products and customized services. The inception of software outsourcing activities in Bulgaria begun in late 1990s and although the years of 2000 and 2001 saw some upsurge, their presence drastically dropped after 2002. The remaining outsourcing activities executed by indigenous Bulgarian software companies at the moment remain little and appear to be undertaken by companies with well-established contacts with big multinational companies. The activities of the rest of the exporters deserve particular attention. Despite their small number, a group of Bulgarian companies have managed to develop products or customized services and to introduce them successfully on the international markets.

The revenue of the software industry in Bulgaria<sup>4</sup> reveals a stable increase throughout the 1990s and 2000 with 10-30% annual growth<sup>5</sup> but nevertheless it remains modest. According to IDG Bulgaria in 2004 the industry had yield nearly 34 million Euro, which

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<sup>4</sup> The data include indigenous and multinational enterprises.

<sup>5</sup> According to analyses of National Statistical Institute and IDG Bulgaria.

is less than the peak year of 2002 generating 36.3 million Euro, but nevertheless a recovery after the drop in 2003 (table 1). Industry officials concur with these figures and outline that the official figures provided by the National Statistic Office are overestimated due to statistical inaccuracy in data compiling.

The issue, which emerges out of this general overview, is what capabilities the companies have been able to muster and how these relate to the requirements of the international markets?

Studies exploring the development of the ICT industry in the Bulgaria have been scarce and predominantly focusing on the restructuring of the industry and the emergence of new private enterprises (ARC Fund, 2002; CED et al., 2001; ETCO, 1990; TACTICS, 2000). Very few studies have been exploring the issues of technological development of the industry (Rousseva, 2001, 2003). It is exactly technological development and capabilities building that need to become the focal point, if the analyses are to tackle the problems of competitiveness and sustainable growth of the indigenous industry.

#### **4. Analysis of the Capabilities in the Indigenous Software Industry in Bulgaria**

##### *4.1. Methodological Note*

The analysis of accumulation of capabilities is directed towards comparisons at two levels. First, the analysis explores the development of capabilities in the indigenous companies, by comparing the level of capabilities accumulation for the domestic and international markets. This analysis provides a snapshot of the level of accumulation of capabilities in the indigenous companies compared with the requirements on the international markets. Second, to capture differences, which may occur among the indigenous companies, the study investigates possible differences between domestically-oriented versus export-driven companies. This allows for the analysis to reveal the capabilities, which the indigenous companies have managed to muster and to unveil possible differences in the accumulation pattern between domestic-oriented and exporters, which again can be used as an indicator for capabilities development compared with the requirements on the international markets.

The analysis is based on a survey conducted in the period September – November 2004 among 38 leading indigenous software companies. Out of them 78% operate only on the domestic market. The rest 22% of the companies have 50% and above export intensity (i.e. sales abroad account to 50% and above of the total turnover). The group of exporters comprises a diverse set of companies. The biggest group, representing 16% of the whole sample, is companies having 90% and above export intensity. The rest of the exporters are single or few companies to position in the scale between 50-89% export intensity.

The analysis is based on descriptive statistics and t-test for individual capabilities for the level of accumulation of individual capabilities, and ANOVA test measuring differences in capabilities accumulation between domestic and exporters for every of

the identified capabilities for software production in their deployment in domestic and international markets. All companies included in the sample are companies considering themselves as innovative, i.e. offering new products or services.<sup>6</sup> The analysis directed at comparing and contrasting the performance of domestic-oriented vs. export-driven companies is undertaken in a comparative manner, but the percentages reported refer to the share in the sample as a whole, not within the sub-groups.

#### 4.2. *Analysis of the Capabilities Accumulated in Domestic-Oriented vs. Export-Driven Companies*

The assessment of capabilities follows the classification of capabilities for software production, in particular, software programming, software design, quality of products and services, prompt delivery, specialized expertise in a particular domain, and diversified expertise.

Most of the surveyed companies feel confident that their **capabilities for software design** meet adequately the requirements of the local market, as the mean of 4.86 reveals. All exporters consider that they have excellent capabilities for software design for the needs of the domestic market. The predominant part of the domestic-oriented companies, representing 64% of the companies in the sample, shares the same opinion. While the rest of domestic-oriented companies, comprising 14% of the sample, assess their software design capabilities as very good, compared with the needs of the domestic market.

The difference in the capabilities of the domestic-oriented vs. the export-driven companies becomes more obvious when assessing the extent to which the capabilities for software design allow the companies to compete in the international markets. The mean of 3.07 and the mode of 3 reveal that the prevailing number of companies consider their capabilities for software design average, compared with the requirements of the international markets. Moreover, this is the only variable within the set of the narrow technical capabilities (e.g. capabilities for software programming and software design), which appears with a mode lower than 5. Only 21.6% of the companies assess their capabilities for software design as excellent and adequate to respond to challenges in the international markets. These are all exporters, while among the domestic-oriented companies only two companies reveal the same confidence. Among the exporters the confidence in the excellence in their own capabilities prevails, and only two companies find their capabilities good rather than excellent.

The overall assessment of the software design capabilities of the domestic-oriented companies is far less optimistic than the exporters. The assessment of the capabilities for software design on the international markets for the sub-group of the domestic-oriented companies drops down to a mean of 2.4 and a mode of 3, which when

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<sup>6</sup> To be able to analyze capabilities of latecomer software companies operating only on domestic market, it is important to distinguish between companies offering innovative solutions for the domestic market and 'garage'-type software services, which may be flourishing in latecomers.

compared with the mean of 4.75 and mode of 5 for the exporters, provides compelling evidence about the divergence in the capabilities for software design between the exporters and the domestic-oriented companies. Apart from the two companies, which assess their capabilities as excellent, the rest of the domestic-oriented companies are far less confident and consider that their capabilities for software design are average and below the average, compared with the performance requirements on the international markets. Nearly 30% of the domestic-oriented companies find their capabilities for software design average, compared with the needs of the international markets. Another 29.7% find their capabilities modest, while 13.5% of the companies assess their capabilities as poor. The fact that only 7.3% of the domestic-oriented companies feel confident that their capabilities for software design allow them to compete on international markets, while all the rest of the domestic-oriented companies assess their capabilities as average and below is revealing and worrying. At this point the gap between the capabilities of domestic-oriented companies vs. the exporters begins to unravel.

Next we focus on the **capabilities for software programming**. All companies are confident that they possess capabilities for software programming, which adequately meet the needs of the local market (the mean is 4.92). Only 5.4% of the companies consider their capabilities very good, and these are domestic-oriented companies, while all the rest of the companies, both domestic-oriented and exporters consider their capabilities for software programming excellent. Similarly to the previous results, most of all Bulgarian software companies feel confident that their capabilities reflect adequately the requirements on domestic market. Nevertheless, the percentage of companies, which are more confident, is slightly higher, when assessing the capabilities for software programming rather than capabilities for software design.

However, companies' assessment of whether their software programming capabilities are adequate to the requirements on the international markets appears less favourable. Although the mode remains 5, the mean of 3.25 reveals that a large number of companies possess limited capabilities for software programming to match the needs of international clients. Only 22.2% of the companies in the sample consider their capabilities for software programming excellent for executing international projects. All exporters but one believe that their capabilities for software programming match perfectly the requirements on the international markets. Among domestic-oriented companies there is a single company, which considers itself of possessing excellent capabilities for software programming in international projects, and the rest of the companies position down the scale: 13.9% very good, 27.8% good, and two groups of equal size of 16.7% modest and poor, respectively. Overall, 64% of the companies evaluate their capabilities for software programming as average and below the average, compared with the needs of international clients, and these are all domestic-oriented companies, except one. The domestic-oriented companies appear to possess significantly lower capabilities for software programming, compared with the requirements on the international markets, which is also indicated by the mean of 2.6 for this sub-group. These results suggest that a substantial part of the domestic-oriented companies fail to develop capabilities for software programming respective to the frontier technological development.

The results provide us with a clear picture of an indigenous software industry, in which a limited number of companies possess capabilities for software design, which allow them to compete on international markets, while the predominant part of the companies (above 70%) possess average and below average capabilities for software design, which prohibit them from entering the international markets. This reveals that the Bulgarian companies face limitations even in the basic technical skills and raises concerns about the potential, which the domestic-oriented companies have to enter the international markets. Most of the Bulgarian companies appear to have limited technical capabilities for competing on the international markets, and the capabilities for software design appear to be more problematic than the capabilities for software programming. The results also reveal the existence of a strong difference in the accumulated capabilities between exporters and domestic-oriented companies.

The results also raise an interesting point. There has been a wide held belief that due to the very good education in mathematics and sciences the East European computer engineers possess excellent software programming skills. This belief was confronted by studies about development of the software industry in CEE, which called for reconsideration of the myth about strong capabilities for software programming, which CEE programmers have (Dyker, 1996; Katkalo, 1993). The results of our survey show that a significant number of companies (around 64%) consider themselves having average and below the average skills in software programming, compared with the international standards. These results evoke concerns about the level of education in computer engineering in Bulgaria and the extent to which it provides knowledge about the latest technological developments, and corroborate with the results of previous studies (Rousseva, 2001; 2005).

The level of expertise in software engineering and design reflects upon the quality of the products and services, designed by the companies. Next we assess the confidence, which companies have in the **quality of products and services** they offer. Most of the Bulgarian software companies feel certain about the quality of the products and services, which they offer on the domestic market, which reflects in the mean of 4.70. The predominant number of the companies feel confident in the excellence of the products they offer, except few domestic-oriented companies, representing 19.4% of the sample, and only two exporters, comprising 5.6% of the whole, which assess the quality of their products and services as very good.

Companies' assessment about the quality of the products and services they offer on the international markets reveals greater heterogeneity. Although the mode remains 5, the mean drops down to 3.44. All export-driven companies but one are confident in the excellence of the quality of their products and services. While the answers of the domestic-oriented companies spread in all categories, from poor to excellent quality. Of interest, 19.4% of the companies find that they have a potential to offer products and services in the international market with an excellent quality, and yet these are companies, which operate only on the domestic market. The question arises whether these companies overstated the confidence in their products and services. We need to bear in mind that the assessment is based on respondents' subjective assessment and this may have an impact on the results. Respondents may speculate and provide results, which put them in a more favourable position than the real situation, or they

may provide answers, which reflect their subjective perception about the situation. Apparently, this holds for this part of the assessment, which can be considered overrated. These companies may assume that they are capable of producing high quality products and services for the international markets. However, as these companies do not actually work on international markets, this assessment is more likely to reflect their perception rather than the reality.

Companies themselves assess that they do not possess excellence in software programming and design capabilities respective to the requirements on the international markets, and therefore it is very unlikely that they have the potential to offer high quality products and services on the international markets. Otherwise, being capable of offering high quality products and services on international markets and bidding on their low labour costs advantage, these Bulgarian companies must have at least some level of export intensity. A more realistic treatment of these results would be to say that 19.4% of the companies in the sample, which are companies operating only on the domestic market, hold high esteem about the products and services they offer and perceive their quality to be comparable to similar products on the international markets. Another 19.4% of the companies share a completely opposite view, assessing the quality of their products as poor, compared with the international markets' standards. The rest 33% of the companies are positioned in the middle of the scale.

These results reveal that domestic-oriented companies form three distinct groups, somehow polarised in their assessment about their ability to generate products and services with a quality respective to the quality standards on the international markets. While some of the companies are highly confident, another group of equal number of companies is far negative and a third group position in the middle. Nevertheless, the predominant part of the domestic-oriented companies, representing 55.6% of the companies, consider that the quality of the products and services they can offer on international markets is average and below the average. Correcting the answers by downgrading the potentially unrealistic high answers will add up extra numbers. These results are another indication for the extent, to which the domestic-oriented companies have been successful in building capabilities. The interesting point they reveal is that a significant part of the domestic-oriented companies are aware of the moderate quality of their products and services and the limitations of their own capabilities.

**Promptness in delivery** is the next capability to be investigated. The predominant part of the companies makes prompt deliveries in the domestic market (a mean of 4.53). The exporters appear to perform better than the domestic-oriented companies. 75% of the exporters, representing 15.6% of the companies in the sample, point out that meeting deadlines is an integral part of their excellence, while 25% of the exporters outline that the promptness of delivery on the domestic market is very good rather than excellent. 75% of the domestic-oriented companies, representing 58.3% of the sample, also reveal excellence in meeting deadlines on the domestic market, but the rest of them, representing 11.1% of the sample, are failing to deliver on time and consider that they have modest capabilities for prompt delivery in the domestic market.

With respect to deliveries on the international markets companies diverge completely. All exporters but one achieve promptness in delivery on the international markets. Interestingly enough, some of the exporters allow themselves to be more lenient in meeting deadlines while working on projects for the domestic market, while they appear to be prompt on the international markets deliveries. This is an interesting fact by itself and it has its context-specific grounds. Tolerance of small delays is present in the Bulgarian business culture, as institutional hurdles still affect companies' operations and may cause delays. The difference in business cultures becomes more apparent when analyzing the extent, to which the domestic-oriented companies manage (or would be able to manage) to meet deadlines in international projects. 40% of domestic-oriented companies, comprising 31.4% of the whole sample, consider themselves having excellence in meeting deadlines of international projects, while two equal-size groups of domestic-oriented companies, each representing 17% of the whole sample, cluster around the two ends of the scale, having respectively very good and poor delivery on the international markets, and a limited number of companies are positioned in the middle of the scale.

These results, are provoking as companies, currently operating only on the domestic market, provide answers about their performance on the international markets. The grounds for these are twofold. Some domestic-oriented companies had already made attempts to enter the international markets, which obviously were with no success, but on these grounds they are able to provide an assessment of their capabilities to perform on the international markets. Second, as discussed above, these results reflect companies' subjective perception, and this may differ to an extent from the real situation. Further, the lowest score for domestic market is 2, while for international it is 1. In other words, some of the domestic-oriented companies have outlined that they do not possess capabilities for prompt delivery both in domestic and international projects, with their skills for meeting the deadlines of international projects being lower than of domestic projects.

This raises serious concerns. It brings back the point about the tolerance of small delays in Bulgaria. Apparently, those companies, which had adopted a more lenient approach towards meeting deadlines of the domestic projects, subsequently find it extremely difficult to cope with requirements of the international projects. Transition from domestic to export orientation appears to be a cumbersome task, with project management skills emerging as one of the hurdles on the way. This comes to suggest that even building capabilities for prompt delivery appears to be a problem, which the latecomer companies need to tackle.

Next we look at how companies develop their knowledge base. Companies are asked to assess their specialized expertise in a particular domain on the domestic and international markets, and the diversification of their expertise.

Bulgarian companies reveal confidence that they possess **specialized knowledge and expertise** about the local market, which is reflected by the mean of 4.41. 63.9% of the companies consider their knowledge as excellent, and the rest of the companies are equally distributed among answers very good and good. All exporters except two claim that they possess specialized expertise in a particular domain in the local

market. The other two, however, present an interesting case. One of the companies considers itself having very good expertise, but the other one claims that it possesses poor specialized expertise in a particular domain on the local market. This represents the only company having no specialized expertise in a particular domain on the local market within the whole sample. The reason for this perhaps lay in the fact that this company has 90% export intensity and it does not put special efforts in developing specialized expertise for the local market.

The domestic-oriented companies also appear to have developed specialized expertise about a particular domain on the domestic markets. 47.2% of them consider themselves as having excellent specialized expertise about a particular domain on the domestic market, 13.9% very good and 16.7% good respectively. Overall, most of the companies had developed specialized expertise about a particular domain on the domestic market. When compared with the rest of the variables in the set, there are very few answers in the lower end of the scale. Apparently companies perceive it mandatory to develop specialized expertise for a particular domain to be able to compete.

The situation seems rather different when companies evaluate their specialized expertise in a particular domain on the international markets. Although the mode remains 5, the mean drops down to 3.44. Interestingly enough, the mean, which the indigenous software industry attains, for having specialized expertise in a particular domain on international markets, is higher than the mean, which the industry obtains for its capabilities for software programming and software design on international markets. This again raises concerns about the basic technical capabilities, which the indigenous software companies possess.

Coming back to the results about the expertise in a particular domain on the international markets, the analysis confirms the previous patterns. All exporters have managed to develop specialized expertise about a particular domain on international markets, whereas the domestic-oriented companies reveal greater divergence. 16.2% of the companies, which operate on the domestic market, outline that they possess specialized expertise about a particular domain on the international markets. The rest of the companies but one are clustered around the average and below average points of the scale. 16.2% of the companies consider themselves having poor specialized expertise for a particular domain on the international markets, the rest of companies form two groups of 21.6%, each by assessing their expertise as good and modest. Further, all exporters come up with a mean of 5, while the domestic-oriented companies attain a mean of 2.8, which again reflects the difference in the specialized expertise in a particular domain on the international markets, which the companies of these two major groups have been able to develop.

The number of companies, having specialized expertise in a particular domain on the domestic market, is 80%, which is considerably greater than the number of companies having specialized expertise in a particular domain on the international markets, which account to 50%. Perhaps the latter number needs correction downwards, as 16% of the companies consider themselves to have specialized expertise in a particular domain on the international markets but these are companies operating only in the

domestic market and therefore, it is not realistic that they have adequate expertise to deploy in the international markets. Further, the number of companies, which have not been able to accumulate specialized expertise in a particular domain, is greater for the international markets than for the domestic one (nearly 40% of the indigenous companies consider themselves as having below the average specialized expertise for a particular domain on the international markets). All these follow the domestically oriented profile of the industry, and suggest that a transition from the domestic to the international markets will be challenging, if not impossible, task for the majority of the companies.

Finally, we focus on the extent, to which the companies have been able to *diversify the **products and services*** they offer on the domestic and international markets. This appears to be the least developed capability among all, as both means are the lowest within the set. Companies diversify their products and services on the domestic market to a great deal, as the mean of 4.11 reveals, whereas they have not been successful in diversifying their products and services on the international markets, as the mean of 2.64 suggests. 49% of the companies in the sample reveal excellent diversification of their products and services on the domestic market, another 30% – very good and 14% – good diversification. Only 8% of the companies appear to have poor diversification of their products and services on the domestic market.

Unlike the previous variables, this one does not suggest a strong distinction between the performance of the domestic-oriented vs. the exporters. The exporters occupy the two ends of the scale – 70% of them perform a high level of diversification in the domestic market, while the rest reveal poor diversification. Parallel to this, there is no clear relation between the export intensity and the level of diversification. Nevertheless, a pattern emerges among the exporters. Exporters seem to reveal similar levels of diversification in the domestic and international markets, i.e. if an exporter has diversified its products and services in the international markets, it applies the same level of diversification of its products and services also in the domestic market. Respectively, low level of diversification in the international markets is coupled with low level of diversification in the domestic market.

In contrast, the domestic-oriented companies reveal better diversification in the domestic market than in the international markets. 41.7% reveal excellent diversification in the domestic market, 22.2% very good and the rest 13.9% good diversification. The diversification in the international market differs completely. Only 2.7% outline that they have diversified products and services in the international markets, while 32.4% have good, 24.3% modest and 16.2% poor diversification. These results suggest that companies do attempt to diversify. But they achieve good diversification only in markets in which they have the capacity to compete, i.e. they have respective capabilities for software programming and software engineering, to develop specialized expertise in a particular domain, ability to deliver on time, etc. Second, we again face the problem of having answers about performance in the international markets by companies, which operate only on the domestic market. In this case, we need to consider the answers as reflecting potentials. Some Bulgarian companies have made attempts of entering the international markets and these results may be considered to reflect the strategy of entering the international markets.

Overall, the results reveal that Bulgarian companies have rather limited ability to diversify products and services, which they eventually would offer on the international markets.

A final point in the analysis of the individual capabilities of the exporters vs. the domestic-oriented companies is to be raised with respect to the group of exporters. All the exporters reveal excellence in their performance in all the above studied capabilities, with a mean of 5. There is only one sub-group of exporters, the companies with 90% export intensity, which reveal lower level of performance, with a mean ranging from 3.7 for capabilities in software programming, mean of 4.3 for capabilities in software design, mean of 4.7 for abilities to produce high quality products and services, and mean of 4.7 for capabilities for prompt delivery. The performance of this sub-group affects the assessment of the overall performance of the exporters, and therefore, it should be noted that the low performance is due to only that group and is not spread among all the exporters. At this point we are not in a position to outline the reasons for the lower performance of that particular group, and further investigation of the possible reasons on the basis of case studies is to be undertaken.

#### *4.3. Further Comparisons and Concluding Remarks about Capabilities*

The analysis of the individual capabilities reveals that Bulgarian software companies appear confident in all of the outlined abilities, when deployed in the domestic market. Nevertheless, not all companies reveal the same levels of accumulation of capabilities, as the standard deviation reveals (table 2). For some capabilities the companies reveal similar levels of accumulation, like the capabilities for software design and software programming. However, in the rest of the capabilities in the set companies' performance deviates significantly. Standard deviation of (.520) emerges in the capabilities for producing high quality products and services, followed by high levels of deviation of (.971) and (.956) in the capabilities for prompt delivery and building expertise in a specialised domain respectively, and the highest deviation appears in the capabilities to diversify products and services (standard deviation of (1.173)). Even greater deviation occurs with respect to companies' abilities to perform in the international markets (table 2). Companies appear to deviate significantly in their capabilities to perform in international markets and this hold for all capabilities (all standard deviation coefficients range from (1.257) to (1.532)).

If we are to summarise the results of the analysis, a clear distinction emerges between companies' abilities to perform in the domestic and international markets. Both the domestic-oriented companies and the exporters have managed to build capabilities to compete in the domestic market, and they appear confident in the whole array of skills and capabilities. Nevertheless, despite the strong performance of both groups in the domestic market, a slight distinction between the capabilities of the domestic-oriented companies and the exporters emerges, as the domestic-oriented companies reveal slightly lower coefficients for all capabilities than the exporters.

This difference becomes far more noticeable when we compare the capabilities of the domestic-oriented companies vs. the exporters to compete in the international

markets. While all exporters reveal strong capabilities and expertise to perform in the international markets, the domestic-oriented companies appear far less successful in developing the necessary skills, expertise and capabilities to execute international projects. Thus, for example, when comparing the capabilities of the Bulgarian companies for software engineering (e.g. software design and programming) and specialised expertise in the international markets, the exporters come up with coefficients, which are nearly twice higher the coefficients, which the domestic-oriented companies get. Further, for these capabilities the domestic-oriented companies position below the average point of the evaluation scale, i.e. by obtaining means below 3.

Overall, the results of the analysis about capabilities accumulation by domestic-oriented vs. the exporter-driven companies reveal sharp inter-group differences in the level of accumulated capabilities and the abilities to compete in the domestic and international markets.

These results have been also supported by the results of the ANOVA test, comparing the accumulation of capabilities in domestic-oriented companies vs. exporters. The ANOVA analysis confirms that significant differences exist between the exporters and the domestic-oriented companies with respect to their capabilities for software programming for the international markets (coefficient (.000), capabilities for software design for the international markets (coefficient (.000), abilities to offer high quality products and services in the international markets (coefficient (.001), and also with respect to the capability to develop specialised expertise in a particular domain in the international markets (coefficient (.000) (table 3). Significant differences between the capabilities of domestic-oriented vs. exporters appear in the whole array of skills and abilities necessary to compete in the international markets and higher level of accumulation appears in all capabilities in the group of the exporters. In this sense, the bifurcation pattern, which the industry performs in its export intensity, is underpinned by a bifurcation pattern in its capabilities.

## **5. External Factors Affecting Development of Indigenous Software Activities in Bulgaria**

The results of the study reveal that a small percentage of the indigenous companies had managed to build capabilities to compete in international markets. These are companies that have managed to build cutting-edge capabilities, despite being embedded in a less advanced context, and this suggests that indigenous software development in Bulgaria has certain potential. Further, a number of domestic-oriented companies have managed to accumulate capabilities and develop packages for the domestic market.

At the same time, the results of the study reveal indisputably that the predominant part of the indigenous software companies are not capable of competing in the international markets. These have two implications. First, it reveals that the chances of the predominant part of the indigenous companies to enter the international markets are meagre, if any at all. Second, it suggests that a significant part of the indigenous

companies are very likely to be seriously challenged in medium run by foreign competitors entering the market.

These results come to reveal that software development based on indigenous resources is a challenging task in Bulgaria, and the predominant number of the companies is failing to develop capabilities adequate to the requirements of the international markets. To be able to identify the grounds for this failure and to draw possible policy implications, further research needs to be undertaken to explore in detail the learning activities at company level and to identify impediments before capability accumulation. Nevertheless, the above results point out an area for policy consideration.

So far the policies supporting development of the ICTs, which have been adopted in Bulgaria, have been predominantly directed at developing the Information Society, after a decade in 1990es when the positive impact of public policies have been discarded and neo-liberal policy environment was established. In spite of their relevance, further and more focused policies are needed, directed at development of the indigenous software activities. In the last couple of years some government initiatives have been designed to support the industry. For example, it has been outlined that the quality of education is to be improved, high-tech incubators have been established, and the government has been promoting the industry in major international expositions in Germany and the USA. However, some of these initiatives have been suffering major pitfalls and failed to reap significant benefits for the industry. For example, the vision of the ICT development agency portrayed the industry as a potential outsourcing destination and all initiatives and efforts in promoting and support have been channelled towards this end. The outsourcing potential of the industry proved to be low and insufficient to compete with major destinations like India, which apart from being more cost-effective had already developed good infrastructure, reputation and capabilities. A strategy placing emphasis only on the outsourcing potential had deprived the software developments based on indigenous resources and no resources and support have been allocated to these.

The next major problem concerns the education. For more than a decade after the collapse of the command block there was a widespread belief in the country that the quality of education in computer sciences is good, following the tradition in the past. It is true that Bulgaria preserved very good education in mathematics (as mentioned above Bulgarians regularly win Olympiads in Mathematics and Bulgarians are among the top university students worldwide (2nd in the world in SAT scores) and Bulgaria ranked significantly higher than the international average in the International Mathematics and Science Study).

However, the positive preconceptions about the provision of good education in computer sciences in Bulgaria fail to take into account the technological dynamism in the computer industry in the last few years and the occurring change in skills requirements. Until mid-1990es skills in mathematics were fundamental for computer engineers, but since then skills in JAVA scripts, security engineering, web design, database engineering, project management, etc. had become critical. As noted above,

these fundamental technological changes in the global software industry found the CEE software engineers unprepared (Bitzer, 2000). Therefore, a fundamental shift in the education paradigm had to be undertaken in Bulgaria and CEE. In Bulgaria it took some time for the education system to re-adjust, and as a result the quality of education dropped. In the last two or three years due to pressure from industry representatives there is a positive shift, although there is still room for improvement, according to the view of industry representatives, depicted by the current study and in recent interviews by the author. The problem is more complex, as already described, and it should be tackled with complex and more innovative initiatives to address the whole range of problems affecting the capabilities accumulation in companies.

The next factor hindering the development of the indigenous software industry is the low level of collaboration among companies and low level of trust. Trust in CEE societies has been dramatically undermined in 1990es (Amsden et al., 1994; Braguinsky and Yavlinsky, 2000; Kremeny, 1996), and this reflects in a low level of collaboration among companies. However, indigenous CEE companies are in general small and possess limited resources (be they human, financial or even expertise), which limit their opportunities to enter international arena and compete with own resources. Therefore, cooperation among companies is a critical factor in mobilising a broader pool of resources enabling the indigenous companies to compete internationally. So far, if cooperation occurs, it is driven by efforts of individual companies, and remains sporadic and does not develop in broader and more encompassing joint effort. The absence of commonly shared vision and a national base hinder the possibilities these contacts to create a broader platform for collaboration. A very recent attempt gives a base for optimism in this direction, although the initiative suffers some deficiencies. In May 2006 an IT cluster has been established in South Eastern Europe, involving Bulgaria, Romania, Macedonia, Albania, etc. A critic can point out that this regional collaboration has not been based on cohesive national vision for development of the Bulgarian software industry at a first place and that it does not contribute significantly to increase of collaboration among Bulgarian companies. Nevertheless, this initiative is a step forward in that direction and bears potential to create a base for further developments.

Another aspect of trust is the reputation of the indigenous CEE companies and the trust from the international community. European accession has helped significantly in improving the reputation of the region and in establishing a bridge between the international business and CEE companies.

The existing public policies in Bulgaria fail to develop complex and focussed initiatives aiding in support of indigenous software activities. As Heeks and Nickolson (2002) point out, development of a latecomer software industry requires focused and combined efforts at several levels. Following his model, a number of missing elements can be identified in the existing Bulgarian public policies. At the lowest level, financial, R&D and technological base schemes are absent, and in addition much needs to be done towards creation of skilful human base. At the next levels, initiatives to improve cooperation among companies have been undertaken recently but much needs to be done to further improve these and to establish a sense of national commitment. Links with international industry and establishment of trust have been incubated but these

are to be accelerated. But the primary task before the industry and an area for public concern is the issue raised by this paper – the accumulation of capabilities by the companies.

There is an unequivocal need for the policies to place their focus on these and create initiatives directed at strengthening capabilities base of the indigenous companies to ensure their competitiveness in medium and long run. Due to the complexity of the problem of capabilities accumulation, the adopted policies need to be innovative and comprehensive, if they are to be effective. Once the indigenous companies strengthen their capability base, they will have the capacity either to continue their indigenous development coupled with active foreign partnerships or to plug themselves into global networks. However, both alternatives will be viable only if at a first place the indigenous companies strengthen their capabilities base at this point of time, and this makes the role of public policies critical.

## **6. Conclusions**

Most of the indigenous software companies in Bulgaria are trapped not only in a capabilities trap but in a far more complex prison. The predominant number of companies possesses limited human and financial resources, and even expertise. Lack of trust and cooperation among companies weaken further the base for development of indigenous CEE companies. Absence or ineffective public support and a lack of vision and will shared by government and industry to commit to a national project exacerbate the situation, and limit the opportunities to spur and nurture development of indigenous software industries in Bulgaria.

Adoption of general and broad public policies aiming development of export-oriented industry is difficult to justify in a context in which very few companies have managed to build capabilities respective to requirements of the international markets, while the majority fails to do so. It is unrealistic to assume that if supported by public policies Bulgaria can produce big export-oriented software industry at present or near future based on indigenous resources. At most, the software industry can generate 'pockets' of export-driven enterprises. The inception of these is already a fact and if further enhanced they can consolidate in an export-oriented core.

If effective public policy is to be enforced, it should be aimed at two major segments in the indigenous software industry in Bulgaria. The first one includes the export-driven companies, which had already managed to develop capabilities to compete in the international markets and proved to possess technological potential. Public support will help them enhance their competitive position and can be directed at co-financing certification of the companies under ISO, CMM, etc, financial provisions, initiatives to further enhance some aspects of capabilities development, and export promotion. The second segment, which possesses potential for further development, includes the leading domestic companies in the higher segments in the domestic market, as they have accumulated capabilities to the extent of developing products on their own for domestic clients and making attempts to supply international clients. The public support for this particular group need to include measures enhancing capability

development, financial support, certification, and promotion. To ensure effective implementation, public policies must be based on strict performance requirements.

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**Tables**

Table 1

Revenue from software development in Bulgaria (million EURO)

Revenue from software development (million EURO)				
year	2001	2002	2003	2004
revenue	25.6	36.3	32.7	33.9

Table 2

Accumulation of individual capabilities in the Bulgarian software companies

Capabilities	Mean	Mode	Std. Deviation	Std. Error Mean
Design capabilities for local market	4,86	5	0,351	0,058
Design capabilities for international markets	2,84	3	1,305	0,212
Programming capabilities for local market	4,92	5	0,273	0,044
Programming capabilities for international markets	3,08	3	1,381	0,23
High quality on local market	4,7	5	0,52	0,085
High quality on international markets	3,42	5	1,519	0,253
Prompt delivery on local market	4,53	5	0,971	0,162
Prompt delivery on international markets	3,56	5	1,517	0,256
Specialised expertise in domain in local market	4,41	5	0,956	0,157
Specialised expertise in domain in international markets	3,24	5	1,532	0,249
Diversified products and services in local market	4,11	5	1,173	0,193
Diversified products and services in international markets	2,59	3	1,257	0,207

Table 3

ANOVA analysis of differences between technological capabilities of domestic-oriented vs. export-driven companies

Capabilities	Mean square	F	Sig.
Design capabilities for local market	0.040 0.137	0.290	0.915
Design capabilities for international markets	26.389 1.073	24.587	0.000
Programming capabilities for local market	0.036 0.058	0.627	0.434
Programming capabilities for international markets	28.889 1.183	24.427	0.000
High quality on local market	0.002 0.207	0.011	0.917
High quality on international markets	23.308 1.710	13.630	0.001
Prompt delivery on local market	0.654 0.995	0.657	0.424
Prompt delivery on international markets	10.928 2.104	5.193	0.029
Specialised expertise in domain in local market	0.005 0.992	0.005	0.943
Specialised expertise in domain in international markets	29.403 1.689	17.411	0.000



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# EXAMINING URBANIZATION AND ITS IMPACTS IN THE BALKANS USING GIS AND REMOTE SENSING

*Assoc. Prof. Dr. Michael A. McAdams  
Fatih University, Istanbul, Turkey*

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## 1. Introduction

This paper discusses the possibilities of the use of geographic information and spatial technologies (ST) to analyze urbanization in the Balkans. This area is complex with a unique set of urban problems. However, there are some common themes such as infrastructure improvement, environmental protection and adequate housing needs. The use of spatial or Geographic Information technologies (e.g., GIS, Remote Sensing, GPS, spatial modeling etc.) can provide decision-makers the ability to organize and study spatial related problems and solutions.

For the purpose of this paper, the Balkan countries are considered as 1) the former Yugoslavian Republic (Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, and Macedonia), Albania, Romania, Bulgaria and Greece. Türkiye will be discussed due to its proximity to the Balkans, common concerns and integration/cooperation opportunities. The levels of integration of the Balkan countries with the European Union (E.U.) are varied and loosely group these countries' levels of stability and economic development. Some of the Balkan countries are new E.U. members such as Bulgaria and Romania (as of 1 January 2007.) Others are candidates for membership (Croatia, Former Yugoslavia Republic of Macedonia, and Türkiye). Other countries such as Albania, Serbia, Bosnia and Herzegovina, and Montenegro) are seeking E.U. memberships, but are not on the list for candidacy. Greece and Slovenia were E.U. members prior to the entry of Bulgaria and Romania. Slovenia has adopted the Euro as of 1 January 2007 (E.U., 2007). Although there are distinct and unique problems in each of these countries, there are many commonalities as will be discussed later in this paper.

The use of Spatial Technologies (ST) which includes GIS, Remote Sensing and Global Positioning (GPS) can aid in decision-making related to the myriad number of urban issues in the Balkans such as the provision of adequate infrastructure (transportation, telecommunications, water and sewer etc.), establishing housing for

all income levels, environmental pollution, land use planning and many others. Regardless of the ability and potential of ST to aid urban analysis and decision making in the Balkans, some prerequisites should be met. These would involve, but not limited to: adequate funding for the implementation of ST in appropriate sectors and levels of government; the integration and transparency of spatial data; training of persons equipped with ST skills and increased cooperation on a regional and international basis.

## **2. Critical impact areas of urbanization in the Balkans**

Urbanization is one of the key issues in the Balkan Europe countries and has been shaped by numerous forces. One of the overriding themes in this area is the transition from former communist states and centrally controlled economies to democracies and capitalism. This affects almost every aspect of present urban development. Recovery from civil war in the former Yugoslavian republics is another thread. Overall, all the economies in this region could be considered developing ones, with the exception of Greece and Slovenia (World Bank, 2006). The next section will briefly outline some of the urban themes (environment, housing, transportation, urban planning) and then address the role of spatial technologies.

There are numerous environmental problems in the Balkan in terms of water, air and noise pollution. Urban areas significantly contribute in the overall environmental status of the region. The exact nature and severity of the problems vary according to each nation. A current inventory of the environmental problems in the region has been well summarized by the Regional Environmental Center for Central and Eastern Europe (R.E.C, 2006). For example, water pollution, solid waste disposal, waste water management are major issues in many of the former Yugoslavian states. In Albania, many of the streams are being polluted by untreated sewage. In Bosnia and Herzegovina, many tons of solid waste has been disposed improperly due to the conflicts in the area. In all countries, greater private vehicle ownership in urban areas is causing increasing vehicle related emissions. There are significant efforts in all countries to address environmental problems (Fiedler, J. and Artim, 2005). In the case of the Government of Bulgaria, the Ministry of Environment and Water (2006) is presently undergoing major efforts to comply with E.U. regulations. The challenge in some of these countries is: obtaining and efficient management of financial resources; setting priorities; and establishing legislation and enforcing existing regulations to meet EU standards as a candidate countries (i.e., Croatia) or as a country desiring to enter negotiations as a candidate country (i.e., Albania, Bosnia and Herzegovina) (REC, 2005)

Adequate housing is a concern for all countries in the region. The former communist countries of Romania and Bulgaria are dealing with inadequate or poor housing stock. In Bulgaria, there were loans during communist times for housing, but since the introduction of a market economy there are not enough resources to provide for adequate housing. Organizations like Habitat for Humanity are attempting to fill the gap (Habitat for Humanity, 2006). Many of the former Yugoslavian republics have to reestablish an adequate housing supply for many who lost their homes during the

ethnic conflicts in the area (Wegelin, 2005). There are also problems with illegal housing development, as the private sector is unable to meet the existing housing needs, particularly in some of the former Yugoslavian republics. In many cases, efforts to improve these situations are being hampered by the economic status of many of these countries.

Urban development has been affected by the past economic and political environment. During the Cold War, the interaction of economies and their urban centers was very limited. In the present, urban landscape (see Figure 1), it can be seen that there is limited hierarchy of cities in the region. The dominant Balkan cities are Zagreb, Beograd, Sofia, Bucuresti and Athina. The largest city in the region is Istanbul. There is a noticeable absence of second order cities in the Balkan region. None of the cities in the Balkan area could be considered global economic centers cities (Beaverstock, 1999). Istanbul, albeit being one of the largest cities in Europe is a minor global center being eclipsed by cities such as Frankfurt, Zurich, London, Paris and Milan. There is a potential for Istanbul to a major financial and service center in the area (McAdams, 2006.) The development of regional urban centers is crucial as they contain the main industries and service sectors of this area.

Transportation is a key factor in the economic and political integration of all the Balkan countries. Urbanized areas, as key locations of economic activity, could benefit greatly from a better inter-urban and inter-regional transportation network. Due to the past fragmentation and the isolation from the rest of the European countries, the Balkan countries have inadequate links to the rest of Europe and to other surrounding countries (i.e., Ukraine, Russia, and Türkiye) (Papadaskalopoulou, 2005). As can be observed in Figure 1, there are some major limited access highways that are continuous, but there is a lack of conductivity between the cities of the region, Western Europe, Russia, Central Asia and Turkey. To improve mobility for personal and commercial activities, there needs to be an integrated inter-regional highway network linking up with other major European cities. The concept of a connected European transportation network has been specified by the E.U. as the Pan European Corridors. The further development of the area is directly related to the creation of a robust surface transportation network which will allow the efficient transport of goods and services between the major urban areas. One of the greatest needs is to improve the connectivity of the region's railroads and integration with the network of high speed railroads developing in the rest of Europe. The problems and proposed improvements in the transportation infrastructure in the region are well documented in the European Commission' report: Regional Balkans Infrastructure Report-Transportation. (2003).

There are several corridors which are need of improvement, as illustrated in Figure 2. These corridors are based on the author's preliminary analysis of the transportation systems and proposed corridor improvements as delineated by the European Commission (2003, 2006). These corridors would not only include surface transportation, but also marine corridors. Improvement of these corridors would aid transportation not only to Western Europe, but to the Russian Federation, Central Asia and the Middle East. The improvement of the transportation network is crucial in creating links to Central Asia and the Middle East. The improvement of these corridors due to improved surface transportation will stimulate further economic

development in Southeast Europe.

In urban areas, transportation infrastructure needs to be upgraded. Most of the urban areas are experiencing more vehicles in the traffic flow due to increasing automobile ownership (SWPG, 2004.) This is causing increased congestion in most of the cities in the area. There are inadequate funds to improve existing facilities and construct new ones. Public transportation is quite extensive many of the cities, but the systems often contain aging vehicles which also contribute significantly to the air pollution of the cities (SWPG, 2004). In many cases, improvement of transportation facilities and construction of new facilities are without preliminary studies (SWPG, 2004).

Many of the urban areas in the region are struggling to transition to a developed economy. They are transitioning from Post-Industrial and centralized economies to market driven and the information/service sector oriented urban economy. Some of the countries in former communist countries have seen industrial development decline as firms compete in the global market. In many cities, one can see the abandoned factories, which is symptomatic of the changing economies. However, these economies share many of the same traits as other developing economies around the world (Dimirovski et al., 2006). There is still a great amount of disparity between other Western European nations and the Balkans. Petrakos and Stoyan (2000) identified some of the key economic difficulties that the Balkans are experiencing related to economic development such as inability to integrate with the economies of surrounding countries, and fragmentation. These problems are being addressed through the E.U. (European Commission, 2006b) and particularly through the group facilitating the Stability Pact of South Eastern Europe (SPSEE, 2006) There are also numerous organizations such as the World Bank (World Bank, 2006), Habitat for Humanity, the European Bank for Reconstruction and Development (2006) and others such as the sponsor of this conference—The Austrian Science and Research Liaison Office in Sofia (ASO, 2006.)

Predictably, one of the goals of this region is sustainable urban development, but it must be geared toward the specific needs of the region (Slaev, 2004). To make this transition, there needs to be adequate urban and regional planning. However, the urban planning strategies should be tailored to the specific urban environments of particular countries and not taken from traditional planning methods from more developed counties.

Without significant effort by the E.U. and the individual governments and investment in this region, there is a possibility that this region will remain significantly underdeveloped, creating cities which will be excluded from the main network of European cities. The inability of governmental bodies (E.U. and national governments) and NGO's to 'bootstrap' these urban areas to the standards of other European cities could result in these cities continuing to be the shadows of other major European cities and not rising to new heights as vibrant and strategic centers bridging the East and the West.

## **Türkiye's urban context and relationship to other southeast European countries**

Türkiye, although not a Balkan country, can be considered part of Southeast Europe and has many economic, political and cultural connections to the Balkan countries. However, some of the internal underpinnings are substantially different from its Balkan neighbors in that it that: it was not under a Communist economic and political system as most of the countries, with the exception of Greece; its economy is comparatively robust compared with the transitional and wobbling economies of most of the Balkan countries and there is substantial capital for infrastructure improvements. (Government of Türkiye, 2006a.) These have direct relationship with many aspects of its urbanization. It however does share many of the same urban problems as many of its neighbors such as air pollution due to increasing vehicle ownership, watershed protection, housing problems, and a transitional economy. Similar to other Balkan countries, it is striving to meet the requirements to join the E.U such as implementing new legislation and making related major infrastructure improvements (Government of Türkiye, 2006b.) Some of the major transportation infrastructure improvements that will be completed in the near future are: the railroad tunnel under the Bosphorus which will greatly improve movement in Istanbul and inter-regional/international movement of good and services (Marmaray Project (Marmaray Project, 2006), a tunnel under Bolu Mountain that will reduce the travel from Istanbul to Ankara by almost half and a road connecting the major Black Sea cities (Wikipedia, 2006). Urbanization is somewhat different in that there is a well developed system of hierarchy of cities within a national context (Gedik, A., 2003). The largest cities and also the most prominent centers of economic activity are located in western Türkiye. Istanbul is the dominant city containing most of the financial centers and headquarters for the country.

With the collapse of the Soviet Block, the economic interaction between Türkiye and the Balkan region has dramatically increased and expected to increase further. For example, in 2000 the volume of trade between Türkiye and Bulgaria was approximately \$500 million dollars and in 2005, it was approximately \$2 billion (Balkan Regional Center for Trade Promotion, 2006.) This represents approximately a 350% increase, which is still dramatic even when accounting for inflation etc. Other countries show similar increases. Istanbul, being the predominant center in the area and close to the markets in the Balkans, has the potential to be a major service and commercial hub for the area (McAdams, 2006.) It also has potential to link markets in the Balkans with those of the Middle East and Central Asia. Presently, it is not known how many firms are involved with the export of manufactured goods or the provision of services to the Balkan countries in Istanbul. However, if the trade volume is an indicator, it is a significant amount.

One of the greatest needs of Istanbul and Türkiye is a well developed transportation network in Southeast Europe. In other regards, Türkiye has more resources than some of the Balkan states and have stronger institutions and financial resources to aid urban areas. However, these financial resources are being strained by a growing population and greater economic expectations. There is already a significant amount of interaction on mutual concerns between Türkiye and the rest of South Eastern Europe. However, there is a need for increased communication concerning mutual

needs related to urbanism.

### **3. Contributions of ST to enable decision-making in the Balkans**

Spatial technologies (ST) are essential in analyzing these pressing urban issues. Spatial technologies include GIS, Remote Sensing and GPS. They are part of a developing area referred to as Geographic Information Science (GIScience) (Longley, 2005.) GIScience examines issues that encompass the present spatial technologies. The affordability of the PC this changed the accessibility of GIS such that GIS has become the most widely used for spatial analysis by both the private and public sector for numerous tasks from emergency management, urban planning, store location, resource development, transportation planning, gas and water line planning and numerous other tasks. The Internet has allowed for unprecedented sharing of geographic data. These technologies in combination with digital spatial data are now considered essential for the study of multiple problems at all scales (national, regional, and local.) In the public sector, most agencies and local governments in developed and developing nations consider ST as an integral part of their organization. In many areas of the private sector, ST have become an important element in their operation. The private sector is relying heavily on the public sector for the standardization and creation of spatially related data. The accessibility of spatial data is increasing rapidly due to the developments in the technological sector. The public, while not aware of the exact nature of ST, are increasing relying on its ability to provide information. A good example is the popularity of Google Earth. There is an increasing public demand for accessible and reliable data from the public sector of which ST often plays a key role. It is expected with the increasing affordability of technology and its diffusion into the global society that the demand for digital spatial data will increase. The potential of ST is presently just being realized by those in all segments of society. The transition from an analog to a digital world has mostly occurred in the developed world in all segments of society. Their problems now reside in areas of methods of delivery, integration, standardization, reliability and accuracy. In developing countries, which some of the Balkan countries could be classed, the problem is that many public agencies do not have the resources or the proper support to enable it to be an active force in geographic analysis.

From a preliminary review of the use of ST in the Balkans, there has not been widespread use of ST to study urban problems.

The following could be examples how ST could be used to solve the region's urban problems:

#### *3.1. Housing*

One of the basic functions of urban ST is to inventory land use. Using GIS one can inventory housing as to location, ownership, quality and value. These inventories can be used for housing studies and for forecasting future growth. The inventory of housing stock by GIS is of particular importance when locating areas of cities where there is substandard housing. In the case of some of the Balkan countries, illegal

housing development is a problem. High resolution satellite images can be used to document where these settlements are located.

### *3.2. Transportation*

Transportation systems in the Balkans can be viewed at various scales. There is an inherent relationship of internal transportation and external transportation needs. There is a specialized group of GIS programs that are directed toward transportation often referred to as GIS-T. GIS-T can be used for facility inventory and classification, traffic monitoring, travel demand modeling, traffic engineering, public transportation scheduling and monitoring and many other tasks. The connectivity and inter-urban and inter-regional travel movements and demands including freight for all modes of transportation can be analyzed through GIS-T programs with travel demand modeling extensions. Likewise, GIS-T can be used to forecast future movement demands for particular urban areas. In the Balkans, GIS-T could be used in many studies to analyze future travel demand for regions, countries or urban areas. In addition, future alternatives can be developed and tested as to their impact on traffic reduction, air pollution and energy efficiency.

### *3.3. Environment*

ST is widely used in analyzing the environment. In the Balkans, GIS and Remote Sensing could be used to analyze and monitor the spatial distribution of water quality, air pollution, loss of farmland and forests due to urbanization, erosion, flooding, ground water pollution etc. ST can also be very useful in monitoring of compliance with E.U. regulations.

### *3.4. Urban and Regional Planning*

ST has long been used in developed countries for urban and regional planning. Remote Sensing images have proven to be very useful in monitoring urbanization. There are many tasks that in urban planning that ST can assist such as planning of future water lines, regulation compliance (housing codes, zoning etc.), protection of historic areas, areas, flood mitigation, traffic impact of new industries, economic development, environmental protection and travel demand.

## **4. Realizing a more active role for GIS in the decision-making in the urban development process in the Balkans**

There is growing ST community in the Balkans, from a preliminary examination. However, regardless of the robustness of ST and the ability of these technologies to assist in decision-making, it can not be a viable tool in urban decision making before certain conditions are met. Some of the conditions that are needed are:

### *4.1. Standardization and transparency of geographic data.*

One of the problems in the GIS community is the multiple data forms in terms of specialized files that can only be used by some GIS programs and not by others or the use of numerous datum and projections. In addition, there is the limited access for researchers to spatial data. The ability to access to data and the level of quality is commonly referred as transparency. Much urban GIS data in the Balkans is not readily available for use in research and other analysis. By the creation of Internet portals, many parties could have access to urban spatial data. Presently, these efforts are being undertaken in the European Union by INSPIRE (2006). There are some efforts by some of the member countries to develop standardization of spatial data. In Bulgaria, there is no central mapping agency or country-wide GIS. Through the INSPIRE program, Bulgaria is attempting to address some of the problems with spatial databases (Vandenbroucke, 2005.) Other countries appear to be in the beginning stages of standardization and transparency.

#### *4.2. Development of Urban GIS databases*

This would involve using existing databases and the creation of new ones. This is a prerequisite for any GIS analysis. These databases should be configured so that they can be used for multiple purposes and exclusively strictly project oriented. At this time, it would appear that only a few cities in the Balkans have a fully developed GIS. There are some agencies and universities that have GIS databases, but the interchange of data between different levels of government appears to be fragmented or non-existent. In a U.N. report on housing and development in Montenegro and Serbia, it is stated that some large cities in Montenegro have GIS databases, but there is poor organizational support (UN, 2006.) The report contains significant discussion concerning the poor state of cadastral documentation, but only has this one reference to GIS. This in essence disregards the ability of a GIS to organize spatially related data. Unfortunately, this de-emphasis of GIS appears to be endemic among international organizations and the governmental bodies in the region.

#### *4.3. GIS education in higher education institutions*

Before GIS can be an integral part of urban analysis, there has to a sufficient number of professionals that are qualified to be able to develop and maintain GIS systems. At present, very few university that offer GIS programs in the Balkans. There needs to be more universities and other institutions providing training for both professionals and technicians who are experts in ST. Evidence of this lack of GIS education at a university level is that the only university in the area that has ESRI licenses is one university in Slovenia (ESRI, 2006a). There are at GIS programs departments in Bulgaria, Romania, and Slovenia. (ESRI, 2006b.) There are several programs in Turkey. Fatih University is the only program offering a full program in English.

#### *4.4. Regional and national ST coordinating associations and institutes*

There are many organizations that could coordinate GIS activities in the region. There are organizations in the Europe that are presently dealing with the use of spatial technologies such as the European Umbrella Organization for Geographic Information (EUROGI, 2006). It should be noted that none of the countries in Southeast Europe

are included in this organization. There are others such as the Network of Associations of Local Authorities from South-East Europe (NALAS, 2006) which is dealing with common problems such as waste water management and other urban issues.

#### *4.5. Adequate funding for hardware, software, infrastructure and GIS projects*

There are also numerous organizations that are funding projects to aid urban areas. One of the most prominent is the European Bank for Reconstruction and Development (2006) who gives assistance in public infrastructure and other capital needs of cities. The European Union also is contributing substantial financial support for projects such as waste water management, environmental monitoring and for the promotion and compliance with E.U. regulations. There is little evidence that funds are being allocated for the infrastructure, data collection, and software, training and technical assistance for the use of ST in these projects.

### **5. Conclusion**

The countries in the Balkans are coping with common urban concerns such as traffic congestion, pollution, sustainability, economic development and housing. In addition, many of the Balkans are harmonizing their regulations and infrastructure with those the E.U. This has direct impact on urbanized areas. Spatial technologies are essential in analyzing these complex issues and assisting decision making.

There are multiple funding agencies including the World Bank, and the European Union that are involved in the previously mentioned urban issues. However, in a preliminary review of some of the funded projects, there was an absence of the mention of the utilization of ST. These are the most appropriate institutions for assisting the integration of GIS in appropriate projects and programs. Most essential is constant funding for qualified ST professionals, hardware and software and the related infrastructure.

Some example start-up urban GIS projects for the Balkans would be:

1. a prototype urban GIS that could be reproduced for all urban areas in the region;
2. an integrated travel demand model all modes for regions and urbanized areas;
3. a model project for air pollution modeling; and
4. a watershed inventory and regional modeling effort in a test area.

In urban areas, ST is not a luxury or a frill but an essential element in urban analysis and management. For the Balkans to be able to deal with urban problems, the use of GIS must go beyond a project-oriented tool to one which is integrated with the urban decision making process. This will not happen over night as there has to serious

efforts by regional, national and regional institutions to ensure that ST plays an integral part of every project and program.

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Figure 1

Major Cities and Primary Roads in Southeastern Europe

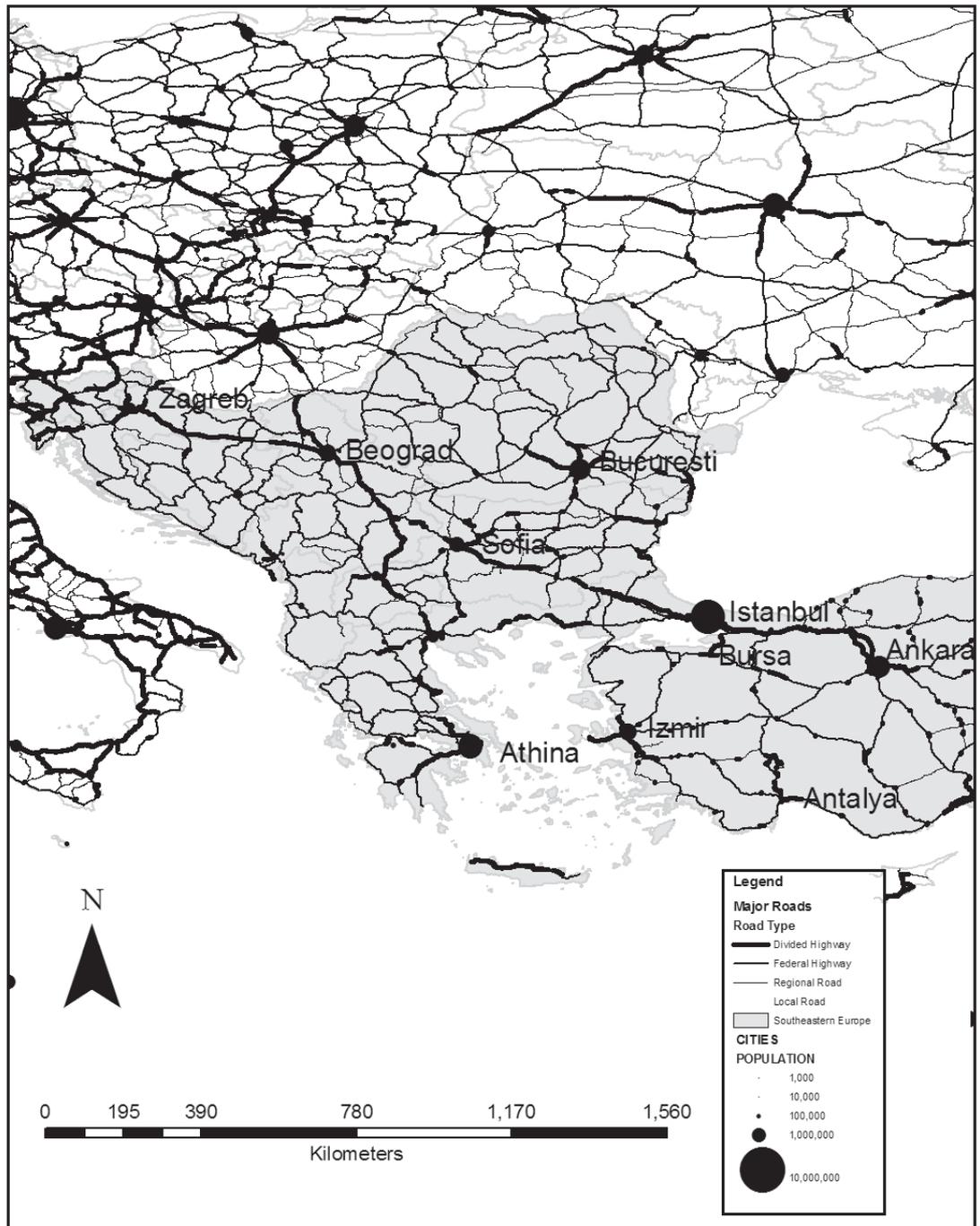
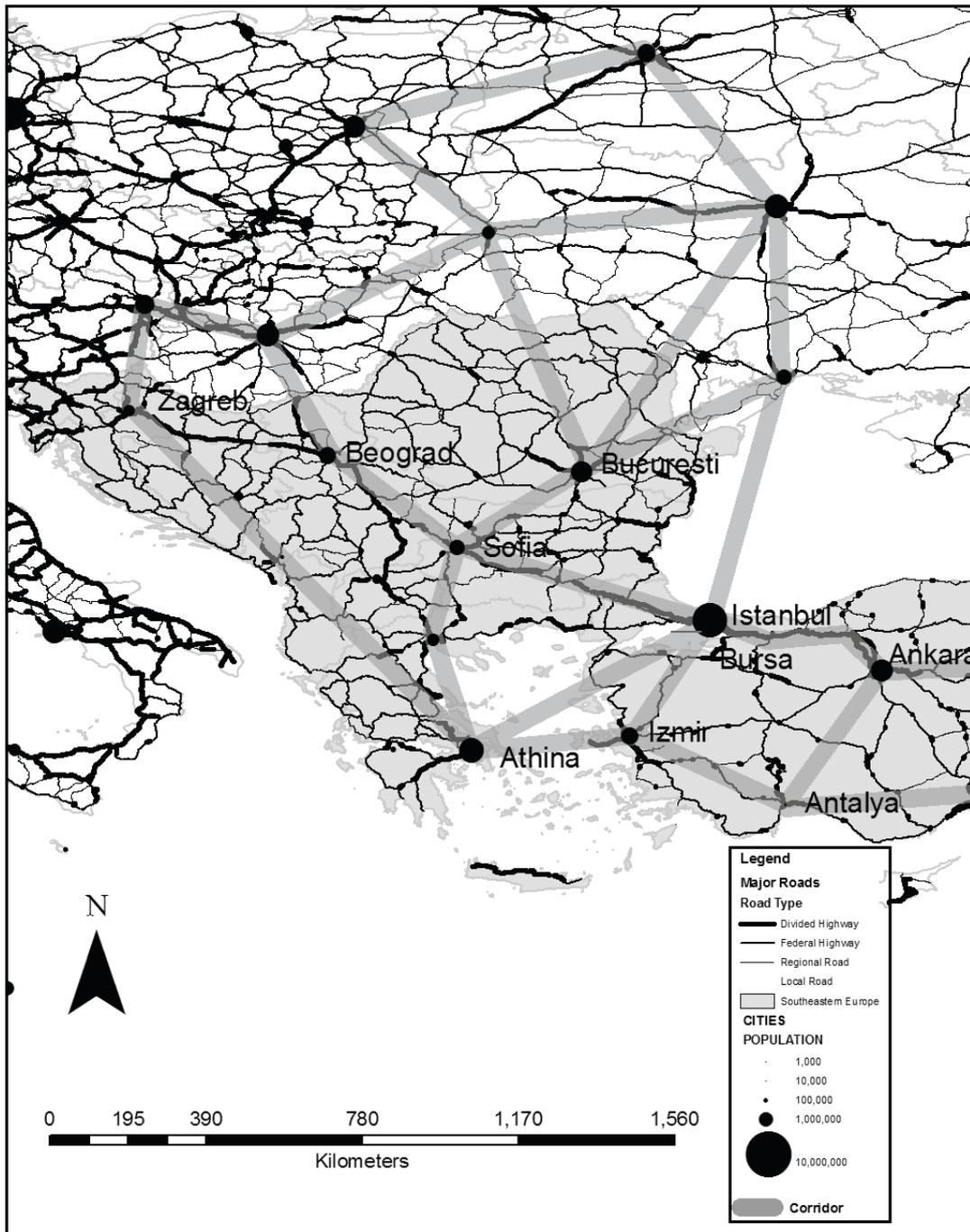


Figure 2

Proposed Major Corridor Improvements





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# EUROPEAN ECONOMIC INTEGRATION AND DEVELOPMENT OF SCIENCE, TECHNOLOGIES AND INNOVATIONS IN THE RUSSIAN FEDERATION

*Dragomir Gospodinov*  
*International Academy “International Integrated Person (IIP)”*

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## **1. Macroeconomic Priorities and Tasks for Changing the Status Quo in the Russian Federation**

The state, the government can play a very important role in the new knowledge-based economy for establishing the model of the open innovations.

But this role strongly differs from what the authorities have done before.

The state can participate in the financing of the studies at their early stage.

The state can invest in education.

The state should have a significant role for protection of the intellectual property. Each company should exactly and clearly know that its intellectual property is protected by the law.

The state should contribute to the exchange of knowledge, information and technologies by organizing different by type and subject conferences, contests, competitions, bestowing prizes, etc.

The state should pay attention to the large, leading companies in the country. At the same time it should watch closely, so the policy, carried out by the authorities, receives support by these companies, but at the same time not paying enough attention to the smaller companies and firms.

As a result of this position it is possible that the state will not act in the interest of the small business and even will prevent it from developing and turning into large business.

The small firms and companies become noticeable for the state when they start uniting, merging, buying out, when they have sufficiently strong financial power and sufficient manager skills to offer successful structural changes of the state.

These tendencies are observed in the leading developed industrial countries. They are more and more specific for the Russian Federation as well, where the consolidations of different branches turn into large corporations with strong financial resource.

That is why we can say that the macroeconomic priorities between them and Russia, especially in the discussed here area of knowledge, more and more match.

In this connection we have to state that the science, the new technologies and innovations are leading in the development of the Russian Federation.

In the 2005 Annual report of the International Institute for Marketing Development and at the World Economic Forum the experts stipulate that Russia will be able to achieve much higher results, if it pays more attention to its non-material assets: technologies, know-how, intellectual potential, creating national trademarks. More attention should be drawn also to the information technologies, as a basis for quality economic leap.

In his speech at the **Federal Assembly of the Russian Federation on 10<sup>th</sup> May 2006 President Putin stated** that "... In the conditions of cruel international competition the economic development of the country should be determined mainly by its scientific and technological advantages ..."

Further he stated that without disturbing the financial stability, a serious step towards stimulating the growth of the investments in the production infrastructure and in the development of the innovations should be made. In this connection the Russian economy should be directed towards its realization in such high technological areas like modern energy, communications, space, airplane building, in order to become a large exporter of intellectual services.

One of the future tasks of the **Russian economy is to become one of the leaders in the area of the nanotechnologies**. This is one of the most perspective directions and ways of development of the energy saving, element basis, medicine, robot technics.

**One of the set tasks is to create such innovation environment, which will provide new knowledge in the production on the belt. That is why a necessary infrastructure should be created: technical-introductive zones, techno-parks, venture funds, investment funds.**

In his speech **at the opening of the Cuban Economic Forum in Sochi at the end of September 2006 German Gref**, Minister of Economy and Development of the Russian Federation, stated that the innovation production, for which the necessary institutions and conditions will be created, is among the main direction of the macroeconomic development of the country.

In his welcoming speech to the participants in the forum the President Putin confirmed

the purposefulness of the country to build innovation production, where not the capital but the innovation ideas will play a key role. He reminded the local authorities of the necessity to create comfortable business climate for attracting foreign investments.

The **Russian Bank for Development**, which regulation capital has increased to about 2.5 billion USD, plays a big role for implementing a policy of innovation development. According to the intentions of the Russian government, together with Vnesheconombank and Roseximbank, it will be in the basis of the new powerful bank state corporation **Development Bank** yet in 2007.

A **Program for maintaining the Russian high technological export** was approved (for a first time), for which at the first stage 700-800 billion USD are planned.

An **Investment Fund** is already established, directed towards financing such infrastructural projects, which do not give profit. The amounts given as co-financing will have 4% interest (with planned country deficit 8%).

For 2006 the fund will have 69.7 billion rubles, in 2007 this amount will be 95.8 billion rubles and for 2008 – 91.4 billion rubles are planned. The conditions for project application are already determined. The projects should be for more than 5 billion rubles, should have investor, who is prepared to invest funds in the project, should have evaluation by investment consultant, should have full and detailed evaluation of the financial and budget investment of the project. The procedure on approving the first projects is already undergoing.

**At the moment Russian Venture Company (RVC) is formed.** The company's capital is 15 billion rubles. The first money, which will go from it to the consumers, will start in June 2007.

It is a state fund, which on one hand is an aggregate of venture funds. The experience of USA and Israel is used. The money from RVC to the venture funds has 3% interest. Private investors have the opportunity to buy the RVC part. The objective of the state is not to accumulate money but to enable the existence of a high technological sector in Russia – startups. Exactly the startups, these small innovation high technological companies, ensure the progress of the high technological sector in the whole world. They are a perfect environment for realization of the entrepreneurship initiative of the talented innovators as well.

Criteria for a choice of venture funds are also developed. The venture funds are general and specialized (IT, biotechnologies, nanotechnologies, etc.) and the necessary diversification is sought – not less than 8 companies for 5 years.

The **Special Economic Zones (SEZ)** are created as an instrument for turning the intellectual potential into a specific resource for developing the economy in Russia. They should become the core of the national innovation system.

In 2006 they received 8 billion rubles financing, and in 2007 – 15 billion rubles. A special Federal Agency for Management the Special Economic Zones is created.

With Decree of the Russian government from 21 December 2005 four technical introduction zones (Dubna, Zelenograd, Saint Petersburg, Tomsk) and two industrial production zones (Lipetsk region and Elabuga) are created.

The largest Russian and foreign companies – leaders in their branches, will be among the potential residents of SEZ.

The establishing of a port SEZ is a perspective direction. The Recreation SEZ in the region of Baikal, Teletsk lake and Black Sea coast are the same.

## **2. Russian Government Plans for Supporting the Sciences, the Russian Academy of Sciences, elite universities, the creation of special schools, scientific towns, etc.**

According to different numbers **in the world scientific environment, the value of the newest technologies is about 3.5 trillion USD**, the biggest part from USA, Japan and Germany. For Russia it is about 0.2%. According to Russian data, 15-20% of these world technologies have Russian origin, but it “slips out” and does not bring profit to the state.

The Russian legislative and executive power more clearly understands that together with the natural resources it should maintain and develop the intellectual potential of the country as well. In this connection recently the **Chairman of the Federation Council** (the upper chamber of the Russian Parliament) **Sergei Mironov** stated: “The prosperity of Russia – it is not petrol and gas but intellectual potential of the people”, and in his quality of co-chairman of the National Committee “Intellectual Resources of Russia” he revealed that the main growth in the budget of the country should be ensured exactly by developing the intellectual resources.

In reality the **intellectual potential** of Russia, if evaluated by number of scientists and people working in the scientific-technical area, can be very high. In the past around 12% of all scientists in the world worked in this area in the Soviet Union. But after the change of the social-economic conditions it turned out that the science-consuming production in the country is only 1.5%. At the same time the talks that in Russia the potential is high continue.

More and more attention is drawn to **the role of the scientific leader**. They try to keep his very important role, because when such leader leaves, the whole link collapses, and even a whole scientific institute.

Different forms of communication are sought. Attempts are made to build intellectual bridges “East – West” through the opportunities of internet, to carry out scientific conferences through the World Forum “Intellectual Russia”, etc. The purpose is in this way to bring back the interest of the people who have left Russia, to make them feel again part of the Russian culture. Forthcoming is the further development and realization of the idea of a World Russian-speaking university, in the frames of which scientists, who have left Russia and work in different institutes in the world, will unite.

As it is in the whole world with such initiatives, the state should enable its realization.

The government of Russia is trying to transform the experience and prestige of the **Russian Academy of Sciences (RAS)**. The approved in the beginning of September 2006 project for annex to the Science Act brings back some of the old pillars of dignity of the Academy, set at its initial starting in 1724. The President of the Academy is appointed by the head of the country, and the statute of the Academy is confirmed by the government. The government will determine the salaries of the academicians and members-correspondents, as well as their number. According to the project RAS is no longer a budget distributor but only a director. The statement of the minister of education and science Andrey Fursenko is that "if the academy is a state structure and this structure possesses the responsibility for state regulating of the state ownership, then it should be headed by a man, appointed by the state. The form of such regulating should be coordinated with the government".

We will give concrete data for the changes in the salaries of the research fellows in RAS. According to a signed decree from the beginning of May 2006 the salaries of the scientists increases almost twice in 2006, and in 2008 this increase is five times. The new payment system changes radically the existing situation: in 2006 the average salary was about 11 000 rubles and in the beginning of 2006 it had been 6 000 rubles. In 2007 it is 20 000 and in 2008 – 30 000 rubles.

According to the Vice-President of RAS academician Alexander Nekipelov, the reform to a some extent concerns 112 000 people. Concerning the work of RAS, it must be noted that it is still measured by the known indicators: number, staff and movement of the personnel dealing with studies and developments, as well as the preparation of scientific staff, organizational structure of the science (number and staff of the organizations, carrying out the studies and developments), material-technical base of the science (presence, structure, movement and use of the main funds for studies, staff, dynamics and execution of the working funds for studies and developments); information resources of the science; financing the studies and developments (volume and structure of the costs for studies and developments; dynamics of the costs for studies and developments); results from the scientific studies and developments, publication activity, creation of technologies (patents, licenses, models of new types of machines, equipments, etc.).

Together with the known approaches the view that the **science should concentrate in the leading, elite universities in the country, which carry out research activity**, is more and more outlined.

Of course in the future part of the resources will be again put in the state academies, but as the former president of RAS academician Yuri Osipov admits, "more than 2/3 of the actual members of the academy, of which according to its statute the president of the academy, the vice-presidents and the academicians-secretaries can and should be elected, are aged over 70 and in fact are out of the list of candidates." In the fundamental science the present average link is far from its abilities.

That is why it is considered that the input of money in the academies is rather socially

necessary. In this way those people who are old and at the same time a real value to the science and society are supported.

But the government and the scientific areas agree that this road does not lead anywhere.

**That is why the money should be put in the research universities and the academic towns Dubna, Pushtino, Chernogovoka, Novosibirsk and other, where the scientific studies are carried out actively.**

As far as the fundamental studies in the research institutes and academic towns go, according to the planned reform they should move to the **new federal body Federal Agency for Fundamental Studies**, which most probably will emerge on the basis of the current Federal Agency for Science and Innovations.

The role of the leading Russian universities strongly increases, and mostly of the Moscow State University, Bowman Moscow State Technological University, Saint-Petersburg State University, both Tomsk universities, Kazan University and other acknowledged universities. In the West they are prestigious universities, and their graduates have substantial advantages in acquiring a place on the labor market in USA and to a smaller extent in Europe.

The world experience shows that where a serious research activity is carried out, where there are own research institutes, own students construction offices, own youth research centers, financial resources should be invested.

The next step is the creation of business zones around those universities with a statute of "research universities". Naturally this is again a world practice. This introductory zone is based on trade structures, which are created by graduates of the university, bearers of certain technologies, but on their trademarks should be placed the firm logo of the university, so the people can see: the university manages the holding of these companies. To have the firm logo of an acknowledged university is prestigious.

All these companies can be large, middle-sized, small ones. All they work for achieving: 1) trade result, and 2) fast introduction of the developments, created inside the university.

The double profit is exactly in this. On one hand, these firms provide profits for the society. On the other hand, the concrete people, living in the near towns and villages, and even further, see the results from the work of this university. This includes also the improvement of the ecological situation on account of the actions of the university, the improvement of the health of the population on account of this university. The experience is again from USA. The Texas University has its distinguished medical center with highest degree of medicine, cardio surgery. Russia is also planning to apply it and every person can be treated for free. They will also show the population, the tax payers the significance of the university education.

**The Russian knowledge system** is famous with its bases. At the same time the elite universities more and more count the necessity for solving completely new problems, which the future specialists will face in 5, 10 or more years. That is why these universities consider how to train these specialists to make them competitive even then.

We will remind the audience the winged phrase that **the changes in the economy and knowledge in the beginning of the 21<sup>st</sup> century can be compared with the moment when the monkeys have set foot on the ground and have started to walk**. It is clear that the world is changing faster, more and more directions of the knowledge appear. And those universities, those schools, which do not understand this, or which stop looking for the changes, will be in a position of knock-down. The universities, which fall back – they are not competitive anymore. They just die.

One of the ways is the constant establishing of new faculties and new curriculum. It is well-known to the audience.

Another way for instance is also interesting for us – the establishing of **special schools**.

We will share the experience of one of them. It is the Dubna International University of Nature, Society and Man, which is one of the most progressively developing universities in Russia. The creative team, which has established it, is from the Russian Academy of Natural Sciences, the Joint Institute of Nuclear Research and Moscow State University. The new university employs many professors from Moscow State University, who have tried to bring the good tradition of the Russian scientific school, and at the same time they contribute to confirming many innovations in the educational process. Thus **the absolute integration between the science – fundamental and applied – and education** starts. Many school laboratories are positioned on the territory of the Joint Institute of Nuclear Research, MKB “Raduga”, “Tensor” plant and other large enterprises. Today, 11 years after its creation, the university trains 6000 students.

The striving of the whole training staff is to give the students highest class quality of education on almost 30 majors. The students have the opportunity to work in the conditions of a unique research base. They dive in the real structures of the town, region, Moscow, where a very good opportunity for real practice, habits and working skills exists. Exactly this is the focus in this university – not only base studies but also working skills.

The list of the university consists of many innovations.

Among them is the fact that for now this university is the only “governor’s university” – the governor of Moscow region Boris Gromov is chairman of the Trustee Council of the university and himself gives attention to its development.

The state support is at regional level. The university builds new school corpuses, sports facilities and a real university town is established. We have to note also the

science program and wise policy of the government of the town. Thus, a true, European, modern university is formed, which shows one of the new directions in the Russian scientific school.

Another phenomenon in the Russian practice is the **establishment of business schools**. The specific for them is that they are established by the rich businessmen and companies with the goal to “create businessmen from the highest levels”.

Such business school is the **Moscow School of Management “Skolkovo”**, which will be established in the Podmoskovie. It will be situated on 260 private decares, valued at about 52 million USD, which are part of the financial participation of Roman Abramovich.

Everything in this school will be “premium” class. Even the design of the students food block is made by the modern worldwide architect David Adjaye, a British of Tanzanian origin.

The financing of the establishment of the Moscow School of Management is made by “private-state partnership”.

President Putin, first vice-prime minister Dmitrii Medvedev, president's assistant Igor Shuvalov, Moscow mayor Yury Luzhkov have been guests at its opening.

Partners-founders are: ITERA company, First Czech-Russian Bank, “Russian Standard” company, “Severstalgrup”, GUM shopping mall, “Troika Dialog”, SUN Group, TNK-BP, Alexander Abramov (Evrash Group), Roman Abramovich (governor of Chukotka region), Ruben Vardanian (Troika Dialog), Leonid Mihelson (Novatech), Valentin Zavadnikov (member of the Federation Council), Andrey Rappoport (RAO “UES of Russia”).

The Trustee Council of the school is headed by the first vice-prime minister of Russian Federation Dmitrii Medvedev, and his deputy is the rector of the Academy of National Economy at the government of the Russian Federation academician Vladimir Mau.

For now the school's budget is 100 million USD. The goal of the program is to train the next education of billionaires of Russia. The group of the 14 richest businessmen and companies plans to gather 200 million USD more for the creation of a “Fund for support of the school's activity”. There will be lectures on Crisis Communications, Social Responsibility, as well as on the famous Machiavelli management doctrines. Master's classes on enrichment will be taught by the organizers of the school.

Their financial success is substantial. We will mention only the names of Roman Abramovich, the head of Investment Bank “Troika Dialog” and President of “Skolkovo” Ruben Vardanian, the owner of the majority package of “Severstal” Alexey Mordashov, the head of “Novatech” (second large gas producer in Russia) Leonid Mihelson, the founder of the large steel and mine producing company “EvrashGroup” Alexander Abramov, Mihail Kushnerovich, the owner of the famous GUM on the Red Square and co-owner of TNK-BP and others.

The education on MBA and Executive MBA programs in the Moscow School of Management “Skolkovo” will start in 2008.

This **investment in knowledge is worth it**, since in the Russian management practice already 1-2% of all hired top-managers (general, executive, trade, financial directors) receive **monthly salary of around 10 000 – 16 000 USD (i.e. they have annual income of 120 000 – 190 000 USD)**, they have the possible full social package and annual bonuses of 6 to 12 monthly salaries, depending on the work results.

Averagely **they are men aged 35-50**, with higher education, MBA degree, fluent in English and few other languages, professionals in their area (i.e. with experience of 5-7 years on certain position), familiar with the foreign practice.

### **3. Methods of Knowledge Expansion**

How is the knowledge realized in the practice? In other words: how does the knowledge-based economy work? More exactly – we will examine a mechanism for knowledge management in the economy.

It is well-known that the knowledge is acquired in different universities, institutes and schools. But it should be developed, directed, managed through whole life by everyone who wishes to be needed by the society.

Otherwise, sooner or later, the person becomes less and less paid specialist, and at the end an outsider.

The abbreviation KM (Knowledge Management) becomes more and more actual in the world. Often in Bulgaria it is considered only as a database and as accumulated in the servers documents on different projects and electronic versions of the books. Therefore “knowledge” of the firms through the interface is provided to its employees.

The experience of the Russian modern practice, as well as of the world practice, shows that this intra-firm approach is not a real knowledge management system, but rather a “data downloading”.

We think that in each firm, institute, schools, etc. there should be two types of knowledge – obvious and hidden.

**Obvious is the knowledge**, which is stored on discs or can be browsed in the browsers. **Hidden** is the knowledge, which is “stored” in the head of each employee; the recommendations, which are transferred mouth-to-mouth; the habits, which everybody develops as a result of his/her work training every day.

Maybe the knowledge management system in these small or bigger teams should be directly connected with the hidden knowledge, which itself is very difficult to manage. In this connection we would like to suggest that in these teams the necessary

conditions for transferring hidden knowledge into obvious one should be created. But in order for this to happen, **first**, this hidden knowledge should actually exist and be substantially significant for the prosperity of certain organization; and **second**, its owner (source) should be willing to share it.

The presence of knowledge and the will to share it are matters of the corporate culture. The skill of the higher management staff of the large firm, institute, school, etc. are decisive here. Example in this sense can be the Japanese “quality circles” and other suitable practices.

Why is it necessary to increase the knowledge in certain organization? Because it is necessary for making exact and reasoned decisions. Here the terms “to acquire knowledge” and “to make decision” are in close contact. It is also the base for calling the knowledge management system “support system in decision making”, though it is not quite true.

What should be characteristic for **knowledge management system in a firm?**

**First**, this knowledge should be exact knowledge, united by concrete type of company activity. In other words, not all data fall in the range of vision, but only the necessary ones, i.e. it is the pure information. Otherwise, the gathering of all information in the servers of the company will be “poured over” the intellectual worker there, it will cause “intellectual overloading” and quite naturally the significant data will be lost in the flow of this “information garbage”.

**Second**, it is the actions for providing the gathered concrete data to the intellectual workers in the company. In essence, it is also the center of the knowledge management system in each organization. In this connection it is very important to determine the groups of indicators, which need specific concrete information. These are the real clients of the knowledge management system. They are the ones setting the task what knowledge exactly, in what form and in what sequence they want to receive the needed knowledge.

A specific characteristic of the successful functioning of the established knowledge management system in the company is the initiation of considerably large groups of indicators (intellectual workers). If it (the group) is missing, then this knowledge management system will be maybe very beautiful, well fit in the general structure of the company, but in essence it will be an expensive and quite limited “useful toy”, even if it is well categorized, with suitably built knowledge seeking system and containing the necessary library of electronic books.

That is why we should agree that **the knowledge management is providing information to the right people in suitable for them type, so that it helps them making decisions, as well as the necessary instruments and powers for executing these decisions.**

There is a classical scheme, which describes **the circle of knowledge** in an organization. We think it is expedient to base on it the illustration of the functions of

the knowledge management system.

The knowledge emerges in the intellectual workers, who after receiving it will think it over together with other information and/or knowledge. Exactly this newly formed knowledge requires experiments and discussing with trusted people for its testing and specifying. This stage is known as KNOWLEDGE SOCIALIZATION.

After that the new knowledge is set for a wide discussion. Some call it draft creating. This means that this knowledge is not announced in fullness, completeness, and the terms are often formal. In other words – this is a pilot knowledge, which needs “pilot use”, before becoming a working knowledge, necessary for the company. In essence, this is the stage EXTERNALIZATION, where the knowledge acquires type, suitable for use by external people, who do not belong to the output staff, where this knowledge has been created.

Such already externalized knowledge is used by other intellectual workers in the organization. It brings profit for the whole company. Guidance, recommendations, trainings are made for its more suitable use. A connection of the certain knowledge with the concrete company happens. This stage is called CONNECTION.

The rationalized experience on acquiring, working on the developed documents for the real implementation of the knowledge, are the basis, on which new visions for new knowledge on the improvement of what is already made are born, everybody accepts the knowledge as own. This is the stage of INTERNALIZATION.

At this stage the managers have already evaluated the new approach/method, they have suggested ways of optimizing the production activity of the company. This is the smooth transition from INTERNALIZATION TOWARDS SOCIALIZATION. New circle of knowledge in the company follows.

**This whole cycle needs new knowledge.** Do we have the necessary library of stored connected knowledge, is the system for easy access to these data created, what is the platform for electronic education, how are the digital panels for aggregation and for easy presenting of the data from different sources established, how are the indicators for digital evaluations of the received results built, what are the means for collecting information from external sources, etc.?

Even if we have made all this perfectly, we should give answer to the **main key moment in establishing the management system – what is the corporate culture in the company?** Doesn't the transferring from the stages socialization and externalization happen due to the presence of corporate culture, purposeful towards acquiring new knowledge? Aren't all technical means in the knowledge management only SUITABLE MEANS, WHICH WITHOUT THE RELEVANT CORPORATE CULTURE PREVENT THE ESTABLISHED BY US SYSTEM FROM WORKING? The accumulated gigabytes of information become unnecessary for the corporation, because there is no socialization and the following externalization, which again turns into socialization.

That is why we have to say: **the alpha and omega of each knowledge management system is the intellectual workers and the corporate culture. No system, as much perfect technologically it is, can exist without them.**

All big owners of firms and companies should understand this.

The announced above data, examples and definitions clearly prove that this is part of the road we should walk through, in order to meet the requirements, set in the Lisbon strategy of the European Union.

At the same time they prove that without being in the European Union, the government and the large business in the Russian Federation have realized this already and have started actively to work.

And as it is modern lately in announcing some data of EUROSTAT, the question “Where are we?” is very actual for the discussed topic here.

As it is clear, the European Union has accepted its first decisions on the problem yet in June 1999 in the Bologna declaration. In Bulgaria there are still only discussions on this topic. It is November 2006 now. The difference in the raising of this problem is six and a half years. We are late again.

We hope that the experience of the Russian Federation we shared shows, that this delay is solved fastest with the participation of the government and support by the method of “public-private partnership”.

Whether the legislative and power authorities in Bulgaria have already realized that the problem will not wait anymore for its decision?

With this conference we give our real contribution. They should hear us.

The Copenhagen process sets the priorities, which further develop the Lisbon work program “Education and Training 2010”. The general directions for the economic policy, accepted by the Council in 2005, reveal the new beginning for the Lisbon strategy and are concentrated on the contribution of the economic policies to higher growth and more work places.

And if Chapter A treats the general directions for the contribution of the macroeconomic policies, which should contribute in this sense, Chapter B focuses on the measures and policies, which the countries members should implement, in order to increase the knowledge and innovations for achieving growth and for turning Europe into an attractive place for investments and work.

As a new member of the European Union Bulgaria should review its activity for meeting these EU requirements, and on the basis of the acquired foreign experience, including of non-EU countries (like Russia for instance), should strive to implement first and fast the general European recommendations and principles.

In this connection we suggest that it is most purposeful:

1. Through different legislative and government decisions to include all key figures in the area of knowledge and innovations in the economy – suppliers, employers, unions, branch organizations, trade, industrial or craft chambers, employment agencies, regional institutions and networks, etc.
2. In accordance with the Recommendations of the European Council on 12 July 2005, the processes of education and training should be rationalized and accelerated.
3. Special significance in the ways of seeking and acquiring knowledge should be given in accordance with the recommendations of the Consulting Committee on professional training.
4. In the establishment of uniform national methods should be input and developed a uniform approach and close cooperation at national, European and international level on the matters of the higher education, European policies in the area of the economy, employment, sustainable development and social integration; structural and cohesion fund, as well as through expanding the studies, practice and policy, and through joint work and exchange of good practices and policies.
5. In the context of implementing the national strategy the lifelong learning should be included in national priorities and should ensure the necessary base for exchange experience not only between the participating countries, but also between the social partners and other key figures at transnational level.
6. Close connection should be developed with the social partners at European, national, regional and sector level, having in mind priorities, determined in their relevant frames for actions for development of the competencies and qualifications through life.
7. Special place should be given to the policies and useful practices of forming and establishing an adequate “knowledge management” not only at institutional, but also at corporate level; distribution of good policies and practices in lifelong learning; planning and implementing the relevant sector activities.

#### **4. Conclusions**

I will conclude my thoughts with a paragraph from the Council Recommendation from 12 July 2005:

“Economies of knowledge and services require different skills than the traditional ones. Skills, which need continuous modernizing, in order for the technological changes and innovations to exist. The workers should accumulate and modernize their skills regularly, if they want to keep their jobs and develop. The productivity of the enterprises depends on the creation and maintaining of the labor force, which is capable of adjusting to changes. The governments should ensure opportunities to

improve the levels of education and acquiring by the young people of the necessary key competences in accordance with the European Youth Pact. All interested countries should mobilize for establishing and developing a real culture for lifelong learning from early age. For achieving a substantial increase of the public and private investments in human resources per capita and for guaranteeing quality and effectiveness of these investments, in order to achieve just and transparent distribution of the costs and responsibilities between all participants...”

It is clear to everybody that we are still far from this implementation and let us hope that the mentioned so far examples and discussions help to come closer a little faster.

**PART III**

**INSTITUTIONAL DYNAMICS**

**OF DEMAND FOR NEW**

**KNOWLEDGE**



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# TRANSFER OF KNOWLEDGE IN THE INNOVATION SYSTEM AND THE ROLE OF INTERMEDIARIES

*Assoc. Prof. Dr. Liliana Pavlova  
Centre for Science Studies and History of Science at BAS*

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## 1. Introduction

The reinvigorated Lisbon Agenda for competitiveness and economic growth draw the attention of the European decision-makers to the need of development of knowledge-based society and pro-active innovation policies. In this context the several challenges become crucial for the Community:

- shortening the way of the research results to the market;
- support for development of new innovative infrastructure;
- development of entrepreneurial culture (entrepreneurship training – adaptation, skills, imitation models, etc.).

The general understanding of innovation as a key to competitiveness and economic development is characterized with complexity and interdisciplinarity. The compound system nature of the innovation phenomena requires management of the innovation processes mainly through integration of research, technological, market and organizational knowledge and changes.

The organization of the innovation process as an interdisciplinary and multifunctional object includes few basic elements of the knowledge management and their transformation into new products and processes, which leads to development of new managerial expertise and skills, different from usual business management.

The ultimate goal of each innovation process is the market realization of a new product; new technology, process; etc. Behind this definition of innovations, the main component is transfer of new knowledge.

Acquiring the interactive model of the innovation process reveals the gaps in the innovation system and the necessity of independent liaison element of the individual parts in the system, or the so called "liaison function". Generally this function is

realized through searching, finding, elaboration and granting, i.e. transferring knowledge and information in the innovation system. The liaison or intermediary activity of innovations defines the role of the intermediary organizations (IO) for the integrity of the innovation system and adds a new, forth element to the system.

As the IO are the newest actor in the innovation system and to this very moment the less examined one, their role is either underestimated or, because of lack of sound information, their popularization may lead to twisting both the perception of the innovation activity and the managerial and political decisions.

In many cases considering some IO an innovative infrastructure in the innovation system or relating other organizations with similar functions as intermediaries remained undistinguished and vague, though within National innovation system scheme. For example in an empirical study from 2003 the Questionnaire identified the following types of organizations: Financial Institution, Consultancy Company, Branch Chamber, Regional Agency, Technology Centre, Business Centre, Association as respondents for IO. At the same time, the regional administrative authorities add in the study regional development agencies, The Federation of scientific and technological unions, Union of scientists in Bulgaria, Regional branch organizations. None of the organizations, like innovation or business-innovation centre, technological centre, technological incubator, are represented in the study. One of the findings from the survey was that then, in 2002-2004, the regional authorities are still not aware of the function of these organizations, their number and specificities for the region.

While these weaknesses can be considered mistakes of the development, such a “terminological chaos” in the innovation literature raises bewilderment. And it is appropriate to question whether the vague terminology results from insufficient awareness of intermediary functions in the innovation system; is it studied in depth, having in mind that it is a new element in the system, and does it means that its development is too rapid and dynamic and its manifold acting hinder the creation of relevant models and politics?

## **2. Reasons for Imprecise Terminology**

Perhaps the first rationale can be linked with the systematic perception of the national innovation system (NIS) and the interactive model of the innovation process. In 1990s the concept for the innovation system went far over its meaning of just a theoretical postulate and the practice enriched and elaborated the theory for innovations. At the beginning the IOs were considered organizations to back up the innovations. Later, in the beginning of the 21<sup>st</sup> century, a new term appeared – “innovation services”, i.e. organizations providing services in support of innovations, and few years after that the perception of brokers was added to this function. They strengthen the term intermediaries in the innovation system for two reasons: first, because they already existed, the analog of broker and liaison activities in other sectors, and second, because this term reflects the specificity of the liaison function of the IO in the system.

Appearing last in terms of time, but not least in its importance, the Fourth main actor in the innovation system (the other are Science, Industry, Finance) in the last ten years

exists in a variety of forms, models and structures. The diversity of the IO, as well as their comparative “novelty” for the innovation system and their heterogeneity, make it very difficult to identify and define such type of organizations. In addition, in some cases the intermediate function might not be the main for an organization, but just complementary to other set of services in a certain sector (2).

The performers of the Fourth main role might be separate entities, but also can be parts from other spheres of activities in the innovation system. They might be public or private and can realize governmental and non-governmental, regional or local initiatives, etc.

The variety of the organizational forms is amazing. It stems from type of activity, type of origin, legal status, the niche, or the stage of the realization of the innovation process, in which they are involved most effectively. Emerging close to the R&D sector creates a layer of organizations like innovation centers, technological centers, knowledge transfer units, licensing and patent bureaus, technological incubators, science parks, business innovation centers, etc.

Another large part of similarly new types of organizations such as business incubators, business centers, consultancy companies, branch chambers, associations, regional development agencies, etc., act intensively through their intermediary function in the innovation processes.

And this variety and diversity of the intermediary function holders, one established to be IO's, other as a part from organizations, third with national, regional or local scope, fourth – doubling the function, etc., as well as underdevelopment of the theory of innovations, justifies the difficulties of identification of IO and gives explanation for the errors on managerial level.

### **3. Diversification of the Intermediary Function**

The need of liaison entities/structures in the innovation process/system for transfer of knowledge and information determined their emergence and multiplicity of activities. But an attention should be drawn to another crucial question: how the intermediary function (IF) acts, through implementation of what tasks in the innovation process?

Development of the IF usually is described through number of activities, starting from R&D (research and development) through so called bridging organizations for transfer of scientific knowledge (technological, innovation, transfer centers, spin-offs companies), through structures facilitation acquiring of codified knowledge – like liaison offices (offices for partnerships and links with the industry, usually Universities and research organizations), through patent offices, standardization units, metrology, etc. and finally until activities and tasks for so called business services, i.e. providing information, qualified support, consultancy, market research, etc.

At this stage of development of the IF another question should be posed concerning the mission of the IO in the innovation system, namely – how can IO penetrate in depth into the R&D function? Because usually not all scientists working in the field of

innovations are willing to include R&D activities in the IO perimeter, which means that still the perception of IO as from other sectors dominates, even among more specialized public.

In the cited empirical study and analyses of the innovation supply, done by approved methodology (CIS-Community Inn. Survey) for the development of Regional innovation strategy (RIS) in South-Central Region, Bulgaria, several research and intermediary organizations from the Region were involved (2; 3). In order to define the scope of activities of the IO there are several options proposed, like market research, development of a business plan, training, technology transfer, etc.

Only four organizations or 22.2% from the respondents gave a positive reply that they have the service technology transfer. Most probably this result is due to low level of innovation in the companies from the region, i.e. lack of demand for research products. Such a conclusion is not without logical evidence, having in mind that 2/3 from the interviewed companies from the industry have no innovation costs in 2002 (4).

Consequently, we can state that there is no demand and supply. However, if we have to explain what are the reasons for such result, the right answer should be based on sound knowledge about state of the art of the industry during this period. It is characterized with still ongoing restructuring of the national economy, almost entirely destroyed sectoral research, the transformation processes in the academic research in the last 15 years, unrealized specificity of the IF and last, but not least, the reintegration of the research and technological system in Bulgaria.

Identifying the technological transfer as a possible answer for service, the researchers obviously consider that part of the R&D function is realized by IO also and not only by the sector of so called providers of scientific knowledge.

So, we find the function of the technological transfer both in R&D sector (development units, technological parks) and in IO's sector through centres for transfers of technology, etc.

Does this mean methodological doubling and is this the problem with précising of the position of IO? Or are there two types of IO?

#### **4. Précising the Position**

The problem of précising the position for analyses is difficult not only for: 1) the performers of this role in the innovation process, but also for 2) the researchers of the system or 3) decision-makers at different levels, etc.

##### *4.1. Position of IO*

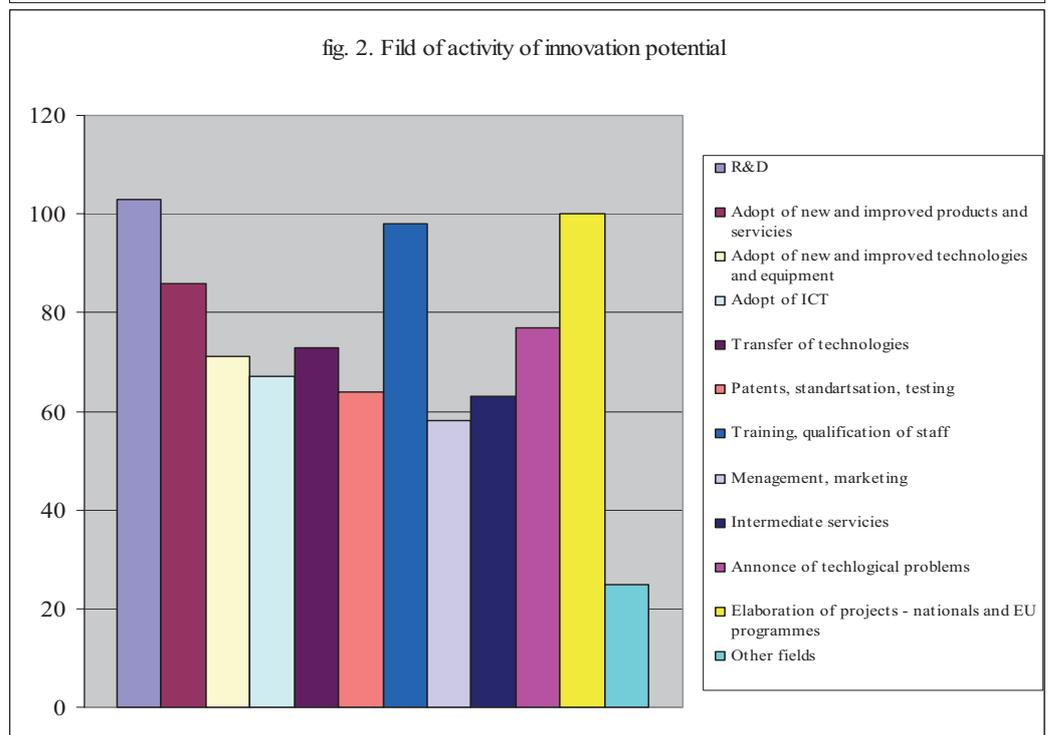
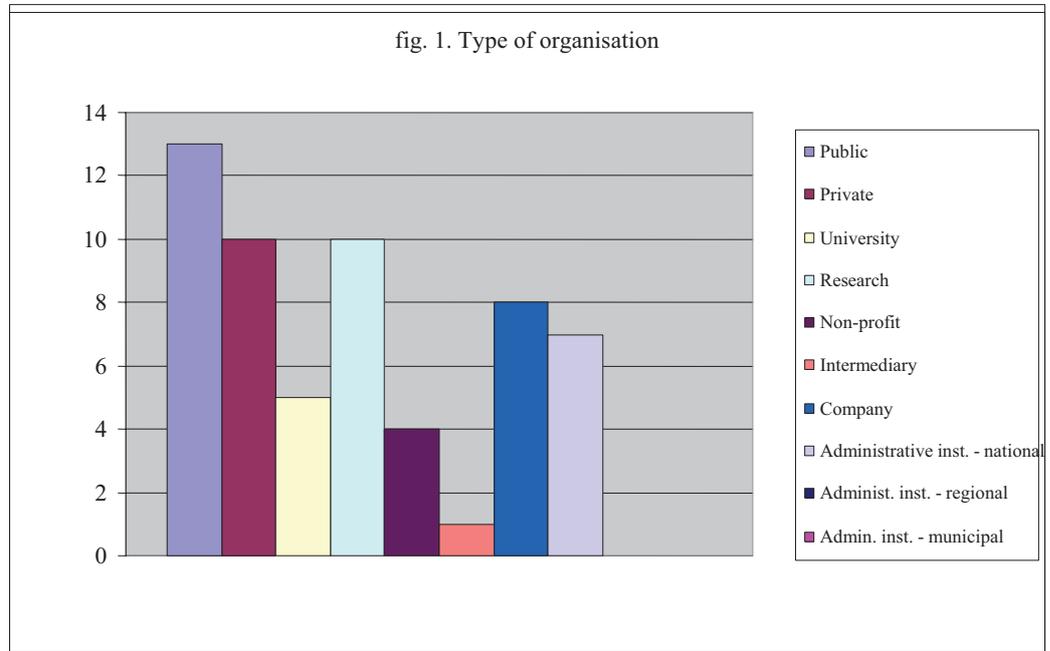
**In July 2006 a team from CSSHS – BAS**, performed a questioning of the participants in the Information day “Development of a balanced milieu for public-private partnerships and support for SME inclusion for participation in the European

technological platforms and joint initiatives in FP7” (organized by MES and GIS transfer centre). From approximately 70 attendees, 31 responded. The research does not have a representative character and its results can be analysed only as a case study. Here we will describe the answers only on the two of posed questions, which aimed at defining how many organizations consider themselves IO and where in the spectrum of their innovation activities they find a full realization of their potential.

As we can see on fig. 1, the representatives of the IO had the lowest attendance at this information day, i.e. only one of the participants declared that his organization is intermediary. If we look at fig. 2, it is clear that within the spectrum of the innovation activities the R&D activities, training and qualification of human capacity, development of projects for participation in national and European programmes, introduction of new and innovative products and services, technological transfer have the largest portion.

It is interesting to mention that in 18 out of 31 answers the respondents identify intermediary services in the innovation activities, and 15, i.e. 50% of the respondents consider them providing such services.

In the survey the participants were from R&D organizations, private companies and national administration and 50% of them provided intermediary service, i.e. complementarities between the IF and the general one. In this respect, the developed policies have to consider the specificity of the IF, as well as the unfinished process of reintegration of NIS when institutionalization goes ahead the professionalization in the IO. It is more important for us, as researchers of IO, that in 2006 it is much more popular than in 2003, even within organizations where IF is additional field of activities. Also the self-definition of the IO is already not a “mission impossible”.



#### 4.2. Defining the Position of Researchers

Some researchers define the scope of activities of the IO in the process of surveying the links between science and industry (7) as follows:

**Intermediary structures should facilitate science-industry relations by raising awareness, reducing transaction costs, and supporting transfer activities. They cover both physical and organizational infrastructure such as transfer (liaison) offices, technology centers, incubators, consulting networks and databases.**

In this definition we can find partially the answer of the question why in the modern perceptions for the innovation system the innovation centers are part of both the IO and the infrastructure of the system. However, the more important fact here is that technological centers and technological incubators are listed as IO, i.e. they cover part of the R&D activities. In other words, they perform activities for development of scientific knowledge connected with transfer of knowledge function. It is necessary here to add a larger clarification on the definition for technological transfer, namely that Technological transfer is not only transfer and penetration of a new technology, but only new knowledge – technical, technological, etc. Giving a larger meaning to the definition is because of the significance of the new technologies in the modern understanding for innovations and defines it as a synonym of the transfer process.

So, the widening the scope of activities of the IO on the research and development spectrum is a reason for us to “see” the dividing the IF in two large layers:

- **first** (more popular and larger) is connected with the services in support for transfer of knowledge, information and learning and
- **second** connected with the transfer of scientific knowledge

If we consider these types common for the IF, we can give a definition for the IF itself as:

A) real intermediate function – connected with the transfer of scientific knowledge;

B) complementary or secondary, linked with transfer of knowledge, skills, information, learning.

The increase of the number of IO for the last 5-6 years, especially of those from the service sector in support of the innovation activity reveals that it is not enough to count only on their spontaneous emergence and enthusiasm but targeted managerial influences. In other words, it was necessary the process of institutionalization of the activities of IO not to go ahead or to be adequate of the professionalization in this area.

Thus, we can identify two phases in the process of emergence and development of the intermediary structures:

- phase, characterized with spontaneous process;
- phase of managed process.

The most sound argument for the initialization of the second phase is the EU policies and partially our national innovation policy with an emphasis on planned development of technological incubators science parks, spin-off companies and so called start-up firms.

#### *4.3. Position at the Managerial Level*

**Obviously we already can speak about unified, coordinated innovation policy at national level, of course encountering the existing weaknesses. However, if we go in depth in the annual report “Innovations.bg” 2005, ARC Fund and the Annual report on the implementation of the Innovation strategy of MEE (1),** surprisingly we find that there is a lack of analytical part on the policies for development of NIS/RIS, and there is underestimation or not understanding of the essence of the intermediary function of the innovation system. In the best case, when the participation of the IO is analysed, they are considered only as information providers in support of innovations. Or, following the above mentioned typology of the IO through the organizations providing the “first layer”, i.e. services for the innovation activity for both reports, we can conclude that there is a lack of deep analyses on the realization of the IF in the innovation system.

From the measures set in the implementation programme for realization of the Innovation strategy of Bulgaria it is obvious that the problems of the technological transfer as the “weak point” in the innovation system are a matter of concern for the politicians. However, there is no explanation why at national level there is still mix of definitions and respectively not precise addressing of the political decisions towards one of the most important elements of the innovations system.

In conclusion we have to underline that in a situation of not finalized systems with missing structures of organizational infrastructure the direction of the initiatives in this regard (private, public) can be different. In such cases part of R&D activities for development and transfer will be performed via intermediate structures, until this new function is not institutionalized entirely or partially from the science system.

Also, the difficulties with acquiring, identification and management of the IO – as a main actor in the transfer of knowledge in the innovation system – are connected both with their heterogeneity, not enough popularization, underdeveloped innovation system, and with the necessity of system-methodological nature – the attention of the politicians to be not only on the separate performers of the liaison function, but also on the links, interconnections between them and other stakeholders in the innovation system.

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# WHAT ROLE DOES UNIVERSITY PLAY IN A REGIONAL INNOVATION SYSTEM – A COMPARATIVE AWOT ANALYSIS

*Assoc. Prof. Dr. Carmen Nastase*  
*Assoc. Prof. Dr. Laura Bouriaud*  
*University of Suceava, Romania*  
*Dr. Miika Kajanus*  
*Savonia University of Applied Sciences, Finland*

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## 1. Introduction

In the recent years a general consensus has been attained in the debate on innovation-based regional development that interaction in innovation activities among firms and between firms and other relevant organizations continues to grow in importance with industrial performance and renewal (e.g. Cooke 1998, Maskell Malmberg 1999, Sternberg 2000). Why innovation and entrepreneurship is important? Because innovations are engines for economic growth, competitiveness, income creation and firm profit, employment creation, especially in rural areas, changes towards environmental improvement and sustainable development and also meeting changing consumer needs and demographics. This paper discusses regional innovation concepts and especially the roles of universities in them.

A region is a term usually used for the regions under administration of regional councils, or the daily labor migration areas, which are sub-regions. Administratively, politically and as daily spheres of work, both regions and sub-regions are relevant and there are many institutions fostering their role, like media, education set-up and business development agencies. However, from the point of view of a firm, both are limited. Kautonen (2006) presents the key elements of the RIS approach at the firm level as follows: the innovating firm is surrounded by the four main elements of the general innovation environment: market, industry, technology and geography, as seen from RIS approach. Beyond these are institutions that are focal of the RIS approach, consisting of a wide range of formal and informal, created and emergent, and other type of institutions. The market and market position of a firm influence firm's innovation activities (market position, strategy). Firm's position in production chains also influences considerably its possibilities to innovate.

To innovate, in addition to its internal resources and competences, a firm usually needs also external resources and competences (technology), usually acquired from its innovation environment via several channels: from market or production chains, new personnel from region, nation or from outboard, or by creating co-operative relationship (external innovation networks).

And all these aspects have their geographical implications being in a certain spatial relation to the firm. Yet, RIS can be seen as unique for each firm, the same region may represent totally different kind of innovation environment for its firms (Kautonen 2006).

Objective of this study is to compare and analyze the competence and capability of the university to play a role in RIS. Two universities, one in Romania and one in Finland, are used as case studies, in which so-called A'WOT analyses are carried out. Finally, results of the lessons learnt are compiled and some policy recommendations presented.

## **2. Case Regions**

### *Case region 1. Suceava*

Suceava County is situated in the Northern-Eastern part of Romania, at the Ukrainian border. Suceava County means 8553 km<sup>2</sup>, with slightly more than 700 000 inhabitants living in the 16 towns of the county (43%) and in the surrounding rural areas (57%). Alone, Suceava town concentrates 120 000 inhabitants. The number of employed persons is 250 900, with a decreasing unemployment rate in the latest three years and situated today at 4.4%. Half of the population is employed in the primary sector – Agriculture and forestry, other 18% in the Industry and 13% in Services. The main industries in Suceava County are the wood-based industries, food industry and machinery producers. Most of industries are located around Suceava town, in an industrial park area. Although the tourism is not the main contributor to the local economy, Suceava region has an important tourism potential due to the forested landscape, rural area traditions and mostly the centuries old, well-known monasteries. Now Suceava County is recovering from more than a decade economic recession. In 2000 the Region North-East, of which Suceava is a part, was one of the poorest in the country.

Forests cover 51% of the county area. Forestry (silviculture, without industry) contributes with less than 1.5% to the regional PIB, and provides 0.7% of the workforce. Forest industry provides jobs for around 2 000 people. In October 2006 Egger Company has started its integrated wood factory that will provide up to 700 new jobs, and it is planned to be followed later by a second factory established by the Austrian Holzindustrie Schweighofer. Both investments could lead to creation of 4000 new jobs, i.e. double compared with the present situation.

In the RIS, the main players are mostly governmental: the Agency for Regional Development North-East; the regional Chamber of Trade and Industries, the local

public administration, the National Agency for Small and Medium-Sized Enterprises and Cooperation, the National Council of Small and Medium-Sized Enterprises, and Department for Agriculture and Rural Development. There is also a “business incubator” located in Suceava.

The R&D activities are dealt within five institutions: Bank for Genetic Vegetal Resources, Station for R&D in Agriculture, station for Research on Norway spruce in Campulung Moldovenesc, and Station for R&D for Fruit Trees Falticeni. The total number of researchers in R&D activities in Suceava county was 511 people in 2004 and the budget for research was 27.604 millions ROL (current prices).

The University Stefan cel Mare is a public institution educating in total 11 300 students in 9 faculties, with a number of 315 staff, teachers and researchers (2005). The main contributions of the University to the RIS are: 1) carrying out research activities; 2) educating skilled workforce for local industries, namely forest industry, food industry, machineries and equipment; 3) improving education and continuous education for practitioners, managers, namely in tourism-related issues, forest investment construction; 4) partnership with different institutions and firms in innovating and diffusion of innovation.

The RIS-related problems of the University for a long time used to be the lack of resources to carry out research; too theoretical curricula, with little practical training for students; and finally, lack of interest to do research. The undergoing changes started in 2005 in the system of evaluating academic staff led to an increased interest by teachers to do research.

#### *Case region 2. Ylä-Savo*

Ylä-Savo region is located in central Finland as the northernmost part of province of North Savo. Ylä-Savo consists of the town of Iisalmi (21 000 inhabitants) and the surrounding rural districts, total area being about 9310 km<sup>2</sup>. There are total of 60 000 inhabitants in this region, number of employed persons being 23 000. Main problems of Ylä-Savo region are unemployment with a rate of 13%, and net emigration, being about 500 persons per year.

The main sources of livelihood come from services and food, wood and metal industry. The region has a powerful background based on dairy production with forestry as a supplementary source of income on the farms. The biggest employers are public services (30%), agriculture and forestry (19%) and industry (17%). Metal industry provides work for 1700 persons. Main companies, like PONSSE (producing forest machines), NORMET (producing mining and forest machines) and WÄRTSILÄ (producing power plants for bioenergy), are closely connected to forest sector. Food industry provides work for 800 people, biggest companies being VALIO Lapinlahti (producing milk) and OLVI brewery.

Forest industry provides jobs for 1080 persons. Three quite big sawmills, using nearly a million m<sup>3</sup> logs all together, are located in Ylä-Savo region. There are also three house factories in Ylä-Savo producing small houses for families and some companies

producing furniture, etc. LUNA WOOD is a company producing heat modified wood by applying a continuous process.

In Finland the production and innovation system has traditionally not been regionalized to a significant extent; instead, it is characterized by strong national orientation and by strong influence of large national corporations (Kautonen 2006). The development of a regional dimension of Finnish innovation policy was mainly motivated by regional policy of EU, which Finland joined in 1995. The fundamental transformation of the Finnish economy opened up new opportunities for economic restructuring also on the regional level. The establishment of the new Employment and Economic Development Centres, whose main task is to develop their regional economies, has also strengthened the regional dimension. The recent introduction of polytechnics (now called as Universities of Applied Sciences) with a strong regional orientation into the Finnish education system underlines the increased regional focus of Finnish innovation policy (Kautonen, 2006).

Savonia University of Applied Sciences is a multidiscipline Institution of higher education, which offers approximately three Master's and 30 Bachelor level degree programs in seven different study fields. The other forms of operation include adult education, service activities and R&D activities. Savonia University of Applied Sciences is an active innovator in the area of Pohjois-Savo and has a central role in the regional innovation environment. A multidisciplinary Savonia can meet the challenges of a rapidly changing information society. The total number of students is about 7000 and teaching staff about 350.

The Savonia operates in three locations at Pohjois-Savo: [Iisalmi](#), [Kuopio](#) and [Varkaus](#). In this research we are looking for Iisalmi Unit, which has about 700 students and total staff of 90. The share of R&D is about 30% of the total turnover in Savonia Iisalmi Unit. The main contribution to the RIS comes from R&D services, Education services (both closely linked to the expertise and study fields of the Savonia Iisalmi Unit). The third contribution is Higher Education Networking services. The main mission of these services is to provide services by any university or other R&D institute in Finland or from outboard, which are needed in the enterprises in the region. This means mediated thesis works, expert services, education courses or R&D to the enterprises in Ylä-Savo region, provided by world class universities and research institutes from Finland and other countries.

These research interviews took place at the same time of preparing the regional innovation strategy for Ylä-Savo region. In the strategy process the most important actors, including entrepreneurs, education and research organization and public sector were involved. The innovation strategy was named Entrepreneurial innovations strategy for Ylä-Savo region for the years 2007-2013, to point out the central meaning of entrepreneurship for the strategy. The core of the strategy is defined enterprise groups, so called miniclusters, which are the main elements of the regional development actions. Those miniclusters are food (mainly milk), special equipment producers, house building and interior decoration, environment and bioenergy and welfare enterprising. The goal of the innovation strategy is to make innovation actions more effective and enhance the innovation capability of the region. Three focus areas

of the strategy are: 1) effectiveness of the innovation actions; 2) innovation infrastructure and environments; and 3) innovation culture and way of actions. Each of those focus areas has a work program how to reach the goals of the strategy. Savonia is a main actor moderating the innovation strategy process and also has an important role in conducting those work programs.

### **3. A'WOT – method**

The most important internal and external factors for the future of an enterprise are summarized within the SWOT analysis. In the A'WOT method (Kurttila et al., 2000; Kajanus et al., 2003), SWOT analysis is made more analytical by giving numerical rates to the SWOT factors, as well as to the four SWOT groups. In the standard version, this is carried out by integrating the Analytic Hierarchy Process (AHP) (Saaty, 1980) and its own value calculation technique with SWOT analysis. The hybrid method improves the quantitative information basis of strategic planning processes. The use of AHP with SWOT yields analytically determined priorities for the factors included in SWOT analysis and makes them commensurable. In addition, decision alternatives can be evaluated with respect to each SWOT factor (Pesonen et al., 2001b). Thus, SWOT provides a basic frame, within which to perform an analysis of the decision situation, and the AHP assists in carrying out SWOT more analytically and thoroughly, so that alternative strategic decisions can be prioritised. Other decision support techniques can be applied for the same purpose in place of the AHP.

In this study the AHP, like pair wise comparisons and the value calculation framework, were replaced by the Simple Multi-Attribute Rating Technique (SMART) method (Edwards, 1971). SMART is based on the multi-attribute utility theory (MAUT). Compared to AHP, SMART is simpler to use and makes comparisons of the importance of decision criteria and evaluations of the decision alternatives more straightforward. Therefore SMART is suitable for situations where, for example, there is a large number of criteria or decision alternatives and the persons defining the priorities are not able or willing to perform numerous and sometimes difficult pair wise comparisons. SMART techniques have been applied by Reynolds (2001), among others, in the area of natural resources. Different variations of SMART have been developed (see von Winterfeldt & Edwards, 1986). In fact, nowadays SMART consists of a family of different techniques and modifications. However, common to all SMART techniques is their reliance on direct numerical rating methods. In this study the version of SMART used was the one where a fixed number of points (100) was allocated to decision elements, compared at a particular time. For example, 100 points were allocated to the SWOT factors within a SWOT group, to indicate the relative mutual importance of the factors.

The hybrid method A'WOT along with the SMART technique proceeds as follows:

- (i) SWOT analysis is carried out. The relevant factors of the external and internal environment are identified and included in the SWOT analysis.
- (ii) The mutual importance of the SWOT factors is determined separately within each SWOT group. When the SMART method and its simple rating version are

applied, the importance of the SWOT factors is defined as follows: 100 points are allocated to SWOT factors according to their importance separately in each SWOT group.

- (iii) The mutual importance of the SWOT groups is determined. 100 points are allocated to the four SWOT groups. Finally the individual SWOT factors within each SWOT group are scaled according to these priority values.

#### 4. Analysis

In Romania, four experts from Suceava region (one University staff, one from Chamber of Commerce, Industry and Agriculture, one from Forest Administration and one from Municipality) were interviewed for the A'WOT analysis in a two-hours meeting. The focus of the discussion was "What role does the university play in the Suceava regional innovation system/regional economic development system?".

Three experts (one from the main town Iisalmi, one from the regional development company and one from Savonia) were interviewed for the A'WOT analysis in a two-hours meeting based on the point of view "What role does Savonia play in Ylä-Savo RIS?". All experts were familiar with the method used, and that was why the analysis was able to be carried out in one two-hour meeting.

The results of the A'WOT analysis show that the Finnish experts placed more emphasis on taking full advantage of the opportunities, while the Romanian experts emphasized on avoiding weaknesses and threats (fig. 1 and 2). The results of the A'WOT analyses regarding individual SWOT factors are presented in tables 1 and 2.

The most important SWOT factor in each SWOT group is in boldface.

Table 1  
The SWOT analysis from Suceava region and the priorities of the SWOT factors and groups

SWOT Group	Local priority	SWOT factors	Global priorities
Strengths	0,298	s1 - The tradition in teaching and research from more than 20 years	0,037209
		<b>s2 - USV is a focal point in the local community</b>	<b>0,046512</b>
		s3 - The USV staff is acknowledged for the research contribution	0,023256
		s4 - The USV is officially acknowledged (authorisation obtained) and there is a concern for quality management in teaching	0,037209
		s5 - Good facilities for teaching and research	0,032558
		s6 - International relationship	0,023256
		s7 - Diversified educational supply	0,037209
		s8 - Low educational costs compared with the facilities offered to the students	0,013953
		s9 - Enough teachers and good distribution by age and specialisation	0,027907
		s10 - The institution culture for quality of educational process	0,018605
Weaknesses	0,270	<b>w1 - Low-motivating salaries for some teaching positions</b>	<b>0,046512</b>
		w2 - Lack of teachers in some departments because of little number of students and their low interest for studies	0,027907
		w3 - Lack of finance for maintenance and development of infrastructure/ facilities	0,018605
		w4 - Lack of communication with the local and national business milieu	0,023256

		w5 - Weak market orientation of all academic structures regarding the recruitment of students, advertising, collection of the job offering, promoting education	0,032558
		w6 - Spending time and effort more in favour of private activities and research mobility abroad than the educational process	0,013953
		w7 - Insufficient preoccupation for developing the entrepreneurship in university	0,023256
		w8 - Staff over-burdened with administrative tasks and over-time work	0,009302
		w9 - Lack of group solidarity, and organisational attachment of teaching staff and students; danger of individualism and free-riding	0,037209
		<b>o1 - The interest of the adult population for continuation of studies/ being specialised via Master's programs</b>	<b>0,046512</b>
Opportunities	0,186	o2 - The development of the trade due to the localisation at the Eastern EU border	0,032558
		o3 - The forecast on decreasing inflation and decreasing cost of credits	0,018605
		o4 - Encouraging new business in the region, e.g. agrotourism, valorisation of the cultural, spiritual and traditional heritage	0,037209
		o5 - Possibility to develop the business milieu as a result of the implementation of the industrial parks and business incubator	0,027907
		o6 - Existing private educational structure	0,023256
		t1 - Deficitary demographic trend	0,018605
		t2 - The changes in the supply for graduating university degree, and the modification of centre of interest	0,032558
		<b>t3 - Difficulty in the intellectual carrier – discouraging factor</b>	<b>0,046512</b>
Threats	0,247	t4 - Centrifugal policies at the level of faculties and chairs	0,032558
		t5 - The migration of young staff to other sectors or institutions in country/ abroad	0,037209
		t6 - Impossibility to materialize the potential resulted from research	0,027907
		t7 - Decreasing the life-standards level is affecting the student conditions	0,023256
		t8 - The trend for obtaining a diploma versus creative accumulation of knowledge	0,027907

Table 2

The SWOT analysis from Ylä-Savo region and the priorities of the SWOT factors and groups

SWOT Group	Local priority	SWOT factors	Global priorities
		<b>s1 - Volume: 90 staff and 700 students (700/7000) totally in Kuopio</b>	<b>0,071685</b>
Strengths	0,229	s2 - Savonisa expertise related to needs of the region (natural resources, health and social care,...)	0,035842
		s3 - Good networking with networks of excellence outside	0,064516
		s4 - Close relations to region and enterprises	0,057348
Weaknesses	0,250	w1 - Technological education only with adults	0,064516
		<b>w2 - Students could be more in enterprises while education</b>	<b>0,080645</b>
		w3 - Still small unit	0,064516
		w4 - No strong international education	0,040323
Opportunities	0,376	<b>o1 - Student and enterprises learning together</b>	<b>0,089606</b>
		o2 - "Mode2 research"	0,071685
		o3 - Innovation workshop and laboratory concept	0,080645
		o4 - Innovation university network	0,071685
		o5 - International cooperation	0,062724
Threats	0,144	t1 - High education policy turns around	0,031362
		t2 - Development of Savonia does not relate to development of enterprises	0,050179
		<b>t3 - Not enough students</b>	<b>0,062724</b>

Figure 1

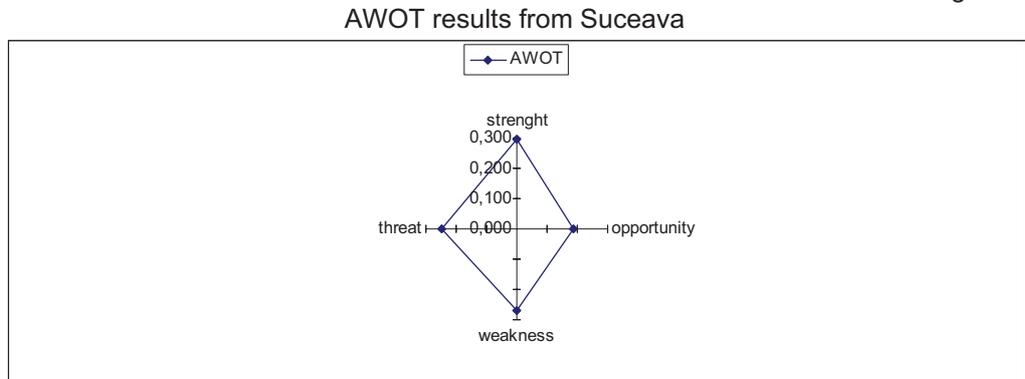
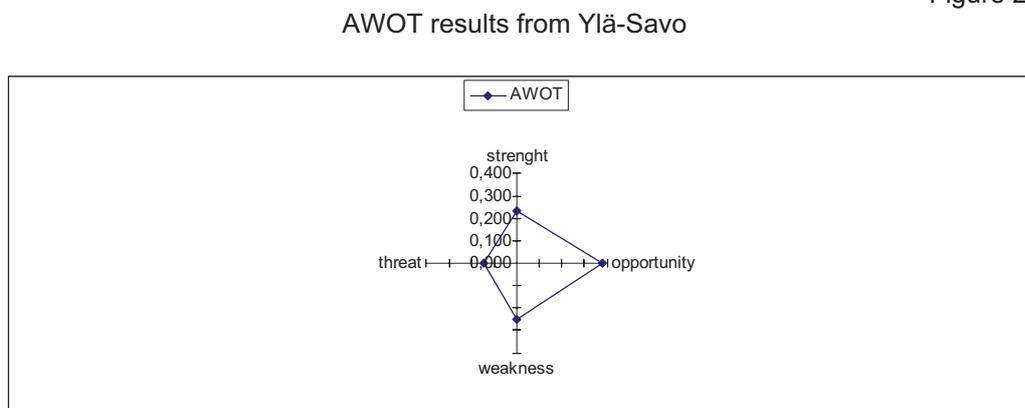


Figure 2



## 5. Conclusions

The results of this study indicate that universities do play an important role in RIS in both research areas. The research results emphasize the importance of education and research for strengthening local economy. The results of the case studies were rather clear and easily interpreted. Furthermore, compared to the results in other studies and to literature in the field, our empirical results did not include any major surprises. However, the research areas were different, and the roles of universities were also somewhat different. The Romanian case region is a bigger one, including several sub-regions. The university has a central role providing research activities, educating skilled workforce, improving education and continuous education for practitioners, and partnership with different institutions and firms in innovating and diffusion of innovation. In the Finnish case the research area is a sub-region, which is a part of a bigger province. The role of university unit in the sub-region is not just to provide

education and research based on own expertise (which is quite narrow due to the small size of the unit), but more to intermediate the education and research services from the outside.

The AWOT analysis was done in the Romanian case on the basis of the formal SWOT analysis of the University "Stefan cel Mare" in Suceava. The SWOT analysis, taken from the 2005 annual university report, was concluded with a large participation of the teachers and researchers. The SWOT analysis revealed the general weakness of the Romanian education system and the particular strengths of the USV. The priority was given rather to the identification of threats than opportunities. The appearing of the factor "difficulty of the intellectual career" as the most important threat is surprising. It may be a bias introduced by the fact that the interviewed people are not enough familiar with what represents an "intellectual carrier". Also, a second explanation takes into account the expressed opinion of the interviewed people. They specified that the difficulty of intellectual career prevents students, but also researchers, to be more in contact with the economic practices in the RIS. This identified threat is similar to the one expressed in the Finnish case as a weakness, e.g. students could spend more time in the enterprises.

The university role in the RIS is hampered by the little presence of innovation concept and idea in the daily life. In the actors' discourses, the innovation is perceived mostly as being related to invention. The public policies in the innovation field are not sufficient enough to alter this perception. It is significant that in the beginning the interviews had to describe the aim of the study using the words "regional economic development system", not "regional innovation system".

In the Finnish case the research interviews were part of the Regional Innovation Strategy process taking place in the research region. The core of the strategy is the defined enterprise clusters, so-called mini-clusters, and the three focus areas: 1) effectiveness of the innovation actions; 2) innovation infrastructure and environments; and 3) innovation culture and way of actions each having own program. In the strategy process and especially in implementing it the universities play an important role.

Due to the geographically limited research material and the limited number of experts interviewed, the results have application only in the case study areas, and cannot be taken as absolute truth. The A'WOT method with the SMART rating technique was rather easy for experts to understand and apply. Comparisons between the factors forced the experts to give deeper consideration to the meaning and importance of the factors. Although the rating technique and respective calculations of SMART are easier to carry out, compared to the comparison technique and calculations of the AHP, giving ratings to all factors within the specific SWOT field simultaneously can be more difficult. According to the experiences gained from the presented applications, the combined use of the MCDS method and SWOT analysis is a promising approach in supporting strategic decision-making processes, and also increases and improves the information basis. The defining of the importance of the SWOT factors forces the decision-makers to analyze the situation more precisely and in more depth, than the standard SWOT does.

As a result it can be said that universities do play an important role in regional development and regional innovation system. However, what is the university role depends on the needs and circumstances of each region. It is not only the educated skilled workforce, education and research services, but also the links and connections to the other institutes, which are of importance.

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# CHALLENGES AND PROBLEMS OF THE POLICIES FOR SUPPORT TO BULGARIAN SMEs IN THE EVE OF EU ACCESSION

*Assoc. Prof. Dr. Plamen Pachev  
South-West University "Neofit Rilski", Bulgaria*

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## 1. Highlights of the Small and Medium Enterprise Sector in Bulgaria

Practically, since the beginning of social and economic reforms in the early 1990s, all political powers in the country, as well as representatives of the central administration, in one form or another have been declaring their commitment to the values of the industrial civilization and the transformation of the centrally planned economy into a market one. In this connection, it is quite understandable to have the declared political approval of the axiom that economic enterprise of broad social strata should be embedded to greatest extent in the foundations of the desired functioning future market system. The standpoint that «small business» is «the backbone of the democratic society and market economy» is not officially argued neither. The experience of developed European countries, as well as the structuring of companies by their size in the economies of all developed countries, has shown that the most appropriate way to reach such goal however is the overall support to development and strengthening of the sector of small and medium-scale companies' and entrepreneurship promotion. Or, if we take into account that in the EU SME sector varies from 85% (for Germany) to more than 97% (in Italy), and, if we conceptually agree with the understanding about the important role of «small business», it should be clear that this sector's development level in the West is not an «automatic» outcome of the market economy development, but rather the result of systematic measures and policies for entrepreneurship and small business support and promotion within the overall social and economic system for a rather long period of time.

Herein below we shall not discuss in detail the popular definition of such type of companies, as far as the term «small and medium-scale business» has been legally settled in Bulgaria. The subsequent amendments of the SME Law which was adopted initially in 1999 and amended seven times until 2006 (including twice within two consecutive months in 2000!), have been introduced, however, not because of any crucial changes in the concept of legislative regulation within the sector, due to

national specifics. Rather it was due to the government's strive to align Bulgarian legal framework in compliance with the EU practices and to provide our 'small business' at least the formal rights to apply either independently or in foreign partnerships for funding or other preferences under the European specialized programs.

This circumstance becomes even more obvious when we consider the fact that in Bulgaria for the whole period of reforms micro-firms prevail in number, and, according to definition, such entities have less than 10 employees and the value of their turnover and fixed assets is up to 3.9 million BGN. If out of the totally recorded 218,136 enterprises in Bulgaria only 0,2% satisfy the criteria for «large enterprises» (i.e. companies with more than 250 employees) and 1,5% from all above mentioned companies fall into the category of «medium sized enterprises», thus a prevailing number of the enterprises in Bulgaria, not only in the private sector, can be defined as small and micro-firms. In other words, due to objective circumstances or resulting from the social policy conducted so far in this country, only a few months prior to full EU membership, marginal micro-firms are prevailing in quantitative respect, which according to the widespread opinion, cannot prove the economic efficiency corresponding to the broad accepted view for economic dynamics and technological adequacy.

Most probably this is the reason why most of our economists express certain pessimism as to whether and to what extent «small business» sector is perspective enough in the mid- and long-term plan. And they base their recommendation for our economic development mostly on foreign investments and large investment projects. That is why, if we talk about appropriately implemented policies towards the “small business” sector in Bulgaria on behalf of the government and other relevant decision makers, we have to accept that the subject of these policies are in fact the tens of thousands very small companies which play definite but not very significant role for restructuring, technological development and ultimately for the “Europeanisation” of the Bulgarian economy, whatsoever broad meaning such expression could have. This most probably is also the reason for such an attitude on behalf of our official government policies towards SME. The top leadership in fact is facing the dilemma that looks like “Should we assist the marginal SME sector or is it marginal because so far it has not been supported as target?” Still we must bear in mind that according to official data (precision not being their typical feature in this country), small and medium-scale business sector account for the creation of as much as 80% of all jobs at present, about 75% of overall turnover is executed, nearly 60% of the added value in the entire economy is created, at least 57% of all lasting fixed assets are concentrated and at least 67% of investments in fixed assets in the private sector are made. Large portion of the import and export is also carried out with the active participation of small and medium-size companies – more than 54% of Bulgarian exports and at least 73% of the country's imports.

It is also beyond doubt that at present there are significant differences between the situation in Bulgaria and that in Europe with respect to the absolute gross added value, technological development, significance of SME share in foreign economic relations from the perspective of the technological re-equipment production forces, etc. All this makes it more complex to consistently defend the thesis for the

appropriateness of support policies for this sector, as far as their current efficiency is difficult to be proven in an objective comparison. This conclusion is logical for a country like Bulgaria where traditionally the importance of long-term forecasting and planning is ignored. Yet, in order to substantiate the need of a long-term vision on that matter, we will discuss two “initial” hypotheses at the outset.

## **2. Entrepreneur’s Need to «Grow» into an Active Economic Antipode of the «Socialist Worker» of the Past, in a Market Economy Environment**

The main task during the period of transition to market economy is to change the social and economic behavior of the physical subjects and make them becoming aware of such norms and forms of social behavior, which can draw them closer to the feeling and sensing of the «Economy of pushing elbows» as is the market economy system. From the perspective of the «small business» sector’s development and flourishing, this means in fact policies targeted towards quick mental transformation from a society of all being equalized towards a system of loyal results-oriented competition. It is interesting however that some developed economies in Europe are facing a problem now and experiencing difficulties in motivating the «hereditary» entrepreneurs (i.e. the children of the second or third generation of the founders of small firms).

The complexity of such task in our environment however becomes more obvious if, for general information, we indicate several compiled characteristics of the «new market man» – the entrepreneur, as they are mentioned in popular literature:

- Stronger interest in practical activity rather than in theory;
- Orientated towards goals in the course of business projects’ implementation, among which the strive towards material gains is not at the first place;
- Inclination towards self-assertion in society through something that is made or done in the best possible way;
- Psychological inclination and physical capability for persistent and intensive work;
- Ability for taking weighed economic risks;
- «Feel for business» skills and correct assessment of expected economic events, economic development trends (not always viewed in the macroeconomic and/or theoretical perspective), of facts, events and circumstances of economic nature;
- Ability to make correct (market) assessment of an idea, product and/or activity;
- Strive towards improving own achievements;
- Integrity and openness to staff and business partners;

- Trust in own strengths and abilities and belief in the success of certain (started) business project / enterprise;
- Willingness to work with talented staff;
- Ability to survive failures and quick psychological recovery after business failure;
- Possession of management and business intuition and ability to make quick management decisions.

The above characteristics pose rather strict requirements to all individuals who (in their vast majority) have been systematically taught to subordination, obedience, observation and adherence to principles of «socialist collectivism» and other major principles, characteristic of the directive economy and mono-party political system. Much of the research carried out throughout the whole period of transition pays attention to the «starting» positions from which the mental change should take place and from which critical mass of entrepreneurs can be formed, who could react adequately to the completely changed social conditions and environment in Bulgaria at present. These entrepreneurs should offer through their economic and social behavior a convincing alternative of qualities formed during the previous period, such as:

- An aptitude and inclination for the individual's social realization to be sought mainly through being somebody else's employee with minimum economic risk;
- Relying too much on the government's social function;
- Perception that one must definitely have «connections» in order to become an entrepreneur;
- Perception that only «unscrupulous» individuals succeed in business;
- Perception that one needs the skill to «steal from public funds and benefits» in order to an entrepreneur, etc.

These and other similar conclusions on the issue form the feeling that the establishment of an entrepreneurial class in this country could be related to social innovations, which are the most complex and long-term to realize.

### **3. Importance of a Well-Considered and Backed-Up with Resources Economic Policy for SME versus Imported or Unsystematic Impacts of Relevant Governmental or Local Authorities and Other Related Decision-Makers**

Quite naturally, one of the reasons for micro-firms' current prevalence in the "small business" sector in this country should, in our opinion, be sought in the inconsistent and unsystematic government policy. The same applies also for its overall status,

which is characterized by numerous unresolved problems compared with the other former East bloc countries. Another fact is that in practice foreign experts recommended its main directions until foreign donors financed almost the late 90ies, and the major of undertakings. That is why, according to the National strategy for SME promotion and development adopted with decision of the Council of Ministers N 398 of 07.08.1998 for example, it was expected that small and medium-sized companies would foster:

- Development of private property, free competition and entrepreneurship;
- Job creation with relatively low capital investments;
- Development of entrepreneurs' managerial skills;
- Active participation of SME in exports;
- Implementation of high technologies, etc.

In its updated variant, the National strategy (adopted by the Council of Ministers in March 2002) is oriented towards utilizing the sector's advantages, supporting the employment, timely implementation of new technologies and adaptability to the economic environment changes.

These management cornerstones however confuse experts with the fact that the recommendations they contain are either too obsolete at the time of implementation, or, more importantly, are not backed up with the relevant resources.

It is obvious, that in this case we, therefore, speak about insufficiently elaborated economic policy for entrepreneurship and «small business» support, and rather about palliatives. In our opinion, the very term «economic policy» should contain an impact system from the government and the other decision makers that is conceptually clarified, long-term, targeted and backed-up with resources, oriented towards the creation, establishment and development of small and medium-sized companies in the national economy. Thus it will be a factor for the development and simultaneous promotion of entrepreneurial culture among the broad public.

In our opinion, factors like these mentioned below should be fostered as much as possible so that we can speak about a similar formulation of the term «economic policy»:

- political goodwill to implement the respective policy;
- knowledge, experience and skills shared on the highest political levels;
- timely and consistent implementation of measures;
- provision of the needed resources to implement the necessary measures;

- overall social and economic conditions and prerequisites for policies implementation.

If we conditionally compare the above mentioned limiting factors in a triangle including apart from Bulgaria also a randomly selected developed country from the EU with well-functioning SME sector and a Central European country from the former “East bloc”, we could consider the following assumptions which we will try to elaborate in figure 1.

Figure 1

**Comparative Evaluation of Some Important Aspects in the Government Policy for Small Business and Entrepreneurship Promotion in Europe**

Country	Developed EU-member country	East European country from the Visegrad group included in the first accession wave	Bulgaria as a second wave accession country
Aspect			
1. Political good-will for conducting long-term comprehensive policy			
2. Knowledge, experience and skills for generating ideas shared at highest political levels			
3. Timely and consistent implementation of the pinpointed measures			
4. Availability of resources for those measures			
5. Overall socio-economic environment for policy implementation			

#### 4. The Issue of «What to Do?» («Что делать ?») in the New Environment

European economic practices and the experience of the countries from the former East bloc who are already full EU members show that the main efforts to establish a functioning small and medium-size companies sector, as well as the formation of entrepreneurial culture should be addressed in several main directions, such as:

##### 4.1. Policy to form-up entrepreneurial attitudes and culture, including:

- Selection, motivation and training of potential entrepreneurs;
- Creating of positive image of the entrepreneur in society and among the general public;
- Promotion of creativity and success in society as a result of the active participation in economic activities at one's own expense and risk;
- Encouraging scientists to apply their high qualifications and knowledge in entrepreneurship;

- Collection and broad dissemination of objective and detailed business information in favor of and support to potential entrepreneurs;

*4.2. Policy for Start-ups support, incl.*

- Facilitation and streamlining of administrative procedures for incorporation of new SMEs;
- Sanctions against corruption and bureaucratic hurdles in the respective government offices; Introduction of «one stop shop»;
- Direct or indirect financial assistance through specialized banks, guarantee funds, national or regional credit schemes, etc.;
- Government assistance (grants) to business associations to provide the targeted consultations and expert services to entrepreneurs;
- Establishment of a system of economic preferences for SME during the first 1-3 years after incorporation.

*4.3. Policy in the period of the firm's establishment and expansion, including:*

- Provision of selection preferences, for instance for activities of strategic priority for the national economic development – for instance new technology implementation, generating employment, incorporation of companies in economically underdeveloped regions, etc.;
- Guarantees and/or subsidies for new investments;
- Preferential provision of building facilities/land (for rent or purchase) for investment needs;
- Subsidies for environmental costs (or at least part of it) and/or tax weaver for such costs;
- Assistance in raising entrepreneurs' qualifications in modern managerial skills;
- Organizing of specialized tenders on competitive basis for government ad/or public procurement orders.

*4.4. Strategic policy for SME development, including:*

- Elaboration and implementation of a National strategy for the sector's development;
- Support of science, education and R&D;

- Export and international cooperation promotion;
- Policies for overall increase of SMEs competitiveness;
- Establishment of technological centers and business incubators;
- Contracting and targeting considerable part of EU pre-accession and structural funds for SME sector support.

If we carry out a critical analysis of randomly selected relevant empirical data and facts for the impact of the policy's major aspects on priority spheres for entrepreneurship and small business, we will succeed to prove compliance between verbal statements and their assessment in Fig. N 1.

Most complex in this case is to evaluate **the readiness and good-will of government for conducting targeted and long-term policy in the sector.**

As it has already been mentioned above, the economic platforms of all political parties have been declaring their intentions to support the formation of entrepreneurial class and well-functioning SMEs. This partly results from the impossibility to ignore the world experience in this field, as well as the advice of foreign politicians and consultants. In this respect however, I do not exclude the subjective belief of some political leaders in the need for entrepreneurship and small business promotion. If one follows the curve of entrepreneurial activity during the 90ies (i.e. statistical number of incorporated companies during each year), a peak around 1996 could be observed, after which growth rates slow down and the curve has been constantly sliding down since 1998. This trend illustrates the absence of a long-term policy for support to the sector. One of the reasons for this could inevitably be also the lack of political will.

Similar general conclusion may be illustrated with other examples as well. Thus, within the framework of the first overall research on the reviewed problems during the period February-March 1992, a National Programme for urgent measures for the support of entrepreneurship and small business in Bulgaria has been elaborated, including 101 measures. Seventy-four measures have been defined as "immediate" (i.e. the goal such measures were to be achieved within the next few months after the end of the project), 23 measures - as "quick" (i.e. to be implemented within one year), and 4 as "mid-term" (to be implemented within 3 years). As urgent measures such tasks were marked as the establishment of a government Agency for Small and Medium-Scale Enterprises, adoption of a Law for SME and a Strategy for the Sector's Development. Indeed, all the three above-mentioned measures have already been realized in the meantime, despite big delays.

The separate discussion on the policy's second aspect - its **conceptual adequacy** - is also comparatively difficult. However, in order to conduct a successful and long-term policy, it should obviously combine ideas, knowledge and experience tested in the developed market economies' practice, and also it should consider the specifics of the particular country in transition. Bulgarian socio-cultural differences, which have briefly

been mentioned above, require certain adjustment of the models that have proven effective in the EU. Most often such models are proposed and applied “mechanically” by foreign experts to local conditions and environment. The elaboration of comprehensive national alternative concepts by local experts is obstructed by the absence of practical experience in the country and the fact that issue concepts have changed at the highest government level. The most common possible solution in this case could be the testing of foreign ideas, mainly through the “trial-and-error” method. With such a method however, there is a risk to come into conflict with the third aspect, shown in Fig. 1, i.e. the **timely policy implementation**.

Albeit the “learning from mistakes” method inevitably may lead to delays (non-synchronisation), this deviation is the «less evil» compared to the difficult problem with insufficient resources, which is especially acute in the case of Bulgaria. In this respect, developments could often be observed which confirm the well-known postulate that the one who doesn't pay on time pays twice. As it is well known, the country is burdened by a considerable foreign debt. IMF's prescriptions require coordination of all expenditures and simultaneously cut-off of as much costs as possible for the purposes of a balanced state budget as ultimate goal. Practice shows (especially after the introduction of the Currency board) that every attempt to spend any resource without a guaranteed success is ignored by the Bulgarian government under the pressure of foreign institutional donors. This has a negative influence on the application of management concepts with investment element, incl. these targeting the SME sector.

Experts often draw attention to the fact that reasonable adjustment of foreign operational schemes to the Bulgarian environment is being impeded by the lack of appropriate procedures in the decision-making processes. Another reason could also be for instance the above mentioned lack of management knowledge and skills, as well as the lack of will for their practical implementation. With view to the improvement of the legal framework for development of the small business sector, the proposed new legislative documents are most often analyzed in their formally legal aspect but not in the aspect of their influence and impact on the economic processes. This is also due to the fact that the policy-makers do not carry out the necessary preliminary analysis.

The above mentioned First National Strategy for the sector's development was elaborated as late as 1998, mainly as a response to the EU requirement for the negotiations for Bulgaria's accession to EU.

The evaluation of **resource back-up** of the separate aspects of governmental policy in the area is facilitated by the fact that the active cooperation between Bulgaria and the EU in the accession process allows to utilize resources for “small business” development both under the Phare Programme and from a number of other foreign donors. The Programme for urgent measures elaborated by the Bulgarian-Dutch team in the beginning of 1992 states that the promotion of the fledgling private sector “requires financial means that could be provided by local sources”. The expected foreign financial resources are recommended to be treated as “supplement to donations from the state budget which should re-direct the income from privatization

or revenues from national and local fees and taxes for the needs of this policy. However, the unfavorable macro-economic development of the country that followed during the whole decade of the 1990s strongly curbed the possibility to acquire state budget funds for the support of small businesses and entrepreneurship. Thus for example, for the needs of the first Strategy (1998-2001) containing 14 directions for actions six Bulgarian and eight foreign sources are considered in order to achieve the identified targets and goals. The major part of the funds, though, came from the EU. The latest Strategy for the period 2002-2006 which included solutions to 42 groups of problems clustered around seven priority directions, does not point out a specific source for the necessary resources. Only government institutions responsible for the implementation of one activity or another have been mentioned there.

One of the main reasons for the increased needs of outside financing and considerable foreign support to the SME policy and entrepreneurship promotion is the **overall social and economic environment** in the country. After introducing the currency board in Bulgaria all aspects of the government's economic policy are coordinated with the IMF. This limits the possibilities to implement some promotion projects for specific sectors of the national economy, including the SME sector.

In summary, the following main conclusions could be stated:

1. More than 15-year experience of social-economic transition in Bulgaria show that the establishment of a viable and efficient SME sector is possible only based on active government policy for support of entrepreneurship and restructuring of the problems inherited from the centrally-planned economy at all levels. This, at present – shortly prior to Bulgaria's accession to the EU – is taking place slowly and inefficiently, which impedes the "small business" sector as social-economical accelerator.
2. Relying exclusively on the market economy internal mechanisms and on free democratic society for "self-activation" through economic enhancing of the entrepreneurial potential is an extremely inefficient approach in a country like Bulgaria with inherited social and economic egalitarianism that was to a large extent turned into a tradition. It considerably curbs the country's economic development and poses the risk of increased economic crime and grey economy. Because the formation of a viable small and medium firms sector "by inertia" is a process that could last considerably longer than acceptable from the perspective of the forthcoming European integration.
3. It is necessary to elaborate the concepts for conducting an overall policy for SME support in transitional countries like Bulgaria, by taking into account some national specifics. Even in the case of some rare and complex introductions of "ready-made" European and world-wide schemes in some spheres of small entrepreneurship activity – for example SME funded by a specialized state-owned bank ("Promotional Bank" AD) it becomes obvious that such programs lag behind in their scope and efficiency compared to foreign programs (for example "Pro-credit Bank" AD) – they are not always equally operational everywhere due to the presence of organizational, administrative, social-cultural, financial and other

differences – i.e. the effect of «making it Bulgarian-like».

4. On the background of the numerous unresolved fundamental problems related to the differentiation of the “small and medium scale business” sector as a really dynamic part of a competitive national economy, at this stage limited attention is paid in Bulgaria to the challenges arising from the so-called “knowledge-based economy”. These problems have aggravated due to governmental institutions and most of the sector’s entrepreneurs focusing their attention mainly on purely formalistic and/or elementary investment tasks arising from the need to achieve supplementary investments in fixed assets in order to have compliance with the so-called “European standards”. Often, such an approach concerns the straightforward and urgently needed modernization, control and measuring equipment implementation or even only commonplace electronic donors in some manufacturing processes, mainly in the food industry. From the perspective of competitiveness however, such an approach, albeit much needed at this stage, can not ensure sustainable application of innovations, development and implementation of innovative products and technologies “inside” the sector or at least in the sector’s leading companies. It is therefore necessary to implement dedicated governmental policy to ensure favorable conditions for constant and sustainable technological transfer (in the term’s narrowest meaning) from the sphere of the dynamic science and R&D sectors both in the country and abroad, towards the entrepreneurial and technologically oriented small and medium-size companies. In our opinion, the Bulgarian small companies shall always stay a palliative supplement to the market, without fully performing their role as a nucleus of the innovative dynamics and product innovation, and of technological core in the near future, without such policy comprehended at governmental level.

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# EUROPEAN INITIATIVES INFLUENCING THE INNOVATION NETWORKS DEVELOPMENT

*Radoslav Stanolov*  
*Institute of Economics at Bulgarian Academy of Sciences*

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## 1. Introduction

The internationalization of economic activities and true globalization place the business entities in dynamic business environment, enormous pool of information requiring swift assessment and reactions as well as a big number of competitors.

In this aspect the firm's participation into more or less formalized innovation networks that provide competitive advantages and opportunities to make use of market niches and to offer innovative solutions, products and services, strongly grew in importance.

Bulgarian economy's participation in the European economic integration process defines the need for Bulgarian companies to seek their market niches in order to survive expected imports of quality consumer goods. They need to direct their attention to develop and introduce to market some innovative high value-added products and services and to participate in the EU innovation networks promotion initiatives.

## 2. Importance of Innovation Networks

Innovation networks can be characterized by their elements and mutual links as based on non-economic exchange of ideas and personal relations importance for good cooperation, economic effectiveness and innovation /Granovetter 1973,1995; Miettinen et al. 1999/ or as a network of interpersonal links providing the social aspects, sense of belonging and social identity /Wellman, 2002/.

Other researchers place the accent on the structural approach and give priority to the configuration, number and quality of the network links /Nahapiet and Ghoshal 1998; Mattila and Uusikylä 1999/.

Other researchers place the importance on the networks' institutional identity and

define them as „separate organizational structures comparable to markets and corporate hierarchies” /Powell 1990; Williamson 1991/.

Innovation networks according to their scope can be defined also as regional, national and international.

Innovation networks can be defined as networks of institutions that act together for the initiation, import and dissemination of new technologies, as vertical or horizontal, as public-private partnerships, and, according to their flexibility, varying from very informal and based on mutual trust to more formal and relatively inflexible links /Lundvall и Borras 1997: 110f/.

Different criteria could be outlined as networks' long life, extent to which they are open or closed, stability and inter-changeability, or being innovation networks as pragmatically based system of characteristics built from abstract elements and formed in unified conceptual frameworks in which one or more attributes can be intensified for usage goals /SEIN Project/.

The participants in stronger or less formalized innovation networks which take central place for the creation and distribution of innovative products and services, have a very important role in this process, at the same time influencing the scientific and technical progress.

The need to reengineer established forms of doing business /Hämäläinen, 1999/ is one of the globalizing effects on economy, which together with the greater uncertainties surrounding the international business activities in comparison with the business on national level /Johanson and Vahlne, 1976; Luostarinen 1980/ predefine the importance of knowledge and best practices transfer, based on the knowledge economy.

Knowledge-based economy in which persons, companies and nations can generate wealth according to their ability to learn and exchange innovations (Foray and Lundvall 1996, Lundvall and Johnson, 1994) is also defined as “economy in which the generation and usage of knowledge has a decisive role for the wealth creation” (United Kingdom Department of Trade and Industry, 1998), became the leading factor for modern society development.

The World Bank defines knowledge-based economy as consisting of “favorable economic and institutional environment and management for entrepreneurship development”; “well developed information infrastructure”; “creative and knowledgeable human capital” and “national innovation system capable to realize high-tech products”.

In the process of its globalization, the world economy also stimulates the various forms of international economic cooperation and promotes the growing number of international networks, based on relatively constant national innovation networks.

An example in the last decades, is the fast growth in international partnerships for

strategic technologies combining the firms' different knowledge databases /Narula and Dunning, 1999/.

The inter-firms cooperation process is explicitly linked to the possibilities for tacit and codified knowledge transfer among specialists in linked areas, together with the positive results from participating in networks of cooperative knowledge; networks of cooperative innovations; cooperative education and networks of common interest /according to the CKN - Collaborative Knowledge Networks definitions/ which are very important for the economic agents and the use of knowledge as economic asset.

On a broad level the links between innovation networks and national innovation system can be defined as "elements of the eco-systems innovation network" /spheres in spheres/ which on the inside put the challenges before corporate development, surrounded by the network of firms, entrepreneurship culture, public/private development and scientific parks, financial markets and venture capital, institutional structure and legal framework, influence from the international coherence /Takis Damaskopoulos, European Institute of Interdisciplinary Research, 2004/.

One of the innovation networks' potential is being a community of economic agents to find mutually accepted goals, and while keeping their judicial and financial independency, to achieve, in a network of their own, the competitive advantages through constant exchange and dissemination of knowledge and skills in the innovation products and services development. This can be seen as extending further the "flexible unity of economic agents in a network" characterized as relatively informal relationships among independent participants without hierarchy and aiming to reach common goals /Johannison 1987: 9/.

In this respect, the presence or absence of conditional centralization following the dependency asymmetry between network participants is important, having in mind their equal rights, mutual support and the presence of one or more "leading" firms in the network, which control more or less the other partners in the network /Rugman and D'Cruz, 1996/. This will lead to factual hierarchy of some form, especially concerning the choice of strategic way for corporate development and the selected business model.

Here, the social capital development and level of trust should also be mentioned, which are characterized by slow establishment of network relationships. However, once formed, these relationships tend to be stable and with huge amounts of communication, trust and interdependency among participants /Nahapiet and Ghoshal, 1998/.

### **3. European Initiatives for Promotion of Innovation Networks**

EU highly regards the importance of competitive economy development, SME support for their efforts to be more innovative, and the establishment of entrepreneurship culture.

The Lisbon strategy for EU's transformation until 2010 in the most competitive and dynamic economy based on knowledge application, defines a number of measures for the dynamics, innovativeness and heightening the enterprising spirit in the European economy. It also aims to allocate more funds for scientific and applied technologies development, planned to reach 3 % of GDP for R&D development at 2 % economic growth, which amounts are expected to be financed mainly by the business sector.

A number of measures are connected with the innovation networks promotion, one of which is the "Lifelong Learning" Action Programme for the period 2007-2013 accepted in 2006 by the European Parliament and stipulating support to the education for the achievement of civil, personal and social goals, as well as aimed at the promotion of knowledge-based society.

One example of the Lisbon Strategy measures are the AXIS and the GATE 2 GROWTH programmes in the Fifth Framework Programme, in which best achievements were outlined in 22 regions, identifying more than 300 best innovation practices, business centers and investors links promotion, as well as the creation of 11 EUROOffice for entrepreneurs promotion.

As a response to the entrepreneurship development in new business conditions, the above-mentioned programmes were transformed respectively in PRO INNO EUROPE and EUROPE INNOVA in the Sixth framework programme based on the promoted by networks European innovations.

These programmes put in the center of their attention the developing innovations and innovation management, the networks for cluster creation, financing and standards development, and nine innovation panels development, covering the ICT, car and machine industry, biotechnologies, space technologies, chemical, textile and food industry, eco-friendly technologies development and high-potential SME promotion.

The PRO INNO EUROPE and EUROPE INNOVA programmes support not only innovation products and services development, but also best practices transfer, multiplication of the positive effects of knowledge dissemination in the conditions of collaborative knowledge networks, rising competitiveness and new scientific application in market products.

#### **4. Influence on the Innovation Networks Development in Bulgaria**

The upward trend of the Bulgarian macroeconomic development which in the last several years has shown a stable growth trend, together with the enhanced stability and expected future economic conditions are prerequisites for the development of innovation networks.

The reason behind this is that firms now have longer planning time horizon and are much less in the position to apply business survival strategy. Therefore they are able to assess the needs for their staff development and motivation for a stable work that are especially important in the time of better workforce mobility.

The GDP growth of 4,1 % in 2001 has reached 5,6 % in 2004 and 6,1 % in the first half of 2006.

In 2005, Bulgaria was on the first place among CEE countries with 5,5 % economic growth, albeit it is correct to note the GDP size in absolute terms.

Industrial sector was growing with 8,9 % in the first half of 2006, the investment goods export growth was 17,7 % in 2004, 34,6 % in 2005 and 29 % for the first half of 2006.

The attracted investments in the period 1996-2005 are Euro 11,532 billion in total and the four big rating agencies /Standard & Poor's, Fitch, Moody's and Japan Credit Rating Agency/ gave to Bulgaria an investment rating with stable or positive perspective.

The adopted National Innovation Strategy and the operational National Innovation Fund /NIF/ managed by the Bulgarian SME Promotion Agency /BSMEPA/A have been prerequisites for the innovation network development.

In 2005 NIF with its budget of BGN 5,756,796 /about Euro 2,9 million/ has subsidized 90 applied scientific projects and 15 feasibility studies, and, in the period 2005-2006 from 218 approved projects and feasibility studies only one has been cancelled earlier than envisaged.

The second session for financing of project proposals in the area of nano- and biotechnologies, nuclear energy, energy saving technologies and ecological innovations was closed on 15.12.2006 and information about the approved projects is pending.

This date shows the efforts of the Bulgarian country to stimulate applied scientific projects, innovations development and the applied scientific knowledge transfer with strictly limited financial capabilities.

The low level of funding allocated to this area must be mentioned, amounting to only 0,5 % of GDP is financed mainly through public funds. Moreover the business expenditure in the field of R&D are scarce /less than 0,1 % of GDP/ and are, on average, 15 times less as a ratio compared to the developed EU member states, and about 10 times less than those in Czech Republic and Slovenia.

This leads to lower knowledge demand on behalf of the firms, in comparison with the possibilities for its supply, which is inputted in products and services. Hence, this leads to a further decrease of national potential for knowledge-based economic growth.

During the international conference Knowledge and Innovations Demand in the Process of European Economic Integration, held in Sofia on 10-12.11.2006, a National Lisbon Strategy was offered to be formulated, aiming to promote greater funding for R&D, especially from the private sector, the applied scientific projects development and the demand of companies for innovative solutions, as well as the national and international innovation networks development.

In the past years of market economic development, the companies from the Bulgarian economy as a whole have gone through the period of chaotic development and “learn as you work” stage. They have survived in conditions of crisis and high inflation, strong competition by the grey economy sector and the contraband channels.

The most adaptable among them have found their market niches and have been investing funds not only in their machine infrastructure and creation of favorable conditions to offer services, but also in their human capital development.

These firms, often managed by narrow-field experts with much more practical than theoretical knowledge, started to value the importance of stable economic links, long-term contracts and the positive effects of mutual activities, leading to more or less formalized networks.

At the same time, in the conditions of renewed and widely existing technical infrastructure as well as easier access to funding, constant training of the staff and their motivations appears to be a factor with growing importance for the enhancing corporate competitiveness.

Confirmation of this is the growing number of firm’s experts participating in different kinds of training, higher remunerations in a number of competitive economic areas /banking sector, media sector, management, etc./, as well as the comprehensive corporate policies in attracting and developing human resources in line with the firms’ goals and expected results.

At the same time, it should be mentioned that the existing European initiatives now are still not well disseminated and Bulgarian firms and institutions needs to be very active so that derived best practices be widely discussed, applied and supported for inclusion in the European initiatives.

## **5. Conclusion**

The successful integration of a small and open economy, working in the conditions of currency board, as is the Bulgarian economy in EU, is in fact a complex process of economic development influenced by internal and external factors. It is at the same time striving to reach economic growth, meet the high quality requirements in a strongly competitive environment, find a market niche and rebalance trade deficit.

The solution to this multi-aspect dynamic task is not an easy one, nor a single effort, having in mind that the market Bulgarian economy is producing goods and services in competition with the other newly-accepted EU members from Central Europe and countries from the Balkan Peninsula.

The possibilities for knowledge demand and knowledge generation and their practical implementation in market products and services are very important, as are also the innovation networks and support to innovation solutions development, the social capital development, the promotion of corporate culture and managerial skills, as well

as attracting and sustaining highly trained specialists.

One of the most important factor (and challenge) in the EU integration is for economy to be stimulated to seek and utilize knowledge and best practices transfer, especially in the area of innovative products and services of large development potential.

An important factor to achieve this is to place the focus on innovation networks, flexible economic agents and skilled professionals.

The wide application of EU initiatives for the development of innovation networks, aimed to also incorporate changes and further development in order to give a better response to the national specifics of economic and social activities, is the cornerstone for effective participation of Bulgarian economy in the European economic integration.

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# EUROPEAN INNOVATION INITIATIVES AND THE BULGARIAN APPROACH

*Assoc. Prof. Dr. Vasil Sivov  
South-West University "Neofit Rilski", Bulgaria*

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## 1. Introduction

On 12 September 2006, the European Commission adopted a 10-bullet action programme on national and European level to foster innovation as a main asset of the EU economy. The programme is intended as a basis for the discussion by European leaders at the informal Summit in Lahti, on 20 October 2006, and designs the way forward to assist industry-led innovation with public policies at all levels, as a core element of the renewed Lisbon strategy for growth and jobs. The Commission seeks to develop the concept of "lead markets", where public authorities facilitate industry-led innovation by creating conditions for a successful market uptake of innovative products and services in a focused way. Primary targets are areas that respond to societal demands (e.g. areas such as transport or health, internal security, eco-innovation).

The Commission calls upon Member States to make the necessary structural reforms to deliver the required results. The accent is placed on the fact that Europe does not need new commitments from Member States, but political leadership and decisive action. In its Communication, the Commission underlines that no fundamentally new governance structures would be necessary, though there is a need to improve and refine the existing structure. This should address innovation at all levels [1].

## 2. Priorities and Strategy

The priority must be to establish strong innovation systems in all Member States. In this respect, the Commission underlines the importance of fostering innovation at regional level. It encourages the Member States to involve regions more in the preparation and implementation of the National Reform Programmes, including by developing their own regional innovation strategies. Additional efforts need to be undertaken to facilitate policy learning and the dissemination of good practice across borders. In this respect, PRO INNO Europe will offer a platform that brings together regional and national policy-makers with a view to facilitate trans-national cooperation in areas of common interest.

Information and Communication Technologies (ICT's) are vital to generating growth throughout European economy and achieving its social and environmental goals. It is therefore crucial that Europe master these technologies, rather than simply import them. Half of the productivity gains in European economies are explained by the impact of ICTs. They are not simply an important sector of economy, although the ICT sector is itself worth 6-8% of the EU's GDP. The importance of ICTs in achieving Europe's goals set in Lisbon, however, cannot be underestimated, as they are also vital for:

- Improving competitiveness throughout the economy in the face of globalization, boosting innovation, creativity and efficiency;
- Scientific and technological development in areas as diverse as medicine and physics;
- Modernizing various sectors such as education, security, energy and transport, and making Europe's large public sector more efficient;
- Tackling social challenges and improving quality of life while meeting the challenge of an ageing society [2].

In short, ICT's are essential if Europe is to generate the economic growth and jobs required to fund its social model and protect its environment and quality of life. These benefits will only be reaped if Europe masters these technologies. Unfortunately, EU spends less than its competitors on ICT R&D. Moreover, with 25 countries carrying out their own research programmes, there is a lot of duplication. In today's globalised world, Europe cannot afford this duplication. No single EU country or organization can afford now to try and build all the know-how and skills to master these increasingly complex technologies.

EU therefore has a twin strategy:

1. Carrying out its own research programmes to pool Europe's research resources:

- Read the overview and browse some examples of Commission-funded research;
- Stay up-to-date with the development of ICT research in FP7 - the EU's research programme for 2007-2013;
- Go straight to the current IST Programme's website on CORDIS (FP6 - Sixth Framework Programme).

2. The Vienna Process - towards ICT research, aligning European, national, regional and private research is helping to forge a common European strategy activities, share experiences and work out strategies to support ICT in the NMS and ACC by earmarking structural funds for boosting the budgets of national R&D programmes.

Enlargement and globalization are forcing Europe to accept change. And innovation is the way to pull up the continent's economy and secure long-term prosperity for its population. As numerous reports and conferences show, people are keen to talk about innovation, but how do actually go about innovating?

In terms of using EU funds to foster research and technology innovation, innovating could mean allocating structural funds for strengthening national research in addition to the already available Framework Programme and national R&D funds, rather than using these funds solely on infrastructure. That could be the stimulus for establishing long-term innovative environment, increase the dynamics of innovation spread among companies and creating an opportunity to become a real innovator instead of passive technology user [3].

To date, Europe continues to suffer from a substantial limitation of resources. The Innovation Policy Trend Chart lists 1340 innovation support schemes in use in 28 countries. The European Technology Platforms (ETP's) are an excellent instrument for better collaboration and achievement of critical mass. They bring together a wide range of public and private stakeholders to define and implement long-term research and technology agendas. At an early stage, they address the framework conditions for bringing results of R&D work successfully onto the market. A strong commitment from national and regional public authorities to help ETPs realize their goals would boost their prospects for success. Some ETPs have achieved such a scale and scope that attaining their key objectives requires now the set up of dedicated public-private partnerships – i.e. the creation of Joint Technology Initiatives (JTI's) – which will lead to better and more stable commitments for research investment in the longer run. Promising areas where the launch of JTI's is envisaged are:

- Hydrogen and Fuel Cells;
- Nanoelectronics;
- Innovative Medicines;
- Embedded Computing Systems;
- Aeronautics and air transport ("Clean Sky").

New Member States and Accession Candidate Countries are Europe's driving force when it comes to economic growth, but the region is also often lagging behind regarding new technology and its adoption. It is obvious that Central & Eastern Europe can't rely only on cheap labour for the industrial sector for its future, and that the region should become a competitive player in the Knowledge Economy. Innovation and R&D will be instrumental for achieving this goal. The Member States are being encouraged by the European Commission to allocate structural funds for strengthening national research. Similarly to the EC, they perceive structural funds as a funding stream complementary to the Framework Programme and national R&D funds.

### 3. Innovation in Bulgaria

Cooperation with EU Member States and with other candidate countries will very much help the development of innovation policy in Bulgaria. Scientific co-operation has existed for many years, for example in joint research projects and in EU research projects. What we need is for EU policy-makers to convince our government in the importance of investing in science and innovation as the only way to stimulate industrial recovery. In this context, the European Innovation Scoreboard (EIS) is a very important instrument in helping the creation a new innovation policy, especially in a country like Bulgaria [4].

Based on the Summary Innovation Index (SII), Bulgaria ranks 26<sup>th</sup> among the 33 countries, although Bulgaria has performed better than five of the EU member states. There is no data on innovation management, innovation demand, innovation modes, and peer group countries. Bulgaria is showing performance above average in ICT expenditures. It has average performance in tertiary education, youth education, share of medium- and high-tech R&D, and employment in high-tech services. Its performance on the share of business-funded university R&D is five times the EU average, but this could be due to the fact that firms are incapable of performing in-house R&D. In terms of trends, there has been no improvement in public R&D. Business R&D has diminished slightly to 0.09% of GDP in 2005 compared to 0.11% in 2000. Exports of high-technology products have increased from 1.6% in 2000 to 2.9% in 2005, but are still only at about 16% of the EU average. Intellectual property rights (IPR) rates are extremely low (see Table1).

The business expenditures in research & development (BERD) indicators in Bulgaria are well falling behind EU-25 levels. Its current value is 0.09 percent of GDP (falling down from 0.31 in 1996) and it reaches only 7 percent of the average level for the enlarged EU. The very high rate of university R&D financed by business is also more likely to be a sign of the weak public funding for academic R&D linked with weak internal capabilities (staff and equipment) of enterprises to undertake R&D. This results in very low rates of new sales with regard to corporate effort and market. A National Innovation Fund (BG 15) was set up in March 2005 to finance market-oriented innovative projects. This measure addresses the objective of financing, company research strengthening and co-operation among research, universities and companies. NIF offers the improvement potential for innovation activities but is unlikely to be sufficient for the radical change of current investment situation.(5)

While the investment promotion policy has been formulated and implemented aggressively since 2003 and has yielded very positive results on the FDI inflows, the innovation promotion policy as an integral part of Bulgarian enterprise policy has been somewhat neglected. The innovation performance of economy is supporting this hypothesis. For example, the R&D to GDP ratio has not improved much since 1996 and fluctuates around 0.4 percent. A further deterioration may be expected if the government policy does not provide greater support for private R&D expenditure, which is at a very low level (around 20 percent of the total R&D expenditures). There are optimistic policy responses to this negative trend. However, the resources provided for these responses are still extremely insufficient to influence a positive

move by the business sector, which would improve innovation performance at macroeconomic level. The main factors which are constantly hindering the innovative performance of enterprises may be summarised under six headings: low-tech product specialisation and export structure of economy; predominantly low-tech employment; short-term planning horizon of enterprises; poor human resources management system within enterprises; lack of venture capital schemes; and lack of policy incentives for high-tech employment [5].

#### **4. Main Challenges**

As with other countries that lag behind, Bulgaria faces multiple challenges particularly in terms of knowledge creation with very low business R&D, low investment in total innovation expenditures, and negligible innovation outputs. The innovation drives, most of which cover education, are generally closer to the EU average with the exception of the very low rates of life-long learning.

These characteristics suggest that innovation policy in Bulgaria needs to focus on improving the skills of current workforce through better adult education. It also needs to substantially improve knowledge creation inputs. An increase in business R&D could depend on significant improvements in both the amount of public R&D and the quality of public R&D, which could partly be measured through IPR. Bulgaria is also underperforming in the field of innovation dissemination, as shown by low sales shared for both new-to-firm and new-to-market products. This could partly be due to poor demand conditions, for which there is no data for Bulgaria.

Some of the policy challenges are addressed adequately in the National Innovation Strategy (NIS) that was adopted in September 2004. The NIS formulates a policy mix consisting of financial and non-financial measures. One of the main financial measures to encourage innovation has already been implemented, namely the National Innovation Fund. Although government institutions are making some progress in meeting other objectives, the complete implementation of other measures and targets cannot be taken for granted. Among the most important innovation policy objectives are: encouraging the employment of young specialists in SMEs; cluster development; attracting FDI in R&D activities; setting up and encouraging existing technology parks.

Today, the approach to developing innovation policy in Bulgaria is demand-driven, a kind of 'free-market' approach without government influence. There is still little understanding of the importance of innovation policy among decision-makers and policymakers. And government funding of R&D is below 0.4% of gross domestic product (GDP). Our biggest challenge is to convince the government that the only way to come out of the serious economic crisis, and to achieve industry recovery, is to invest in scientific and technological research and transfer it to industry.

Several initiatives ought to be undertaken immediately to improve innovation opportunities in Bulgaria. The most important ones are: creation and development of a national innovation programme; creation and development of an innovation action

plan; establishment of dedicated funding schemes to finance innovation and support the creation of innovative firms; and creating of specific government body with responsibility to develop and co-ordinate innovation policy.

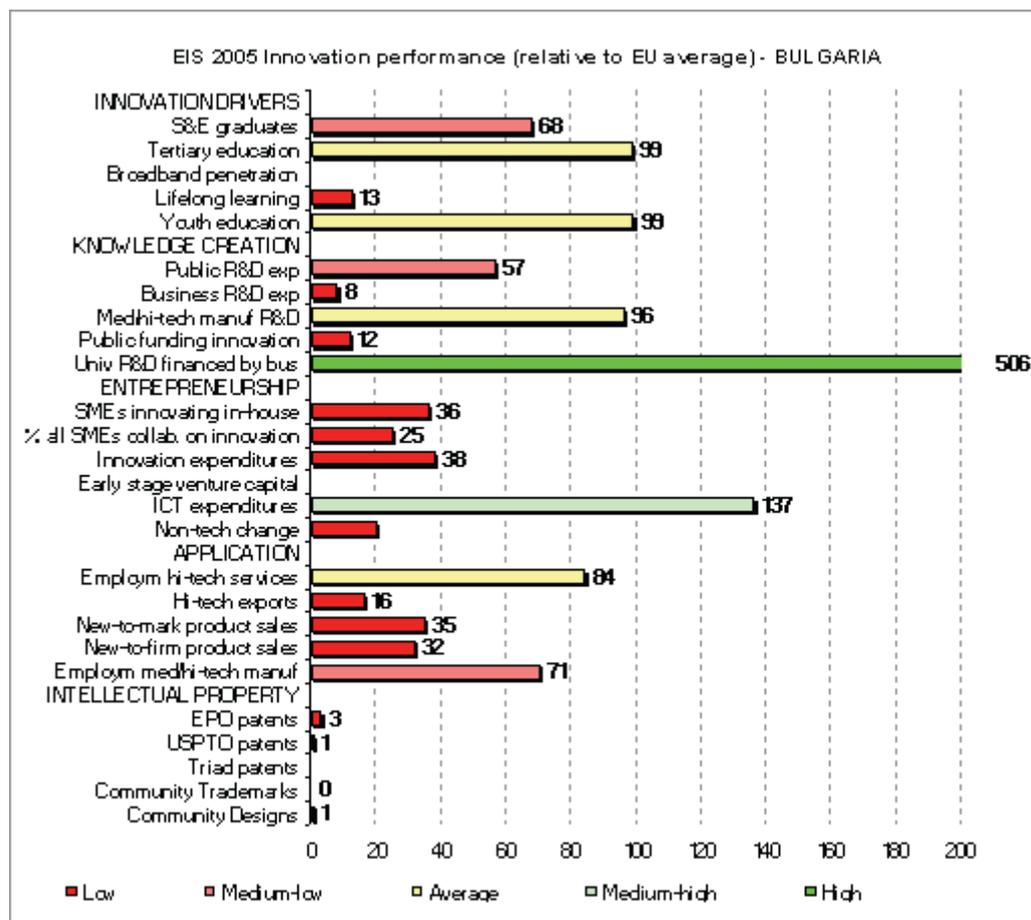


Table 1

Innovation Performance – Indicators

BULGARIA	2000	2001	2002	2003	2004	2005	Relative to EU25=100
Summary Innovation Index (SII)				0,24	0,25	0,24	
Relative to EU25=100				57	58	56	
Rank				26	26	26	
INPUT-Innovation Drivers							
S&E Graduates per 1000 population aged 20-29	6,6	7,9	11,7	8,3	8,3	8,3	68
Relative to EU25=100	65	72	103	68	68	68	
Population with tertiary education per 100 population aged 25-64	18,2	21,3	21,2	21,3	21,7	21,7	99
Relative to EU25=100	91	106	104	100	99	99	
Participation in life-long learning per 100 population aged 25-64	1,4	1,4	1,3	1,4	1,3	1,3	13
Relative to EU25=100	18	18	16	15	13	13	
Youth education attainment level (% of population aged 20-24 having completed at least upper secondary education)	74,9	78,2	77,5	75,6	76,0	76,0	99
Relative to EU25=100	98	103	101	99	99	99	
INPUT – Knowledge creation							
Public R&D expenditures (% of GDP)	0,41	0,37	0,40	0,39	0,39	0,39	57
Relative to EU25=100	62	55	59	57	57	57	
Business R&D expenditures (% of GDP)	0,11	0,10	0,09	0,10	0,10	0,09	8
Relative to EU25=100	9	8	7	8	8	8	
Share of medium-high-tech and high-tech R&D (% of manufacturing R&D expenditures)	78,0	80,3	85,9	86,0	86,1	86,1	96
Relative to EU25=100	87	90	96	95	96	96	
Share of university R&D expenditures financed by business sector	30,8	27,0	33,2	31,4	31,5	31,5	506
Relative to EU25=100	471	402	506	505	506	506	
INPUT - Innovation & Entrepreneurship							
Innovation expenditures (% of total turnover)	0,69	0,70	0,71	0,72	0,72	0,71	38
ICT expenditures (% of GDP)	8,7	8,6	8,5	8,6	8,5	8,6	137
Relative to EU25=100	134	135	137	136	137	137	
OUTPUT – Application							
Employment in high-tech services (% of total workforce)	2,51	2,71	2,66	2,69	2,70	2,70	84
Relative to EU25=100	82	82	84	83	84	84	
Exports of high technology products as a share of total exports	1,6	1,8	2,6	2,7	2,9	2,9	16
Relative to EU25=100	8	9	14	16	17	18	
Employment in medium-high and high-tech manufacturing (% of total workforce)	5,61	5,50	5,33	4,66	4,70	4,70	71
Relative to EU25=100	80	79	78	71	70	71	
OUTPUT - Intellectual property							
EPO patents per million population	4,2	2,6	3,7	3,5	3,4	3,0	3
Relative to EU25=100	3	3	2	3	3	3	
USPTO patents per million population	0,2	0,6	0,8	0,9	0,9	1,0	1
Relative to EU25=100	0	1	1	1	1	1	
New community trademarks per million population	0,1	0,1	0,6	0,3	0,3	0,3	0
Relative to EU25=100	0	0	0	1	0	0	
New community designs per million population	0,7	0,8	0,9	0,9	1,0	1,0	1
Relative to EU25=100	0	0	0	0	1	1	

Source: European Innovation Progress Report 2006. Trend Chart. Country Pages. Bulgaria; EUR 22410. Luxembourg: Office for Official Publications of the European Communities, 2006, p. 222-223.

In the case of e-Government, Bulgarian policy makers have already designed a

programme and strategy for this area. The purpose of a foresight exercise in this domain is to help enlarge the planning horizons beyond what considered in the existing plans, to raise awareness and to create new policy options. The overall objectives of the initiation of two pilot pending exercises in Bulgaria are to:

- Inform policy makers about the possible future developments in each domain;
- Provide guidelines and recommendations that could be used in devising innovation policies for related sectors;
- Encourage long-term strategic thinking among all stakeholders and reach public consensus on the future course of development;
- Develop and strengthen networks and cooperation among various actors such as government agencies, private sector companies, universities and research centres;
- Mobilize the forces of those capable to act in these domains

During workshop discussions the e-Government stakeholders expressed a common view that the envisaged exercise should focus on the following priority topics:

- The development of e-Government services;
- The development of e-Government enabling technologies;
- Financial aspects of e-Government implementation;
- Education, vocational training and human resource development for e-Government;
- Legal aspects of implementation and development of e-Democracy;
- Development of the channels for provision of e-Services;
- The need of a differentiated approach for delivering of e-Services to the targeted users.

## **5. Country Groupings and Developments in Innovation**

The 2002 Innovation Scoreboard introduces indicators on innovation in EU regions. The importance of regions is paramount for the development of innovation performance, although difficulties in obtaining regional data comparable across the EU makes it easier to identify existing 'hot spot' innovations than future potential. Much of the innovative industry in Europe is grouped in regional or even local clusters, often close to universities or research institutions. Secondly, innovation policy needs to be developed at regional and city level, in addition to national and EU levels, if it is to respond to local conditions and needs. In many European countries, regional

governments have shared responsibility (with national governments) for the economic development policies, while in others they have only had primary responsibility. For all these reasons, the availability of regional indicators is essential for informing policy-makers' decisions.(6)

The huge variation between regions within the countries demonstrates that a one-size-fits-all policy is of no value any longer what refers to national level than EU level. This means that it is often as instructive to compare innovation policies and initiatives in regions with similar characteristics in different countries than between regions of the same country. Regions concentrating high-tech industry clearly require different policy approaches to innovation than regions where the biggest economic influence involves services such as tourism.

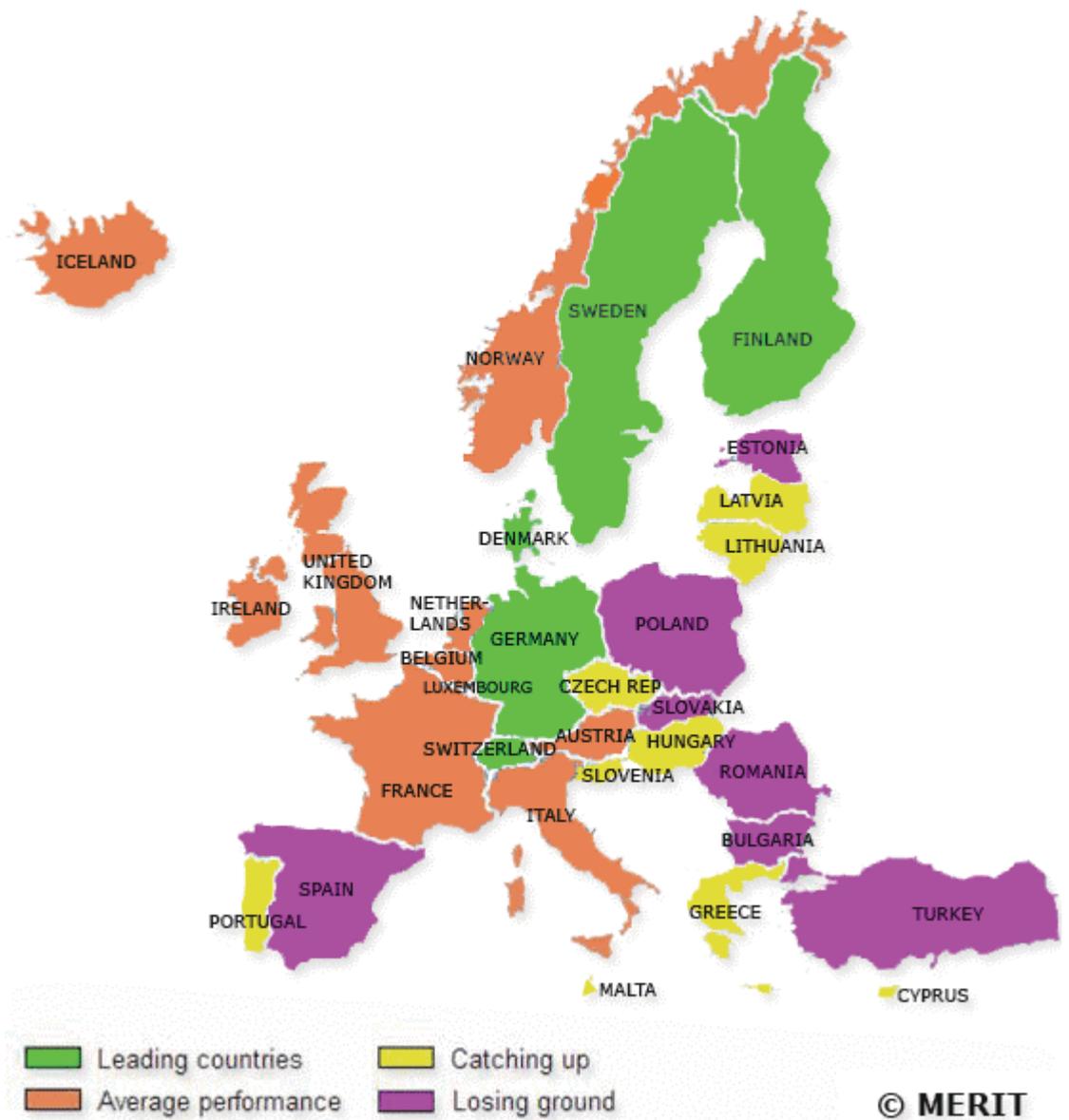
There is a limited number of very positive developments in innovation policy making. The adoption of the national innovation strategy has led to a more coherent framework for the further development of policy formulation and delivery. There are also further efforts to implement some of the strategy's measures and to achieve the strategic goals (e.g. investment promotion and increasing innovation financing), while others have already been delayed. Although improving, the innovation policy implementation process is far from generating good practices, especially in areas such as shortening administrative lags, harmonizing priorities on the regional governance levels and outsourcing policy delivery through better public-private partnership mechanisms.

The EIS 2005 has come with a strengthened methodology and a revised list of 26 indicators. It confirms that Sweden, Finland and Switzerland are the European innovation leaders, followed by Germany and Denmark. Most of the new Member States are engaged in the catching-up process, however, their slow pace is unlikely to allow for short-term convergence in Europe. In addition, should trends for the 25 Member States remain stable, the innovation gap between Europe and the US will not come closer, principally due to lower European performance in terms of patenting activity, ICT investments and education levels.

The EIS makes a difference between five key dimensions of innovation (innovation drives, knowledge creation, innovation and entrepreneurship, applications, IPR), which provide further insight to the relative innovation strengths and weaknesses of European countries. Each country has its own agenda. However, recent evidences suggest that an equal performance on all dimensions is a positive drive for strong overall innovation performance. This suggests, especially for countries that lag behind, that policy would be more effective if aimed at improving overall innovation performance rather than making further improvements in areas of strengths only. Even leading countries are facing the challenge of getting more out of their good innovation performance (see Exhibit. EIS country groupings).

In this respect, innovation efficiency which measures how good countries are at transforming their innovation assets (education, R&D and innovation expenditures) into innovation results (turnover coming from new products, employment in high tech sectors, patents) is of particular interest. Switzerland, Denmark, Germany, Ireland, Italy or the Netherlands are especially good performers in this respect.

Exhibit. EIS country groupings



Source: Innovation Scoreboard 2005. Country pages. European Commission, Brussels 2006.

One possible explanation for their success is that most of them benefit from an innovation demand above average on the side of their population, as measured by the Innobarometer for 2005. In 2005, the network of Trend Chart matches challenges appraisal based on the EIS results to additional national analysis. All this has led to

three indicators highlighted as particularly important from a policy view perspective:

- rates of business expenditure on R&D (16 EU25 and three out of eight candidate/associate countries);
- share of science and engineering graduates (13 EU25 and three out of eight candidate/associate), and
- participation in life-long learning activities (14 EU25 and one candidate country).

Compared to the 2004 exercise, the identified challenges have not evolved significantly. This may be partly due to the reliability / up-to-date nature of indicators, which probably influences the selection with notably few experts selecting indicators based on Community Innovation Survey (CIS) III1 data. It is also not always the case when countries selecting specific indicators as a challenge are actually performing worst in Europe. Rather this can often reflect a national debate or concern about declining performance from a high level or relative performance compared to other strong performer countries (e.g. France and UK on Business Expenditures in Research & Development /BERD/GDP/, Denmark on lifelong learning). Moreover, in the countries considered as 'innovation leaders' challenges tend to be less focused on single indicators and are rather more systemic or concerning 'equalising' innovation performance (e.g. Finland's and Sweden's concern to ensure SMEs take up greater role than larger flagging firms).

The importance of these indicators reflect in many ways the political focus on boosting the intensity of innovation enterprises and increase of preference given to the availability of trained people, as well as to developing and maintaining employee skills with respect to new technologies and organizational methods. It is striking that the challenges related to human resource indicators are present in all types of European countries including two of the Nordic countries and Switzerland. Hence, the difficulties with ensuring working-age citizens having appropriate technical skills and then maintaining this competence in the face of technological change, appear to be independent of the economic development levels. Other factors in the national innovation systems of the countries concerned (teaching methods, promotion of innovation and technical careers, etc.) may provide a better explanation and warrant policy attention.

To further foster European co-operation on specific technologies and with a view to establishing European leadership in future strategic technologies, it is now time to make progress on the launch of the Joint Technology Initiatives (JTI's) as described in the Seventh Research Framework Programme. In this context the intention in 2007 is to submit a roadmap establishing the process that will lead to the presentation of proposals for the setting up JTI's at an appropriate stage of preparedness.

EU needs a focused strategy to bring innovative products and services to promising areas at the market. Lead markets can be a solution to this challenge. They are creating favorable innovation frameworks in specific economic areas where European firms could have a globally leading role, but which due to reasons related to, for

instance, clumsy regulation, systemic policy failures and legislative coherence, leave the potential currently unrealized. A concerted and prospective approach to public intervention could play an instrumental role involving appropriate actions e.g. in the areas of product market regulation, standardization, IPR and public procurement as well as removing legal obstacles. This could help strengthen the demand side of innovation thereby setting the right conditions for innovation-driven lead markets to emerge and develop in Europe.(8)

Innovation policy in Bulgaria needs to focus on improving the skills of the current workforce through more adult education and substantially improved knowledge creation inputs. An increase in business R&D could depend on significant improvements to both the amount of public R&D and to the quality of public R&D, which could partly be measured through IPR. Much further effort has to be invested into the IGS in terms of regional coordination of policy implementation, stimulating the access to internal financing of innovative activities and establishment of better links between research institutions and enterprises.

Following the established methodology, the study analyzes the dynamics of national innovation system development during the last year and the development opportunities in 2007 through five groups of indicators. This year, a better opportunity was presented by the special Innovation Index of the Bulgarian enterprises, based on the results of the annual surveys of the Innovation Relay Center and with a profile of the Bulgarian innovative companies based on panel data and in-depth statistical analysis.(9) The Innovation Index of the Bulgarian enterprises indicates that most of them (over 65%) have not implemented any innovations during the last year. The index shows signs of low ability of Bulgarian companies to combine several types of innovation or implementation of innovation, mostly with low degree of novelty (novelties only for the company or national, and not international market). The investigation of the present stage leads to following **conclusions and recommendations**:

- The market component of the Bulgarian innovation system is at an early stage of development - Bulgarian enterprises have low degree of innovativeness.
- The innovation and the R&D components of the Bulgarian national innovation system develop in structural isolation from each other —links between them are weak.
- The Bulgarian national innovation system is shaped primarily by its integration in and funding from European innovation networks and the changes in Bulgaria's public innovation policy and financing.
- The major barriers to innovation in Bulgaria are the lack of appropriate financial resources (in the short-term) and the lack of qualified personnel (in the long-term).
- The Bulgarian national innovation system has started to slowly improve its performance, giving a clear sign that the time for action in this area has come.

- The government should direct more political, administrative and financial resources towards formulating and implementing the national innovation policy.
- Coordination should be improved among strategic documents, policies, administrative and financial instruments shaping the national innovation system.
- Cohesion and Structural Funds' resources for innovation should be carefully directed towards more complex, longer-term projects (vs. direct financing for enterprises) at national and regional level and should be implemented in coordination with other European programs.

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# ORGANIZATIONAL CULTURE AND MOBILIZATION OF KNOWLEDGE

*Dr. Adelina P. Milanova*  
*Institute of Economics at Bulgarian Academy of Sciences*

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## **1. Knowledge Based Economy as Nature and Sense of the Modern Information Society**

The modern world complicates perception, stimulates and provokes the intellect. This very fact allows to represent the new information society as a result of a complex and contradictory evolution during the last five decades. Evolution is complex because of being defined as a complicated “amalgam” among individuals, institutions, information and technology; evolution is contradictory because the elaboration of different types of networks in the modern world is related to the genesis and the statute of the culture, which determining component is the knowledge (Taylor, 1871).

The modern economy stands new horizons and extends many challenges. These challenges, related to the perspectives of the development and the new quality of the human capital, stress on the human behavior, rational choice and interactions among individuals. Nowadays, as it is known well enough, modern determinants of new economy are exactly the transformation of knowledge, its mobilization, as well as the synchronization with the strategies for optimal development of the society.

As R. Barre says: “Many of the firms will sell their capacity of being logical, instead of selling traditional products” (Barre, 1997). For that purpose an extremely high and adequate organizational culture is required, which would be a strong advantage for concurrence.

The new knowledge based economy is based on the application of the accumulated human experience towards the created products, as well as the creative procedures (Barre, 1997). This is relevant with the problem about the part of the “spirit” in the process of the functioning of the economy. Interpretations like this one, not withstanding many discussions about, are based on serious theoretical analyses and empirical verifications. There are well-founded reasons to plead for the leading positions of the quality of the human capital and the organizational culture and, secondly, to discuss about how to elaborate and to set them in concrete

circumstances, like economic and social, and to discuss about their approbation in the context of the actual process of integration and globalization in the world.

## **2. Human Capital**

Human capital is defined as a category which includes capacities, knowledge, competences and qualifications individuals possess.

Human capital is unique and acquired during the life-time of the person. There are several reasons to treat the theory of the human capital as branch of the economics. This theory aims to show manners of elaborating, developing and accumulating human capital, as well as to analyze interactions and relations emerged by its allocation and the different types of economic behavior.

This theory became well-known in the very beginning of the 1960s (first comments appeared in the “Journal of Political Economy” of 1962 in a small appendix entitled “Investment in Human Beings”), but good premises for it can be found in the PhD thesis of M. Friedman in 1945, which is a fine attempt along these lines.

This theory stresses on the analysis of the educational needs and aspirations, which purpose is the production of knowledge and information. The very meaning is that such a problem like education, for instance, should not be simplified and reduced to common consumption, but requires to be treated as a very economic action of individuals, including investment calculations and prognoses.

Proceeding from this assumption, economists try to find responses to several questions, traditionally regarded outside the economic area. Economics of non-market relations and its principal idea can be defined as that every problem, which matters in some way to the distributions of resources and to the rational choice in a collision of competitive goals, can be examined as object of the economic analysis (Becker, 1964).

## **3. Organizational Culture**

In principle the culture endures sense of human experience through its selection and organization. Generally culture means the forms people get to know and orientate themselves towards life. Culture has no position in a differentiated particular area as politics or economics are. Actually every human behavior is marked by culture (Rosaldo, 1989).

Culture can be treated as a product of the organization, on one hand, but on the other, cultural accumulations are independent and participate specifically in the process of organization’s management. So culture to this effect can be treated as a wider category, which dynamics defines organizational behavior. According to G. Hofstede, determination of the organizational culture begins in the 1960s, and then the notion of culture became synonym of a “climate”. Through the 1970s this has been a new

notion, which has been imposed – we mean “corporate culture”, and after the 1980s a new and wide-spread interpretation of the problem has developed.

When organizational culture is defined, there are a lot of values directly related with the concrete organizational practices. Culture is treated as a spiritual state due to the fact values and because the “organizational spirit” directs firm’s activity. So, to summarize, values reflect on the organizational culture, stress its activity in the kind of behavioral formalization, being independent of the concrete organizational practices.

These theses generate many distinctions at conceptual level but there is an idea, which is accepted unconditionally: when basic elements, which constitute organizational culture, are adequate and well integrated, when they establish a coherent totality, they acquire a potential of mobilization, so that organizational culture becomes a specific power for concurrence.

Culture is not sufficient but very important premise to develop a firm or generally an organization. To define it as a specific model of collective programming of mind and spirit and to notify its nucleus makes possible the revelation of the close relation between the creation of the organizational culture and the formation of the identity of the firm, meaning the establishment of all parameters create its image.

Principally, to create culture means to create specific knowledge about the optimal application of concrete practices and that kind of definition converts the traditional relation between culture and firm in a process, which enriches the professional life. To treat the organizational culture as a generator of innovative functions and potential is rather constructive, because it stresses on its relation with the demand of knowledge, with the innovative adjustments of the organizational structures and it should be useful to find answers and decisions about such problems like effectiveness and prestige of Bulgarian firms.

#### **4. Specific Dimensions of Organizational Culture**

Culture can be regarded as a part of the knowledge and as the possibilities people have acquired to ensure the goods necessary to satisfy their needs and aspirations, as well as the adequate functioning of the relevant organizational structures.

It is obvious that all the knowledge, the possibilities and potential are strongly determined by the history and by the state of the genotype the culture is concerned with. So, even the culture is defined as a totality of fundamental hypotheses the group have been constituted by having studied mechanisms to adapt to the environment.

In this context, we can follow the genesis of some national economic genotype, to precise different areas for projecting the organizational culture in formatting the identity of business structures, to estimate how adequate is the culture and what is the power of its creative potential for modern transformations.

A study of the author three years ago confirmed the hypothesis concerning the actual

state of Bulgarian society. It was verified that the specific features of the contemporary Bulgarian society is: **collectivism, with high power distance, with relatively high uncertainty avoidance, confessing external causality, with middle level of softness (femininity) of the society, and with low level of long-term orientation.**

This combination of national cultural dimensions has presumed a subordination of organizational cultural dimensions towards national cultural dimensions (OCD t/s NCD). The hypothesis about domination of the system of values nowadays refers to the national cultural model towards organizational practices in the process of establishment of same kind of organizational culture has been confirmed. A particular stable repetition in the development of our economic culture today was determined and the very reason is the firmness of the national genotype as well as the combination and the correlation of cultural dimensions.

Consequently, we achieve a lot of important question in this context – what are the real perspectives for Bulgarian firms meaning their specific organizational culture, and particularly whether during the objective process of globalization and so called “europeization” of some regional economies, it would mean marginalization, peripheral status or complete integration and certainly, what is the real potential about.

Creation of Bulgarian firms in market conditions as a complex process includes a transmission of same cultural model as well as a modulation of cultural assimilations in the purpose of elaborating an organizational cultural model.

A study of the author from a year ago revealed the stable development of the tendencies, showed in the previous study. Methods were elaborated in the context of the economic heterodoxy, based on the correlations between NCD and OCD, which approbation principally outlined a “map” accorded to the organizational culture and its function of identity. There are several dependencies to be outlined:

- bureaucratic structure;
- orientation towards the process predominates over orientation towards the results;
- orientation towards the work predominates over orientation towards the staff;
- “common” type of organization predominates over professional type, meaning individuals derive their belongings mostly by the organization and identify themselves with it rather than with the kind of the work;
- organizational control is rather liberal;
- relatively, most of the organizations identify themselves as “practical type” (with leading position of the market (rather than “normative”) with leading position of the rules).

The approbation of the methods arrives on a very important conclusion: **the lack of a**

**specific maturity of:**

- *the institutional environment committed to the actual political processes in the country;*
- *the market environmen;*
- *the culture (of the human factor).*

By analogy with other scientific areas where object of analysis is the synchronization between intellectual and social maturity, for instance, in this case we talk about a kind of synchronization between cultural accumulations and modulations, on one hand, and the specific maturity, the so-called **business maturity**, which is strongly tied with the identity and the image of economic structures.

In this context of reflections, there are several options to be treated. For instance, if cultural accumulations, related to the historical (genetic) maturity differ a lot from the cultural paradigm of the model of business maturity, imposed nowadays, then organizational culture could be defined as a little archaic and mostly oriental.

There is no doubt the prosperity of the firms (organizations), their effectiveness including the process of demand and mobilization of knowledge and the innovative potential of those organizations, are practically possible in condition that business structures create a kind of organizational model, which is modern, as well as adequate. We mentioned that the national culture is strongly dominant towards concrete organizational practices (according to a study of the author mainly in small and medium-sized enterprises, as typical structures for the profile of contemporary Bulgarian economy), so that it would be hard to impose business culture familiar to the western countries. We have to underline that such theses are very delicate and they could not be lightly transferred to become arguments for some not serious and value paradigms.

The cited study of the author from 2005 tried to combine questions concerning national, social (meaning stratus) and familial specific features of the cultural model. Analysis of all data underlined the high level organizational culture as an important non-economic factor, as well as a premise for the optimization of development strategies, investment decisions and innovative directions, presuming organizational effectiveness.

The commentary of results revealed the existence of many interesting correlations between **several indicators of organizational culture** (formality, discipline, conflict acceptance, etc.) and the **organizational dimensions concerning namely Bulgarian organizational culture** (as cited above).

It is important to remember that orientation towards the process is correlated with the uncertainty avoidance; orientation towards the work is correlated with the collectivism; the so-called "common" character is correlated with the collectivism also; closed

character of the OC is correlated with collectivism and the uncertainty; liberal control is correlated with softness; and finally, market model is determined by the willingness to overcome dogmatism and impose strong ethics and rules, so that authoritarian model is presumed.

An object of special interest are the questions about interactions between family structure and organizational culture, meaning those interactions are very significant for the quality of the innovative process and the process of demand of knowledge.

There is a rather well-known thesis of E. Todd, which postulates that the type of family structure determines the management of a country, as well as it explains the choice of ideology, etc. There is some relativity with this thesis (e.g. neglecting of factors during the analysis of some correlation), but nevertheless this kind of analysis is not unknown, so has proved its power and the validity of the conclusions.

In this point of view, if we accept that the family structure determined the management of the country, it is reasonable to presume that family structure could influence other different structures' management (firms, organizations). We have tested (by several case studies, concerning organizational culture in Bulgaria), so that **family cultural model has been juxtaposed with the established OCD**. Finally, popular Mintzberg's thesis has been proved, and it is namely that fundamentally values determine the choice of the right mechanism for activities' organization and coordination.

This area of analysis was segmented in three fundamental rubrics: **living standards and culture; rules of social interaction; specific reproduction of the agrarian mentality**. Conclusions were confirmed, concerning exactly NCD as they were cited above.

Generally, analysis showed that relation between national genotype and organizational culture in Bulgaria is rather unidirectional, so we can say identity is thoroughly conformed to the specific features of the national culture, transferred to the organizational cultural models. The attempts to impose some organizational practices as background about firm's cultures provoke mostly deviations, which enforce tendencies to marginalization of Bulgarian firms. There is one more but very important factor about – the low level business – maturity, to the extent business – maturity is compared with European criteria.

Level, type and tendencies are enough determining about to establish a new kind of business structures in market system. Several external and internal circumstances are defined for the optimization of the organizational unities' status. But optimization would not be realized as an end in itself.

## **5. A Version about the Relation: Demand and Mobilization of Knowledge – Organizational Culture**

There are two principal levels at which this kind of relation can be established in the context of:

- an economic business environment, meaning the Bulgarian;
- the European integration, outlined above, and which meaning is the synchronization with the European standards and generally with the exigencies of the modern economies.

Tendencies to globalization impose norms and rules, values' orientations and paradigms and this kind of process is the result of a long and complicated evolution, on one hand. On the other hand, this evolution is an immanent feature of the philosophy of the economy.

Several years ago, in the very beginning of the transition, a French economist has outlined that "Logic of the transition crosses sometimes with its philosophy" (Cherlonneix, 1991). In this point of view, we can paraphrase that logic of development crosses sometimes with its philosophy, and saying that with the whole consciousness about the relativity of that kind of assertion.

In the very beginning of this paper we outlined that the knowledge based economy refers to the application of the human experience, the establishment of an adequate but modern organizational culture and the development of the creative spirit. The establishment of a high developed human capital, as well as the creation and the support of an environment for being perfect, **is a very component of the innovation culture and a stimulator for the demand of knowledge**. The thesis that the process of the demand of knowledge generates a new knowledge with a new quality and a creative spirit, is proved once again.

Consequently, demand of knowledge is determined by:

- **the quality of the human capital, its exigencies, related to the quality and the needs for education and development of the intelligence, directed to the forming of mentality;**
- **the organizational culture, as a product of the organization, as well as a basic element of its profile.**

Culture of the organizations was defined as a factor for innovation and creativeness, culture can have constructive influence on the process of demand of knowledge, but there is another option, which is not very favorable, and which brings to some non-desirable deviations in the very process of mobilization of the existing knowledge, as well as in presuming it like a generator of new knowledge in different spheres and economic processes. Therefore, if demand of knowledge in modern economy is accepted as a dominant factor, **its mobilization is directly presumed by type, quality and power of the organizational culture**, and this kind of presuming results in a specific product (output) – the identity, image and prestige of the economic unities.

According to the cited studies of the author, the conclusion for the subordination of the

OCD towards the NCD has a significant message. Whether creation of knowledge and information totalities exists, this process is not an end in itself. The next step is exactly the demand of knowledge which has to be with set purpose and sufficiently advisable. In this point of view, when demand of knowledge is theoretically and practically open, then the stage of its mobilization is pursuing, therefore realization of the information totality.

The process of this kind of mobilization is following a concrete logic. Sometimes some manifestations are inert, even the model becomes non-functional. Then we have to stress exactly on the optimal mobilization in the terms of presupposed demand of knowledge. In this case organizational culture reveals its dominated role, like sine qua non about contemporary processes of integration.

Avoiding the sense of some kind of predestination, we allow to concretize the problem to the following:

- identification of the organizational culture as a significant and very important premise concerning the application Bulgaria has been done to participate, enjoying full rights, in the intensive process of integration;
- concrete stress on the status, specific features, tendencies of organizational culture and its real including in the development strategies of the different business structures.

There are many reasons for outlining that organizational culture has a real presence as a significant element in the management of any structural unit, innovation process would become more dynamic and would reveal new dimensions, because demand of knowledge, its mobilization as well as its application would be optimally synchronized with global economic criteria.

If we talk in more normative plan, according to our studies, we suggest the establishment and engagement of some particular structures in the process of identification of the business – structures, meaning to identify organizational culture as basic premise for the very realization of the transition not only in “technical” way but principally in essence. Different studies in the area of business anthropology have shown that deep reasons for increasing many problems in Bulgarian economy lie exactly in the sphere of the organizational culture with all of its specific features, correlation with national cultural model, etc., because, as it was proved, it is a very important mechanism for identification of the structure itself.

In the very end of this paper we can summarize that principal problem is the question why it is necessary and how to proceed for consolidation and moving up the knowledge. The aim is to create adequate organizational culture to help the optimal integration and to have position in the modern knowledge based economy.

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**PART IV**

**LEGAL FRAMEWORK FOR**

**DEVELOPING DEMAND FOR**

**NEW KNOWLEDGE**



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# CONSTITUTIONAL AND LEGAL PROTECTION OF THE NOVELTY OF BUSINESS METHODS – STATE, PROBLEMS, POSSIBLE SOLUTIONS

*Assoc. Prof. Dr. Vasil Tzankov<sup>1</sup>  
Konstantin Preslavsky University of Shumen, Bulgaria*

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Globalization and rapidly changing technologies and economic politics require an adequate reaction to their challenges. One of the important aspects of this reaction is the legislative one. On one hand, we consider the adequate and timely reflection in the legal system of the contemporary business innovations with no technical character, and on the other hand, of the legal protection of the innovation in this area, which in this way will be supported and encouraged.

Undoubtedly one of the topical issues of the technologies and the economic policy is that of the business methods. Along with the purely economic sides of business methods, their legal aspects are of no less importance. Analyzing the existing business methods in Bulgaria and in the world, as well as the Bulgarian legislation and constitutional arrangement in the economics and the state of the art technologies, especially the constitutional arrangement of this principal issue, we can draw the conclusion that at this stage in Bulgaria a constitutional and legal arrangement of the protection of investments in the innovations and particularly of business methods has not been developed yet.

The importance and actuality of these issues result from the last year tendency in the European Commission towards the harmonization of the US legislation with that of the European Union. It is directed towards helping the efforts of the investors, and trade and equalization of the technical standards between the two big economic blocks. Therefore one of the aspects of the European Union policy is the reassessment of the financial regulations and these of the intellectual property connected with the differences in the normative order, particularly the big difference in the regulation and practice concerning the protection of business methods in USA, on one hand, and in the European Union countries, on the other.

Today business methods should be differentiated by two circumstances. The first is

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<sup>1</sup> *Assoc. Prof. Dr. Vasil Tzankov is a representative on industrial property at the Bulgarian Patent Department.*

their difference from the matter of patents developed at the beginning of 19<sup>th</sup> century, when the industrial revolution had the necessity to encourage the technological process and in this relation the industrialists need to protect their investments. The second is the technical innovations, since they do not use controllable natural forces in the solution of a problem, nor can they be protected as a useful model (for example a form on a sheet of paper for filling account data).

As illustration I will mention only some business methods like a method of marketing, a system of standard computer hardware and software and methods of maintenance of some business or services, a method of trading with customers, account systems for data processing, franchising, methods of teaching, diagnosing of processes, systems for easier shopping of certain articles and services, etc.

Business methods are shown in the field of services. But the legal protection of the investors in this sector of economy is not settled in our country. At the same time, in another sector of economy, the technical one, this protection is completely arranged. I reckon that this puts the legal protection of the investments in these two sectors in an unequal position. That is why it is necessary at a constitutional and especially at a legal level to provide a patent or a civil protection of the general procedure as a business secret, or for example, by means of the law on competition protection of the business innovations, which do not have a technical character. Business methods can be protected also by the procedure of trade marks protection, i.e. by means of protection of certain prominent elements to protect a certain business method that contains them, for instance the elements and the methods of the fitness centers.

The fact that the services area makes a larger net contribution to the gross national product is an objective precondition to the idea of a special protection of business methods.

Regarding the great significance of these rights for the contemporary economic development of Bulgaria, and especially their innovative character and high degree of economic effectiveness, I reckon that these rights are in the area of economic freedom and this is one of the basic constitutional principles of the Bulgarian economic system. That is why the rights regarding the innovations should be liable to principle constitutionalization and an adequate legal regulation. In the context of this view, as well as from its poor legal regulation in Bulgaria, we should point the reasons for that.

Firstly the reason for this poor legal regulation is the Bulgarian constitution itself. The analysis of the regulations regarding the basic rules of the economy in Bulgaria shows that the Constitution does not contain an overall constitutional regulation on the principle of economic freedom. In Chapter I, "Basic Rules", there are 24 texts in which the word "state" is mentioned 13 times. This fact itself shows that the state is given too much importance in society and this undoubtedly is in contradiction with the principle of economic freedom.

The limitation of the subjects and volume of the state property is also a criterion for economic freedom. In our constitution it is just the opposite. The state property is established in few texts, while private property is only stated as inviolable and the next

texts immediately outline the possibility of its compulsive expropriation for the needs of the state and the municipality. Moreover, there is a special text concerning the state property and the obligation of the state to manage it where a general criterion is established – this to be done in the interest of citizens and society. This deviation towards the “state” does not engage the legislator more clearly with problems of the individual freedom.

In the Constitution through Art.54, Paragraph 3 an attempt has been made to point out that inventor’s, author’s and similar to these rights are protected by law. This shows **the lack of a clearer constitutional arrangement for stimulating novelty**, which to engage the legislator with obligations to accept law regulations ensuring the protection of business methods. Probably that is why this opportunity was missed with the serious amendment of the Patent Law in the middle of 2006.

The so established constitutional arrangement, and especially the legal one, show that together with the free economic initiative, proclaimed in Art.19, Paragraph 1 of the Constitution, an active role in the economic life is assigned to the state. It is presented as a constant participant in every business, but without bearing the responsibility for the consequences. An eloquent example is the numerous state agencies that in essence are ministries.

The second reason is the yet insufficient development of the business methods themselves as an active factor of the economic development in our country.

A third reason is the lack of a doctrine about the business methods, as well as of theoretical works concerning their legal arrangement and significance.

All this shows that the question is topical not only because of itself but also because of the impending radical changes in the Bulgarian constitution, and may be of the creation of a new one.

Of course the constitution is not the place where concrete institutes of the separate legal fields should be regulated, as in this case issues connected with patents, trade marks, business methods, etc. Above all the constitution is a place for providing basic rights in the respective fields of the national, individual, political and social life and for outlining principles and criteria. With their current importance and economic significance in this case business methods are the cause for searching principle decisions of the highest juridical level for creating a constitutional environment of economic freedom. Moreover, the principle of the free economic initiative is too general but despite that the innovations and business methods connected with them are compatible with it and are in a positive relation of addition.

The innovations and their different aspects and lack of regulations in the Constitution for their stimulation are the cause to search and create such a system of principles and constitutional standards in the economy, which not only will proclaim the free market economy and its capitalistic character, but also will create the constitutional guarantees for the actual realization of this model. Moreover, the constitution should also introduce the principle of the equal treatment of the different sectors of the

economy.

**The constitutional regulation should be arranged so that to create engagement or obligations of the legislative body to search for the novelties in the economic life and their legislative arrangement.** The Bulgarian constitution could include a text for encouraging the innovations in economics and protection of the subjects of intellectual property.

Patentability of business methods presupposes some principal requirements:

1. a patent should be denied for a business method because the innovation is drawn from the existing knowledge in the field without difficulty;
2. prevent issuing a patent for business methods that are known and already in use;
3. there should be novelty of the business idea, and not of some technical innovation or software;
4. prove that the business method aims at the production or the sale of the intellectual achievement without a technical effect, having a competitive character, and the interested investors and customers should recognize the commercial origin of the product;
5. the result should be useful, concrete and real.

Grounds for protection the rights, arising from the creation of business methods in Bulgaria, could be drawn from the right over intellectual property. Analogically they can be arranged and protected by the Patent law, the Copyright law and the similar laws and also by the Law on trademarks and geographical indications. Besides, the literature review shows that in the European legal system, as well as in that of USA, there is not a synonymous solution of the regulation of the issue and in many countries it is completely missing. At the same time in USA this question has been discussed since 1980 and in Germany there are decisions of the Federal Patent Court about the possibility of differentiating a new kind of intellectual rights and their protection by the existing legal system but also there comes the question of creating a new legal arrangement for these subjects of intellectual property. In short, the view that business methods are sui generis rights emerges, but in USA the refusal of legal protection of these methods is not known. Moreover, in the Patent Law in USA it is accepted that anybody who invents or discovers any new or useful process, machine, article, matter or any new and useful improvement, can obtain a patent, subject to the conditions and requirements of this property right. Therefore in USA there is no requirement the invention to have a technical character. From the point of view of constitutionalism this is one of the proofs that in this country the principle of economic freedom is consistently maintained. In fact business methods acquire patents under the same conditions as any other process or method.

At a legal level we can recommend the principles and criteria for patentability of business methods, developed in this essay, to be taken into consideration in the

eventual future legal arrangement of these novelties in business. The indirect idea of such a constitutional and legal approach is creating conditions for a greater economic freedom and respectively faster rate of economic growth in Bulgaria. In fact this is encouragement of the innovations through patents, because if the constitutional arrangement of the elements of the economic freedom, part of which are the subjects of the industrial property, in other words patents, business methods, trademarks, etc., is missing, it is not certain whether the current legislation will respond to these challenges and national needs.

In conclusion we can state that globalization and rapidly changing technologies require an adequate reaction by means of new business methods. This forces their treatment at a higher juridical level, at a legislative and principally a constitutional one.

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# ENFORCING THE INDUSTRIAL PROPERTY RIGHTS IN BULGARIA IN ACCORDANCE WITH THE TRIPs AGREEMENT

*Dr. Veselina Maneva*  
*Institute of Legal Studies at Bulgarian Academy of Sciences*

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## 1. Intellectual Property Objects

The creative activity is one of the oldest human abilities. The different objects of intellectual property are results of this process. Their lack of material nature puts them in the category of intangible wealth as objects of the law. They have no defined space coordinates, which is why diverse users at the same time can use them in a different manner on diverse places. This quality is termed as ubiquity and originates from the Latin word *ubique*, which means “everywhere”. The particularity of the creative activity and the results thereof determine the distinctions among the different intellectual property objects. That is why the human technical creations, which are connected with the material production, are industrial property objects: inventions, utility models, marks and geographical indication, industrial design, layout-designs of integrated circuits and unfair competition protection. The others – literary works, science and art works, are objects of protection on behalf of the copyright and related rights. The approved international agreements attest for the importance and significance of these objects for the society development and advance. These agreements are:

- Paris convention on industrial property from 1883;
- Bern Convention on works of literature, science and art from 1886.

## 2. Scope, Nature and Functions of TRIPs

The enlarged trade exchange in the second half of the 20<sup>th</sup> century and the problems concerning protection of the intellectual property objects necessitate the creating and approving of a new by its nature international agreement. This is the Agreement on Trade-Related aspects of Intellectual Property rights known as TRIPs. It includes the Application 1C to the Agreement on establishment of the World Trade Organization (WTO), signed on 15<sup>th</sup> April 1994 in Marakesh, and is an integral part thereof. The

“WTO-System” is a system of international legal acts, which regulates various branches of the international trade. The TRIPs Agreement is considered the most important event in the intellectual property history after signing the Paris and Bern Conventions. The Agreement stipulates new requirements of protection the intellectual property rights, and the consequences thereof are legal reforms worldwide and an improvement of the actual traditional protection level.<sup>1</sup>

The TRIPs Agreement by its nature is a new international contract, since it does not consider the intellectual property rights in their essence, but in their aspects concerning the trade. It establishes its own protection and defense system in both international and national angle, which is more perfect and more complete than the existing one. For a first time the legal status of all intellectual property objects is regulated in this Agreement. The TRIPs contribution to the International Economic Law and the International Intellectual Property Law is indisputable.

In the International Economic Law TRIPs regulates the trade in the field of the intellectual property, a branch, which for a long time has been neglected by the international economic exchange. Nowadays this trade branch presents a large part of the world trade, mostly in the area of informatics, and contributes to a great extent to the formation of the surplus value of the products.

The TRIPs Agreement aims to support the WTO in the course of removing the obstacles before the world trade, as in the Preamble has been specified that the measures and procedures of the intellectual property rights protection must not become “obstacles before the legal trade”, as well as that there is a need for measures for prevention “practices, which restrict the trade or which injure the technologies international exchange”. At the same time the scientific-technical inventions with a view to the economic and social advance have been stimulated.

From the legal point of view regarding the hierarchy of the normative acts, the World Trade Organization Drafting Agreement is accepted as a common law, and each of the multilateral trade agreements, like the TRIPs, results in a special law. That is why the contradictory principle of superiority of the special regulators over the common ones, i.e. of the TRIPs Agreement, exists.

One of the substantial characteristics of this Agreement is its direct action in the national legal system of the WTO member states. It creates direct rights for their citizens as well as obligations for the courts and state bodies to enforce directly the regulations of the International Agreement. The Republic of Bulgaria has ratified the Agreement on drafting the WTO together with the Annex 1C (The TRIPs Agreement) by a Law, passed by the 37<sup>th</sup> Parliament on 24<sup>th</sup> November 1996 (State Gazette, No 93, 1996). Decree of the Council of Ministers No 307 from 27<sup>th</sup> December 1996 provides the adopting measures – passing new and changing and complementing the existing normative acts in order to bring the Bulgarian legislation in conformity with the Agreement on Drafting the WTO and the included Agreements, i.e. TRIPs. This is a

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<sup>1</sup> Gervais, D. The TRIPs Agreement: Drafting History and Analysis. Sweet and Maxwell, London, 2003, p.77.

long and difficult process, which continues nowadays.

Concerning the direct application of the regulations of the TRIPs Agreement, on behalf of the Bulgarian courts and state bodies it should be mentioned that a legal practice is missing.

Concerning the international intellectual property rights, it is important to mention that the TRIPs is not an isolated agreement, which lays the foundations of a different legal order. Quite on the contrary, it unifies the main international conventions in this area, managed by the World Intellectual Property Organization (WIPO). The Agreement is the first international agreement with a full object range. It regulates the relations between the legal subjects concerning seven intellectual property objects: inventions, trademarks, geographical indications, industrial design, layout-designs of integrated circuits, undisclosed information protection, copyright and related rights. The Agreement aims to create a minimal protection of these rights in all WTO member states.

### **3. Enforcement of Intellectual Property Rights**

The matter of enforcement of the intellectual property rights, regulated in Part III of the Agreement, occupies especially important place. It has an exceptional importance for existence of both the subjective and objective intellectual property right. The exercising of rights is a criterion for the functioning of each of the national legal systems as well.

Here a terminological specification should be made.

The process of enforcement of rights is connected with the possibility of a legal subject, submitted by the relevant national legislation of obtaining rights, as well as of making use of their existence, i.e. of exercising them. This process is sustained by the relevant law guaranties.

On the other hand, the competent state bodies and institutions fulfill the legal use of the intellectual property rights. They exercise legal powers on applying the objective right.

The conclusion that the enforcement of rights and the legal use of the intellectual property rights is a united process wherein not only the good legislation but also the means for its realization is a success guarantee.

#### ***Arising the rights over the intellectual property objects. Content of the exclusive rights***

The process of enforcement of rights over intellectual property objects starts with its rising (for objects of copyrights and related rights) and with the administrative act for its registration (for industrial property objects), which takes effect since the date of applying at the patent office. An exclusive right of use and disposal of this object rises for its owner, as well as to grant licenses for its use by third persons. At the same time

he/she may interdict every person for using this object without his consent.

Concerning this the question is posed about importance of the Patent office as a national state body for protection the industrial property objects. One of the main purposes, which underlie in the Conception for development of the Bulgarian Patent office for the time 2006-2009, is to contribute to the increasing of the applying activity and enterprise.<sup>2</sup> As part of the European Patent system the Bulgarian Patent office is able to acquire the best patent practice, as well as the actual technical information. At the same time the question is posed also about the quality of the granted patents.

#### **4. Importance of the inventions in the process of scientific creation and search of new knowledge**

It is no accident that the leading role in creation and scientific research process is allotted to the inventions and utility models, called also "small inventions", regulated firstly in our legislation by the Patent Law since 1993. By their nature these are technical solutions, which are new, involve an invention step and are industrially applicable (the criteria are according to the last changes in the Patent Law, State Gazette, No 64 from 08.08.2006, operating since 08.11.2006). The creating and introducing of these objects of industrial property can determine the stage of the technology development of a society. At the same time it is a criterion for its economic prosperity in the global economic development.

The research and innovative processes are determined as main priority of the European patent policy. They pose questions connected with improving the industrial property objects protection effectiveness in economics favor. A key factor for the national economic increase is the development of the scientific-research and innovative activity as part of the European strategy for innovations stimulating. It is necessary to ensure the optimum for development of creation scientific research at the higher schools and research institutes.

Other important factor in the innovation process is the possibility of introduction these achievements and founding markets for their realizing. In Bulgaria the main economic branch in the country takes the small and medium-sized enterprises at home level. These are mainly the places for realizing the technical achievements. Reasonably, the national patent policy is orientated towards creating financial preferences of these structures. In the Patent Law and the Charge tariff raised by the Patent office are included regulations giving opportunity for state charges reductions (for example for application and examination).

Another national patent policy direction concerns the use of the creative solutions towards economic growth. To achieve this, the industrial property protection is an important circumstance. The lack of a stable legal protection of the inventions and innovations leads to loss of interests in investments therein. Urgent and accessible

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<sup>2</sup> Manev, K. The Patent Office – Part of the European Patent System. Report on the Conference "Unify of Actions between National and European Institutions – a Key Factor for Industrial Property Development", carried out on 19-20.10 2006, Sofia.

procedures bound by real terms, as well as legal proceedings duly in controversies solution in the Patent office, need to be introduced for achieving this result. Meeting these conditions is a guarantee for a tangible participation of the small and medium-sized enterprises in the economic activity.

At the same time there is a need for creation means of improving the competitive power of the Bulgarian industry and realizing the transition to innovative economic. More home innovations have be involved in the economic sphere and to bring more closely science and business together. To achieve a closer connection between them the solution of the practical problems has to be assigned by the industry to the scientific-research institutes.

## **5. Infringement of the intellectual property rights**

The enforcement of rights over the intellectual property objects is associated with the negative act of this process as well – infringement of these rights. Since the moment of an illegal violation, the right arises in favor of its owner and the legal protection possibility. How effective is the protection of the objects is judged by the results achieved by the legal defense proceedings of these rights as well. In the operative Bulgarian legislation the owner of the right can lay the following actions: 1) Action to ascertain the fact of the infringement; 2) Action for compensation of the damages suffered and benefits missed; and 3) Action for the infringer to stop performing all patent rights infringing acts.

### ***Procedures, provided in part III of TRIPs***

In the TRIPs Agreement the protection effectiveness is realized by procedures for legal defense of the rights: civil and administrative procedures and corrective measures; provisional and border measures. One of the “TRIPs-system” advantages before the existing international agreements, are these very means of rights protection with their effectiveness and detailed organization. They are regulated in Part III of the agreement. All procedures categories of intellectual property rights defense have to correspond to exactly defined criteria (art. 41):

- Requirement for procedure effectiveness, which have to facilitate the legal trade and to be guaranteed against abuse of rights;
- They have to be loyal and just, i.e. the decreed solutions have to be well grounded, the procedure norms of decree to be observed and re-considering as the slowness is excluded.

### ***Civil and administrative procedures***

A main principle therein is the principle of balance between rights and obligations, which have an effect in the equality of the parties, and in the competitive nature of the

procedures, which is a guarantee against abuse of rights.<sup>3</sup> The adjudged damage in cases of infringement has to be so that it can prevent preparing the next infringements.

The suit pending against infringers is a very expensive and time taking procedure (excepting of a small number of European countries), and as a result of that the TRIPs lays the requirement for a quick and accessible procedure in the suits of rights infringements. In accordance with the legislation in our country till now, the case of a patent infringement within the jurisdiction of the court passes independently of the administrative procedure in the patent office, which aims the adjudge invalid the infringed patent. In conformity with the Bulgarian civil procedure Law there is no regulation, which permits cessation of the legal procedure till solution of the dispute through administrative channels being important for the case. Only the finding, appealed in legal form of the patent office decision, is a reason for cessation the infringement suit. This fact leads to an exceptive delaying of the legal procedures, which were of average duration of 3-4 years. There are cases, where a finding in the dispute, which comes into force, finishes the case of a patent infringement and the administrative procedure in announcing the infringed patent invalid in the office is pending yet. According to the last changes in the Patent Law in art. 64, al. 2, there is a possibility, provided in the considered situation, where the court stops the suit till decreeing the final finding on request for invalidation of granted patent. With this regulation the claim of the art is satisfied. 182-e of the Civil procedure code, where the court stops the procedure in the cases explicitly provided in the Patent Law. In this way the requirements of the TRIPs for swiftness of the legal procedure are fulfilled and the principle of preceding economy of the civil procedure is observed.

Legal power are submitted to the legal bodies in favor of the rights owners, as **corrective measures** are provided: injunctions with a view of interrupting the infringement; bringing out of the network of shops the articles as well as the materials and devices, which have been used for manufacturing the counter-fact articles and others (art. 44).

Regarding the administrative procedures (art. 49), wherein a civil corrective measure can be ordered, a principle of the civil law procedures is applicable.

Concerning an urgent intellectual property rights protection, the Agreement provides possibilities for decreeing **provisional measures** (art. 50), before dispute settlement upon its merits. According to the legal bodies, a provisional measure *inaudita altera parte* (without hearing the other party) (art. 50, al. 2), may be ordered. It is possible only in the following cases: when the aim is to prevent delay, provided it could cause the owner of the right irretrievable damages, and when is provided a risk of evidences destroying, as the condition is the risk to be provable.

The TRIPs Agreement provides also another measure category for rights protection till dispute settlement upon its merits. These are **the border measures** (art. 51) – one of

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<sup>3</sup> Bronckers, M. TRIPs Agreement: Enforcement of Intellectual Property Rights. Luxemburg: Office for official Publications of the European Communities, 2000, p. 47.

the material novelties of the Agreement. They aim to guarantee the prevention from international trade of imitated goods, concerning the trademarks and piratical goods of the objects of the copyright and the related rights. These are the most expressible infringement forms at the present stage of the intellectual property development. The custom bodies by order of “competent administrative or legal bodies” fulfill these measures. The procedure is initiated on request of the right owner, but activities are also provided on initiative of the custom bodies (art. 58), and the concerned persons are notified immediately. The border examination over the goods trade, infringing the intellectual property rights, is regulated by the Copyright Law and the related rights in the Law on marks and geographical indications, in the Industrial Design Law and in the Patent Law (its last amendments), as well as in the Regulation No 249 from 27.11.2000 of the Ministry council of the border measures. After 01.01.2007, the date of Bulgarian’s accession to the European Union, the operative Regulation will be replaced by the Unions Regulation No 1383 from 2003, which determines the customer bodies activities against goods, suspected of infringement district intellectual property rights and measures against goods, that have been established to infringe so rights.

The realization of an effective border examination and examination measures over the good flow is of a great importance to the software industry and the software products publishers, especially of the CD-ROM discs.

### ***Criminal procedures***

The Agreement requires from the member states to provide a criminal protection (art. 61) in distinctive cases of violation of intellectual property rights. There are two reasons, which necessitate these requirements:

- the criminalizing of these violations assume that they effect to a great extent the public interests;
- the Criminal Law, which ensures universal sanction defense in all the fields of public life by its norms, realized a preventive effect relating these rights.

According to the TRIPs Agreement, a compulsory criminalizing of the copyright piracy and of trademarks imitation is required, when it is deliberately and in a commercial scale. According to amendments of the Criminal code from 1997, part VII, Crimes against intellectual property from Chapter III, Crimes against citizens’ rights, in art. 172-a, changes concerning infringements against the copyright and the related rights, which satisfy the TRIPs requirements, have occurred. According to the amendments of the Criminal Code from 2005, a new article 172-b (which cancels the previous version of the art. 227) has been established by criminalizing the trade marks imitation.

The TRIPs requirement concerning the set penalties is fulfilled. For the copyright piracy it is a cumulative penalty: imprisonment to 3 years and fine from 1000 to 3000 levs, but in imitation of marks – an imprisonment to 5 years and fine to 5 000 levs is provided.

An additional penalty is also provided, which purpose is not directly connected with the set penalty of the perpetrator, but by the infringement discontinuance, removing the consequences thereof and preventing its continuation. These sanctions include deprivation of the crime object in favor of the state and goods materials and flow destroying.

The extent of the awarded damages in the civil procedures is a small one and that is why the importance of the effective punitive measures for the protection of the rights owner's interests ever more increases. As a whole, the Agreement's requirements are all the intellectual property system to be supported by a strict legal system, which realizes a connection between the civil and criminal jurisdictions. A possibility is admitted to exercise the protection right versatile by a cumulative use of the provided procedures and measures.

In the TRIPs Agreement the particular objects of intellectual property are regulated in details, and the norms of the Bulgarian legislation to a great extent are carried out. In accordance with its requirements the invention regime as one of the industrial property objects is regulated in details in this Agreement.

In order to ensure an effective enforcement of intellectual property right, in accordance with Part III of the TRIPs Agreement, the so-called Intellectual property rights enforcement Directive – 2004/48/EC<sup>4</sup> had passed, which aims to create an equal and homogenous intellectual property rights protection level. However, the differences between the systems in the member states should be removed. In this process the always changing economic, legal and political factors can be expected, as well as the influence of the traditions in the legislations of the several states.

## **6. Interaction between state bodies in Republic of Bulgaria**

One of the ways to achieve the purposes of the TRIPs Agreement and the Directive of rights enforcement is to achieve unity of action and integration between state bodies in the country: Ministry of Culture, Ministry of Internal Affairs, Ministry of Justice, Customs Agency and the Patent office. By Decree No 22 from 03.02.2006 the Council of Ministers passed a Regulation whereby the order and way of interaction between these bodies is regulated.

This interaction is expressed in an auspicious information security of the protected objects, as for this purpose, by the mentioned Decree, a national system for information exchange in the field of the copyright and related rights and the industrial property is created. The activity of the Interdepartmental Council between the state bodies is regulated. One of the activities of the Council is the coordination of the jurisdictional activities in counteraction against the negative phenomena, like the counterfeit of goods and the intellectual piracy.

**In conclusion** we have to mention that as whole the regulations of the Bulgarian legislation in the field of the intellectual property to a great extent correspond with the

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<sup>4</sup> OJ L 157, 30.04.2004.

Right of the European Union (Report of the European Commission on advancement of Bulgaria in the integrating process in 2004, p. 58). In the last Monitoring Report of the Commission from 26.09.2006 there is a statement that the norms in the intellectual property field are harmonized with *Acquis communautaire* (achievements of the European Union right): "Bulgaria has achieved an advance in the field of the intellectual property right protection".

The last amendments in the legislation in the industrial property protection sphere – the Law of change and supplement of the Law on marks and geographical indications, of the Law of change and supplement of the Law on industrial design, published in the State Gazette, No 73 from 05.09.2006, operating since 05.10.2006 and of the Law of change and supplement of the Patent Law, published in the State Gazette, No 64 from 08.08.2006, which operates on 08.11.2006, finalize the harmonizing process of the Bulgarian legislation in this field with the Community right and they guarantee conditions for building a stable national legal system.



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# ECOLOGICAL LEGISLATION AND THE RIGHT TO INFORMATION REGARDING ENVIRONMENT

*Prof. Dr. Stefka Naumova  
Institute of Legal Studies at Bulgarian Academy of Sciences*

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## 1. General description of the right to information

Environmental preservation and ensuring sustainable development is one of the main issues that contemporary civilized community faces. This is a natural consequence of finally realized by the entire humanity need for preserving the harmony between humans and nature. The long dominating understanding for the prevailing significance of economy, **which was reflected also in the policies of the European Union in the early days after its establishment, have led to noxious consequences for both the environment and man as part of it. This understanding has been overcome, although slowly, and priority was shifted to ecological problems and ways of fighting them within both the overall EU environmental policy, and in the environmental legislative strategy of all modern states.**

The ecological legislation as a branch of the effective legal system has some specific features that distinguish it from the other fields (branches) of law. Ecological legislation is specific with the fact that legislative solutions in this area have impact on large groups of people and for continuous periods of time. Therefore, persistent series of the EU directives, regulations and decisions emphasize on public relations and awareness of the so called 'affected' public with regard to the state of eco-systems and the broad participation of NGOs in the development and adoption of the new ecological strategy's principles.

In this context the relation between the ecological legislation and the right to information on environmental issues takes a special place. It is the focus of EU ecological policy itself. The EU regards the right to information as one of the main instruments for ensuring sustainable development, decreasing the risks for human health and preservation of the main eco-system components. The reason thereof lies in the fact that the level of environmental legal conscience largely determines the efficient implementation of any state strategy for environmental preservation, which is of extreme significance for the community's prosperity.

As with the other fields of law, the Final Act concerning the accession of the Republic of Bulgaria and Romania ratified with a Decision of Parliament on 11.05.2005<sup>1</sup> plays a leading role for the future development of our country. The full membership of Bulgaria in the EU and the generally completed harmonization of our environmental legislation with the EU law, reflected not only by the closure of Chapter 'Environment' do not mean that the renewal of our environmental legislation is completed. Moreover, forthcoming ratification of the Treaty Establishing a Constitution for Europe will raise the even more complicated issue of the so-called pool of sovereignty where national legislative framework will be subordinated to completely new requirements. This complicates further the subject matter of public awareness on the condition and perspectives of the national ecological strategy in the context of constantly changing European standards. For some, it is however certain, that the issues related to the right to information on environmental issues will acquire new dimensions but shall never be removed from the national and European priorities.

The availability of a certain amount of information is an important requirement of qualitative environmental management.

The legal information<sup>2</sup> in broad sense can be regarded as a special type of social information providing the public with legal knowledge – as part of the larger issue of right to information.

In modern democratic societies<sup>3</sup> the right to information is constitutionally enshrined and guaranteed.

In the first place, legal knowledge is ensured to the public through a specifically designated system. The distribution of legal information is a governmental function. Thus, the obligation for publication of adopted laws is constitutionalized, and the respective procedure is set for in a law.

Legal information and its sources can be classified based on different criteria<sup>4</sup>, e.g. depending on the subject submitting the legal information it can be defined as official or unofficial.

**Official** legal information is the legal data provided for by the respective legislative authorities through official legal editions and different sources of mass media.

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<sup>1</sup> SG, issue 40 of 2005

<sup>2</sup> The use of the term 'legal information' was boosted by the informational systems' automation. The extension of the concept for 'legal information' is expedient and necessary with regard to the clarification of the connection between the right to information on environmental issues and the social effect of the environmental legislation

<sup>3</sup> Art. 41 of the Bulgarian Constitution has proclaimed the right to information as one of the main citizens' rights. 'Art. 41 (1) 1) Everyone shall be entitled to seek, obtain and disseminate information.' This general wording implies the right to seek and obtain legal information in the broad sense, i.e. not only information sourced in the respective regulatory act but also information whether regulative acts are adopted, abrogated or amended, up to analysis of their contents, and whether the respective authorities or officials implementing them have not violated certain citizens' rights, etc.

<sup>4</sup> See for more details **Naumova, S.** Mechanism of Social Effect of the Law', S., Nauka I Izkustvo, 1987, p. 63-75

**Unofficial** legal information encompasses legal data distributed in the process of inter-personal communication.

The legal information can be systemized and non-systemized. The **systemized** legal information reaches the public through specialized legal editions targeting mainly the institutionalized distribution of legal knowledge in a form specifically designed for that. The non-systemized legal information is distributed through non-specialized sources the main function of which is not limited to the provision of legal information.

Legal information can be also classified with regard to its addressees – citizens, officials, state authorities, civil servants, etc. In this case it can be defined as **specialized** and **non-specialized** legal information.

The legal information itself can be used as criteria for classification of its sources.

It should be noted that when discussing the legal information sources a distinction between primary and secondary sources should be made. The first ones are the legal rules themselves and the various laws and regulations, while the second are all those sources reiterating their contents.

In general, the **sources of legal information** can be classified in two large groups by two criteria. There are two types of sources according to the submitter of information – official and unofficial. Based on the social function performed by the legal information sources they can be separated again in two types – specialized and non-specialized.

The **official** sources of legal information are the institutionalized channels for transmitting information: the official legal and other editions, the mass media (press, radio, and television), the official clarifications by relevant authorities.

The **unofficial** sources of legal information include the non-formal (non-institutionalized) means for submission of information: inter-personal communications realized in the different social groups, family, acquaintances, friends, neighbors, 'legal authorities' in the small social communities, etc.

The **specialized** sources of legal information serve only for authentic submission of legal information (State Gazette, collection of laws and other regulations, specialized legal editions, texts accompanied with legal comments, etc.)<sup>5</sup>.

The **non-specialized** sources of legal information are those, which aim not only at submission of legal information, e.g. mass media (press, radio, television).

Legal information is usually purposefully submitted by official specialized sources (State Gazette, collections of laws, official legal editions, etc.), but very often the

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<sup>5</sup> In the discussed context it should be noted that in the contemporary informational society special software is developed and largely used purposed for the collection, systematization, up-date, etc. of enormous amounts of legal information, e.g. the systems 'Sibi', 'Norma', 'Ciela', etc. and as regards Internet - practically anyone interested and willing to can benefit this system.

distribution of legal knowledge is performed by official non-specialized sources of legal information (e.g. the mass media).

Each of the above sources for obtaining legal information has its place in the overall mechanism for legal information.

Official specialized editions are the most reliable source of legal information. However, they target a limited number of addressees because their use requires special preparation, knowledge and methods<sup>6</sup>.

Mass media – press, radio, television as official non-specialized source of legal information take a special place in the legal information mechanism because they are a common and preferred channel for receiving legal knowledge. This is largely due to the fact that mass media take a special place in the community's sociologic structure and directly impacts the personality formation, the development of its views and value systems<sup>7</sup>.

The legal information is received in different ways and at different stages of the personal development. The accumulation of legal knowledge reviewed by sociology in a legal perspective, plays an important role in the legal socialization of the personality.

In general, it can be stated that legal informing is carried in two main ways – *non-purposeful* and *purposeful*. In the overall mechanism of legal information, each of the two ways has its relatively separate significance, which requires a separate analysis.

The **non-purposeful** legal informing starts at a relatively early age (in the socialization process) and lasts until life end. Legal informing is realized through direct interpersonal contacts in course of people's direct participation in the social processes. The fact that a man is surrounded since birth by certain culture and is acquiring its samples, values and behavior patterns involves the perception of certain legal knowledge or knowledge on law. In the process of socialization the personality starts adopting certain legal norms (legal socialization) together with the other social norms – religious, ethical, customary, etc. In other words, the perception of law, legal norms and principles is shaped in the framework of the main regulative systems operating in the community. Thus, every individual has got legal knowledge, which, in the early stage of legal socialization, is not distinctly separated from the knowledge for other social norms and behavioral patterns. The time when the category of 'law' is shaped in the individual's conscience and triggers the accumulation of new knowledge and experience in the legal reality can difficultly be fixed. This experience encompasses

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<sup>6</sup> The sociologic researches on this issue show that this information source type is used approximately three times less than the mass media. Thus, in several panel searches carried out by scholars from the Institute for Legal Studies – Bulgarian Academy of Science in 1987, 1992, 1996, 2004 the percentage allocation of the respondents declaring that the official legal editions are their mostly often used sources is respectively 13,6 (1987), 18,9 (1992) 21,9 (1996). See Nauomova,S. Public Opinion About Law. – East – West Conference on Legal Policy, Oxford, 1996.

<sup>7</sup> In the above research the mass media score the following percentages - 38,5 (1987), 42,8 (1992), 56,5 (1996). These means for legal information can play two-pole specialized role: in some cases stimulating the lawful conduct and in other to facilitate the formation of deviant conduct.

cognitive, psychological, and behavioral components. It results in the complex structure of regulatory mechanisms correlating with other structures generated by other experience of the same individual<sup>8</sup>. The concept for the legal area of social life, of legal norms and principles, etc. which have arisen in the process of socialization is gradually expanded. Thus, the degree of legal awareness in the society varies in very broad perimeters – from very general idea that such an area of social life exists, to in-depth knowledge of specific legal prescriptions.

The process of individual's legal socialization itself passes through different stages at which the personality obtains certain social role. Legal rules are important for perceiving this role. In the initial stage of legal socialization when small non-formal and formal groups (family, school, friends, coevals, etc.) are important, the accumulation of legal knowledge does not necessarily require the personality's active participation. It is later in the process of overall social activity when the legal information is needed for the performed social role. The personality then looks for ways, methods and means to receiving such information. New experience is built on the acquired previous social one, the received legal information being perceived on the basis of the internal system for behavioral regulation. The perception of new legal rules is related to their comparison to legal and other social rules already known to individual and accepted by him. The cumulated legal experience helps the individual find a path in the complexity of social relations, and chooses behavior in specific situations. The social experience, of course, can lead the individual in different directions. Not always the law and its mastering leads directly (motivates directly) to a lawful behavior. The law and the knowledge of it, especially the knowledge on its implementation, could be a specific source for deviant behavior<sup>9</sup>.

The **purposeful** legal informing is the process of systematic distribution of legal information through the specifically designed means thereof. The main issue related to the purposeful legal informing is the identification of means and methods for legal informing, which, on one side, would involve different social groups, and on the other would preserve the significance, which the respective legislator has put in the rules in question.

The overall process of transferring legal information is directed to its recipients – addressees of the legal prescriptions. The cumulative information submitted in the process of legal informing is perceived and accumulated as legal knowledge. The acquisition of legal rules is part of the legal socialization process. The legal knowledge accumulated in the personal conscience turns into an organic part of the spiritual world of the personality and its value system. By acquiring the rule, the individual also masters its meaning, social significance, realizes the functional connection and correlation between the rule and the object of legal regulation. Therefore, the accumulation of legal information is a substantial part of the law's social effect.

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<sup>8</sup> See **Novak, S.** *Teorie postaw*. Warszawa, 1975, s.9; **Oskamp, St.** *Attitudes and Opinions*. N.Y., 1977, p. 27-28.

<sup>9</sup> Difference should be made between the law as source of social deviance and the legal knowledge as factor for the law-related behaviour (conforming or deviant).

## 2. Legal features of the right to information on environmental issues

### **Information takes a special place in the context of environmental preservation.**

The right to information is upheld as a main institute in most recent international documents on the legal regime of environmental preservation, whereas legal regulation is subordinated to the postulate that the community should be informed.

This general concept is entirely applicable in the field of environment. It is not by accident that several doctrinal researches regard nature itself as the largest source of information, i.e. emphasis is on the philosophic understanding of rational and irrational. The relation between information and social processes (social practice) is undisputable. In the context of the latest understanding reconsideration of the human-nature relations is needed for the entire concept in order to found interest in the community, which if not empirically established, but can turn into a detonating element capable of destructing the entire social system. And this system has the human beings as its foundation - with his biogenic, psychogenic and sociogenic structure.

The establishment in the legal doctrine of legal notions such as *right to information* and *right to information on environmental issues* has been a result from the development of the general system for human rights protection. The UNO's main international documents in this field (the International Pact on Civil and Political Rights, and the International Pact on Economic, Social and Cultural Rights), in spite of their universal nature, do not uphold the right to information on the state of environment as a basic right. The reason is that the process has not been completed within the appearance of main range of human rights. On the opposite – new rights, unthinkable of 50-60 years ago appear as social development has long outrun the narrow framework of legal consideration and regulation. In this context, the establishment of the subjective citizens' right to information on environmental issues is a new phenomenon both in terms of national legislations and international law. Most countries lack a thorough and complete regulative framework in this regard<sup>10</sup>.

## 3. The right to information on environmental issues in the European Union's environmental policy

The Declaration adopted at the UN Conference on Environment and Sustainable Development held in 1992 in Rio de Janeiro, Brazil is considered as one of the main international acts founding a new understanding of objective and subjective right to information. Principle 10 of the Declaration reads: '...At the national level, each individual shall have appropriate access to information concerning the environment'. The OECD system on the general information network for transfer and exchange of information about environment, established after 1993 also plays a special role. The

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<sup>10</sup> Most extensive review and analysis of the issues related to the legal regulation of the right to information In our legal literature it is presented by G. Penchev, **See Penchev, G.**, The right to information on the condition of environment in the Republic of Bulgaria, S, 1966

initial intention is dictated by the fast socio-political changes in the countries from Eastern and Central Europe.

The PACE efforts should be noted in the context of the international development of this legal institute. The Model Law on the Preservation of Environment published by the Council of Europe in 1994 offers a certain structure in the development of similar laws in the countries from Central and Eastern Europe. It is noticeable that this model draft-act provides for an entire separate chapter (VI) dedicated to the right of information and public participation in the environmental preservation. Some of the most important principles in this Chapter are as follow:

- Proclamation of the citizens' right to information on the condition of environment as a subjective right;
- Distinction between the accessible information about the environment's condition and the information representing a commercial secret;
- Establishing a principle for no consideration upon provision of information on environmental issues or lower fees;
- Connecting the subjective citizens' right to information on the state of environment to an obligation for the competent administration about its provision.

**However, the main act in the discussed context is the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters signed in Aarhus (Denmark) as it provides for the first time a specific legal framework of both the access to information and the social consequences from applying the national regulations.** This Convention, known as the Aarhus Convention, is only signed by the EU without accession act, is in many ways a step forward as regards the guarantees for competent authorities' activity for provision of information and mostly in terms of streamlining the access to justice on ecological issues. The Convention was ratified by the Republic of Bulgaria on 02.10.2003 and is effective in our country as of 16.03.2004.

The Convention provides for legal definitions of the main concepts related to the right and access to information, such as 'environmental information', 'the public' and 'the public concerned'.

The legislation review of some of the developed countries, and mostly, Europe and USA allows the general conclusion that the subject matter is new, insufficiently developed both in doctrinal and legislative terms. Therefore unified criteria for positioning this problem in a straightforward legal framework are difficult to find. Moreover, in some countries the right to information on the state of environment as legally established subjective right outruns the general European solutions. Thus, the first framework act – the Preservation of Environment Act adopted by the Supreme National Assembly in 1991 contained a separate chapter 'Right to Information'. Hence it can be said that our first modern ecological act has contained several valuable

indexes from the viewpoint of a new framework of legal rules on this indisputably important issue. In the new act the right to information on the environment is regulated in a separate chapter – Chapter Two entitled 'Information on the Environment'. Furthermore, it should be noted that the new act is unified with the main Directive in this field – 90/313/EEC<sup>11</sup> on the freedom of access to environmental information.

Among the main EC directives that are directly related to the right of information on the environmental issues those **on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters** can be noted as mostly influenced by the Aarhus Convention.

**Herewith, first place occupies Directive 2003/35/EC of the European parliament and Council**, which introduces the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters **on the public participation** in the Convention procedures, and the access of this public to justice on environmental matters in compliance with two other Directives - 85/337/EEC and 96/61/EC.

It should be stated that in strictly legal terms the above main Directive reiterates a number of the main positions in the Aarhus Convention.

The overall EU policy in the field of access to information aims at streamlining national legislations in undertaking both legislative and organizational measures in the procedures for citizens' access to information.

The EU pursuit of specific organizational measures for the realization of the main positions for access to information highlighted by the directives is worth the attention. Thus, by establishing the European Environment Agency /EEA/ the realization of the purposes under Art. 1, para 1 of Council Regulation No 1210/90 on the establishment of the European Environment Information and Observation Network (EEION) has become practically possible. The Regulation extensively lists the main tasks of the EEA, whereas the creation of European Information and Observation Network and the harmonization of measurement methods with regard to data compatibility is main significance.

In general, the EU policy can be described as dynamic in specific internal legal plan and lagging behind as regards strategic solutions and long-term perspectives.

#### **4. The right to information on environmental matters according to the national legislation**

Before laying down the main principles and specific legal regulation of the right to information on environmental matters, we should point out that there is a distinction between *objective and subjective right to information*.

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<sup>11</sup> It should be noted that the above directive is already repealed by virtue of Art. 11 of the Directive 2004/4/EC of the European Parliament and of the Council

- The **objective right to information** is the system of general rules, principles and norms regulating the receiving, use, transfer, etc. of information. These are in fact the legal rules regulating the mechanisms for demanding and receiving information.
- The **subjective right to information** is the right of every citizen to search for and to receive information of different content. The establishment of this right is a new phenomenon in the legal doctrine of contemporary society.

The right to information on environmental matters is part of the general right to information with its two aspects – as an objective and as a subjective right. The regulative base of the legal framework of these two aspects includes:

- a) international regulations and specifically the EU Directives;
- b) the Constitution of the Republic of Bulgaria;
- c) the legislation on environmental preservation;
- d) the secondary legislative regulations.

The specific significance of international regulations and in particular the EU directives is outlined in Art. 5, para 4 of the Constitution, acknowledging the priority of international agreements.

Regarding the constitutional right to information, it should be noted that the Constitution of 1991 proclaims for the first time. Art. 41 of the Constitution upholds the citizens' rights to information into a main subjective right. It comprises the right to information in general, i.e. in all areas of public life. There is no specification as to the right to information on environmental matters. The latter is implied in the general provision of our main regulatory act.

The notion is substantiated in the new Law on Preservation of Environment and in particular in Art. 17, which reads: 'Everyone has right to access available information on environment without being necessary to prove specific interest'. In this sense, the LPE can be viewed as a law laying a new beginning in the ecological strategy and policy of the modern Bulgarian state, where the institute 'right to information on the state of environment' has been founded on steady legislative base.

The issues related to the right to information directly regulated by the law can conditionally be grouped as follows:

- Objects of information on the state of environment;
- Legal subjects obliged to collect and provide information on the state of environment;

- Liabilities for violation of the obligation to provide information on environmental matters.

For the first time the Law (Art. 18) makes a distinction in the general information load between 'existing primary information', 'preliminary available processed information' and 'information processed upon demand'.

The objects of information include those data explicitly listed in the LPE. The legislator has divided them in the following groups:

- Data related to the condition of environmental components;
- Data related to the factors polluting or damaging the environment and the actions' result leading or potentially leading to pollution or damage for the environment or its components;
- Data on the human health condition and human safety, living conditions, cultural objects and facilities to the extent that these are affected by the environmental components' condition;
- Data on the activities and actions undertaken for the environment's preservation and recovery.

The first group of data as per the law refers to the quality or quantity of the separate natural resources, as well as to the level of noise, vibration or electromagnetic load over the environment.

The second group of data relates to the industrial, agricultural or commercial activities of separate legal subjects, which affect or could affect the condition of environment or its components. This group includes data related to procedure on environmental impact assessment, and data referring to households and dangerous waste treatment. In other words, it concerns a large scope of data related to the anthropogenic impact over environment.

The third group of data relates to the activity of all legal subjects concerning preservation or recovery of environment.

The new framework law also adopted new solutions regarding both the subjects entitled to access to the different types of environmental conditions' information and also to the procedure for its assurance (Art. 20, para 2), or the grounds for refusal of access to information (Art. 20, para 1). The law explicitly specifies the cases in which access to environmental information can be denied. These are the cases in which the request refers to:

1. classified information which constitutes state or official secret;
2. information which constitutes production or commercial secret defined in a law;

3. information which is an intellectual property;
4. information which constitutes personal data, should the individual to whom this information is related does not agree to reveal it, and pursuant to the Personal Data Protection Act;
5. information that would affect third parties' interests, who have disclosed the required information without having legal right to do this and without being authorized and when the person does not agree with the information's disclosure;
6. information, which will influence adversely the components of environment.

Narrowing the right to information access, however, does not refer to the emissions of harmful substances in the environment as value under the indexes specified in the respective regulative acts (e.g. harmful emissions in air, waters, etc.).

The LPE (Art. 21) provides for the scope of the legal subjects responsible to collect and concede information on environmental matters under the general ecological legislation. Among the subjects identified thereto, particularly important is the activity of the Ministry of Environment and Waters because the activity performed by its Minister and its ministerial structures is specialized in the field of environmental preservation.

The provisions of Art. 23, para 1 is important. It reads: "...the average or other pollution in standard case of polluting substances emissions in environment, established in a regulative or individual administrative regulation have been violated, the persons having committed the violation and the persons responsible for compliance with the standards shall immediately notify the respective district governors, mayors of the respective municipalities, the Regional Inspectorate on Environment and Waters, the Basin Directorates and the State Agency of Civil Defence, and upon changes in the radiation ambience – the Agency on Nuclear Regulation'.

The law's section regarding the right to information is completely compliant with more cases of the general Access to Public Information Act and thus to a large extent fulfils the gap existing prior to its adoption.

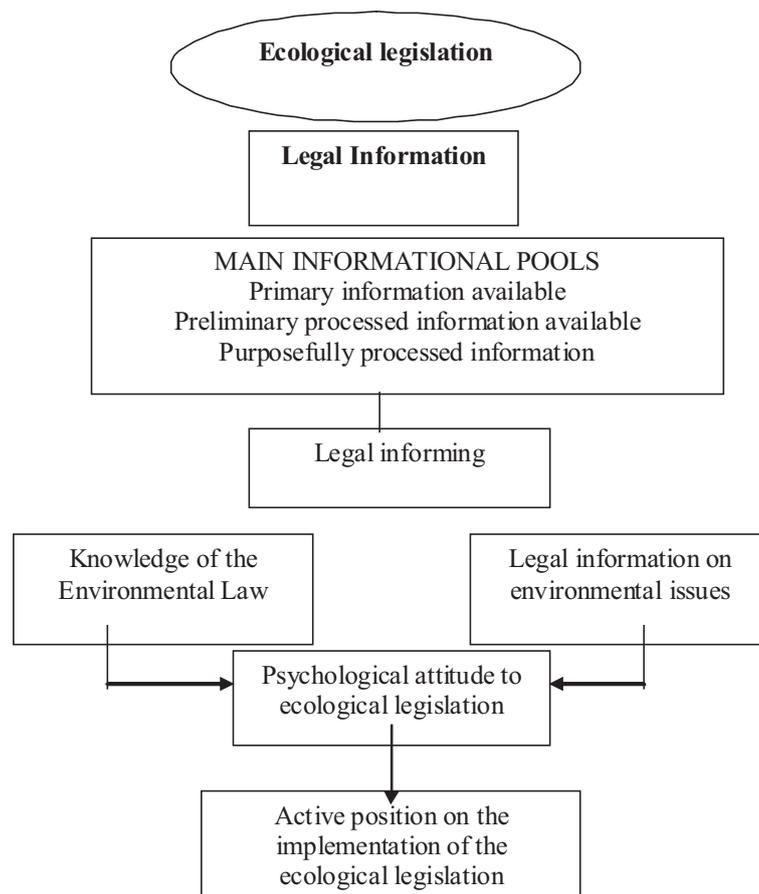
## **5. Social-legislative features of the right to information on environmental matters. Right to information and ecological legal conscience**

The right to information as a constitutionally guaranteed principle is detailed in the special laws regulating the access to specific type of information. In this context, the right to information on environmental matters is a part of the more general issue on the citizens' access to information.

The exercise of this right is not automatic. It is transposed by a series of activities

which even though described in the law, do not enlighten on how exactly the mechanism of informing is operating and how legal information is transferred into a cognitive element of the public and group conscience. As an element of the ecological legal conscience, information environmental issues takes the form of knowledge of a dynamic nature, due to the dynamic feature of environment itself and its main components. In this sense, the legal parameters of the right to information are also flexible and the legislator understands it.

The right to information could not, on its own, demonstrate the preventive and socially significant effect over the entire strategy on environmental preservation, should it be regarded separately from the overall issue of ecological legal conscience. Therefore, while discussing the mechanism of informing citizens on legal matters, the extent to which cumulated legal knowledge transforms into an integral part of citizens' ecological legal conscience should be identified, and hence, how they influence the improvement of overall ecological policy. Graphically this can be presented as follows:



The efficiency of ecological legislation depends on numerous factors, each of them having a heterogeneous impact. One of these factors is, indisputably, the degree to which ecological legislation is reflected in the public conscience. The degree of public conscience directly motivates some behavior that is not necessarily compliant with the legal requirements but also triggers an active civil position in an undoubtedly important area of public life such as the environmental protection.



**PART V**

**DEMAND FOR SOCIAL**

**SCIENCES AND HUMANITY**



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# DEMAND FOR PHILOSOPHICAL KNOWLEDGE IN KNOWLEDGE-BASED SOCIETIES

*Member Corr. Vassil Prodanov  
Institute of Philosophical Studies at Bulgarian Academy of Sciences*

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## 1. Social Change and the Need of Philosophy

The periods of radical changes are characterized by an increased need of philosophy. The rise of philosophy and its peak achievements precede or coincide with such changes. The acceleration and continuity of changes and the threats of permanent legitimacy crises that countries of today face make philosophy a constant necessity.

The beginning of the transition, related to the collapse of the previous system in Bulgaria, became possible and required delegitimization of this system, i.e. destroying its ideological foundations and values and seeking new principles. This destruction was executed in the first place by philosophers and through philosophers. At the initial stage this was manifested by the slogan for deideologization of the existing system, and then by the tendency towards a new over-ideologization that brings new identities. The philosophers themselves had to experience an abrupt change of their identities.

In periods of transition society's value rationality changes radically and there is a need to reconsider the question of where the society is heading to, and also discover new meanings of millions people's lives, establish new value and legal systems, set overall goals. The disintegration of social values is manifest both in the destruction of existing communities, and in the increased influence of mysticism, astrology, absurd superstitions. The new ultimate values which can support the social structure of communities and give meaning to the lives of separate individuals and social groups, cannot become legitimate without the help of philosophy or religion. Therefore, it is no coincidence that philosophers were particularly active in the first stage of social changes in our country at the end of 1980s and the beginning of 1990s. In such periods, the philosopher's function as an ideologist becomes especially important. Today, however, our country's course is defined and difficult to change, while the need for philosophers-ideologists quickly decreases. It is not accidental that many of those who were involved in the public policy at the first stage, are gradually forced

away.

Thus, a brand new situation has evolved in Bulgaria, where the transition state sharply increases the need for global changes and global thinking, outlining new directions for the future, thus objectively increasing the need for philosophical interpretation of processes.

## 2. Philosophy and Market Economy

Now a new situation arises - what philosophy must do in a situation, where everything is out for sale - from enterprises, hospitals and schools, to female bodies, MP's votes, party support and official approval. What is the relation between philosophy and the market? Right on November 10, 1989 a congress of Bulgarian philosophers was taking place at the hall of the former party house. The news about Zhivkov's replacement had already spread and the spirits were euphoric. The only discordance in this high mood was brought by one of the older philosophers, who maintained the relations between our philosophical community and the British philosophers. He knew Alfred Ayer in person, and knew from him what had happened to the British philosophers during Thatcher's mandate, when philosophy departments were closed, and young philosophers were forced to immigrate to America. That is why he was deeply skeptical when speaking about the hard times which awaited philosophy and philosophers in the conditions of market economy. Regrettably, his words proved to be true.

Talking about science adapting to the market, it is known that it is hardly possible for fundamental science to develop. It is not only subordinated to demand and supply everywhere, but is also long-term funded by the state. And philosophy has the status of a most fundamental discipline. Another point is that the concept of fundamentalism changes radically from one philosophical doctrine to another.

The general market orientation gives rise to the difficult issue about the relation between philosophy and the market - a hard, complex and contradictory relation. The notion of "philosophy market" sounds metaphorical, but it is based on significant realities. In principle, philosophy is considered a fundamental knowledge which, unlike trading goods, should not be subordinated to the logic of market processes. The production and consumption of philosophical ideas is considered something different than, let's say, the production and consumption of water-melons, sweets, bread, etc. Regardless of that, the process of democratization and market orientation inevitably subordinates philosophy in our country to the logic of certain processes, which it should conform with. And we have to remember here, that at its dawn in the age of sophism, philosophy was among the most typical market products. It is known that philosophers, such as Gorgius, earned from teaching philosophy so much gold that managed to build themselves a gold statue at the temple of Delphi. After them, and especially after Aristotle, key importance in the philosophical knowledge is held by the branch called practical philosophy related to the issue about practical reasoning and the way of making decisions in various fields.

### 3. The Growing Practical Need from Philosophy

Philosophy seems no less practical today. Some time ago, Prince Kardam, Simeon Coburg-Gotha's son, said that philosophy turned out to be the most practical of all his education. George Soros has always said that he would have never earned his billions without the critical rationality of his teacher, Carl Popper. In both cases, their words reveal the importance of philosophy, outlining its practical significance that could be market-oriented.

*First.* While all other disciplines are related, to some degree or another, to an instrumental type of rationality, philosophy is related to value rationality and ultimate goals. That is why it has always played the role of a practical reason and is linked with normative cognition in ethics, political and legal philosophy. The expansion of instrumental market rationality would lead to destructive consequences without having sets of terminal or substantive values. In Bulgaria the role of the church in creating and supporting of such values is marginal and the same function should be implemented by the philosophy and philosophers. Philosophical ideas have no direct economic effect, but they could have powerful indirect influence taking part in building of collective identities and social capital.

*Second.* The boundaries between philosophy and the different particular sciences are not strictly outlined and differ for various types of philosophy over different periods. That is why in any period one philosophy or another is inseparable from various particular sciences, and comprehensive research is done with philosophy playing the role of a methodological basis. A typical example are ethic and religious studies, etc. Of course, philosophical "purists" concerning the "purity" of their discipline could always be met, but these are practically anti-market individuals and narrow-minded metaphysicists tending to seek some eternal and strict boundaries between the philosophical and non-philosophical. Today, philosophy is a mighty force in the multidisciplinary movement.

*Third.* Philosophy provides style, method and way of thinking that are of key importance in today's complex situations. It also assist the individual in understanding situations and making decisions. The world becomes even more complicated, stochastic, relative and complex. We are increasingly unable to understand any local event without considering it in its entirety and complexity, without a holistic approach and system thinking - and here is where philosophers are indispensable. This is particularly prominent in science where differentiation and fragmentation of knowledge is growing and the overall view on events is again impossible without philosophy.

*Fourth.* Never before in history so many innovations and fast changes in technology, social relations and values have occurred. The globalization and growth of many new risks bring about a new social situation receiving the name "risk society". In the context of permanent changes and many new risks, the demand for philosophy giving explanation and interpretations of what is going on is increasing.

That is why, on a global scale, the need for philosophy is growing in connection with

the specifics of the speedy "third industrial revolution", related to using information and knowledge as a production resource. The need to generalize and understand the enormous information flow has greatly increased thus breeding a continuous need for philosophy, and for schooling on how to solve and identifying problems. Philosophy becomes a factor for overcoming the growing specialization in cognition thus helping acquire an overall outlook on the world. Philosophy is expected to teach critical thinking in perceiving the world, thus contributing to accelerating the changes. It is not accidental that the more advanced a country, the greater the interest in philosophy is. And, the more educational centres teach it and the greater the institutionalization of various attempts is for its practical usage, such as centers, institutes, journals, and books entitled "applied philosophy", "practical philosophy", "applied ethics", "practical ethics", etc. Moreover, the very notion of practice is expanded to include dimensions such as interactive, spiritual, psycho-social practices where philosophical reasoning is especially important. The transformation of human capital into a major factor in society presupposes philosophy as a key resource for the organization and behavior of this capital. And vice versa, the more backward a society is with dead rather than living labor and knowledge being fundamental, the more likely it is to ignore philosophy and be unaware of its practical significance.

The problem of philosophy's practical significance is manifested differently in different philosophies, each of them formulating its own concepts of fundamental and practical. In principle, however, the practical importance is generally related to any system of principles, norms, rules and values that can be deduced by philosophy.

#### **4. Philosophy and Market Competition to Win the Consumer in Knowledge-Based Society**

The transition in Bulgaria has caused a rapid market orientation of social sciences evidenced by the mushrooming of many private units for social and political research, projects, consultations, demoscopic studies, economic forecasts and projects, ethnic studies, etc. They work directly for the market, but due to its inner restriction and because of the country's size and grave economic crisis, the contractors of such studies most often are foreign companies and organizations. Philosophy, however, cannot become market-oriented as easily as other social sciences. At the same time, the transition is linked to changes in the social functioning and realization of philosophical knowledge. Until 1989 it functioned in a non-market environment and the major mechanisms of social assignment and use were political by nature.

The last two decades witnessed *processes of quick market orientation of philosophical cognition in Bulgaria, as well as globally*. They are manifested in several main directions.

*First*. The competitiveness of philosophical ideas, concepts and literature has sharply increased. It is the result of both political and ideological pluralism of society, and the vast amounts of translated foreign philosophical literature. The Bulgarian philosopher is competing in an environment alongside with world-famous names and representatives of different conceptions. Philosophy is fighting to survive amidst a market of ideas of different philosophical models and varying quality, and a market of

intellectual products. It is therefore compelled to find his own specific niche and users.

*Second.* Philosophers are increasingly forced to give up traditional philosophical abstraction and make philosophical cognition more pragmatic and practice-oriented. The last two decades have witnessed an increase in applied philosophy research on a global scale. The boom in the field of political philosophy since the 1970s is inseparable from its application in key spheres of social life: economy and politics, morality and management. The number of publications, centers and institutions in disciplines such as business ethics and bio-ethics is growing. This makes philosophy a key tool in the cultural response to globalization in the form of stabilizing its own cultural identities.

*Third.* The situation related to the mechanisms of interrelations between the philosophical ideas produced by institutions and the users has changed dramatically. The problem of explaining philosophical truth to society thus seeking and recruiting users of philosophy becomes central in a market economy. The need arises for marketing of philosophical knowledge, of new mechanisms for outreach to potential users. The total domination of market mechanisms means that philosophy cannot remain confined within specialized publications in academic journals such as "Philosophy Alternatives", "Philosophical Forum", "Philosophy", and the like. It should be adapted for use by a greater number of users and should have an adequate packing required by the mass user. Its adaptation to this user becomes through its popularization and association with an ideology or value system. This process is either necessary and dangerous, since ideologies and Utopias are the major bearer of illusory consciousness. In many respects the failure of the ten-year-long Bulgarian transition is a result of the system of ideological illusions that have guided the people.

In a situation of over-production of information in knowledge-based society the problem how to attract the attention of the consumer of philosophical knowledge is an increasingly urgent one. In this context, philosophy needs a marriage with the practice of public relations. The philosophers have to leave out the old attitude that they have no particular consumer and write their works for the 'eternity' and future generations. Several decades ago Price and Hagstrom calculated that about 10 % of all articles in some spheres of science are never cited, and may be never read by anybody.<sup>1</sup> Unfortunately with a number of our philosophers this percentage is not 10, but much bigger, reaching 90 with some of them, or even 100. What is the meaning then of what they do – it disappears in the sea of information and unread and unnoticed today, it is highly unlikely to be noticed tomorrow.

Recently Hal Varian and Peter Lyman - two economists at UC Berkeley, in their study "How much information?" have measured the total production of all information channels in the world for two different years, 2000 and 2003. Their totals include the information found on all analog media such as paper, film, and tape, as well as in all digital media such as hard disks and chips, and through all bandwidth such as TV, radio and telecommunications. Their tally focused on unique information, rather than

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<sup>1</sup> Price, D. Little Science, Big Science, and Beyond, New York: Columbia University Press, 1986, p. 108; Hagstrom, W. The Scientific Community, New York: Basic Books, 1965, p. 229.

just bits, since a duplicate of a song (or photo, or database) does not contain any real additional information. They counted a newly recorded song as new information, but not all the copies of that song, even though those additional copies would require storage space and transmission bandwidth. Varian and Lyman have estimated that the total production of new information in 2000 reached 1.5 exabytes. They have further explained that this is about 37,000 times as much information as contain the entire Library of Congress. For one year! Three years later the annual total yielded 3.5 exabytes. That yields a 66% rate of growth in information per year.<sup>2</sup> It means that in 2006 the new information produced all over the world is 13-14 exabytes, which is about 9 times more than six years earlier. And this avalanche persist to grow falling over the individual looking squashed and powerless under it.

It means that in a world with an enormous amount of publications on philosophy and art a clear cut selective approach is necessary – what could be translated without effort from foreign philosophers is better to be taken from foreign sources. Obviously, there is enough to be translated in a world of thousands of writing philosophers. The priorities should be problems and topics which do not exist in the foreign literature, oriented toward our local problems which could be identified and decided. Such priorities are much more necessary in small countries like our own. Because the more limited the resources are, the more important are those priorities in the subject activity. Otherwise this activity turns into senseless lost of the efforts and the scanty means.

Today, in the age of the “big science” funded by governments and business, which is oriented toward problem solving, the generation of philosophical knowledge means some competition for resources on the ground of project and problem principles, reflecting realities of the particular state – in this case Bulgaria.

##### **5. Identification of the Practically Necessary Philosophical Problems and the Assessment of Scientific Projects in Philosophy**

Bulgaria is a small country and the philosophical production has a relatively limited elitist market, therefore it can hardly be profitable. This narrows the market principle, especially for the specialized philosophical production, while at the same time the possibilities of its financial support by the state or by civil organizations are greatly limited. Thus the question arises of how to expand the user audience of philosophical knowledge, which is quite difficult, abstract and remote from the common citizen. This requires an adequate form and problem orientation.

Until 1989 the philosophical community shared the sustainable attitude that the more philosophic, fundamental and academic a work is, the more distant from social needs it is, because these needs were manifested through the demands and problems posed by the communist party holding the ideological monopoly. Today, in the market situation, this attitude dooms philosophy to social impotence. The key dilemma is the orientation towards applied or practical philosophy.

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<sup>2</sup> Kelly, K. The Speed of Information, [http://www.kk.org/thetechnium/archives/2006/02/the\\_speed\\_of\\_in.php](http://www.kk.org/thetechnium/archives/2006/02/the_speed_of_in.php)

*The new mechanisms of social assignment* should be of such type that Bulgarian philosophers could react to the specific needs of our society. So far no such effective mechanisms have been established. The world's practice offers two main forms, each having its own problems and contradictions. The first is the supply and demand of respective university courses and lecturers, but the mechanisms and effectiveness of this type of assignment are still not clear. The second is the project principle: the National Scientific Research Fund has made a successful attempt to introduce it in philosophy. However, the possibilities of contracting projects are financially limited and the mechanism of effective selection of experts who assess projects still leaves much to be achieved in view of great subjectivity. As far as other organizations are concerned, philosophical projects are almost non-existent. Internationally speaking, the project principle is applied on a limited scale as regards philosophical projects.

Key question is that of *identifying the philosophical problems which should be priorities for the development of scientific communities*. In principle, they should meet certain needs of society so as to be concurrent with social practice. The question arises of who must tell what these needs are: some social institution or the scientific community. If it being the former, in the face of one government body or another, a civil organization or market assignment, then the question arises of whether this institution would be competent enough to identify the respective philosophical problem. If that would the scientific community, then the problems may appear about its researches possibly being far from the needs and priorities of society. Obviously both are needed to identify the problem field of study, insofar as the society is related to external factors in the development of scientific knowledge, and the scientific community - to its internal logic and factors. This is a complex system of dialog and interaction within the scientific community among the researcher, the scientific team and councils on the other hand, and between the scientific community and society - state bodies and priorities, applications by non-government organizations (foundations, parties, international organizations), and market demand on the other.

It is not exactly clear how to identify potential users of philosophical products, how to identify them through marketing strategies, how to define situations in the social practice of Bulgarian society that require philosophical interference. The marketing strategies of studying the philosophy market are underdeveloped and the scope of the Bulgarian philosophy market is minimal. In the international practice such research is done on a transnational basis, especially for reference literature. A case to consider is the advance study of the market in 1990 through interviews of focus groups of philosophers, students and library workers when preparing the Rutledge Encyclopedia of Philosophy, asking for their view on layout, as well as on the content and indexes of the publication. The results from the survey served as the basis for the contents and team of editors.

The new problems identified by us are included in some complex practical reality; they are a part of a complex problem knot that could be seen through the prism of different sciences. The real practical problem is intricate and connected with decisions made by different disciplines. The collection of all of them in a study of this problem under the aegis of philosophy is a fruitful strategy. That why one of the priorities of the Institute for Philosophical Research are the mechanisms for

identifying new problems and its development as an integrative institution of various disciplines and Institutions.

A most difficult question is *how to organize the process of assessment in the scientific community with view to the new conditions*. Under the former system, this was done by scientific councils part of which were selected by the scientific communities themselves, but the most important ones were appointed by state bodies - specialised scientific councils, scientific commissions with the Supreme Attestation Commission and the Presidium of the Supreme Attestation Commission. However this system corresponds to different mechanisms of social assignment to philosophical knowledge. When introducing the project principle of social assignment, particularly with a view to the country's joining the European Union, the question arises of expert evaluators who will assess one project or another. The system of social assignment in the last decade showed strong subjectivity and clientelism in this respect. Typical examples in this respect are the National Scientific Research Fund with the Bulgarian Ministry of Education and the various projects with foundations such as Open Society, Democracy Network, etc. The selection of experts in assessment bodies is very subjective, lacking anonymity and not depending on scientific communities in Bulgaria. Obviously the introduction of the project principle in philosophical knowledge presupposes: a/ expert assessors and those who make project assignments shall be selected on a much more objective basis through competition guaranteeing objectivity, or through a democratic choice by the respective scientific communities; b/ ensuring anonymity of evaluators and projects' authors; c/ establishing a common center for the country that identifies problems requesting philosophical research and that organizes the attestation and financing of philosophical projects.

The key problem is that Bulgarian philosophy joins the world philosophy market, i.e. its inclusion in international philosophy publications and quotation indexes. This means that Bulgarian philosophers should react to the supra-national dimensions of philosophical discourse and taking a much more active stand on international projects.

The pragmatism and market orientation of philosophical knowledge are inseparably linked with the need to participate in comprehensive teams since the problems of social practice are usually multi-disciplinary. That is why the question about philosophers' teams and of their ability to participate in a collective project is raised in a new way with regard to their former individualistic attitude.

## **6. Ideologization and De-ideologization as Mechanisms of the Social Function of Philosophy and its Interrelation with Practice**

When comparing two types of individuals in science, calling them academic specialists or professors and "political entrepreneurs" - a distinction also valid for philosophy - Paul Krugman formulates a specific dilemma.<sup>3</sup> The former deals with academic science and rarely appears in mass media. They use a specialised

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<sup>3</sup> Krugman, P. Street Vendors' wellbeing. Economic reason and madness in the time of dying hope. Sofia, Damyan Yakov, 1999, p. 21 -23 (In Bulgarian).

language and are well aware of the complexity of problems studied by them; therefore they are extremely cautious in their public evaluations and analyses. They are unable to meet the demands of politicians, to tell them what politicians want to hear, opposing other politicians. The latter are what Krugman calls "political entrepreneurs" who write and speak only for the broad public, who are media's favorites and deal with shaping attitudes and interpretations in the mass consciousness, but not with proper science. This differentiation is no less typical for Bulgaria either. "A professor writes mainly for other professors. If he is to write for a broader reader's audience, no matter how well and clearly he writes, he will always have in mind his colleagues' reaction which will prevent him from saying things that sound well, but which he and they know are untrue. And no matter how simply they sound, his words usually screen notions which the broad public cannot understand.

Political entrepreneurs, however, write and talk to the broad public alone. As a result, their writing does not suffer from professor's inhibitions. They offer unambiguous diagnoses even where professors are uncertain; they offer easy answers even where professors doubt that an easy answer can be found."<sup>4</sup> The problem is how to transform real science into an applied knowledge without impairing its scientific character, and not to reproduce the relationship between a scientist and an ideologue. Many prominent philosophers owe their popularity to the fact that their philosophical ideas were exposed in a popular way or by means of culture and literature, as is the case with Jean Paul Sartre; or through the philosophers' active attitude towards urgent problems, as is the case with Raymond Aron, Noam Chomsky and Jean Paul Sartre again, who were newspaper columnists. In all probability, Marx too would have never become so popular had not most of his works been written for the daily press. All this is the cause of constant tension between philosophy and ideology. Becoming closer to practice, philosophy turns into an ideological weapon, is deformed and can deteriorate. But this is the eternal drama of the clash between the theoretical and practical aspect of philosophical knowledge. The dialectics of the practical implementation of philosophy is such that in this process it becomes ideology and the restoration of its academic dignity and respectability demands a continuous critical overcoming of the existing ideology in which philosophy is transformed over and over again.

The drama of the relationship between philosophy and ideology as a key characteristics of the relationship between philosophy and practice suggests a continuous criticism of the positivist, neutralist ideology of expert knowledge and experts, which was particularly valid in Bulgaria in the 1990s, when various figures stated that they were "neutral" politologists, sociologists and economists sharing their expert knowledge equally with all, or, take it from some world experience. Both the "neutrality" of experts and the attempts to impose universal models and solutions to problems in the country are but a blatant form of destructive ideologization that likewise needs the continuous critical control of philosophy. In this way, the main practical function of philosophy becomes the criticism of ideologems since philosophical premises are behind each ideologem. Thus the most essential practical function of philosophy can be the continuous overcoming of its current ideological

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<sup>4</sup> Ibid., pp.27-28.

nature. Philosophy is becoming a social practice passing through the ideological and returning to its theoretical virginity, refuting the ideological reasoning.

However, the issue about the relation between ideology and social practice is not an issue of philosophy only, but of the entire social cognition. Trying to solve practical problems of society, the social sciences offer experts that recommend certain policy. This is invariably accompanied by ideological prerequisites, goals and values that permeate expert knowledge. Here too, philosophy's leading practical function is the critical attitude towards ideologization in the process of practical use of the entire social knowledge in general. So, the process of deideologization and ideologization is the key sphere of social functioning and the practical significance of philosophy, by which it constantly runs away from itself and returns to itself. And since times of transition are the most intensive periods of deideologization and ideologization in society (even in poor society), more than ever before it would need the institutes of philosophy and philosophers. This is important in order to rapidly overcome every next ideologem. And the quick overcoming of every next ideologem is of key importance for the social effectiveness of every activity and the accelerated development of society as a whole.

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# **SOCIAL-PSYCHOLOGICAL KNOWLEDGE AND DEVELOPMENT OF NEW CONCEPTIONS AND BEHAVIOUR MODELS**

***Assoc. Prof. Dr. Yolanda Zografova  
Institute of Psychology at Bulgarian Academy of Sciences***

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*„Knowledge is such a value,  
that it isn't worth searching for it at a fortuitous source”  
Thomas Aquinas*

Knowledge about phenomena, mechanics and processes of social interactions, of individual and collective behaviour, individual and collective conceptions, dispositions, group dynamics and leadership, phenomena of the aggressive or the pro-social in thinking and behaviour, etc., is one of the most vital and dramatically developed areas in social science, especially in the 20<sup>th</sup> century.

Historically, social psychology is connected with significant discoveries in the knowledge about the human being, by scientists like George Herbert Mead – the founder of symbolic interactionism – or Sigmund Freud – the father of psychoanalysis, but there are other associations connected with the specifics of this knowledge. First, social psychology from the very beginning puts the emphasis on the personality of the individual subject, that is to say that relatively early it starts to pay less attention to mass phenomena, the nature of the crowd, the nature of communities, etc. This fact reflects the natural dynamics of the social process and paradigms. In the age of individualism, although for some authors like Le Bon the age of the crowds is coming, that does not contradict to individualism, but on the contrary, it accentuate and revitalize it. Symbolic interactionism at such an early stage of the development of social psychological knowledge anticipates almost all of the subsequent and much later tendencies in modern knowledge – the development of cognitive psychology, the broad presence of the socio-cognitive method in the last two or three decades. The main ideas of interactionism on the process of social interaction through one's symbolic encirclement are not just heuristic methods of modern knowledge, but also reflect on the social practice, on one's social experience throughout the whole 20<sup>th</sup> century, and in the beginning of the new 21<sup>st</sup> century. I am saying these things because I want to emphasize on the continuity in social psychological knowledge, which secures its validity regarding its reflectivity on modern dispositions, behaviour characteristics and different social psychological phenomena, as well as its regulatory

functions in the acceptance and spreading of the achieved knowledge and its impact on social behaviour, social orientation, modern personality manifestations and also on modern groups and communities. For instance, one of the many problems that constantly draws researchers' attention concerns the activities of a personality in the dynamically changing social, economical and psychological circumstances, situations, which in turn inevitably affect the acquisition, formation and passing-on of new knowledge that functions as a regulatory mechanism for those activities and for behaviour. New knowledge does not just mean new facts in the same way that information is transmitted by the mass media – I'm not talking about the fact that the modern man is well-informed, but rather about the everyday formation of new social and social psychological knowledge in the process of social interactions, which run on different levels with different intensity and different levels of richness in content. And although the realms of phenomenology on one hand and of scientific knowledge on the other are very specific, no matter how uneven parallel knowledge is conceived and develops in the different scientific fields, it always reflects, and social psychology makes no exception, not only the habitual, but also the innovations, not only the tradition and stereotypes, but also the new trends in different cultures and subcultures. One particularly expressive dialectic mixture demonstrates the symbiosis of cognitive elements and the development of communications and associations at respective stages of the development of a culture as a "civilization". According to Elliott "behaviour is as capable of having influence on the personal views, as are personal views capable of having influence on behaviour". And to paraphrase his thought, social reality is as capable of influencing knowledge, as is knowledge capable of influencing the social practice. Even a cursory glance at the historic development of social psychological knowledge shows that even though at the beginning the emphasis is on the motivational phenomena, the individual or collective unconscious psychic content, the instincts to hate or love, or to kill one's own kind, which according to Freud is a immutable, inherited burden of the human being and human history, later, with the imposing of the behaviouristic conception, the interest of the experimenters shifts to the exact opposite – the direct mechanical reaction to every interesting incentive in the environment. Without giving unnecessary details about other directions in the social psychological knowledge, I'll just notice that it usually reflects the social psyche and social behaviour in a so to say "skin-deep" way.

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The increasing dynamics of the social processes with the integrativity that is taking place in modern Europe, the arising of conflicts and collisions caused by problems with identity, cultural separatism, pluralism and religious fanaticism, acceptance of diversity, but at the same time capsulation of fear of cultural assimilation and loss of identity – all those processes create new knowledge, which in turn spontaneously create the social concepts for what awaits the person, the group or the nation. But such spontaneity and lack of preparedness for the particular situations and challenges doesn't result in passiveness – on the contrary, the social psyche and individual behaviour, which abhors vacuum, find in the immediate social experience ways for avoiding the already compromised social norms and the ill-defined new values. With their identification capability and historical social experience, the individual, the group, the community, the ethnic group etc. can find ways to secure at least a temporary program for behaviour decisions for current personal, economical and social

problems. And the normal consequence is an expansion of the increased activity, which may turn into aggression, spreading of behaviour styles, which are destructive for society, but prove to be instrumentally beneficial for the individual or for the group. As a matter of fact, quite often innovativeness is originally qualified as deviant, destructive and opposing the status quo, the norms, the standards, the established values. And indeed innovativeness subverts the approved rules, cultural habits and rituals and rearranges stereotypes. Most of the well - known names in science – Socrates, Copernicus, Einstein, Freud – are associated with discoveries that have rearranged the cognitive layers and values in social psyche. Quite a few prominent scientists had been initially regarded as deviants, ignoring the approved, the routine, the established, but later, thanks to their personal style of autonomy, consistency, and self-sacrifice, they have succeeded in imposing their concepts and ideas and have changed not only the thinking, but also the way of life of humanity, as well as the individual. Strongly heuristic are the studies of the French social psychologist Serge Moscovici, who proved with his theory of social representations and thanks to a sequence of experiments on behaviour styles that the later are the most important factor in establishing of new ideas, knowledge and cultural representations by an individual or by minorities in society (Moscovici, 1988). A study on innovation styles and behaviour models as factors for social influence could help the formation of a new perspective in the research on the formation, distribution and acceptance of new knowledge – and not just in the field of social psyche, but in every field of human knowledge and activity.

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Aggression, as a personal disposition and as a behaviour model is a phenomenon usually related to harming other subjects. However, a broader meaning could be realized in the instrumental variety of this behaviour model. The case in point is not the aspect of doing harm, but rather the kind of aggression that is used for achieving different goals, the use of aggression as a way to realize personal, group or community interests, harming as means to achieve other goals - to gather information, to change social status, to achieve recognition, to succeed in a rivalry for difficult to access resources. The continuum of varieties studied by the social psychology includes even activities that have consequences which surpass the everyday life – bombing of objects in another country, so it can be forced into making some concessions, that affects a lot of people and a lot of important, sometimes vital interests, for example.

Contemporary research in social psychology of the aggressiveness is connected with the ever-broader establishment of information-processing approaches and models of aggression. I'll present in brief the information models of aggression to clarify the role of new knowledge on the aggressive behaviour phenomena, which are, in terms of social relations, one of the most difficult to canalize impacts and interaction influences. Such knowledge is particularly necessary in order to control, reduce and prevent aggressiveness in different levels of the social structure, and different degrees of personal, group or collective aggressiveness.

Huesmann, proceeding from his years-long studies, further develops one of the systematically complemented information-processing models for aggressiveness. As a

representative of the socio-cognitive approach he suggests that researchers should not get carried away by extreme conceptual approaches like some cognitivists, who go as far as to deny the importance of social reality. For them, regarding personal views, norms, and behaviour it's only the cognitive field, the personal cognitive sphere that is important. Huesmann on the other hand, despite his personal partialities, observes that social knowledge should not be interpreted as a cause for aggressive behaviour, but rather as a process that connects the objective situation with the cognitive schemes and social behaviour (Huesmann, 1998).

As a matter of fact, because of the needs of the knowledge about social psychological phenomena, some of the most renowned behaviourists have changed their approach in their recent studies, bringing it near to the cognitive approach, and by conducting a series of experiments they have begun to pay serious attention to cognitive processes used by individuals to react to social information in problematic situations. A considerable amount of data has been gathered. Thanks to that data, it's been proved that the anticipated consequences of aggression are the main behaviour motivation (Eron, 1994). According to Bandura, the founder of the theory of social learned aggression and the popular experimental paradigm for moulding aggression, one of the most important factors for children to learn aggression, side by side with the socialization in the family are the media. The media are a strong source for knowledge about aggressive behaviour for the children, but also for the adults. The combined rationalistic-cognitive model of Huesmann and Dodge (Huesmann, 1998) pays special attention to specific cognitive forms such as schemes, scripts and scenarios that are formed by the child's interactions with its environment and the phenomenon of "television violence" and are connected with specific situations, which could evoke those cognitive forms (ibid.) The conceptions on cognitive models – Huesmann's conception, based on the role of scenarios and schemes and Dodge's conception, focused on the processes of perception and attribution (attributive processes), actually study identical functions of human knowledge as a determinant for human behaviour. The development of the information model is based on Bandura's conceptions on the cognitive interpretation of situation factors and events and learning by means of observation and imitation, and also on Berkowitz's conceptions on associative thinking, i.e. the influence that the so-called "aggression stimuli" have by means of learning and associating them with aggressive moods, affections and aggressive behaviour. I'm talking about Berkowitz's experiments in which, in laboratory conditions, stimuli, associated with violence like weapons, guns etc., are presented. The examined participants demonstrate much more aggression when frustrated by the presence of items that are associated with some kind of violence (Berkowitz, 1993). I'm also referring to one of the most famous experimental paradigms of Bandura for moulding aggressive behaviour, in which he proves the role of learned aggression. According to the paradigm moulding of aggression is possible without rewards or expected positive results, i.e. without encouragement. Just by observing physically aggressive reactions to a big plastic dummy - "Bobo", children form lasting concepts and later, in a similar situation they react in the same way they had reacted during the experiment (Bandura, 1973).

In fact, Huesmann presents a complex information-processing model of aggression with detailed stages and relations in the development with emotional states and

activated schemes (ego schemes, normative convictions, schemes of the world and scripts) in respective stimulated situations with different possibilities for interpretation of the stimuli by through attributions and by finding the suitable script in the memory. The script is estimated according to its acceptability and if the scenario is estimated as suitable for solving a particular problem in a social situation, the subject advances to the next stage of the model – realization of particular behaviour. If the script is denounced as irrelevant, it is rejected and the process continues until an adequate to the situation requirements, personal schemes and normative convictions scenario is found. After the completion of a particular cycle, the model could be realized again according to the new information that is meanwhile acquired by the subject. Information processes are not just regulatory mechanisms of human behaviour and factors that help the acquirement of new knowledge and filter concepts, established by previous social experience, but also an important premise for the continuity of the realization of behaviour models. Then new relations between emotional states and the activated schemes are developed. They are in fact the dominant factors and lead to the continuing activation of the model, i.e. they start again the whole process (see Zografova, 2005).

The model, in its common, or, more precisely, incorporated form is based to a large extent on a great number of empirical research, some of which very continuous, carried out for decades by Huesmann and his colleagues. The influence of the media and especially of television violence on the behaviour of the examined children and the manifestation of aggression later in their life – from their 8<sup>th</sup> through their 30<sup>th</sup> year is studied. It turns out that most of the learned knowledge of aggression, especially the knowledge learned through television shows, movies, actions etc. turns into firm ideas about the ways of the individual to cope with different problematic situations and the forms, according to which it acts and reacts in new situations. In fact, the influence of television models of aggression can manifest itself at the time when the models are learned as well as much later, in the distorted form of antisocial behaviour. Such empirical data, as well as facts from studies focused on the specifics of the information-processing model – for example the phenomena of the perception of a stimulus and its interpretation, the reconstruction of a script (scenario), the evaluation and selection of scripts, the perception and interpretation of the community (or group) reaction to individual behaviour – determine the orientation to cognitive structures such as schemes and scripts that are learned, developed and saved in the memory for very long periods of time. The model doesn't look for determinants of aggressiveness only in the area of cognitive mechanisms, but presume a wide range of factors – social environment, past experiences, genetics, neurophysiology, evolutionary forces – that can predispose individuals to process information in a way that stimulates aggression.

Another modern aggressive behaviour model is the General Aggression Model (GAM), based on the conceptual and experimental work of Anderson and Bushmann. The application of the model depends on the actual object of the scientific research – personal processes, isolated episodes, in which the individual participates or processes of evaluation and making decisions. The model has three basic categories – premises, links (channels) and results. (Anderson & Bushmann, 2002) The premises are personal characteristics or specifics like believes, dispositions, values, different goals and scripts (scenarios), which contain knowledge about aggressive behaviour

and the different stimuli, provocations, frustrations, pain and discomfort, drugs etc. are situation factors. The second important category of the model - links or channels - consists of *cognitive factors* – hostile thinking, schemes, *affective factors* – moods, feelings, emotions, and expressive outbursts, and *excitement factors* – excitement caused by different factors. The third category of the model – the results – includes some information processes that differ in control levels – from automatic to almost complete control. Estimation or evaluation of possible consequences like eventual self-realization and success, punishment or sanctions lead to completion of the process of making a decision and to the final action in a particular episode. The consequences of that action determine the next realization of the cycle, becoming one of the determinants for a behaviour model in another social situation or “episode”. It is the actual state of mind of the individual and the stimuli of the environment or the situation that determines what kind of evaluation processes will take place. When the initial evaluation is inadequate, a process of reevaluation begins in search of another, more effective and probably “alternative view on the situation” (Anderson & Bushmann, 2002). Through reevaluation the individual can begin to reconsider a deliberately aggressive act and recover the respective cognitive schemes, related to unpleasant experiences from the past. That way the affective aspects of the activity are added, which makes it look more emotional.

It's obvious that despite the dominant cognitive component in information models, anger, affection and emotionality in general also have an instrumental role in information schemes. Further more, the concept that is generally accepted is that the main types of aggression are inclined to follow similar course of the cycle, that is determined in their schemes, and the affect has a considerable influence on the manifestation of emotional or reactive aggression, as well as instrumental or proactive aggression. An important conclusion can be made – different manifestations of aggression, similar emotional and cognitive processes regulate different kinds of aggressive behaviour. But such a conclusion inevitably raises a lot of questions and possible criticism about the information models of aggressive behaviour. For example, how could such different types of aggression like the hostile aggression out of anger and the instrumental, proactive aggression could be studied at the same time. Indeed the direction, the results (mainly in the form of some harm done – mental, physical or symbolic) and sometimes even the motivations and interests can be similar for those two basic types of aggression, but there is an important and not well enough studied (or at least not systematically studied) area, that includes the number of mechanisms “responsible” for the occurrence, the regulation and the results of different kinds of aggression (Bandura et al. 1996). When the subject is dependent on emotions, animosity, will to revenge, rancour etc. those mechanisms are largely based on impulsiveness while in the instrumental type of aggression utility, interests, ambitions, long-term goals, rivalry for better social positions etc. are the main determinants and regulators.

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The instrumental type of aggression is based to a large extent on rational processes and decisions – they can be deeply wrong and inadequate to a degree of asociality in respect of the social relations towards and activity that violates the social and cultural norms and rules of communication. But from a subjective personal/group point of view

those processes and decisions can also be a form of an unsuccessful strategy for coping with a problematic situation. A real life example: a competition for a prestigious post is announced. Two colleagues, who know each other well and have similar professional achievements, ambitions and aspirations for the prestigious position apply. Different scenarios are possible, but it's very probable that one, or both of the applicants could decide to use some form of instrumental aggression and violate the rules of the competition to gain more support or so to say "protection", or use some kind of compromising information about the other, that is not related to the qualities, required for the post, and thus compromising the image of the rival. At the end, it's very probable that instead of succeeding, by using instrumental aggression, the applicants will discredit their own position in front of the commission, and will lose the competition because of that, and not because they lack the required qualities. These kinds of action are based on rational choices, on deliberate decisions to cause harm in order to achieve some goal. This purposeful harming of others in order to realize one's own interests and ambitions could be based on long-term planning, behaviour strategy or personal/group action program. So there is an essential missing link in information models – a link that could explain better this type of aggression. Also, the discussed models are not differentiated and do not develop concepts and knowledge about the mechanisms that regulate the aggressiveness of a subject on group, collective or community level, because the emphasis is mainly on the individual level of the manifested behaviour models. But despite all that, for the current level of development of the knowledge, the information-cognitive models of behaviour in social psychology are a reliable instrument of finding ways to regulate behaviour, according to the norms of the social environment, but they also allow the individual to have personal knowledge about that social environment, and to act according to his/her personal emotions and aspirations for innovativeness. Although the models sometimes resemble a computer program, they do reflect the modern strategies of coping with social problems. Despite some flaws in the modern methods of studying the formation of concepts and models, it is clear that the content, the characteristics and the purpose of social information, the information that a person acquire through social representations and the respective knowledge that is formed have a considerable role in the further development of the individual. Thanks to its categorization activity, the human psyche helps the individual in the process of adaptation.

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Social psychological research shows that concepts and knowledge that are acquired in the early years of a person's life can influence him/her for decades to come. Therefore the civil society, public people, important social factors such as family, education, social organizations, political parties and especially the media, by demonstrating particular behaviour styles and particular dispositions, concepts, views and norms, form a negative, or respectively a positive base for the development of a social psyche and culture, that will "express" itself by popularizing those concepts and models not only here and now, but also in the years to come. That means the forming of the style and the cultural norms of whole generations. Indeed data from multiple studies shows some differences between people from different age groups in Bulgaria that are constantly reproduced (Zografova, 2001). The configuration of personal dispositions and behaviour specifics of the youngest people in Bulgaria shows them as the most aggressive, most inclined to tolerating violence in different forms and most

frequently manifesting instrumental aggression. They have also established realistic, utility views on life from an early age. It's obvious that during the last years of the prolonged transition to democracy in Bulgaria, the intergenerational discourse has not been developed to socially acceptable dimensions or has not been developed in the right direction – to help the learning of new adequate to the requirements of the changing society behaviour models. On the contrary, the recently formed concepts and models are mainly instrumental in terms of interests, goals and values. The emphasis in the socialization of the children and youths is put on the ways to achieve social success and material prosperity and not on the values of personal realization and human communication (Zografova, 2001). I must notice that the older generation - the parents of those children and youths - has lived during the difficult and full of frustrations period of transition between socialistic and democratic society and therefore the adaptation strategies of the individual could not include all the needed mechanisms for reaction and for social behaviour in unforeseeable situations – the “know-how” in the social psychological sphere that can help the individual to meet the requirements of a dynamic, though uneven in terms of its integration processes society, is missing. Due to a complex of similar factors, young people are under the influence of random impacts – fortuitous communications on the streets, media suggestion, excessive surfing in the Internet. The increasing individual and collective aggression can also be explained by the social fact that the new circumstances of increasing competition in the country require more active behaviour. Young people can easily adapt to the changes and are ready to invent new strategies, to acquire new skills for active domination in social interactions, to strive for their realization and prosperity, which is relevant to the new challenges, as long as it doesn't turn into an antithesis of itself and the willingness to adapt doesn't result in violation of the social rules and norms.

The modern development of society requires a civil society, which can secure the formation of personalities that are capable of positive identification and are loyal to the values of their culture and nation, but also open-minded for the values of other cultures and nations. But a developed civil consciousness can be formed only by means of constructing respective cognitive schemes, through knowledge of civil rights and duties and acceptance of social norms and standards. I could say that despite all the difficulties and the distortions in the democratic process in Bulgaria, there is however a developing democratic thinking and knowledge of the civil rights.

On the other hand, acceptance or rejection of civil rights are still expressed more often on an abstract level and do not correspond completely to concrete social situations and behaviour and that could confuse the understanding of civil rights and create an ambiguous attitude towards the realization of those rights in civil behaviour. Similar ambiguous attitude towards personal realization that favours aggressiveness and the substitution of the legitimate standards and norms with new private norms, that are only valid for a particular group or community, is present in all civilized societies. And that is why the social structure of society contains mechanisms for both control and regulation, which further the connection between the realization of the general and sometimes abstract principles and their concrete realizations in concrete cases. Such processes in a recent democratic society are still in a phase of development to a higher degree of their own regulators.

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In a post-modern society when the information databases are ever growing, the means of communication are with ever growing capabilities for shortening the distance between the communicating sides, but also they are with the unavoidable mark that is set upon them by the postmodernism itself – for uncertain and undetermined communicative connections because of the more complicated meanings and symbolism in literal meaning as well as in metacommunication relations. The social psychological cognition is facing great challenges because of the multiculturalism which is typical for more and more diverse societies and peoples as well as for the negative tendencies developing in parallel – the possibility for the multiple kinds of destructivity to grow in a direction with more gruesome and massive consequences, a phenomenon of this kind is for example terrorism. The researchers are once again in the role of innovators in regard to this dark phenomenon, which is not fully analyzed and not fully studied neither as a general occurrence nor as a carrier and subject of this kind of anti-human and future-threatening phenomenon. There is also the need for more research in the analysis with cross-cultural profile and international parallel regarding the widespread presentations of violence as well as regarding the aggressive models of behaviour. Such a research and analysis might lead to the establishment of more and more secure socio psychic bridges for integration and overcoming of the considerable difficulties in the process of globalization in the modern world.

I think that a difficult to accomplish but strong way to exercise influence on the social behaviour is to know, develop and change the social representations of violence – these representations that according to Moskovici are being spread continuously through the mass communication networks and through social opinion and influence and model our thinking and behaviour in a reverse way – a part of these collective representations are also the laws, the social norms, the cultural rules etc. In the role and also the goals of the social psychological cognition as a part of a family of social sciences is to analyze and extract from its sporadic state the knowledge, which gives back the form of concrete programs for new models of thinking and behaviour.

In a world seeking its unification through the integration of more and more of its own species and through globalization which affects everything from the daily way of life and activity of the modern man to the models of the world the new knowledge of other cultures, peoples, nations, will be ever increasing in value. In fact in most of its part it is not something really new because it has been and it is “out there” or “around us” but we do not know about “them” the way they know for “us”. Maybe the most important feature of society in the process of globalization is in the common multinational discourse in the direction of knowledge exchange, social values orientations, stereotypes and skills for problem solving. Pluralistic societies cannot progress outside the tolerance limit between the different and this diversity is what keeps the confidence that the world “will continue” even further in the future.

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## CONTEMPORARY INFORMATION SPHERE IN THE LIGHT OF KNOWLEDGE-BASED ECONOMY

*Prof. Dr. Nadezhda Nikolova  
South-West University "Neofit Rilski", Bulgaria*

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For more than a decade new trends have developed in economics – the knowledge-based economy or economics based on knowledge, in which a decisive role is played by knowledge (classified as implicit and codified), and the production of knowledge is a source of economic growth. Eminent researchers from different countries propose theoretical views, hypotheses, solutions and recommendations regarding the result of utilization of knowledge as a component of economic growth and to what extent knowledge determines the higher level of economic development and the quality of life.

At the same time, the fact is not articulated amongst economists that economic and social phenomena and processes are complicated by their nature due to belonging to the most advanced motion of the substance - the social one. This fact remains aside from researchers' attention in the separate economic sciences and educational disciplines. This circumstance is important not only in theoretical and methodological aspect but also is in relation to information processes' rationalization and in this way to broadening the empiric base for diagnostics. It is hard to master this function probably because of the understanding of the neo-classical economic theory, which considers the labour and capital to be fundamental reproductive factors. The development of factors' theory regarding economic growth reveals a necessity to include the economic system and knowledge in the growth models. This requires significant resources in society. According to the Lisbon Strategy that was accepted by the European Commission in 2000 and updated in 2005, maintaining a sustainable development in the European countries is impossible without knowledge-based economy. In this sense, the paradigm of the role of knowledge-based economy and knowledge management is going to have positive impact for attaining of synergy effect on the levels of management.

Information appears to be a common and inevitable period in the development of the human civilization, also in realizing the unity of rules on information functioning both in nature and society; its practical application in creating an industry for production and processing of information. It is obvious, that the contemporary systems for transfer and processing of information form an original "nervous system" of the human society,

similar to a living organism. Thus human society becomes incredibly flexible and capable to develop.

The philosophic and specifically scientific rationalizing of the information's role in the natural and social processes has appeared basically in the last decades.

At the same time, it is it has been dealt with and debated on the background of sudden and fundamental changes in economy and the economic science. According to Alvin Toffler, the "first" and the "second" transition waves have been evolutionary. The transition from industrial society to society in which information technologies are become more determining is the "third" wave (Alvin Toffler, 1991). In the beginning of the 80-ties the term "informatisation" has appeared in scientific and technical dictionaries. It has been used as a synonym for cybernetisation, computerisation and electronisation.

Actually, the informatisation is a complex of instruments aimed at the full utilization of reliable, comprehensive and timely knowledge in all significant human activities. Information, e.g. the aggregate of knowledge about the factual data and interdependence among its elements becomes a strategic resource (Minchev, 2005) of society and in aspects of its successful development.

Knowledge in its different forms has always been a factor for the economic and social development. Nowadays, this is defined as the scientific trend of knowledge-based economy. At the same, time it should be acknowledged that a change in the paradigm is needed in order to research the intellectual component's influence on economic growth. In this respect, the econometric studies not only have their place in the knowledge system, but also have to be a source of high-quality information for the needs of administrative institutions - first at a national level, and moreover, at a regional level. The information derived from scientific researches is a resource of great variety of opportunities for the administrative institutions, allowing deeper access to the root of complicated economic issues, and representing an objective precondition for adequate evaluation of administrative decisions.

The role of empirics in economics is still underestimated. It is not only necessary to amass the empirics of current state policy, but also to make a thorough analysis. The empiric is also needed to establish and enrich the methodology. The quantitative characteristics obtained as derivative information provide economists with an accurate assessment tool. Especially the use of quantitative methods in the economic sphere is an original tool for experimentation in this system.

Contemporary economy has a need for both economists of different profile, and higher integral type of specialists, whom I would define as **economologists** (Nikolova, 2002). The **economologist**, being an integral type of specialist in the economic sphere, is distinguished for his knowledge and abilities not only to analyze and interpret, but also to reveal the new tendencies and norms. **The economist should not be an economist taking routine actions or a managing specialist occupied with administrative functions.** The **economologist** equipped with powerful and contemporary knowledge instrumentation (including computer skills and linguistics)

has the necessary statistical education as well (Nikolova, 2006). This makes him capable of transferring the accumulated knowledge in taking managing decisions. Economist's intellectual status has influence over the knowledge transfer. His integral awareness helps to apply the intellectual product in management.

In the economic area it is vital to achieve unity between the qualitative and quantitative analysis. By the qualitative analysis the wording is enriched in its substance thus revealing the norms and their profound interpretation.

At the same time the economic development of the country requires both permanent economic comments, analytic reviews and analyses, and elaboration of realistic evaluation criteria for the possibilities and perspective of particular economic sectors in national and regional aspect. Economists and particularly economists are going to need information resources for such a complicated task. Moreover, those resources should contain structured information allowing deduction of summary, laying down of ruling decisions and revealing a new data.

It is very important for knowledge in every particular economic field (branch, sector, area, municipal community etc.) to be founded on the common economic theory and be brought to literate economic way of thinking. According to Paul Samuelson, **economics should be studied systematically**, and those who fail to do so are going to face serious difficulties with real economy.

Nowadays, the high-technology information resource is a precondition for improving and interpreting the economic knowledge (obtained with the relevant program support for data processing and by using quantitative methods). It also helps achieve synergy in the interaction between knowledge and economic results.

Knowledge-based economy suggests a thinking that is one step ahead. In the area of knowledge this is not only important, but simply necessary for our participation as partners in the European Union and for taking advantage of the huge opportunities in the common European economic area.

With mankind entering the information era in the 21<sup>st</sup> century, what should be outlined is not merely the production of technical means of preserving, processing and transferring of information, but the knowledge and education market, as well as the scientific production of knowledge (Sendov, 1999). Therefore, the awareness should occupy a key position in knowledge-based economy.

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# PROBLEMS OF GENERATING AND DIFFUSING KNOWLEDGE IN DEMOGRAPHY IN THE EDUCATIONAL SYSTEM IN BULGARIA TODAY

*Assoc. Prof., D.Sc. Marta Sugareva  
Vassil Kovatchev  
Kamellia Lillova  
Center for Population Studies at BAS  
Ivan Garnizov  
Laboratory of Telematics at BAS*

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## 1. Introduction

The state of education and culture of our population on demographic topics does not correspond to the general level of social development, and to the social demand for demographic information. Even among teachers and professors who should develop this discipline and teach it to the young students there is a deficit of professionalism. On one hand, the demographic topic is very often discussed in the medias, in various publications, in political discourse; it is present in the argumentation of politicians, in various economic projects and document. On the other hand, the education system and the publications at present do not cover the necessary minimum of knowledge, required by professional European criteria. Even academic publications sometimes suffer a lack of professional competence, which can be explained by several groups of reasons, including the complexity of the demographic problems themselves, and the necessity to use several scientific approaches in order to understand them.

High school teachers, who have the vocation and obligation of providing knowledge to the young generation, are facing difficulties in teaching these topics, because the present curriculum is not adapted to their needs for demographic information and teaching methodology. The existing statistical data on the population (provided by the official statistics) do not have any easy interpretation; their teaching requires a specific theoretical framework, and specialized ready-made analytical forms (demographic methods, and a system of basic indicators), not existing in our country. As for the theoretical approaches, the lack of publications is most often substituted, by heavily ideologically oriented explanations of demographic facts, for suitable for certain more or less obvious political purposes.

The statistical data on population dynamics cannot provide sufficient explanation to the public, and to the school teachers, of the regularities, and the trends, in the so much live and topical problems, such as: the ethnic composition of the population; the trends and the prospects of fertility, mortality and migrations; the international context of demography, etc. Even more complex problems, that may be discussed in school, such as the impact of demography on violence, crime, the problems of the family, the rights and duties of each member of a society with respect to his (her) age and family status, and many others, require a solid demographic culture and access to relevant information in the field.

The so-called “aging” of the nation is a typical example of an acute social problem with direct demographic implications. Its correct explanation requires a certain level of statistical knowledge on one side, and on the other – a specific demographic culture concerning the relations of this phenomenon to emigration, low fertility, to postponement of marriage, etc. The ethnic and economic perspectives of these problems add to the complexity of their explanation, and make their presentation to young people even more difficult and demanding.

We shall discuss here some of the most acute problems demography is experiencing today in our country, which should be overcome, so that the academic community may provide the necessary framework for such teaching. We shall discuss briefly the state and perspectives of teaching demography in the secondary school and in university. We shall use as milestones the recommendations of the European Association for Population Studies (EAPS), as well as the state of the discipline in the educational system of more developed European countries.

We believe that the proposed framework for teaching demography at school, very much computerized, as we see it, may provide the best ground for fruitful action in direction of integrating research and education in our country, to the best for both sides.

There is no doubt that such a professional stream of activity will be useful to our national governing bodies, ministries, Parliament, local authorities, and the population itself.

Finally, the implementation of a high quality knowledge in high schools and in universities will certainly contribute to the process of finding some good solutions to the demographic problems of the country. We believe that half of the way to the solution of any problem is achieved when a proper formulation of that problem is provided.

## **2. What is a demography? Its Place in the High School Curriculum**

In our country the word “demography” often provokes vagueness and ambiguity, instead of a system of scientific notions, figures and theories. The most widespread association is with ethnic problems and conflicts.

Demography represents the study of human population in connection with its reproduction under the influence of childbirths, deaths and migration movements. This includes the entire status of the population, different processes, reflecting directly on it and the relative connections between the status and the development of the population (R. Pressat, 2006).

### **What demographic material is taught in Bulgarian school today?**

In the curricula of various disciplines – geography, history, biology – certain elements of demographic knowledge are included at present. Therefore this knowledge is presented in a non-systematic way, often superficially, and its role is to complete the respective geographical, historical, etc. knowledge, instead of providing knowledge in demography.

In the first school years certain notions and ideas about population development are included. In the subject “*Man and society*” (IV<sup>th</sup> grade) human society is studied, the differentiation of people is discussed; the role of history and religions for the cultural differences, and the intercultural interactions are explained.

Further on in the next stage of education (V<sup>th</sup> grade) an integral subject is introduced – “*Geography and economy*”. Even its name presupposes a focus on the economic activities of people, leaving behind sociological and psychological aspect. The “interaction between nature and society” is the main stream of thinking that is followed there. Demographic knowledge is only present in graphical representations.

In another subject, “*Biology and health education*”, the focuses are on the unity and diversity of organisms. In this subject information is given on the structure and the functions of human body, the healthy way of life, including nature preserving behavior.

In the subject “*History and civilizations*” the concept is to prepare the young people for active participation in civil society in the conditions of cultural diversity and globalization.

Demographic data presented here are limited to the number of migrations of the population, various contacts of Bulgarians with other nations.

At the last stage of school education the role of social sciences is increasing, more abstract notions are introduced, and the study of man as an element of society is intensified. Geo-demography is being explained clearly as a manifestation of demographic processes and peculiarities. The main demographic factors are described, in Bulgaria and in the world, crude rates are analyzed in various regions and countries. Ethnic and religious diversity are explained as prerequisites for global processes and trends in the contemporary world.

Thus a first image of the basic demographic elements and trends is provided, connected to fertility, marriage, and family relations. Though this image is insufficient, compared to the needs of young people in our society. No theoretical framework is given to them, and the analysis of the data follows some very general ideas, without

any profound interpretation and discussion of demographic and family behavior in the contemporary society.

In biological aspect more concrete information is provided about the recent trends, and special attention is given to genetic, anatomic and physiological determinants.

A wide gap can be seen in the demographic knowledge concerning the psychological and sociological aspects of the study of population. The subject "psychology" gives only theoretical notions and the historical development, without explaining the behavioral characteristics of demographic indicators and population trends in the total population or in its main groups.

The term "*demography*" is included in some subject programs taught in high school, mainly in *Geography and economics* (School Programs, Ministry of Education and Science, 2000). There are two typically demographic units included:

Unit 1: Basic Types of the Reproduction of Population

Unit 2: Migration of Population

In the first unit the expected results are: *revealing the connection between types of reproduction and geographic, economic and cultural-psychological factors; tracing the types of reproduction on the map; explaining the determinants of some processes of migration; formulating conclusions about the demographic situation in some particular regions and countries.*

In the second unit the expected results are similar: *learning the development of migrations; explanation of the determinants for the migration processes; tracing the processes on the map; giving explanations for the role of demographic policies in solving problems of migration.*

In addition, the problem of the so-called "*demographic policy*" is emerging at the first level of teaching the subject "*Geography of population and settlements*"; at this stage the students are not able to understand these problems, because they are not acquainted with the empirical facts, and with the theories of population. The following units are present in the curriculum at that stage:

Unit 1: *World Population*

Unit 2: *Demographic Problems and Demographic Policy*

Unit 3: *Demographic World Differences*

Some of the expected results in unit 1 are stated in the following manner: *to learn the basic principles characterizing the population dynamics, and to explain the territorial differences existing between them; differentiating the various types of population structures and revealing their connection with the population dynamics; analyzing the graphical materials, presenting sex-age structure of the population; revealing the*

*connection between demographic principles and social-economic development; commenting the tendencies and dynamics of the demographic indices in the different countries and formulating conclusions.*

The way, by which the material on demography is set in these programs, leads us to the following findings:

1. There is insufficient adaptation of the material to the ability of absorbing it by the students. The presented material comprises empirical information, without any relevant analysis; it can not fit properly in the frames of a particular subject. It should be clear that even the explanation and the teaching of the most basic principles and trends characterizing the population dynamics requires special qualification in demography that our teachers do not have at present. The very term “*population dynamics*” in its everyday use is far from its meaning in demography (population reproduction, as the result of natural movement, and migrations).
2. Teaching demographic material in schools is usually performed in a fragmentary way (giving too much focus on migration and too little to fertility and mortality), and at an elementary level. This does not lead to fulfillment of the expected results.
3. Introducing some very specialized terms such as “*structure of population*”, “*demographic policy*”, etc., in this context, is obviously quite bewildering for both student and teachers.

Even if a teacher decides to get acquainted with the demographic problems of the country by reading the *National strategy for demographic development of Republic of Bulgaria* (2006-2020), he (she) will certainly encounter difficulties understanding its meaning. Thus, for example in section 2, part II of the strategy it is stated that “*the main goal of the strategy for demographic development for the period 2006-2020 is to slow down the rate of decrease of the number of population with a tendency of its stabilization in the long run and to provide high quality of the human capital, comprising people with their health status, education, and skills*” (p. 42). Furthermore the “**realistic**” target of demographic policy up to 2020 is stated as: *slowing down the decrease of the number of population by a purposeful influence on the processes of natural movement (fertility, mortality, migration), achieving simultaneously an optimal balance of the population. It is argued that optimizing the balance of population means to establish such proportions by age, education, health status and sex, which should lead to sustainable uprising of the quality of people’s life. Under this paradigm the three determinants of the population size and its age structure, namely fertility, mortality and migration, continue to be seen as key-standing, but education and health are added to them as well* (p. 43).

A normal reader (teacher) would hardly understand the essence of these texts. The “target” seems quite general, there is no scientific argumentation for it; the analysis, on which it is based, is quite far from any rational approach. The main focus of the strategy is on the negative natural increase, the decrease of fertility, etc., but very little attention is given to the mass emigration, which in reality is the most important factor

determining the demographic processes in our country during the past 20 years (see section 3 (*Demographic policy*) and section 4 (*Main challenges for demographic policy*) of Part I, pp. 29-36).

In section (3) of Part II, p. 43, the following *priorities* are enumerated:

- *delaying the negative demographic processes and the decrease in the number of population;*
- *overcoming negative consequences from population aging, and improvement of the qualitative characteristics of human capital;*
- *achieving social cohesion and creating equal opportunities for full-of-value reproductive life for all social groups;*
- *limiting the disproportions in the territorial distribution of the population, and limiting depopulation in some regions and in the villages.*

The question concerning what processes are the “negative demographic processes” is left as an enigma, unclear and undefined; the interpretation of this complex topic, the assessment of demographic trends from the point of view of various ideologies, is left to the reader (in this case, the teacher) himself. Accumulating foreign language terms, indistinctiveness and verbosity – these are useful neither to the teachers nor to the students.

The statement that “*our country is not an exception from all the other countries in Western and Central Europe ... in terms of fertility and mortality, as well as in terms of the process of “population aging”*” (p.15), is **not correct**. The age structure of the population of Bulgaria, displayed on the cited fig. 1.4, does not provide any argumentation for this statement, though it is cited as such. No comparison with other countries is provided in a statistically relevant way.

As a matter of fact our country **does represent** a quite exceptional demographic development, compared to the countries of Western Europe. Population aging here is much more advanced, and the whole demographic development, including the recent trends of fertility and mortality, is very specific, typical for post-communist Eastern Europe.

There are many other examples in this official document, confirming the **deficit of professional competence in demography** in our country at the level of the available information and publications.

Concerning our topic – the creation and the diffusion of demographic knowledge in the system of education – we can conclude the following. What is needed is the creation of a much clearer and definite frame where the demographic information should be set in such a way, so that both teachers and students will have solid foundation for useful contacts in the discipline.

A similar frame of demography has to be searched for in the university education, first by means of publishing some basic books on demography written by Bulgarian and foreign authors. At this stage translations of some basic books seem to be essential, seen the lack of specialists in our country.

### **3. Prerequisites for the Study of Demography in Secondary School. Possibilities for Integration of Demographic Knowledge into the Education in *Information and Communication Technologies***

The e-Learning is a major task of an integrated Europe, stated in the e-Learning Action Plan of the Commission of European Communities, concerning the prospect of education in the member-countries.<sup>1</sup>

At present our country is implementing a ***National Strategy for the Implementation of Information and Communication Technologies (ICT) in the secondary school***, which is a response to decisions, taken by the European Council (Council of Ministers) in Barcelona in 2002.<sup>2</sup>

This situation is very favorable for the revision and bringing up-to-date of the education in demography. The implementation of ICT is a good first step in the direction of creating correct framework for teaching demography to young people. The demographic knowledge is very suitable for numerical and graphic presentations, and the ICT can very well be demonstrated through demographic data and analysis. Therefore both sides – demography and ITC – may take advantage from each other.

At present some demographic information is being taught in the secondary school, but it is far from the demands of the contemporary society (we shall discuss the curriculum further on in more details). One basic problem in this respect is the low level of access to Internet. Most of the students in secondary schools do not have (regular) access to Internet, they do not have knowledge and access to computers.

The cited above Strategy on ICT stated that in the beginning of 2004 in the schools in Bulgaria the average number of computers per 100 students is 2.1 (this figure is even lower for high-speed computers, and for computers connected to Internet). The respective number in the EU (25 member-countries) is 9.5 computers, and in the newly adhered countries it is 6.

In the Check Republic 80% of all schools have access to Internet, while in our country this figure is only 33% (including by a modem connection). In Hungary 85% of the schools have access to Internet, 25% – to high-speed Internet.

During the years preceeding their adherence to the EU these two countries have rapidly overcome their backwardness in the implementation of ICT in schools. Thus for

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<sup>1</sup> ([http://europa.eu.int/eur-lex/en/com/cnc/2001/com2001\\_0172en01.pdf](http://europa.eu.int/eur-lex/en/com/cnc/2001/com2001_0172en01.pdf)).

<sup>2</sup> This Strategy is published on:

[http://www.minedu.government.bg/opencms/export/sites/mon/left\\_menu/documents/strategies/strategia\\_ikt.pdf](http://www.minedu.government.bg/opencms/export/sites/mon/left_menu/documents/strategies/strategia_ikt.pdf).)

example the number of computers per 100 school students has increased in the Check Republic from 2 in 2001 to 10.2 in 2003.

The lag of Bulgaria is considerable, especially in the elementary schools. The number of computers per 100 in these schools is 0.4, which is the lowest level of computerization among all members and candidate-member countries of the EU. In Romania the respective number is 2.3.

It is stated in the National strategy that one of the goals is “*modernization of the whole system of education and increasing the quality of education in a way that all school students be totally prepared for the modern society of information through achieving computer and informational literacy*”. The achievement of this goal of the strategy, as well as the other targets – developing new teaching standards, developing the capacity of teachers to use computers in the teaching process, etc. – require a rapid implementation of ICT, the introduction of a large number of computers in the schools, education of teachers and pupils, developing software for the teaching, etc. All this work should be undertaken at the central level, as well as at the local levels, and it should include the teaching of demography, a discipline, in which figures are naturally linked to real subjects of observation, and are suitable for electronic representations.

Learning in the secondary school of all subjects will benefit from new and much better conditions of teaching after the implementation of ICT.

Since 2006 a “**National Program for the development of school and pre-school education**” is in operation.<sup>3</sup>

It is stated in this program that “*education in **information technology** should start as early as primary school and that “the curricula should strengthen the language education and the computer education*”. As far as the introduction of “information and communication technologies at schools is concerned, we should note that in our country there is a National Strategy for Introducing ICT in Bulgarian schools, accepted with a decision act by the XXXIX National Assembly. Concerning the implementation of ITC in the schools and universities, the National program (cited above) states that “*until the end of 2007 every Bulgarian school should be equipped with free access to a high-speed Internet.*” Some technical and economic conditions necessary for accomplishing this goal are also noted. It is, however, not marked what is the probability to fulfill these conditions until the deadline for supplying Internet in Bulgarian schools. Up to this moment (the end of 2005) even not all universities have such free access, long ago existing in the European Union.

Other goals, stated in the same program, are *the creation of a National Educational Portal, the development of electronic curricula, and the implementation of multimedia in every Bulgarian school*. Some opportunities and advantages in using such a portal in the educational process are shown, including the process of communication between teachers on the one hand and students and their parents on the other.

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<sup>3</sup> ([http://www.minedu.government.bg/opencms/export/sites/mon/documents/programa\\_obrazovanie.pdf](http://www.minedu.government.bg/opencms/export/sites/mon/documents/programa_obrazovanie.pdf)).

It is obvious that every purpose is secondary in setting computers, room and qualified persons, charged to maintain computer rooms and Internet connection, to teach teachers and students, as well as their parents. The elaboration of an electronic student course at the moment is behind the average-qualified teacher's strength, making impossible the elaboration of multimedia educational programs. In addition, the National Educational portal, which should have started functioning from the beginning of 2006-2007 school year, does not exist yet.

These activities obviously require not only financial resources, but also considerable efforts by central and local authorities, teachers, school students, and also by their parents, in order to achieve the stated targets. At present the development of an electronic curriculum is quite beyond the capacities of an average teacher, and even less so is the development of multimedia. Therefore the tendency towards decentralization, expressed in the same document, is not suitable at this stage of implementation of ICT in schools.

The practical work of the software development and its adaptation to the local needs is a quite difficult task that could hardly be possible at the level of each separate community, even region. It will require highly specialized qualification, communication with international centers of education, and its effectiveness will be proportional to the professional skills of its performers.

A more realistic approach should concentrate on the development of such materials at the central level, possibly with the help of foreign partners in EU countries. Further on, special courses should be organized for the teachers and for the pupils, in order to enable them to use these materials (software) in the teaching process.

A constant dialogue between central and local authorities should be maintained in the process of implementation, in order to take into account the regional specificity – demographic, ethnic, etc. But the first step, and the main stream of activities, at least at the first stage, should be realized at the central level.

The creation of specific **software for teaching demography** would require also special expertise on demographic data and methods, in addition to the ICT qualification.

This also could not be preformed correctly at local level, but at central level with the joint efforts of our best specialists.

At present the demographic knowledge in our society is very limited and often biased, something that can be observed in many publications and even in official statements. This fact is in contradiction with the urgent need of society for good, high quality interpretation of the acute problems arising from the contemporary demographic development: the population aging, mass emigration out of the country, low fertility, increasing ethnic differences and conflicts, poverty, new models of the family, etc.

In our country at present the demographic research and specifically teaching in demography in the second level and in university is experiencing difficulties. Various

reasons can be stated linked mainly with the nature of demography as a science (it is multidisciplinary and at the same time specific methodology based on statistics and mathematics).

On the other hand, the so called “demographic problem” has received much attention in the last years, especially after the beginning of the demographic changes in last years, when emigration increased substantially. Opening the borders enabled many young people to seek better education and better standard in more developed European countries and on the other continents. These processes influenced age structure of the population and main demographic trends of fertility and mortality. At the same time the economic crises force an important part of young people to abstain from marriage and childbearing and this contributed to further fertility decrease. These processes acquired different forms in the ethnic groups and thus the ethnic structure of the country, the regions and settlements was modified.

The mentioned problems of the society affected profoundly the system of education. Essential mechanisms linked to long term social changes, specifically demographic changes, are situated in this sphere. The lack of (adequate) education in the young generation, so called “dropping” of school, so called “low social status of the teacher” – these are crucial elements of the educational process at the present period and they are also crucial for the society as a whole.

Local authorities are not able to solve these problems, on the contrary – these problems should be stated and solutions should be sought at the central state level. Public discussion on these topics is quite weak and almost not existing at present. The medias, the politicians, the business, the sphere of computer technologies – all these main streams of the social processes apparently do not deal sufficiently with the most important problems of demography. The targets stated in national programs and strategies are seldom long-termed, some are not realistic, some are fragmentary, some lack profundity and professional competence.

In the National strategy for demographic development two groups of tasks and measures, related with education are stated:

- to increase the general educational level;
- to increase the demographic information and sexual culture of the population.

These tasks are obviously consistent but specific social preconditions are needed for their realization, as well as effective measures to be implemented.

On the other hand, the so-called “demographic information” should not be considered at the same level with sexual culture of the population. The demographic information and culture include much wider elements of the general culture and the information students should learn at school. Sexual culture is a part of a personal culture, it is based on the family life, morality and religious believes. It is part also of personal philosophy and the specific manners and customs for different communities. Therefore its public interpretation cannot be uniform.

In contemporary Europe, where our country is associated, problems of sex are discussed (at society level, more specifically in educational system) in different way, compared with the demographic problem. Demographic information is far broader, compared with that of sex and sexual culture.

#### **4. University Education in Demography**

At university level demography is included in the curricula on geography of population (section *Natural Sciences*), sociology (section *Humanitarian Sciences*) and statistics (section *Economic Sciences*). Here again the demographic knowledge is used as explanatory tool in various disciplines and it is not considered as a whole by itself.

In the present paper only a brief overview on the state of the problem of the university education in demography is presented. More detailed analysis of this education in our country and other developed country, revealing the possibilities for improvement the situation, would require a concentration of much more research efforts in seek of practical implementations, which is beyond our capacities and objectives. Our aim at this stage is to provoke the public discourse, in the frame of which new ideas and new means for the improvements of the situation will emerge. No university in Bulgaria teaches demography as a separate specialty. Professional qualification in demography can be acquired by studying other subjects mentioned above and by further specialization, mainly in foreign universities.

For comparative purposes we may indicate that in Charles University in Prague (Czech Republic) a student can achieve qualification in demography at the three of the levels of higher education – Bachelor, Master's and PhD. Over 40 subjects are included in curricula, which lead to the qualification, main are: statistics, introduction to demography, demographic analysis (3 parts), regional demography, applied demography, mathematical demography, demographic projections, etc. Some of the courses are included in the group called "elementary demography" and they are presented in adapted form to students in geography, ecology, social sciences, etc.

In France, where the demographic research is much advanced in the world, the Sorbonne, Paris 1 provides special education in demography and delivers diplomas at various stages of study. After three years of studying students are granted a diploma named "licence" of demography. Then this step leads to another stage – master of demography and PhD level of demography, diploma of general demography. The latter stage includes lectures in demographic analysis, demographic projections, mathematics, statistics, sources and assessments of demographic data, cartography, demographic behavior in the past, history of demographic thought, biology of reproduction and aging, European demographic space – challenges and perspectives, demographic growth, development and environment in the contemporary world, surveys, English.

The University of Groningen is the only Dutch university with a program majors in Demography. The Master's program, offered within the Faculty of Spatial Sciences, takes two years after two introductory years in either one of the spatial, social or

economic sciences. A PhD can be obtained in four years in a joint program of the universities of Amsterdam, Groningen, Utrecht and Brabant with the Netherlands Interdisciplinary Demographic Institute.

In our country today there is still no clear idea in the society about the demography as a science and its significance, neither there is a clear concept how it should be taught in universities.

At the same time in many institutions and businesses a lot of current situations require a qualified evaluation by a demographer – projections, data interpretation, analyzes, etc. These types of situations emerge for example during the planning of various activities, such as healthcare and health security, social security and retirement, the system of education, national defense, foreign policy in the field of migration, etc. Therefore these needs can only be met sporadically, as far as not only demographic research is limited, but also the demand for demographic analyses itself is not well developed (the firms and institutions, which normally need and buy demographic analyses, still cannot appreciate the value and quality of such products).

In the mentioned spheres of social activities certain demographic “product” is particularly necessary: population projections. Such projections are developed sometimes in Bulgaria, but they are not always based on the application of strict scientific methods. Publications of projections should not include only the final results of the calculations (as it is often the case in our country), but also the underlying assumptions and their argumentation. The scientific value of a given projection and its forecasting power is the result of the quality of these assumptions and not so much of the calculation procedures, which are purely technical operations.

### **5. Role of Statistics in Demographic Analysis**

The statistical part of demographic science refers to the study of the qualitative side of population processes. It is well-known that statistics is the study of populations (here the word “population” is used in its statistical sense, meaning a number of uniform units). In this sense demography is a very convenient field for the application of statistical methods. It provides the empirical data and it states the real empirical problems, which can be solved using statistical methods. The application of statistics in demography has led to many improvements of the statistical methodology itself. At various occasions it has contributed to solving theoretical and practical problems of population dynamics. In this sense demography is a large and fruitful field for the practical use of the theory of statistics.

Demographic analysis (and its statistical part) is the methodological base for any demographic research; it is a necessary (but not sufficient) part of research field, labeled as *demography*. The definition of “*demographic analysis*”, given by R. Pressat in his dictionary of demography, notifies the following:

***Demographic analysis:*** A form of statistical analysis, adapted to the study of the human populations.

*The demographic analysis, for the most of it, is based on a modest array of mathematical and statistical techniques to deal with the data produced by censuses, surveys and vital registration systems. ... These data are transformed with algebraic techniques for appealing and widely used and their simplifying assumptions have provided a common set of tools for analysis (After Pressat, 2006).*

Demographic analysis plays a central role in any population research; if properly carried out, it provides illuminating insights into changes in population structure and behavior, pinpointing causal relationship and refining interpretation. Moreover, it is able to call into question the basis of assumptions grounded on apparent common-sense alone.

Thus, the presence of demographic analysis as a necessary stage of research is the main feature of population research.

Second, we should take into consideration that demographic analysis (in the statistical sense), being the main stage of demographic research, has to be undertaken in the context of specific theoretical framework, i.e. in the frame of previously defined assumptions, external with respect to this (qualitative) analysis. The so-called *theoretical basis* of demographic research may be typically demographic, but it can be also sociological, medical, geographic, economic, historical, etc. In all these cases the research becomes interdisciplinary, as far as part of its theoretical assumptions and its methodology have to be drawn from the principles and postulates of the respective science.

## 6. Other Problems of Demography in Bulgaria

One main weakness of demography in Bulgaria today is the insufficient development of its theoretical side. The so-called *theories of population* are not well-known (there is no literature published on them), one of the reasons being the obligatory ideology, imposed on the society during the cold war period. This ideology has influences all social sciences including demography in the direction of using only one theoretical framework, Marxism. Overcoming the one-sidedness in the development of the research and teaching of demography can not be achieved easily and rapidly. In our society there are still too many dogmatic views and incorrect representations of the social processes and their determinants. The community of Bulgarian demographers is still suffering from a lack of international communication and information. Our society still has insufficient knowledge about important theories of population development such as the theory of **demographic transition**, the theory of *demographic cycles*, the so-called *economic theories of fertility*, the *new family models*. Even the theory of *Malthusianism* is not well-known, as there is not even one Bulgarian translation of the famous book of Tomas Malthus "*Essay on the principle of the population*". During the period of totalitarian regime the process of institutionalization of demography in our country has been preformed in that same ideological atmosphere, typical for all the social sciences. Moreover, these difficulties were complicated by the fact that demographic methodology is in itself quite specific and mathematically rooted. In this period the demographic research in our country lagged behind the respective research of Western Europe. Furthermore, the social

image and the social status of the professional demographer was (and still is) very different, compared with countries of Western and Central Europe (including Czech Republic, Hungary and Poland); the lower status of this profession here is related to the status of all intellectuals in society.

All these problems of the history of demography undoubtedly reflect on the present state on demographic research and teaching.

The overcoming of the existing obstacles in the generating and diffusing knowledge in demography should follow **three main directions**. First, in the area of **human resources** – educating and training of qualified persons for research, instruction and university teaching. They are needed for the implementation of contemporary and modern demography knowledge in the scientific research and in the practice. Second comes the development of an adequate system for **teaching the demography in schools**. The young generation needs to learn new and recent theories of demographic processes and events and that should be given to them together with the implementation of the *information and communication technologies* in schools. These modern methods are attractive and sufficiently understandable and interesting for young people in childhood, when their mentality is in a process of formation. Third is the **popularization of demography** in the whole society, which means providing information and a basis for discussions in the society on important demographic topics. The medias may play a leading role in this process by using suitable ways and an adequate level of comprehension. Here again the professional demographers should play a leading role to explain the basic regularities and trends in a comprehensive for the general public manner.

Each one of the mentioned areas endures today objective and subjective difficulties and problems. Among the objective ones we shall recall the complex nature of the demographic science, as well as the fact that this nature allows its development not only as a separate science, but also as a branch of various traditionally established disciplines (statistics, economics, geography, sociology, etc.). Among the subjective ones, the difficulties encountered by the Bulgarian scientific demographic community are linked to the formulating and supporting the stability of its institutional frame in the recent decades.

A fast development of the demography as a separate scientific discipline is indispensable through teaching in universities, stimulating the process of formation of well educated teaching persons, stimulating the publishing of basic manuals and books for students, implementation the demography in schools simultaneously with the implementation of ICT technologies, publishing in the medias of popular research outcomes, etc.

All the activities, mentioned above, may reflect quite positively on the education system and on the society as a whole, because the latter experiences a real and urgent necessity for timely and high quality demographic information.

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**PART V**

**DEMAND FOR SOCIAL**

**SCIENCES AND HUMANITY**



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# INNOVATION AND THE PARADIGM OF WORK AND PERSONAL LIFE

*Prof. Dr. Dragoş Constantin Vasile*  
*Prof. Dr. Radu Emilian*  
*Academy of Economic Studies, Bucharest, Romania*

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## 1. Introduction

Contemporary organizations are facing increased social and economic change, and increased competition. Technological developments are also occurring very rapidly. Continuous renewal and adaptation are required to stay in business. Bolwijn and Kumpe (1990) describe four patterns of the competition among companies in the developed economies. Starting in 1990s, organizations compete under the pressure of innovativeness, creativity and innovation in products, services, systems, and work processes being recognized as a key factor to long-term organizational survival and success (Mathiesen and Einarsen, 2004). Innovation is defined as the successful exploitation of new ideas that may be entirely new to the market or involve the application of existing ideas that are new to the innovating organization or often a combination of both (RDI Innovation Report, 2003); hence, the starting point of the process is creativity (Amabile et al, 1996).

Organizations may promote creativity by addressing a combination of both personal qualities, like employees' expertise, creative thinking and intrinsic motivation (Amabile, 1998), and work environment factors (Ekvall, 1993; Prather, 1996; Amabile, 1998; West and Richards, 1999). It is impossible high performance and creativity to be achieved without the employees' capacity to mobilize their energy (Loehr and Schwartz, 2001), which put into question the issue of balancing work and personal life as a strong motivational factor. A favourable to the creativity climate is when people are able to simultaneously balance the demands of both work and personal life responsibilities, because they have a feeling of dual satisfaction in both their personal life and paid occupation (Hill et al., 2001). On the contrary, the lack of balance between the work and life responsibilities is detrimental to the mental and physical well-being of employees, to their personal relationships outside of work (for instance in the family), and it leads to a diminished creative energy (Loehr and Schwartz, 2001) and a diminished productivity in companies and even in the national economy (Duxbury and Higgins, 2001). Consequently, not only organizations but also

governments are concerned with the issue of work-personal life reconciliation.

Governments are adopting a various range of legislative and other kind of measures to support reconciling work and personal life. The dominant approach is socially oriented, consisting in the development of a person, primarily concerning the care for children and other persons. Countries like the Netherlands, Denmark and Sweden, have complex legislative frameworks; other countries like France, United State, have developed less comprehensive measures. The case of the United Kingdom regulatory system is put into evidence, because it is oriented both towards ensuring an adequate social environment and towards organizations. So, besides the adoption of a specific legislation, the approach consists of developing information campaigns, creating funds to provide assistance to employers, benchmarking tools and standards. Putting into practice the legislative measures within the organization is one way of promoting the reconciliation of work and personal life goals. But organizations need to further develop a supporting culture to sustain the reconciliation of the employees' work and personal life goals, based on a win-win attitude (Friedman, Christensen and DeGroot, 1998).

## **2. The need of innovation and creativity**

Under conditions of turbulence, companies have to be successful not only in competing under price and quality pressures but they also are in a tremendous need of flexibility and innovation of the way they do things. The need of innovative companies is demonstrated by the Dutch scholars Bolwijn and Kumpe (1990), who described four patterns of the competition among companies in the developed economies. They are the result of significant changes in the nature of business that put different demands on management over time.

The first type of competition was dominant in the 1960s. Competition **under price pressures** was characterized with crucial role of products' price for ensuring the competitive success of the companies. This involved the efforts of achieving cost reduction and mass production; the dominant demand on management was to ensure efficiency of the organization.

The second type of competition was **under quality pressure** and it became dominant in the 1970s, as a result of firms' attempts to avoid the devastating former price competition. The companies tried to create and penetrate markets and market segments where price was not the only buying criterion and the quality of products became a second dimension of the competitive edge. Total Quality Management (TQM) became a main form of quality control and a main center of gravity for the general management. The system involves observing specific quality requirements, implementing special procedures, and a certificating process (e.g. ISO). But TQM is more than a set of certificates, being supposed to be an integrated part of a management philosophy. Nowadays, ISO or other form of certification is a common dimension of a modern organization. So, the demands on management are cumulative: on one hand, companies have to be efficient, and on the other hand, they have to meet high quality standards of their products and organizational processes.

The third form of competition – **under flexibility pressures** – developed in the 1980s and was induced by a spectacular rise in product diversity in that period of time in the developed economies. Besides the demands for efficiency and quality, companies found that they could not obtain success without an increased capacity to adapt to new products and processes in a rapid pace, to be able to change rapidly the volume of production, or to alter the existing product variety. In fact, companies had to become more flexible at all levels of their business process, which often meant achievement of profound transformations. Bolwijn and Kumpe (1990) highlighted several dimensions of a new paradigm of flexible production, as compared with the former efficient production paradigm, such as small scale replacing large scale production, a medium instead of large division of labour, replacing batch or mass production, teamwork becoming dominant over the individual employee, participative management instead of the authoritarian management style a.s.o.

So, finally, the fourth form of competition is **under pressure of innovativeness**. Starting in the 1990s, the business environment has become very complex in nature, especially because of the rapid acceleration in the speed of change (Ansoff, 1990). This acceleration takes place in two ways: (1) an acceleration in *the frequency* of change (e.g. new products and services, new technologies); and (2) acceleration of *the rate of diffusion of innovation*, namely the speed with which new products and services invade markets, or new technologies are adopted by firms. The growing complexity and dynamism of the business environment create a state of turbulence, which makes it difficult for companies to anticipate the future in order to formulate timely responses, and to implement these responses at increased speed (Ansoff, 1990). The response of the companies to the new business realities was to become more innovative.

Contemporary organizations face increased social and economic change, increased competition, and technological developments that occur very rapidly. Innovation is the companies' pro-active response to a changing business environment, and continuous renewal and adaptation is required to stay in business. Nowadays, no one needs to be convinced of the importance of innovation in a dynamic world of intense global competition, along with fast changing markets and technologies; the cry 'Create, innovate or die!' is a common slogan of today's managers (Politis, 2005). Hence, the quest for increased organizational creativity and innovation in products, services, systems, and work processes is recognized as a key factor to long-term organizational survival and success (Mathiesen and Einarsen, 2004). But becoming an innovative firm is a difficult endeavour, because it requires going through all previous phases, namely ensuring efficiency, quality and flexibility.

Florida and Goodnight (2005) point out that the most important asset of a company is not raw materials, transportation systems, or political influence but its *creative capital*. The last phrase (creative capital), as well as "creative organization" have meaning only regarding people, since while innovation occurs only in the organizational context, creativity can be displayed only by individuals (Amabile et al 1996). In fact, Florida and Goodnight define creative capital as "an arsenal of creative thinkers whose ideas can

be turned into valuable products and services”<sup>1</sup>; similarly, “creative organization” can be defined as an organization in which “business imperatives are attended to and creativity flourishes”.<sup>2</sup>

In fact, innovation is not a new issue in economic and management literature. In 1934, Schumpeter developed a theory of innovation regarding the introduction of new goods or new qualities of goods, the introduction of new methods of production, the opening of new markets, the conquest of new sources of supply, and new ways of doing things, or better, unique combinations of the factors of production. Peter Drucker views innovation as an opportunity that results in the creation of a new or different product or service, and it can be an idea, practice, process, or product that transforms a new problem-solving idea into an application and is perceived as new by an individual. Some important aspects of the concept are put into evidence by the 2003 Report on innovation of the United Kingdom Government:

- Innovation is defined as the successful exploitation of new ideas that may be entirely new to the market or involve the application of existing ideas that are new to the innovating organization or often a combination of both.
- Innovation involves the creation of new designs, concepts and ways of doing things, their commercial exploitation, and subsequent diffusion through the rest of the economy and society.
- Innovations may be incremental, as a succession of individually modest improvements to products or services over their life cycle, or dramatic, creating entirely new industries or markets (Competing in the Global Economy: the Innovation Challenge. RDI Innovation Report, December 2003).

Innovations are the result of a complex process involving the generation of creative ideas or insights *and* putting them into action. As a result the starting point of the process is creativity (i.e. generation of ideas) and innovation further implies the successful implementation of the creative ideas within the organization (Amabile et al, 1996).

### **3. Factors promoting creativity and innovation within organizations**

A major requirement for most organizations is promoting innovation and creativity within and amongst their employees. Such a difficult task requires the reconciliation of the imperative demands for increasing efficiency, improving quality and raising productivity with the complex and chaotic nature of the creative process that involves generation of new ideas and concepts, or new associations of existing ideas and concepts. That is why a clarification of the nature of the creativity process is important.

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<sup>1</sup> Florida, R. and J. Goodnight. Managing for Creativity. – Harvard Business Review, July-August 2005, p.125.

<sup>2</sup> Amabile, T.M. How to Kill Creativity. – Harvard Business Review, September-October 1998, p. 78.

According to Teresa Amabile (1998), creativity that exists within every individual is a function of three components: expertise, creative thinking and motivation.

- Expertise is represented by all the knowledge of an individual in the fields connected with his job activity. The sources of this knowledge can be very different, from formal education to what was learned from experience or from interactions with other professionals. It creates an intellectual space nourishing the scrutiny of problems and from where solutions to problems come.
- Creative thinking is a skill that determines how flexibly and imaginatively a person tackles problems. It allows an individual to look for new aspects of a reality, to turn problems upside down, or to combine existing ideas in different and unexpected ways and ideas from disparate fields. As a skill, creative thinking is highly influenced by the personality of an individual and by his/her patterns of thinking and working.
- Motivation is considered by Amabile as determinant factor that puts into action the first two factors – expertise and creative thinking – and makes the person to do what he/she has to do. The lack of motivation makes expertise or creative thinking quite useless, while a motivated person will be able to do the job creatively and achieve high performance.

The organization may promote creativity by addressing all the three factors in conjunction. Training (e.g. in brainstorming, problem solving, lateral thinking) may contribute to the improvement of the employees' ability to think more creatively. Also, knowledge management and learning within an organization are ways through which employees' expertise increases.

Organizations cannot be compared with machines that either work or not; they are complex living organisms, with the capacity of learning how to avoid dangerous situations or how to take advantage of opportunities. So, the innovative and creative capacity is based on the organization's commitment to learning, its ability to invent mechanisms for renewing and revitalizing itself, or an openness to the outside world.<sup>3</sup> Organizations learn in different ways: they benefit from individual learning by the employees, from group learning when relevant knowledge is distributed among colleagues, or even from absorbing the practices, procedures, technology, staff and competences of other organizations.

Finally, motivation is a critical factor in a dramatically changing business environment. Money should not be the only tool used from the toolbox of motivation; there are many other choices for motivational increase. Something else may also motivate the employees, such as the feeling of accomplishment and importance if an employee is regularly able to contribute thoughts, ideas, and suggestions to problems at hand or to regular work activities, recognition and respect of his/her superiors, peers and colleagues, frequent communication between leaders and employees.

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<sup>3</sup> Quinn Mills, D., B. Friesen. The Learning Organization. – European Management Journal, vol. 10, No 2, 1992.

As per creativity, Amabile (1998) shows that creative people are motivated from within and respond much better to intrinsic rewards than to extrinsic ones. Similarly, many other authors underline the importance of the intrinsic motivation that occurs when people are internally motivated because of a feeling of enjoyment for what they do, because they think that what they do is important or morally significant. Peter Drucker warned of the perils of trying to “bribe” the “knowledge workers” (creative persons in a broader perspective) with stock options and other crude financial incentives. Mihaly Csikszentmihalyi at Claremont Graduate University in California advanced the concept of “flow”, which refers to the feeling people get when their activities require focus and concentration but are also incredibly enjoyable and rewarding (Florida and Goodnight, 2005). Creative people work for the love of a challenge and they experience a feeling of accomplishment that comes from cracking a riddle, be it technological, artistic, social, or logistical. They want to do good work.

The SAS Institute<sup>4</sup>, a private software company based in the United States, has promoted three guiding principles addressing the issue of enhancing creativity:

- Help employees do their best work by keeping them intellectually engaged and removing distractions.
- Place a high value on an egalitarian work culture and eliminate arbitrary distinctions between categories of personnel (e.g. “the creatives”), because everybody in the organization is a creative person.
- Engage customers as creative partners.

The case of the SAS Institute reveals that creative and innovative behaviors at work seem to be promoted by a combination of both personal qualities and work environment factors. West and Richards (1999) point out that the combination of a supportive and challenging environment sustains high levels of creativity in individuals and teams. Such an environment is non-threatening, in which participation is encouraged, a shared concern with excellence and high quality of performance, as well as the expectation, approval, and support of attempts to introduce new and improved ways of doing things (Mathiensen and Einarsen, 2004).

Two influencing model of the environmental (or climate) factors of creativity belong to Goran Ekvall, professor of organizational psychology at the University of Lund, Sweden and Teresa Amabile, whose KEYS survey instrument is applied to assess those aspects of the work environment, which stimulates or inhibits creativity.

Ekvall pointed out that the climate for innovation is a determinant of business success and he identified such factors as<sup>5</sup>:

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<sup>4</sup> Florida, R. and J. Goodnight, op.cit.

<sup>5</sup> Prather, C. W. How Is Your Climate for Innovation?. – R&D Innovator Magazine, May 1996.

- Challenge (How challenged, how emotionally involved, and how committed am I to the work?)
- Freedom (How free am I to decide how to do my job?)
- Idea Time (Do we have time to think things through before having to act?)
- Idea Support (Do we have a few resources to give new ideas a try?)
- Trust and Openness (Do people feel safe in speaking their minds and openly offering different points of view?)
- Playfulness and Humor (How relaxed is our workplace – is it OK to have fun?)
- Conflicts (To what degree do people engage in interpersonal conflict or "warfare?")
- Debates (To what degree do people engage in lively debates about the issues?)
- Risk-Taking (Is it OK to fail when trying new things?)

Amabile (1998) considered some possible dimensions of the work environment that significantly influence creativity such as<sup>6</sup>:

- Challenging work;
- Freedom (what work to do, how to do it, control over one's work);
- Supervisory encouragement of creativity;
- Work group supports (openness to new ideas, constructive challenge, trust);
- Sufficient resources (people, funds, facilities, information);
- Organizational encouragement of creativity (fair and constructive judgment of ideas, reward and recognition, mechanisms for developing new ideas, shared vision).

A growing focus of scholars and practitioners is placed on the influence of the balance between work and personal life goals on people's performance and creativity.

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<sup>6</sup> Amabile, T.M. 1998, op.cit.

#### **4. Work-personal life balance as a factor of creativity**

Most managers are bound by tradition in thinking productivity as a function of the time spent in the office, not as energy invested in the work. Under the today's business conditions of pressure and urgency, high performance and, in particular, creativity depend on the employees' capacity to mobilize their energy. This mobilization addresses all the dimensions of an individual as a whole person and not only part of him/her such as the cognitive capacity.

Two specialists and trainers, Jim Loehr and Tony Schwartz (2001) view performance as a pyramid of four levels representing dimensions of a whole person:

- Physical capacity that builds endurance and promotes mental and emotional recovery;
- Emotional capacity that creates the internal climate that drives a state of performance;
- Mental capacity that focuses physical and emotional energy on the task at hand;
- Spiritual capacity that provides a powerful source of motivation, determination, and endurance.

People at work have a lot of personal responsibilities such as children or elderly parents to care for, or they have personal interests and hobbies, and all of these are significant from point of view of the capacities of an individual as a whole person. The success a person attains must be a holistic one that balance and integrate performance in work with accomplishments in the personal life; no one can be successful in work while failing in personal relationships.

Balancing work and personal life is a strong motivational factor because people feel that no one damages their personal priorities because of work, and the team members work in an environment of openness and trust. They will flourish professionally and will be grateful because they can achieve an authentic success that integrates work and life priorities. On the contrary, the perception of a conflict between the demands of work and personal life and furthermore sacrificing the personal needs in favour of the work needs induce incredible tension inside individuals that finally lower their performance and kill their creativity. The work-personal life imbalance leads to employees' lack of passion and enjoyment of working.

The issue of work-personal life balance gains a growing attention of organizations and governments, based on converging reasons.

Concerning organizations, the reconciliation of work and personal life goals is perceived more and more as a win-win game, because both parties may gain, both

the organization and the employees.<sup>7</sup> On the one hand, the employees feel that their work and life priorities are no more in conflict. Managers do not try to persuade them to give up their extra-work interests, but instead of that, they are sincerely interested in the employee's personal life. This gives the individual a sense of completeness, as being seen and valued as a whole person. People want success but they often have not a clear idea of what it means. Balancing work and life helps them to understand that success in work is not separated from success as a private person, and the employees will value highly an organization that helps with being successful as a whole person.

On the other hand, the organization gains because applying the work-life strategy may create opportunities of experiments and changing current organizational practices and behaviors. A short history of two managers in a bank department is illustrative. Let's say that Mihai and Andrei are the department manager and respectively the department deputy manager. Their work program used to start at 8 o'clock in the morning and finish at 8 o'clock in the evening; they both shared the same philosophy of living at work. Some happenings and occurrences made Andrei feel that his 5 years old child began to treat him like a stranger. He felt that was to lose an important thing for him, the love of his son. Consequently, Andrei decided to approach Mihai and discuss their work program, although he was afraid of a negative reaction of his boss. Andrei asked for being evaluated by the quality of his work, not by the time spent at the office. Mihai was a bit disconcerted at first, but he valued Andrei very much and they succeeded to find together ways of planning better their time and other creative changes of current practices and behaviours. Their performance increased.

As per governments, their concerns are generally based on macroeconomic and social reasons. A first serious concern is the erosion of the productivity of a nation due to the fact that employees experiencing lack of job satisfaction are performing less and are likely to miss more work days per year.<sup>8</sup> A second concern is connected with the negative influence on the employees' well-being of their impossibility to balance employment and care commitments. Parents may see no way of giving their children the care and attention they need at the same time as working in today's demanding labour market. The free choice between giving up work and caring for children is often hindered by people's income considerations, time constraints, or difficulties in resuming their careers after childbirth.<sup>9</sup> Finally, people often feel that pursuing a career involves a sacrifice of their personal life and they tend to start a family later, have fewer children or have no children at all. As a result, childbirth is postponed and fertility rates decline. For example, in Switzerland, where combining a career and motherhood is difficult, 40% of university-educated women are still childless at age 40.<sup>10</sup> The declining number of children and the aging of populations more generally have serious implications for the future shape of societies, and threaten the financial sustainability of social protection systems.

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<sup>7</sup> Friedman, S.D., P. Christensen and J. DeGroot. *Work and Life: the End of the Zero-Sum Game*. – Harvard Business Review, November-December 1998.

<sup>8</sup> Duxbury, L. and C. Higgins (2001). *Work-Life Balance in the New Millennium: Where Are We? Where Do We Need to Go?*. – CPRN Discussion Paper, Canadian Policy Research Network, Ottawa.

<sup>9</sup> OECD. *Babies and Bosses: Reconciling Work and Family Life*. – Policy Brief, March 2005.

<sup>10</sup> OECD, 2005, op. cit.

## **5. The governmental and organizational approaches of the work-personal life balance**

### *5.1 The governmental approach*

The governments are adopting a various range of legislative and other kind of measures to support reconciling work and personal life. The dominant approach is socially oriented and it consists of the development of a more or less complex legislative framework to support workers' ability to balance work with other interests and responsibilities, primarily regarding care for children and other persons. The European Union and other countries are representative of this orientation. In the European Union one of the pillars of the Employment Strategy consists of commitments to strengthen equal opportunities policies for men and women, reduce gender gaps in the labour market, and *reconcile work and family life*. The EU legislative framework encompasses several directives such as the Pregnant Workers Directive, the Parental Leave Directive and the Equal Treatment in Employment Directive.

Some of the UE Member countries like the Netherlands, Denmark and Sweden, are recognized for their complex legislative frameworks. In the Netherlands, the Dutch workers are given the right to request a shortening or lengthening of their normal working hours (Adjustment of Hours Law, issued in 2000), the right to request different types of leave to care for children and other relatives, spouses and partners (Work and Care Act, issued in 2001), or long-term care leaves (Paid Employment and Care Act). The Danish Government supports work-personal life balance through the implementation of legislation of longer maternity leave, legislation to make it easier to work part-time, the development of flexible work arrangements. Sweden has implemented flexible parental leave scheme, measures that provide employees with more annual leave and more flexible use of leave and even a sabbatical leave that allows workers to take a period of time off work to pursue other interests.

Other EU countries deal with the work-personal life balance through less comprehensive measures that generally envisage reducing or developing flexible working time. For example, France has introduced by law the statutory work week from 39 hours to 35 hours for companies with more than 20 employees (in 2000) and for companies with 20 employees or fewer (in 2002). The proclaimed aim of the legislation is that working time should be in line with other demands on time generated by people's social and private lives. Belgium has introduced a system of "time credits" for private sector employees that allows employees, inter alia, to interrupt their work for different periods of time, or to reduce their hours of work to part-time without breaking the contract of employment and without loss of social security rights.

Even countries, such as the United States, where the work-personal life balance was not an important item on the policy agenda, the issue gained attention. The US labour market tends to be characterized by long work hours, short vacations, limited availability of parental leave, and restricted state or employer support for childcare (Ruhm, 2004). However, the Family and Medical Leave Act (1993) gives working

families the right to take unpaid leave to meet essential responsibilities of caring children or other persons without the risk of losing their jobs. A major recognition of the importance of work-life balance is the Senate's Resolution 210/ September 2003, which states that supporting a balance between work and personal life is in the best interest of national worker productivity.

The case of the United Kingdom is representative of a more complex governmental approach to work-life balance issues, which is oriented not only towards the social and economic environment but also towards organizations. Besides the legislative element, it pays more attention to raising awareness among businesses of the benefits of work-life balance policies and practices, as means of saving costs, improving productivity, ensuring the enjoyment of work and life, or fostering creativity (the UK government has developed websites and newsletters publications). At the same time the UK government has taken the charge of providing assistance and support to private, public and voluntary sector employers for implementing adequate policies and practices in their organizations to improve their employees' work-personal life balance. So, two state funds were created to fund, inter alia, projects that improve work-personal life balance (the Partnership Fund, launched in 1999) and to pay consultants to provide advice to employers who want to introduce innovative working practices (the Challenge Fund, launched in 2000). Besides these, organizations are provided with practical instruments. A benchmarking tool helps employers with determining how well they understand the business case for implementing work-life balance practices, whether their work-life strategy is part of the business plan or human resource plan, whether work-life balance is implemented in the organization's policy and practice, and how well the organization monitors both the qualitative and quantitative impacts of its work-life strategy. Also, a work-life balance standard was set up in 2000, serving as a framework, within which work-life balance policies and practices can be developed.

The Romanian legislation is making progress in dealing with the issue of a work-life balance, for instance by encouraging the equal distribution of family responsibilities between women and men for child caring by granting paid and unpaid leaves to both parents. Related legal provisions mainly concern paid parental leave for children aged up to 2 and paid or unpaid leaves to take care of sick children.<sup>11</sup>

### *5.2 The organizational approach*

The organizational approaches to balancing work and family responsibilities are highly influenced by the national legislative framework, and researchers show that it is a relationship between national context and organizational practices (Haas et al., 2000). In line with the national social and legislative context, most organizations provide formal work-family benefits (e.g. flexible work arrangements) to help their employees balance their work and family or personal responsibilities. However, there is a need for something more than that. An organization has to integrate shared assumptions, beliefs, and values regarding the extent to which it supports and values the

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<sup>11</sup> The European Commission and the Government of Romania, "Joint Assessment of Employment Priorities in Romania", 2002

reconciliation of the employees' work and personal life goals into its organizational culture.

A factor of influence of the implementation of work-family policies to organizations is managers' values. The authors' discussions with key persons from a Romanian training and consulting company reveal a tentative image of the Romanian managers' opinions concerning the issue of work-personal life balance. Traditional managers deal with the personal needs of the employees in a superficial manner; either they do not consider the issue of work-personal life balance significant, based on the assumption that their employees put the organization's interests first; or they know about their employees' personal lives to some extent (for instance, the name of the husband or wife, the number of children, certain important events in their family lives, or even some hobbies and activities outside the office).

However, the specialists of the training company are detecting new approaches that take form, especially in large companies. For instance, the human resources departments introduce certain innovations that are supposed to meet some personal needs and satisfactorily solve such problems (e.g. flextime programs). But it is more significant that the managers in some (large) companies tend to spend more time to discuss with their employees about the personal interests and concerns, which suggests a change of organizations' values. A strong evidence of the change is the growing interest of more leaders in following coaching programs aiming to balance work with personal life. A successful coaching system delivered by the firm is based on the notion that any success a person attains must be a holistic success that balances and integrates performance in work with accomplishments in the personal life.

Such changes of the managerial environment in Romania are consonant with new approaches of the work-personal life balance in the developed economies. Friedman, Christensen and DeGroot (1998) argue for a win-win game, in which both the organization and the employees gain from the reconciliation of work and personal life goals or priorities. But such an approach must be guided by a number of reinforcing principles. First principle may be clarifying the business priorities of the organization and the personal interest, concerns and priorities of the subordinates, through open discussions. This involves further requirements: (1) managers must clearly inform their employees about the business priorities of the organization (generally in terms of results); and (2) managers must encourage their employees to tell freely about their important goals, concerns, and demands outside the office (e.g. caring for elderly parents, or hobbies and passions that require time and energy). Employees feel generally uncomfortable when discussing their personal priorities; hence, such talks require an environment of trust and open communication. A second principle may be recognizing and supporting people. When the understanding of the employees is deeper and more detailed, the managers catch a broader perspective of their various roles in work and in their personal life. So, the parties involved may succeed to understand the relationships between their roles, how they may reinforce one another, and how the talents from personal life roles may be transfer into work roles. This approach aims to crafting a strategy to meet both business and personal goals.

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# QUALITY OF THE HUMAN FACTOR AND CHALLENGES FOR THE NEW ECONOMY AND EUROPEAN INTEGRATION NECESSARY CHANGES FOR BULGARIA

*Prof. Dr. Katya Vladimirova  
University of National and World Economy, Bulgaria*

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## 1. Introduction

Peter Drucker states that in the conditions of new economy "... real, controlling source and unconditionally decisive "productivity factor" is neither anymore the capital, nor the land, nor labor. It is the knowledge. ... Today the "productivity" and "innovation" create the value. Both are practical implementation of the knowledge in the work."<sup>1</sup>

The management of the processes of forming and using higher quality workforce suggests having in mind the processes of fast developing integration and globalization, the participation of the country, different organizations and individuals on the European and world markets. This, on the other hand, means that the national development, legislation, standards, strategies and policies have to be strongly predetermined by the world processes and standards. The quality of the human factor and its productivity do not yet occupy a central place in the management and behavior of all participants.

## 2. Social Model and Employment Strategy of the European Union

The Lisbon European Council (2000) set the strategic goal of the EU to become a science-based economy, which is most competitive and most dynamic in the world, capable of long-term economic growth accompanied by qualitative and quantitative improvement of the employment and bigger social cohesion. The human resources are the most important trump of Europe and that is why the Lisbon Council determined that they have to be in the center of the Union policy. The investments in human resources and the development of an active and dynamic social state will give capital significance to the position of Europe in the science-based economy, as well as the opportunity for this new economy to not burden the current social problems like

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<sup>1</sup> Drucker, P. Post-Capitalist Society. "LIK" Publishing House, Sofia, 2000, p. 12-14.

unemployment, social exclusion and poverty, but on the contrary. One of the tasks for creating full employment, more and quality work places, is the improvement of the effective access to education and lifelong learning, in particular in the new technologies area, in order to avoid the insufficiency of qualification.

The quality of the workforce and its productivity are determining for the future of Bulgaria for the success of the business, as well as for the living standard of the population. In the era of the information society, in the conditions of building a knowledge-based economy, the quality of the human factor has a decisive role for the development of the society, for the social and economic progress of certain country and for its successful entering into the dynamic running processes of integration and globalization. Today, and even more tomorrow, the quality of the workforce has a determining role for the individual development, for increase of the opportunities of a person for development, production work and professional realization. The state should invest in education and development of the human capital in order to catch up on its delay in the labor productivity. This will help solving the other two serious problems of the country – low incomes and weak investment activity.

The quality characteristics of the population (education, professional training and qualification, etc.) are determining factor for the level of economic activity and employment of the population, the level and duration of the unemployment, i.e. they predetermine the prosperity of the country, stability of insurance funds, exclusions, social isolation of certain groups of the population. In other words, the quality of the human factor is a decisive factor for the level of employment, for access to the area of employment and paid work. The qualification is a significant factor for increase of the employment of the population, one of the big obstacles of Bulgaria on the way to its integration to EU, for social integration of significant groups of the population, of those who have low education, who do not have professional training and have other problems, which make them not adaptive, not desired by the organizations. As for access to labor and incomes of the individual, the qualification is also a condition for a professional realization, it increases the motivation for work and thus for increase of the quality of labor, for professional career.

An important aspect of the quality of the human factor is the access to education and qualification of the different groups of the population: children and adolescents, employed men and women, unemployed men and women, disabled, people from different ethnics and different towns and villages. From an early age and through whole active life the access is determining factor for the quality of the total workforce in each country. We can outline here many problems, which rise multiplying inequalities and exclusions as well. The access to education of the adolescents is strongly differentiated and becomes more and more so. The transferring of more payments to the population for its education, professional training and qualification, ministers to the unequal access, to created barriers to the quality of the workforce. The formal and informal payments by the mass impoverished groups of the population are a reason for the significant dropping of children from the first stages of the education, for increase of the illiteracy and semi-illiteracy, for increase of the number and share of those who have no profession, respectively no qualification, giving them access to work, higher work incomes and social security. The access to quality

education, professional training and qualification is also unequal. The inequalities have in their basis an origin, social group, town or village, school. This is the future of the children from the villages and small towns, children from large families, many children from social institutions, children of lastingly unemployed parents, invalids and Roma, of single parents and others, children in schools without modern equipment, without computers and access to internet.

### 3. Modernization and Reforms in Education

The education reforms in Bulgaria are characterized by continuity and striving to combine the national traditions with the requirements of the society development. In the last decade, developing its national policy and normative acts, the country follows more closely the European strategies, policies and practices in the area of education. Leading in this connection are the Lisbon strategy till 2010, the concept for lifelong learning, the program "Education and Training 2010", European employment strategy and others. The carried out in 2000 in Bulgaria education reform was towards realization of the defined in 2001 common European concrete goals of the systems for education and training, as well as of the priorities and results of the development of the Copenhagen process.

The reform in education in the last years aims to ensure conditions for professional training, as well as to give opportunity for continuous maintaining of the quality of the workforce and its fitness for employment in accordance with the requirements of the labor market and the knowledge-based economy. To a considerable extent this is connected with providing quality education and training to all people with equal access and equal conditions.

When developing the *National program for modernization of education*, the main objective of the accepted strategic EU goals from Lisbon (2000) and the connected with them three strategic goals from Stockholm (2001) and the 13 priority areas, indicators and reference levels are kept in mind. These indicators are basic in forming and realizing the national employment policy and professional education of adults and are presented in the annually developed and executed national action plans for employment (NAPE) since 2001, they themselves are developed on the basis of the directions on employment of the European employment strategy and the recommendations in the EC reports on the matters of employment and education for achieving the Lisbon goals of EU. A national system of indicators for observing and marking the improvement is developed.

The state and tendencies in the development of the education, pre-accession requirements, as well as the legislation in the system of education and training in the country determine **the main directions of the policy for modernization of the national education system**. It is directed towards: improving the structure of the education system; providing high quality education (improving the quality and effectiveness of the education process, methods of teaching, training appliances, didactics as a whole, educational subject, quality of teachers, educational and teaching staff); *ensuring equal access to education*; binding the education and training

to the needs of the labor market; bigger binding of the higher education to the sciences; developing the system of management of the education; binding the financing to the quality of the educational product; ensuring access and quality of the professional training for adults; modernizing the material and technical foundation; ensuring conditions for *including larger number of people in the forms of lifelong learning*; improving the primary and permanent qualification of the trainees; cooperation and partnership at national, regional and local level; activating the participation of the employers in the education process; introducing Information Communication Technologies (ICT) into the education and training; investing in the development of the human resource.

The policy of more fully covering of the children from the educational system and decreasing the level of the dropping from school children is amongst the priorities of the education policy in the last years. Concerning overcoming the problem of dropping out students, a National program for more fully covering of children in obligatory school age is executed.

The limited financial resources are the main difficulty in executing the national policies for education and training. The progress in the education reform endures significant difficulties mostly of financial character by the enterprises and education organizations, as well as by the state.

According to EUROSTAT data, the public expenditures for education are 4.4% of GDP in 2000 and 3.6% in 2001, but they are still lower compared with many EU countries (average 5% in 2000). The national data show that in 2005 the public expenditures for education are 4.4% of GDP, and in the last 10 years this share varies from 3.2% (1996) to 4.4% (2003 and 2005). The private investments in education according to the national statistical data are around 1%.

According to data from the last population census (2001) 51.9% of the population aged 7 or higher have high and higher education, and the share of the people with elementary or lower education (including illiterate ones) is 20.1%.<sup>2</sup> The share of people with primary or lower education decreases.<sup>3</sup> The comparison with the educational structure of the population in the EU countries shows that the level of education in Bulgaria as a whole is a little below the level for the EU members countries. With 37.4% of the population (aged between 25 and 64) with primary or lower education average for the EU members countries, for Bulgaria this share is 28.9%. In the EU member countries the share of people with high education is 39%, and in Bulgaria this share is 49.7%. The share of people with higher education aged between 25 and 64 in Bulgaria is 21.3% and it is a little lower than the average for the EU countries (23.2%).

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<sup>2</sup> The statistics of the education is built on the basis of the common principles of the statistics acting the normative base of Bulgaria in the area of education, the International standard classification of education (ISCE) – revision 1997 (ISCED-97) and its accompanying methodological guidances.

<sup>3</sup> Census of Population, Housing Fund and Agricultural Companies in 2001, vol 1, Population, book 1; Demographic and Social Characteristics of Population, NSI, 2004.

Of the population aged 7 or higher the people with high or higher education from the Bulgarian ethnic group (58%) have highest share, such education have about 20% of the Turkish group and only 6% of the Roma population, in other words about 80% of the Turkish group and about 94% of the Roma population have lower than high education. The total number of illiterate people (1 332 888) is **distributed almost evenly** amongst the three groups: 32.5% Bulgarians, 31.6% Turkish and 33.1% Roma.

Of the population aged 25-64 highest educational level have the Bulgarians, of which 23.5% have higher education, 53% have high education, 20.7% have primary education and only 0.4% are illiterate. Of the Turkish ethnic group 53% have primary education, 23.7% have high education and 2.7% have higher education. The share of illiterate people among Turks aged between 25 and 64 is 3.5%. Most unfavorable is the educational structure of the Roma ethnic group. The Roma with higher and high education are only 7.2%, with primary education are 44.9% and with elementary – 27.4%. Without graduated educational degree are 7.8% of the Roma aged between 25 and 64, and 12.7% are illiterate. The share of illiterate adult Roma in the period between the last two censuses has increased by almost 50%.

The low education and qualification are determining factor for the high and continuous unemployment and poverty. *The education and training of the Roma is one of the main challenges to the educational policy.* In the discussions in the country lately the opportunity “Roma schools” to exist is evaluated as segregation and deprivation of the chances of social inclusion. The children of Roma and Turkish ethnic communities show lower level of enrollment in pre-school establishments. Special efforts are put to encourage the children from risk groups to visit kindergartens. It is considered an important resource in creating conditions for integrating the children from ethnic minorities.

Many factors and conditions have predetermined the development of the Bulgarian education in the last two decades. Among the determining factors are the social-economic, political and demographic ones. The transition to market economy and the developing processes of democracy of the public life, as well as the running processes of European integration of the country are among the most significant factors. Started in the beginning of the 1990s economic reforms and deep economic crisis were accompanied by the forming of high and continuous unemployment; significant impoverishment of the population and changes in the value system. In parallel with them strongly negative demographic processes have developed, which led to establishing a tendency (since 1990) of an absolute decrease of the number of population as a result of the fastened processes of decrease of birth-rate and marriages and high external emigration. The tendency of decrease of the number of children at pre-school and school age has increased; the processes of depopulation and decrease of the number of the population has deepened in many villages, small and medium-sized towns.

The low birth-rate, especially in the last two decades of 20<sup>th</sup> century, determined the absolute and relative decrease of the contingent of people included in the pre-school, primary and high education. In the general education system the number of schools

decreased from 3458 (for school year 1990/1991) to 3250 (for school year 1996/1997) and reached 2657 (for school year 2004/2005), for the whole period it decreased with  $\frac{1}{4}$ . The number of students in the schools respectively decreased from 1 110 700 to 941 268, and reached 758 029. Since the middle of the 1990s there has been a clear tendency of increase of the number of private schools, though the education of small part of the students (under 1% of their total number) is carried out in private schools. The private schools were 101 as of 01.10.2001, or with 37 more than for school year 1997/1998.

The decrease of the share of students, early dropping from school, is an important premise for achieving higher employment and higher degree of social cohesion, as well as for building “knowledge-based” economy and society.

Most significant problems are the ones of covering, visiting and finishing the obligatory degree of education of the children of Roma ethnic group. In the Roma neighborhoods there are kindergartens and schools only with children and students of Roma origin. In this connection in the last years in the country there have been discussions whether this leads to bigger social isolation and lasting exclusion of the Roma population.

For solving the educational problems of the Roma children in the last years political actions were carried out, which added to the acting ones for all children. A Strategy for educational integration of children and students from the ethnic minorities and National action plan for executing the strategy for educational integration of the children and students from the ethnic minorities (2004/2005 – 2008/2009 school year) were accepted and implemented. The goal is a gradual and full closing of the differentiated in the Roma neighborhoods schools and not allowing the segregation of the Roma children in separate classes in the mixed regions. For implementing of this goal the following has been done:

- The obligatory dividing into regions of the children when enrolling to school was eliminated.
- The kindergartens and schools with segregation problems and subject to desegregation were identified.
- The enrolling schools outside the Roma neighborhoods, in which Roma children are gradually enrolled, were identified.
- The regional inspectors on education (RIE) determined own expert, who will directly deal with the integration of the Roma children and will be responsible for the execution of the annual plans in this area.
- In the educational degree introduced were and qualification was ensured to the so-called “teacher assistant” from the Roma community, who supports the easier adaptation of the Roma children to the mixed school.

Concerning the access to education, besides the ethnic minority groups another

category in unequal position is the one of the students with special educational needs. In the school year 2005/2006 in the schools for mentally retarded 70 classes less than the previous year were approved. Directing towards integrated education of the students with special educational needs and decrease of the students in the special schools continues through the teams of complex pedagogic evaluation at Regional inspectorate on education (RIE). This should lead to optimizing the special schools (closing and restructuring).

The demographic drop, which led to decrease of the number of students and closing of schools, affected the general education. The municipal educational system is mainly affected, and the prevailing part of the closed general educational schools are in the villages. Most often the closed school is the only one in that place. The children have to study in the so-called central schools. On one hand, this leads to necessity of constant travelling or missing the family, but on the other hand, it ensures better conditions for education of the students – better and modern material base, competent and qualified teachers available. Despite the opportunity of receiving better education, closing of village schools is a factor for depopulating of the villages.

The level of education differs depending on the place of living. Fewer children living in village regions graduate high education compared with previous periods. Many of the villages do not have high schools. The number of villages, which do not have primary and elementary school, increases. The villages without schools are considered doomed. The few children in them have to travel to bigger places to visit the school there, and this is often a considerable problem concerning the transport and incomes of the parents. The access of the children from the towns and villages to education significantly differs. The children in villages visit school averagely three years less than their coevals in the towns. The main reason for this is the lack of suitable transport, and the costs, which create serious difficulties for many children. Strategic problem for the educational system is mostly the primary degree (5<sup>th</sup>-8<sup>th</sup> grade), since the children from this age group fall into the obligatory education for the country. According to data of the RIE for the last 2 school years there is a **tendency towards decrease of the number of dropping students**. For the school year 2003/2004 only 2.16% of the total number of students have dropped out. For the school year 2004/2005 this share had decreased to 1.99%. For the first term of school year 2005/2006 the level of dropping students is 1.23% and it does not include the preparatory groups. The analysis shows that the percentage of students, dropped in the upper grades, is highest – 1.67% have dropped from 9<sup>th</sup>-13<sup>th</sup> grade. For the other levels of the educational system the statistics is as follows: 0.42% dropped from preparatory group, 0.75% dropped from 1<sup>st</sup>-4<sup>th</sup> grade, 1.17% dropped from 5<sup>th</sup>-8<sup>th</sup> grade.<sup>4</sup>

The level of attendance to a great extent is determined by the household incomes. The cases of early dropping from school<sup>5</sup> are most often connected with the social-economic status of the households. It is so for about 36.3% of the dropped children.

<sup>4</sup> Report on Execution of the Mutual Memorandum on Social Inclusion of Bulgaria, MLSS, Sofia, 2006.

<sup>5</sup> According to data of NSI the distribution of the dropped students by age groups for 2000/2001 is as follows – for 1<sup>st</sup>-4<sup>th</sup> grade (elementary education) the dropped students are 10117 from totally 374361 students; for 5<sup>th</sup>-8<sup>th</sup> grade (primary education) the dropped students are 11396 from totally 366047 students; for 9<sup>th</sup>-13<sup>th</sup> grade (high education) the dropped students are 8874 from totally 329427 students.

The education costs of the households are significant as a share in their budgets. For families, living with incomes around the poverty limits, the education costs are the biggest obstacle for participation in the education. Studying the different cases outlines the multi-layer relationships between the education and poverty. Often the low incomes by themselves are not always the only reason for dropping of the children from school. The poverty is rather connected with phenomena like social isolation and rejection, which influence the attendance.

According to a study of poverty in Bulgaria<sup>6</sup>, children of poor families much more often drop from the elementary and primary degree of education, and the problems of quality of their education are more, compared with the other (not poor) families. The share of poor households, in which the children do not visit pre-school kindergartens, is more than twice bigger than the not poor ones. The difference with households, in which the children have never been to school, is even bigger (around three times). As a result of the limited access of the poor families to education the illiteracy among them is high. The poverty makes difficult not only the access to education but to a great extent also to quality education. As a result both determine the high risk in the future for unemployment and poverty, for social exclusion. The cited above multi-target study of the households (2003) outlines the strong dependency between the level of poverty and the education of the head of the household. In the poor families the head of the household is most often with low level of education (34.6% – elementary or lower, 33.7% – primary, 19.1% – high and 3.9% higher education). The study shows that the poor households spend about 5.5 times less funds on education than the not poor ones. Even though the carried out reform in the education determines the financial participation of the state and parents, in practice there are many non-regulated payments by the parents, which are often an impossible cost for the poor households and their children often are placed in situation where they cannot participate or not fully in the educational process and school life. In the families with many children, as well as in the poorest families, the costs for clothes and shoes, breakfast and lunch, etc., are important reason for not attending the school regularly, for dropping of part of the children from school yet in the elementary or primary education. The data for 2002/2003 show that about 10 000 students or about 2.7% from 1<sup>st</sup> to 4<sup>th</sup> grade drop from school, and the dropping students between 5<sup>th</sup> and 8<sup>th</sup> grade are even more (about 3%).

In 2005 a National Program and Plan for better coverage of children and students in the obligatory school age was adopted, ensuring conditions for access to education of these students without difference by ethnic affiliation, gender, origin and religion, but creating opportunity for everyone to study despite his way of life and economic position. The changes foresee **activities**, norms and procedures, guaranteeing the access of children and students with special educational needs to the kindergartens and schools by creating teams for evaluating the educational needs, following the dynamics in the development of such children and preparing individual programs for their education and development. The changes regulate opening a work place on the position “**resource teacher**” for supporting children/students with special educational

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<sup>6</sup> Bulgaria. Challenges of the Poverty 2003. Analysis according to Data of Multi-Target Observation of the Households. NSI, p. 113-119.

needs.

The criteria for harmonization of the Bulgarian educational system with the world and European standards are prepared. A public decree for developing an electronic curriculum on almost all general educational subjects for 9<sup>th</sup> – 12<sup>th</sup> grade is carried out. A public decree for creating a national educational portal is carried out, following the requirements of the convention for electronic education. A “Concept for introducing electronic and distant education in high schools in Bulgaria” is created, through which the process of harmonization of the Bulgarian education system with the world and European standards will be carried out. A preparation of a big part of the teaching staff is carried out for introducing and using ICT in education.

In March 2006 the Council of Ministers approves a National program for development of the school education and pre-school training. It foresees establishing a new education structure, aiming at binding the constitutional right for obligatory education till aged 16 with the corresponding degree of education, acquiring a common general educational minimum in the frames of the obligatory education, improving the opportunities for transition between the educational degrees and the different types of schools based on acquired common general educational standards and ensuring opportunities for acquiring professional skills in parallel with acquiring general educational minimum for the students, who do not wish or do not have the opportunity to continue their education after the obligatory age.

#### **4. Quality and Qualification**

The qualification is determined as knowledge and skills in the relevant professional area. It concerns concrete profession, used in certain economic activity. The qualification in general follows certain educational level. It is its continuation, over-structure, realization in the practice; it also adapts the education to the social requirements. This bridge, this connection between education and social practice is extremely important at this stage. It is included also in one of the pillars and main priorities of the European employment strategy – increase of the adaptivity of the education and the individuals to the requirements for the business, the modern society of the fast developing information and communication technologies. This priority is written also in the Bulgarian employment strategy, which ranges the period till 2010. In this sense our country meets the external requirements but the mechanisms and understanding for its realization are not yet found.

The quality of the workforce suggests higher level of education, higher share of the people with higher education (and of it of those with Master’s and Ph.D. degree), high profession, high education, and much smaller share of those with lower education, liquidating the illiteracy (i.e. lack of young people, economically active, who do not visit school, have dropped very early from it), i.e. of those who the statistics puts in the column with elementary and non-elementary education. The higher education is a premise for acquiring a professional training and higher qualification, for higher adaptivity to the changes, for higher flexibility in the movement of workforce, for increase of the employment level, decrease of unemployment and limiting the social exclusions.

For the quality of the workforce the level of education is only a good premise. More important is its content, the quantity and quality of the acquired knowledge and introduced opportunities for their implementing.

The qualification is acquired most often in the process of work, with or without interrupting the professional duties. Very often it is connected with the professional length of work. When we talk about quality we should have in mind that the length of work is not a sufficient and exact measurer of the qualification. Different individuals, working even at the same work places and having same length of work, acquire different skills and knowledge, possess different abilities for their use in their concrete work, have different productivity, labor intensity, different motivation for their use and development. And exactly this, in equal other conditions, gives the different quality of the workforce.

In this sense in many countries different terms are used, which more exactly determine those characteristics of the workforce, which are especially necessary for the business and for the human factor at the modern stage: *savoir – faire*, *habilete*, *competence*, *professionnelle*, *employabilite*. The last one means to possess qualities, which make you desirable for hiring, qualities for productive work. All these terms are connected not only with possessing knowledge and skills, but mostly with opportunities to use them creatively, which is decisive for the business in the hiring, as well as developing, evaluating, paying and in the selection for firing. Since these are the qualities of the workforce, which give fast and lasting result of the hiring and investments in human resources, they are also a decisive advantage for the firms in the conditions of strong competition.

The underestimating of this aspect by the individuals and the education system and public policy (state and local) creates huge gap between the expectations of the two main sides in the labor process and labor market (between the demanding work and the supplying such, between the employers and employees), lack of satisfaction, lack of understanding, demotivation, limited access of some groups to work (which makes them unemployed, permanently unemployed, discouraged, isolated). This gives reason for the business to have a lack of satisfaction from the qualities of the graduates from different schools, to criticize that there is no compliance between the diplomas and the level of knowledge, that the schools provide knowledge not meeting the modern requirements of the economy and technic, that they possess knowledge but not skills to implement it, to use it creatively in the practice.

The qualification is one of the components of the quality, together with level of education and professional training. It predetermines the quality of the workforce, which is an important condition for the economic growth, for the success of every organization and everyone in the area of labor. On the other hand, it is a decisive condition for finding work, i.e. for access to a paid labor, for decrease of the unemployment, for increase of the employment. It is also an important premise for achieving a social integration of significant groups of the community to the society, which have more and more marginalized, because they are not qualified, they have low education or old professional training. The professional qualification is a factor for realization of the individual, for increase of motivation and his satisfaction from work,

for climbing in the career and professional hierarchy. Last but not least, the quality of work, including its qualification, is a significant factor for increase of the incomes of the population. The higher quality of work can compensate demographic aging and absolute decrease of the population, and can ensure a sustainable economic growth and successful integration of our economy to the European and world market. In this aspect the underestimating of the problems of the qualification and productivity by the business, as well as by the governments and other social partners in the whole period of the transition, remain unexplainable. The education is only a potential, the qualification is what can turn the education into a productive power; and what really makes it such is the management, competencies, knowledge, motivation.

### **5. Information, Criteria and Comparative Approach Are Needed for Evaluating the Labor Quality**

The quality of labor has quantitative and qualitative measurers. Some of them are commonly accepted, well-known, there is a statistical and other information for them. These are mainly the data for the number and share of people with different levels of education, the number of the people studying in the relevant degrees and types of schools, the educational structure of the population, including the economically active one, of the employed and unemployed people. Data for the employed and unemployed by strongly supported professional directions or categories are published. In the last years though there is no statistical information for distribution of the population and especially of the active part of it by professions, professional structure, as well as by level of their qualification.

There are no studies in the country about the development of the professions, the appearance of new ones and dying of the existing ones, the changes in labor in the conditions of dynamically changing technologies and labor conditions on more and more globalizing markets and increasing mobility of the population. The professions and qualification have a dynamic character, they change their content, the requirements to them also change. There is a necessity for studies. For example in Germany, in Nurnberg, there is an institute for development of professions and for studying the professions at the Federal Employment Agency. Such institutes exist in many other countries. In some places these functions on studying the professions are in the institutes, which study the employment and education. In Bulgaria there is no such institution and practice.

Different nomenclatures for the professions in preparation and employment of the workforce are used, i.e. in education and in different economic activities and organizations. The different names of the professions by acquisition and occupation do not allow to seek for direct correspondence between the acquired knowledge and the required skills and competences of the work places.

The national classifier of the professions is considerably detailed. The professions and professional directions are connected with the economic activities, in which they are used. Since a decade this classifier is applied in the practice. The problem is that it does not provide the necessary information for the so needed studies of the professions. What is published is the strongly aggregated (8 groups) information from

the annex of the classifier and this in essence is not professional directions but categories of positions (managers, specialists, workers, etc.). There are opportunities but they are not used for studying the dynamics of the professions, for their distributions by gender and age, by branches and sectors, for the level of qualification in each of them, and others, which could cooperate for outlining the state and problems in the qualitative characteristics of the workforce.

The quantitative measurers of the level of education are not enough, at the contemporary stage they are to a considerable extent insufficient and become more and more so. The duration of education is important but the content and level of knowledge, the opportunity for it to be applied, used in the practice, become much more important. Practically in this area there is almost no information. The discussions are insufficient and the strategies and policies for education and employment in the country are unclear. There are no studies of the changes in the content of the labor by professions, sectors, scales of organizations. For forming of policies and strategies, not sufficiently are studied and used the connections: economic development and education and profession structure of the human resource; conjuncture of the professional labor markets and professional orientation and qualification; development of the specialties in the schools and content of the position characteristics of the offered work places in different organizations (mostly small enterprises, dominating private sector; developing public administration), and others.

In the last decades the education follows the concept for lifelong learning, i.e. one of the determining characteristics of the quality of human potential is the continuous education, revealed in increase of the level of education, in expanding, deepening, renewing of the professional qualification. This concept should occupy a central, leading place in the national and regional policy of employment and education, as well as especially in the strategies and policies of the organizations. For now there is no sufficient information even for the operative plans and activities of the organizations by qualification, education of the employed in them.

Now the share of the people graduated high and higher education, education structure of the population and employed, average number of years of education in the education system, are considered to a greatest extent criteria for the quality of the workforce. Additional criteria are – number, share of the graduated from different qualification or specialization courses (with or without reporting the duration).

The increased number and variety of schools in the country, the more and more significant place the market orientation and values occupy in their policy and mainly practice, justifiably set the questions on the quality, standards of education and quality of the graduated. Most often the image of the schools is used as a criterion, an image, determined by their policy and standards, but in practice – by the consumers of their “product”, by the employed specialists and their contribution to the organization. If the quality of the human factor is determining for the success, for the progress of the society and its individuals and economic organizations, and requires long-term strategies and policies, then the ratings, ranking of the consumers of staff, as well as the grades of the people graduated from the relevant universities, can be one of the means for their realization. In practice there is still no connection between the

education and business.

The business is still not the necessary corrective. The market with its mechanisms for effectiveness is not sufficiently determining or influencing for the quality of the education, and thus for the quality and productivity of the labor.

The schools and especially the private ones more often have the vision and are developed as business organizations but their marketing is directed mainly towards the entry, their advertisement is oriented towards attracting resources, much less towards the market, the realization of their production. It is so because they still do not feel the influence of the quality evaluation of their activity by the consumers of their “production”, and not by their realizing “products”. Until this change is made, the possibility substantial changes in the quality of the human resources to occur, is slight. The most successful strategy for the schools is to become mediatory organizations – to attract candidates with hopes for good professional realization and to guarantee, contribute with their activity to their following realization, working together with the “buyers”.

We should bring the attention to the words of P. Drucker that “the leading social groups in the society of knowledge will be “those working in the area of the knowledge” – administrators of the knowledge, who know how to distribute it according to the production needs exactly the same way as the capitalists knew how to distribute the financial means for the needs of the production; the professionals in the area of the knowledge; the hired workers in this area ... the productivity of the work in the area of knowledge, as well as of those working it, will be the *economic* challenge to the post-capitalist society”.<sup>7</sup>

The lack of criteria for qualification, the level of qualification in the different professions and economic activities, is a significant problem concerning the quality of workforce. This allows to make groundlessly two mutually excluding statements concerning the quality of the human resources in Bulgaria: “we have highly qualified workforce” and “we do not have qualified workforce”. It is very difficult to find data in support of each of the mentioned theses, if the quality is connected with the education, but also the implementing of the knowledge, acquired successfully in it, successfully in the practice. The national statistics and other research and public organizations should fill in this gap. In the practice we assume sometimes that the qualification of the employed is reported with the evaluations of the labor performance or exam, including attestation, degrees, ranks, etc. Others think that it is revealed in the position hierarchy, in the labor and production length. If we agree that the qualification is extremely important for the future, then it needs more attention, precise measuring and on this basis proper encouraging. For now there is no official statistics, on most places there are no evaluations, too little attention is drawn in the organizations, not all of them but in most.

The processes of globalization and integration are connected also with free moving of workforce. The national labor markets to a certain extent become element, sub-

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<sup>7</sup> Drucker, P. Op. cit., p. 14.

system of the regional and world markets. In this sense the quality of the workforce leaves the national criteria and follows those of the relevant markets, i.e. of the general criteria of quality, knowledge, competences, opportunities. Seeking professional realization of the individuals on the external markets, and more and more on the national ones (including the countries of the European and world economy) will follow the general criteria and requirements for quality. These processes require the inclusion of the European (and not only them) standards in our education system, not formally but in essence, including for maintaining what is valuable and working from our national practice.

On the way of incorporation to the widely accepted criteria for education and quality of the workforce the use of more comparative information and international comparative studies is needed.

## **6. Quality Characteristics of the Employed and Management**

Today the good management, including the management of the human resources, sets in the center the quality of its collaborators: education, professional training, qualification, competences, adaptivity to the changes, desire for development and adopting the values of the organization. These qualities are among the most important criteria in choosing and hiring, but also in firing. They are used in the evaluation of the execution as a base for an adequate labor payment, for increase and development of the career.

Transferring from one type of social system to another, building market economy and connected with it the reforms and structural changes, changed radically the management of the human factor and its qualification. Many different management practices were established, including of the human resources. The human factor occupies different place in the values of the organizations. The management is different. The attitude to the human factor is different. It is predetermined by different factors but to a great extent by the preparation, quality of the managers, the managers staff, the size of the organization and its financial state. That is why the level of education and qualification does not occupy a proper place in the management decisions in many firms. The payment often crosses the quality of labor.

The qualification of the workforce is strongly underestimated in the education of the adolescents, as well as of the unemployed, but also the employed. The qualification, professional experience is very often a condition for hiring and keeping a job, but also it is strongly underestimated in the payment of labor and even more – as a motivating factor.

As a result many of the people with higher education do not work with the acquired professional training, they work on places, which do not require high education. Part of the workers are not encouraged to qualify or they do not see the point of it, they are not motivated, satisfied by their work.

At the same time it is more difficult for the business to find the necessary workforce with the necessary qualification and especially a desire for high production labor.

The underestimating of the significance of the qualification is revealed also in the policy of the organizations for investments in human resources, in the payment, which does not count sufficiently the higher quality of labor and does not motivate for labor.

The quality of workforce is a decisive factor for the competitiveness of the national economy, since it predetermines the level and dynamics not only of the productivity of the labor, but the total productivity, the use of other factors of the production (development and effective use of the new technologies and materials, of the equipment and the building of more effective technologies for organization of the activity). In this quality it predetermines also the increase of the incomes, the improvement of the conditions of life.

The quality characteristics of the population (education, professional training and qualifications and other) are a determining factor for the level of economic activity and employment of the population, level and duration of unemployment, i.e. they predetermine the prosperity of the country, the stability of the insurance funds, exclusions, social isolation of different groups of population. In other words, the quality of human factor is a decisive factor for the level of employment, the access to employment and paid labor. The qualification is a significant factor for increase of the employment of population, one of the big obstacles of Bulgaria on the way to its integration to EU, for social integration of significant groups of the population, of those who have low education, no professional training and other problems, which make them not adaptive, not desired by the organizations. Besides for the access to labor and incomes for the individual, the qualification is a condition for professional realization, it increases the motivation for labor and thus for increase of the quality of labor, for professional career.

The Bulgarian organizations need people who know and can. The problem they face more often is where to find them. There are many alternatives: schools, labor offices, mediatory agencies, etc. Concerning the quality – people who know, can and are willing to prove it – the choice is strongly limited. The other question is whether the modern business invests and is ready to invest in human capital? The investments in qualification are very risky for the firms. With existing and legally guaranteed freedom of movement of the workforce, the firms often lose their investments in education. Is there enough understanding of the strategic character of the problem, desire and opportunities this to be made? The predominant part of the firms are small or micro firms. What should the qualification of their employees be?

The opportunities for professional career, for development, are considerably limited. Maybe the business evaluates that the professional training and qualification are not a factor for the competitiveness and productivity?

The other big problem is the low payment, low salaries for qualified labor, salaries, which do not count and practically do not stimulate the increase of the qualification. Still the formal possessing of a diploma for education, qualification, is more important than the essence of this education and the striving for its development.

The business in Bulgaria meets serious challenges: productivity and competition

(internal and external). An understanding of the role of the human factor is necessary for successful overcoming of these challenges. Without change in the quality and motivation of the human factor the necessary change is impossible to happen. The strategy for development of business should be based on the strategy for qualitative development of the human resources, of investments in them. After that comes the problem of keeping the qualified employees, of “buying out” the investments made in them. The motivation factors, opportunities for career, adequate, competitive payment and many others are undoubted means for that. Another one is the introducing of systems of payments, which commensurate the quality of labor and the results of it and its payment, and cooperate for the continuous development and increase of the qualification.

## **7. Conclusion**

The qualification in the conditions of increasing mobility, flexibility, globalization, sets more questions and raises new problems, which require effective decisions for investments in human factor and for the duration and place of their return. The place (organization) of investing more and more often cross-meets the place of use of these investments, i.e. their “buying out” is made not by the depositor. For example, investments are made in Bulgaria (totally and for professional education) and/or in the organizations (qualifications, specializations) but the new quality of this very same workforce is realized in other countries and organizations. There is also a reverse process. Many young people in Bulgaria have studied and study, have worked and work abroad. More and more of them seek realization in Bulgaria. Many of them meet serious difficulties due to the differences in the expectations and opportunities of both the countries offering and seeking qualified labor. The question is whether we have conditions, environment, payment, which can meet, use and keep workforce with high quality and opportunities? In other words, can we “gather” the fruits of the migration, its most significant contribution to the national economy?

The quality of the human factor, the creation of opportunities for its development, professional realization in productive labor, the increase of its motivation for the continuous development, should be a subject of management decisions (strategies, policies, plans, programs) at all levels: state and local management, organizations and different individuals and households.

The high education and/or the good professional training are an important but insufficient condition. On one hand, the correspondence of the professional training to the needs of the business, and on the other hand – the opportunity, readiness of the individual to implement the knowledge, are determining factors. First, this sets certain requirements to the education and professional training concerning the content, but also concerning the forming of the trainees as thinking, creative persons, able to implement the knowledge into the current and even more in the future practice. Our education is far from meeting these requirements and needs significant changes. The policy of EU for encouraging the mobility of the students and teachers, as well as the connections with the business, turning the practices into an obligatory element of the education, can contribute to that.

Second, establishing strong connections and cooperation between the business and the schools is necessary for development the professional directions in the schools and their content, as well as for ensuring practices, professional practice for the graduates from the relevant schools. This necessary connection between education and business should be permanent, at all levels of management and institutionalized, with participation of all social partners and of the direct participants in this process.

The access to education, professional orientation, lifelong learning; studying the development of professions, quality of education and its adaptivity to the social, economic and technological changes are among the priority matters.

The economic growth, the increase of incomes, employment in the next years are predetermined by the human factor. The high growth cannot automatically create employment, since it needs more qualified labor. The low education, insufficient professional training cannot contribute significantly to the productivity and thus to the increase of the level of incomes of the employed and their families. If the management does not take actions concerning the quality of the workforce and with the outlined tendencies of its natural limiting (aging of the population), a tendency for having demand and insufficient supply of workforce outlines, i.e. there is a need for import of quality workforce. The problem is whether the business is ready to pay the price for the necessary quality characteristics of workforce? But it is sure, as Peter Drucker says, that "... the knowledge will be a main source of wealth", and the new society "... will be also a society of the organizations".<sup>8</sup>

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<sup>8</sup> Drucker, P. Op. cit., p. 9-10.



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# KNOWLEDGEABLE WORKERS – SOURCE OF COMPETITIVE ADVANTAGE

*Dr. Claudia – Elena Țuclea  
Dr. Gabriela Țigu  
Academy of Economic Studies, Bucharest, Romania*

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## 1. Definition of knowledge management

In the information age, a company's survival depends on its ability to capture intelligence, transform it into usable knowledge, embed it as organizational learning, and diffuse it rapidly throughout the company. In short, information can no longer be abstracted and stored at the corporate level, it must be distributed and exploited as a source for competitive advantage.

Knowledge management has been described as “making the most effective use of the intellectual capital of a business. It involves *wiring together* the brains of appropriate people, so that sharing, reasoning, and collaboration become almost instinctive and a part of everyday work.” Looking at an organization as being knowledge-based represents one of the fundamental shifts to actual thinking. Making this shift, however, means a complete overhaul in traditional management approaches (such as recruitment, employment, and management of knowledgeable workers) and performance measurement (challenging such notions as return on investment and budgetary control).

The new language of the knowledge-based company, intelligent enterprise, and learning organization can be somewhat confusing. Terms such as “intellectual assets (or capital)” are frequently used interchangeably with “knowledge-based assets”, “information-based assets”, and “intangible assets”.

The traditional companies are built on familiar bedrock of buildings, plants, and inventories. Competitive advantage is viewed in terms of scale and volume stemming from high-capacity use of machine-based factories. Service firms have similarly looked to large branch networks to display their power. Such an approach fails to recognize the importance of the switch from tangible to intangible assets, and how the leverage of knowledge is becoming a key to long-term success.

The 3<sup>rd</sup> millennium organizations must recognize that power now resides in the minds of their best people, who are diffused throughout the business. Utilization of this knowledge, which is embedded in systems, databases, and core competencies, is the new source of competitive advantage.

It is rather ironic that as the information age finally closes in around us, organizations are becoming more dependent on *people* than ever before. Even today's most powerful computers can't match the intelligence of a worm. Their increasing ability to capture, process, and distribute highly structured information is a wonder of the age, but businesses still require the intelligence and experience of human beings to turn that information into useful knowledge and good decisions. As Peter Drucker noted, "knowing how a typewriter works does not make you a writer. Now that knowledge is taking the place of capital as the driving force in organizations worldwide, it is all too easy to confuse data with knowledge and information technology with information."

Knowledge-based competitive advantage can occur in many ways. For example, hotels can now create personal profiles of guests and ensure that their special needs are looked after across their global network. The knowledge-based organization will also be able to monitor the performance of its key processes. For example, it will track how much value-adding work is being performed by its business units, teams, and employees.

## 2. Sources of Knowledge

Organizations can acquire and improve their collective knowledge in various ways including learning by experimenting, learning from experience (especially from past mistakes), from the experience of others, and by the acquisition of top individuals or even whole businesses. The advantage of knowledge is such that a few exceptional people can make an organization successful. Conversely, the loss of those people can cause it to decline. It is therefore not surprising that high-profile knowledge-based companies spend large sums of money and considerable amounts of time attempting to recruit the best brains available. Moreover, once the brains have joined the company, they are given intensive training, often under the guidance of mentors. This development is not confined to technical knowledge or laboratory experience. These organizations drive their top knowledgeable worker to solve real operational problems. Constant evaluation takes place. Knowledge-based businesses are devoted meritocracies. Human resource managers will find themselves increasingly important members of the team, as rivalry between firms will focus on acquiring the best potential "knowledge-stars" in business.

The best known sources of knowledge are: creative problem solving (to produce current products); implementing and integrating new methodologies and tools (to enhance internal operations); as well as formal and informal experimentation (to build capabilities for the future). All these activities are internally focused. The final activity involves importing expertise from outside, particularly suppliers, partners, customers, and other (often unconnected) organizations. The activity of looking at "best practices" within companies well known for excellence in carrying out particular processes is

known as benchmarking. Customers are invaluable sources of information about competitive products and services, and suppliers can provide useful feedback on the strength of company's internal processes. However, learning will take place only if feedback is documented as it is received and not doctored to reflect personal views or biases.

Knowledge can also be shared between companies, particularly in joint-ventures. By pooling investments and sharing risks, each partner gains access to a wider group of knowledgeable workers. And by achieving critical mass in research each partner may well achieve break-through unthinkable of, if on their own.

### **3. Research Results**

The knowledgeable worker has individual and personal knowledge, and organisations are increasingly seeking ways of transforming this into shared social knowledge deployed for organisational goals. Our research investigated human resource strategies and practices for attracting, motivating, and retaining knowledgeable workers in Romanian firms. The research followed to some extent the models of Frank M. Horwitz, Chan Teng Heng and Hesam Ahmed Quazi (2003).

Our work considers local firms and has one key objective:

- to determine the best or most effective HR practices for managing knowledgeable workers, for proposing a scheme to attract, motivate and retain these workers.

Baron and Hannan (2002) provide an instructive conceptual framework with three dimensions of employment blueprints for success in high-tech start-up firms. First, a basis of attachment and retention includes compensation, quality of work and work group as a community. This is a key basis for creating the second dimension for attachment – criteria for selection – which includes skills, exceptional talent/potential and fitting with a team or organisation. Thirdly, means of control and co-ordination include direct monitoring or peer or cultural control, reliance on professional standards, and formal processes and procedures. These dimensions are then placed into an organisational typology with the following models:

1. the 'star' organisation which recruits top talent, pays very high wages and provides resources and autonomy to perform;
2. the commitment-based organisation where people want to work in the long-run;
3. the bureaucracy where roles and functions are clearly prescribed with rigid project management techniques;
4. the engineering model with 'skunk-works' mentality and with high binding energy;
5. the autocracy with a traditional instrumental and contractual basis for work.

Starting from this point of view, we investigated two groups of managers: the first group included the managers who had never been involved in activities related to human resources, and the second the managers who had been involved. The managers from the first group chose theoretically the strategies they considered most effective; the managers from the second group indicated the strategies they applied. A structured questionnaire was designed for gathering data, with three major sections. The first covered organisational profile, including industry sector, firm ownership, number of employees and structural analysis of employees. In the second section, the deployment of knowledgeable workers as full-time employees or as non-core employees (such as sub-contractor, consultant, part-time, fixed-term contract and others) was specified. In the three and main section strategies were listed for attracting, motivating and retaining knowledgeable workers. In each section there were 5 alternatives of choice and they had to indicate three, ranking them by importance to respondents.

The respondents were managers included in an MBA program of the Academy of Economic Studies. Their number was 42, divided in two groups: managers who had never been involved in human strategies design (19), and managers who had participated in the elaboration of this kind of strategies (23).

The managers from the first group chose the answers in a theoretical way, based on the literature information. The managers from the second group indicated, in fact, the decisions they had made in the course of their jobs. All of them considered that they had always made the right choice. After the analysing the responses, there was an interesting discussion.

Related to the first objective, the answers of the first group were the following:

Attraction strategies: 1. Advertised jobs;

2. Internal talent development;

3. Used head hunters.

Motivation strategies: 1. Freedom to work independently;

2. Contact with top management;

3. Incentive bonuses.

Retention strategies: 1. Competitive pay package;

2. Challenging work;

3. Top management support.

It appeared that the most popular strategies were the above mentioned strategies.

During the discussions, the respondents said they chose the answers under the influence of professional reviews, books and MBA courses.

The second group indicated the following answers:

Attraction strategies: 1. Very competitive total package on the labour market;

2. Internal talent development;

3. Reputation of employer.

Motivation strategies: 1. Freedom to plan work;

2. Challenging work;

3. Access to leading-edge technology/products.

Retention strategies: 1. Challenging work;

2. Highly competitive pay package;

3. Opportunities to develop in a specialist field.

Conforming to these answers, the most effective strategies for attraction are related to a highly competitive remuneration package, while for motivation this is the freedom to work independently, followed by the challenging work. Both of these strategies are related to the content of work, an important intrinsic motivation. Concerning the retention strategies, a challenging work is the most important (an intrinsic motivator, too). This conclusion confirms the Herzberg bi-factorial theory: the extrinsic motivators are responsible for the leaving, and the intrinsic motivators explain the remaining.

There are some differences between industries, and in a further research we intend to develop this idea.

The conclusion is that the most popular strategies are not necessarily the most effective ones. Organisations need to assign more importance to what does and does not work. Romanian managers are not so preoccupied to separate knowledgeable workers from the non-knowledgeable ones, by elaborating special strategies. This could be a serious hindrance to compete with European companies by means of more effective practices and strategies in the human resource field.

#### **4. Leveraging Knowledge for Competitive Advantage**

Making knowledge-based investments cannot be just an act of faith; such investments must ultimately bring financial rewards. Several firms have been pleased with their investment in knowledge-based approaches, notwithstanding the problems with

definitions and measures. Best documented successes so far have been in deploying structural capital (especially knowledge-based systems) to improve customer service and relationships.

Many firms make large capital investments to support knowledgeable workers but fail to reap the rewards of higher productivity. Managers cannot force knowledgeable workers to be more productive. In fact, more often than not, knowledge is locked away inside remote departments, business units, and especially communities of practice. In many cases, this knowledge is fiercely protected not only from competitors, but also from colleagues in other parts of the business. In this way, many islands of knowledge are created, resulting in the proverbial wheel being reinvented many times over again.

Knowledge management is not another competitive weapon to be taken out of the consultant's toolbox. It is a long-term program, involving cultural change that goes to the heart of organizational management. The research into organizational learning is lighting the way. The key issue is the understanding the nuances of communities of practice and how to harness and spread their strengths. The approach to IT investment must also adapt. Instead of proliferating knowledge-based networks concerned with the capture and distribution of information, organizations must now understand that sharing knowledge is as much a social activity, as a technical one and that computer networks which facilitate this kind of dialogue are likely to be (and seen to be) more effective.

Chris Argyris notes that "twenty-first century corporations will find it hard to survive, let alone flourish, unless they get better work from their employees...employees who have learned to take active responsibility for their own behavior, develop and share first-rate information about their jobs and make good use of genuine empowerment to shape lasting solutions to fundamental problems. People and their attitude remain at the center of the 3<sup>rd</sup> millennium company. This journey into knowledge management begins with technology and leads inexorably to trust. In other words, to maximize the productivity of knowledge, bond of trust need to be created between all constituents – between shareholders and managers, between managers and workers, between workers and customers, and between business partners. These are the allies to the culture of nowadays economy, and represents one of the biggest challenges for aspiring the third millennium organizations" (Argyris, 1994).

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# THE BOLOGNA PROCESS FOR THE ESTABLISHMENT OF THE EUROPEAN HIGHER EDUCATION AREA

*Dr. Svetla Boneva  
University of National and World Economy, Bulgaria*

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## 1. Legal Basis of the Higher Education in the EU

Higher education plays a central role in the development of people and contemporary societies. It enhances social, cultural and economic development, active citizenship and ethical values.

At European level education in general and higher education in particular are not subjects of a "common European policy": competence for the content and the organization of studies remains at national level.

However, according to Art. 149 of **the Treaty of Nice**, the Community "shall contribute to the development of quality education by encouraging cooperation between Member States", through promoting the mobility of citizens, designing joint study programs, establishing networks, exchanging information or teaching languages of the EU. The Treaty also contains a commitment to promote lifelong learning for all citizens of the Union. Therefore, **the Community has a complementary role**: it adds a European dimension to education,<sup>1</sup> helps to develop quality education and encourages lifelong learning.

The main tool for putting this ambition into practice is the [SOCRATES/Erasmus program](#), which supports exchanges of students and teachers, launches joint study programs or intensive courses, pan-European thematic networks and other measures aiming at the development of a European dimension in higher education. The second phase of the Socrates Program ends in 2006 and new educational programs will

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<sup>1</sup> On 11 November 2003, the Commission adopted the [Communication "Education & Training: the Success of the Lisbon strategy hinges on urgent reforms"](#).

replace Socrates. Erasmus will continue to exist as part of the new programs after certain modifications.

To facilitate recognition of studies abroad for academic and professional purposes, several initiatives have been launched at European level:

- the European Credit Transfer and Accumulation System (ECTS);
- the "Diploma Supplement" (in cooperation with the Council of Europe and UNESCO);
- the NARIC network.

In terms of quality assurance in higher education, a European Network of Agencies called ENQA was set up in 1999 following a pilot-project and a recommendation adopted in 1999. The academic community includes also the EUA – European University Association (representing the university sector) and EURASHE (representing the sector of non-university higher education institutions).

## **2. The Bologna Process**

### *2.1. The Sorbonne Declaration on Harmonisation of the European Higher Education System*

In May 1998 the ministers in charge of higher education of four European countries – France, Italy, the United Kingdom and Germany, signed the so-called Sorbonne Declaration on the "harmonisation of the architecture of the European Higher Education System" at the Sorbonne University in Paris. Other European countries later subscribed to the Declaration.

The Sorbonne Declaration focused on:

- a progressive convergence of the overall framework of degrees and cycles in an open European area for higher education;
- a common degree level system for undergraduates (Bachelor's degree) and graduates (Master's and doctoral degree);
- enhancing and facilitating student and teacher mobility (students should spend at least one semester abroad); removing obstacles for mobility and improving recognition of degrees and academic qualifications.

### *2.2. The Bologna Declaration for the Establishment of the European Higher Education Area*

In June 1999, 29 European ministers in charge of higher education met in Bologna to

lay the basis for establishing a European Higher Education Area by 2010 and promoting the European system of higher education worldwide. The Bologna Declaration of 19 June 1999 involves six actions related to:

- adopting a **system of academic degrees, which are easy to read and compare**. It includes the introduction of a diploma supplement in order to improve transparency;
- adopting a **system based on two cycles**: a first cycle geared to the labor market and lasting at least three years (Bachelor) and a second cycle (Master) conditional upon the completion of the first cycle;
- **establishing a system of accumulation and transfer of credits** of the ECTS type used in the Socrates-Erasmus exchange scheme;
- **promoting mobility of students, teachers and researchers**: elimination of all obstacles to the freedom of movement;
- **promoting cooperation** with regard to quality assurance;
- **promoting the European dimension of higher education**: expand at all levels on modules, teaching and study areas where the content, guidance or organisation has a European dimension.

Convinced that the establishment of the EHEA required constant support, supervision and adaptation to continuously evolving needs, the ministers decided to meet again in two years time in Prague.

Today, more than 40 countries participate in the Bologna process after having fulfilled the accession conditions and procedures. The countries that have subscribed to the European Cultural Convention, signed on 19 December 1954 under the aegis of the Council of Europe, are eligible for membership of the European Higher Education Area, provided that they declare their intention to incorporate the objectives of the Bologna process into their own higher education system. Their membership applications must include information on the way, in which they will implement the principles and objectives.

The Bologna process is in line with the objectives of the Lisbon strategy.

### *2.3. The Prague Communiqué*

Two years after the Bologna Declaration has been signed, the ministers in charge of higher education of the 33 signatory countries met in Prague in May 2001 to review the advance in the Bologna Process and to set directions and priorities for the following years. The **Prague Communiqué** of 19 May 2001 added the following actions to the Bologna process:

- reaffirmed the objectives of the Bologna Declaration;
- appreciated the active involvement of the European University Association (EUA) and the National Unions of Students in Europe (ESIB);
- took note of the assistance of the European Commission;
- made comments on the further process with regard to the different objectives of the Bologna Declaration;
- emphasised as important elements of the European Higher Education Area:
  - **lifelong learning** is an essential element of the EHEA in order to address economic competitiveness;
  - **the involvement of higher education institutions and students** – the importance of the involvement of universities, other higher education establishments and students for the creation of the EHEA is underlined;
  - **promote the attractiveness** of the EHEA among students in Europe and in other parts of the world (including the aspect of transnational education).

The ministers decided that the next follow-up meeting of the Bologna Process should take place in 2003 in Berlin to review the progress and to set the directions and priorities for the next stages of the process towards the EHEA.

#### *2.4. The Berlin Communiqué*

When ministers met again in Berlin in September 2003, they defined *three intermediate priorities for the next two years*: quality assurance, the two-cycle degree system and recognition of degrees and periods of studies.

The Berlin conference has been focused on doctorate studies and synergy between the EHEA and the European Research Area (ERA). The importance of research, research training and the promotion of interdisciplinary research has been underlined to maintain and improve the quality of higher education and strengthen its competitiveness. Ministers called for increased mobility at doctorate and post-doctorate level and encouraged the cooperation in the sphere of doctorate studies and training of young researchers.

The specific goals for each of the action lines set in the Berlin Communiqué are:

- **Quality assurance**

The need to develop mutually shared criteria and methodologies has led to the agreement that by 2005 national quality assurance systems should include:

1. a definition of the responsibilities of the bodies and institutions involved;
2. evaluation of programs and institutions, including internal assessment, external review, participation of students and the publication of results;
3. a system of accreditation, certification or comparable procedures, international participation, cooperation and networking.

- ***The two-cycle system***

The development of an overarching framework of qualifications for the EHEA has been planned. Within such frameworks, degrees should have different defined outcomes. First and second cycle degrees should have different orientations and various profiles in order to meet the diversity of individual, academic and labour market needs.

- ***Recognition of degrees and periods of studies***

A decision has been made on the Lisbon Recognition Convention<sup>2</sup>, which should be ratified by all countries participating in the Bologna Process. Every student graduating as of 2005 should receive the Diploma Supplement automatically and free of charge.

- ***The third cycle***

A decision has been taken to include the doctoral level as the third cycle in the Bologna Process and to promote closer links between the European Higher Education Area (EHEA) and the European Research Area (ERA). This added a new action line to the Bologna Process: the doctoral studies and the synergy between EHEA and ERA.

### *2.5. The Bergen Communique of 2005*

The Bergen communiqué of 20 May 2005 noted that significant progress had been made on the objectives of the process, as illustrated in the 2003-2005 monitoring group's report. The Bergen Conference of European Ministers Responsible for Higher Education, which took place on 19-20 May 2005, adopted the overarching framework for qualifications in the EHEA, comprising three cycles (including, within national contexts, the possibility of intermediate qualifications), generic descriptions for each cycle based on learning outcomes and competences, and credit ranges in the first and second cycles. Ministers committed themselves to elaborate national frameworks for qualifications compatible with the overarching framework for qualifications in the EHEA by 2010, and to having started work on this by 2007.

By 2007, when the next meeting on the Bologna process will be held, progress is planned for the following areas:

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<sup>2</sup> Lisbon Convention on the Recognition of Qualifications concerning Higher Education in the European Region, CETS No 165.

- implementing references and guidelines to guarantee quality, as proposed in the ENQA (European Association for Quality Assurance in Higher Education) report;
- introducing national qualification frameworks;
- awarding and recognising joint degrees, including at doctorate level;
- creating opportunities for flexible pathways for training in higher education, including the existence of provisions for the validation of experience.

Table 1  
 Framework of Qualifications for Bachelor, Master and Doctoral Degrees in the  
 European Higher Education Area

	Outcomes	ECTS Credits
<b>First cycle qualification</b>	Qualifications that signify completion of the first cycle are awarded to students who: <ul style="list-style-type: none"> <li>• have demonstrated knowledge and understanding in a field of study based on general secondary education. The first cycle of qualification is supported by advanced textbooks and the forefront every field of study;</li> <li>• can apply their knowledge in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study;</li> <li>• have the ability to gather and interpret relevant data (within their field of study) to prepare analysis on relevant social, scientific or ethical issues;</li> <li>• can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences;</li> <li>• have developed those learning skills, which are necessary for them to continue to undertake further study with a high degree of autonomy.</li> </ul>	<b>180-240 ECTS credits</b>
<b>Second cycle qualification</b>	Qualifications that signify completion of the second cycle are awarded to students who: <ul style="list-style-type: none"> <li>• have demonstrated knowledge and understanding based on but exceeding the knowledge accumulated in the first cycle; that knowledge provides a basis for originality in developing or applying ideas, often within a research context;</li> <li>• can apply their knowledge and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study;</li> <li>• have the ability to integrate knowledge and handle complexity, to formulate judgments with incomplete or limited information, and to include reflection on social responsibilities linked to the application of their knowledge and judgments;</li> <li>• can communicate their conclusions and knowledge to specialist and non-specialist audiences clearly and unambiguously;</li> <li>• have the learning skills to continue to study in a self-directed or autonomous manner.</li> </ul>	<b>90-120 ECTS credits</b> , with a minimum of 60 credits at the level of the 2 <sup>nd</sup> cycle
<b>Third cycle qualification</b>	Qualifications that signify completion of the third cycle are awarded to students who: <ul style="list-style-type: none"> <li>• have demonstrated a systematic understanding of a field of study and can use freely methods of research associated with that field;</li> <li>• have demonstrated the ability to conceive, design, implement and adapt a substantial process of research with scholarly integrity;</li> <li>• have made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work that merits national or international refereed publication;</li> <li>• are capable of critical analysis, evaluation and synthesis of new and complex ideas;</li> <li>• can communicate with their peers, the larger scholarly community and with society in general about their areas of expertise;</li> <li>• can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge based society.</li> </ul>	Not specified

Source: Summarized from working materials of the Conference of European Ministers responsible for higher education, Bergen, 19-20 May, 2005.

The next meeting of Ministers will take place in May 2007 in London, UK.<sup>3</sup>

### **3. The European Quality Assurance Standards in Higher Education and the Bologna Process**

In 2001 the European Ministers of Education meeting in Prague invited the ENQA to collaborate in establishing by 2010 a common framework of reference for quality assurance – the so-called European quality assurance framework. Two years later in Berlin the ministers recommended ENQA to contribute more directly to the European quality assurance process. In the Berlin Communiqué ENQA received a double mandate from the Ministers:

- to explore ways of ensuring an adequate peer review system for quality assurance agencies; and
- to develop an agreed set of standards, procedures and guidelines on quality assurance.

In the Bergen meeting in May 2005 the European Ministers of Education adopted the "Standards and Guidelines for Quality Assurance in the European Higher Education Area", drafted by ENQA. The Ministers committed themselves to introducing the proposed model for peer review of quality assurance agencies on a national basis. They also welcomed the principle of a European register of quality assurance agencies based on national review and asked that the practicalities of its implementation would be further developed by ENQA in cooperation with EUA, EURASHE and ESIB, with a report back to the Ministers through the Bologna Follow-Up Group (BFUG). In Bergen ENQA was accepted as a new consultative member of the BFUG.

The Bergen Conference adopted three groups of Standards and Guidelines for Quality Assurance in the European Higher Education Area<sup>4</sup>:

#### **A. European Standards for Internal Quality Assurance within Higher Education Institutions**

##### **1. Policy and procedures for quality assurance**

Institutions should have a policy and associated procedures for the assurance of the quality and standards of their programmes and awards. They should commit themselves explicitly to the development of a culture, which recognises the importance of quality and quality assurance in their work. To achieve this, the institutions should develop and implement a strategy for the continuous enhancement of quality. The

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<sup>3</sup> On this issue the European Commission has published a document on 24 January 2006 called "From Bergen to London – the Contribution of the European Union".

<sup>4</sup> The complete set of standards and guidelines is given in the ENQA report "Standards and Guidelines for Quality Assurance in the European Higher Education Area".

strategy, policy and procedures should have a formal status and be publicly available. They should also include a role for students and other stakeholders.

## **2. Approval, monitoring and periodic review of programmes and awards**

Institutions should have formal mechanisms for the approval, periodic review and monitoring of their programmes and awards.

## **3. Assessment of students**

Students should be assessed using published criteria, regulations and procedures, which are applied consistently.

## **4. Quality assurance of teaching staff**

Institutions should have ways of proving the staff, involved in teaching of students, is qualified and competent with regard to teaching. The methods and procedures for ensuring that this is the case should be available to those undertaking external reviews, and commented upon in reports.

## **5. Learning resources and student support**

Institutions should ensure that the resources available for the support of student learning are adequate and appropriate for each programme offered.

## **6. Information systems**

Institutions should ensure that they collect, analyse and use relevant information for the effective management of their programmes of study and other activities.

## **7. Public information**

Institutions should regularly publish up-to-date, impartial and objective information, both quantitative and qualitative, about the programmes and awards they offer.

### ***B. European Standards for the External Quality Assurance of Higher Education***

#### **1. Use of internal quality assurance procedures**

External quality assurance procedures should take into account the effectiveness of the internal quality assurance processes.

#### **2. Development of external quality assurance processes**

The aims and objectives of quality assurance processes should be determined before the processes themselves are developed, by all those responsible (including higher education institutions), and should be published with a description of the procedures to be used.

### **3. Criteria for decisions**

Any formal decisions, made as a result of an external quality assurance activity, should be based on explicit published criteria applied consistently.

### **4. Processes fit for purpose**

All external quality assurance processes should be designed specifically to ensure their fitness to achieve the aims and objectives set for them.

### **5. Reporting**

Reports should be published and written in a clear style and readily accessible to their intended readership. Any decisions or recommendations contained in reports should be easy for a reader to find.

### **6. Follow-up procedures**

Quality assurance processes which contain recommendations for action or which require a subsequent action plan, should have a predetermined follow-up procedure implemented consistently.

### **7. Periodic reviews**

External quality assurance of institutions and/or programmes should be undertaken on a cyclical basis. The length of the cycle and the review procedures to be used should be clearly defined and published in advance.

### **8. System-wide analyses**

Quality assurance agencies should produce from time to time summary reports describing and analysing the general findings of their reviews, evaluations, assessments, etc.

## ***C. European Standards for External Quality Assurance Agencies***

### **1. Use of external quality assurance procedures for higher education**

The external quality assurance of agencies should take into account the presence and effectiveness of the external quality assurance processes.

### **2. Official status**

Agencies should be formally recognised by competent public authorities in the EHEA as agencies with responsibilities for external quality assurance and should have an established legal basis. They should comply with any requirements of the legislative jurisdictions within which they operate.

### **3. Activities**

Agencies should undertake external quality assurance activities (at institutional or programme level) on a regular basis.

### **4. Resources**

Agencies should have adequate and proportional resources, both human and financial, to enable them to organise and run their external quality assurance process(es) in an effective and efficient manner, with appropriate provision for the development of their processes and procedures.

### **5. Mission statement**

Agencies should have clear and explicit goals and objectives for their work, contained in a publicly available statement.

### **6. Independence**

Agencies should be independent to the extent both that they have autonomous responsibility for their operations and third parties such as higher education institutions, ministries or other stakeholders cannot influence that the conclusions and recommendations made in their reports.

### **7. External quality assurance criteria and processes used by the agencies**

The processes, criteria and procedures used by agencies should be predefined and publicly available. These processes will normally be expected to include:

- 1) a self-assessment or equivalent procedure by the subject of the quality assurance process;
- 2) an external assessment by a group of experts, including, as appropriate, student member(s), and site visits as decided by the agency;
- 3) publication of a report, including any decisions, recommendations or other formal outcomes;
- 4) a follow-up procedure to review actions taken by the subject of the quality assurance process in the light of any recommendations contained in the report.

### **8. Accountability procedures**

Agencies should have in place procedures for their own accountability.

## **Conclusions**

The European countries participating in the Bologna process have still significant differences in their systems of higher education. The basic aim of the Bologna process is not to unify but to harmonize the basic framework of qualifications for bachelor, master and doctoral degrees in the EHEA and the mutual recognition of degrees and periods of studies. This is the first one of the three pillars underpinning the establishment of the EHEA that have to be built by 2010. A major advance has been achieved in this aspect of the EHEA.

The European quality assurance standards in higher education have been developed by the European Association of Quality Assurance in Higher Education (ENQA) and adopted in May 2005. They include three groups of standards and guidelines for quality assurance in the EHEA:

- European standards for internal quality assurance within higher education institutions;
- European standards for the external quality assurance of higher education;
- European standards for external quality assurance agencies.

The basic task for the Bologna process countries in the field of quality assurance (the second pillar of the EHEA) is to peer review the quality assurance agencies at national level and to create a European register of quality assurance agencies. The advance in this respect has been constantly analysed by the Bologna follow-up group.

The biggest challenge for the Bologna countries is to create in practice the link between the EHEA and the ERA (the third pillar of the EHEA). This task has been set for the Bologna countries in 1993 and represents the third (still unfinished) pillar of the EHEA.



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# STUDYING THE QUALITY OF SOCIAL CAPITAL AS A PREREQUISITE FOR SUCCESSFUL ACCESSION TO THE EU

*Assoc. Prof. Dr. Alexi Danchev  
Fatih University, Istanbul, Turkey*

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## 1. Introduction

The actual accession of the newly expected members Bulgaria and Romania to the EU is a process which has already accumulated serious experience. Despite the undeniable progress its level is still below the desirable one and there are many reasons for it. The accession problems are only part of the whole spectrum of issues, which are reflection of the difficulties with the transition of the totalitarian to democratic society. The experience of the last and a half decade indicates that this process can not be accelerated for many economic, social, cultural and other reasons. As a matter of fact the solution of all these problems circulates around the more general dilemma of sustainability of development. Reasonable is then the question: Why the development in these countries is not going in its sustainable path and we continue to be witnesses of many, sometimes increasing market and government distortions? Among the whole lot of questions which could be formulated, in particular we may narrow down one of them as: Is not the quality of social capital one of the reasons for the present state of affairs in these countries?

The reason for such a formulation is the fact that as many observations point out social capital has very important functions in the movement of a given society to sustainable development. Almost all researchers unambiguously indicate as a stylized fact the positive interrelation between social capital and realization of various social aims. It is not a news that societies with a high quality of social capital have reached high achievements in their development despite the restricted access to resources and modern technologies.

Many details about these facts however remain unexplained. The literature devoted to these issues does not provide sufficient explanations of the mechanisms by which social capital affects various development issues. Neither has it been clear how these mechanisms propagate the feedback signals into political decisions.

In the present paper we try to shed light on the problems related to the quality of social capital in Bulgaria. It is expected to have direct effect on the processes of integration to the world economy and in particular to the European economic space. In our previous studies we came to the conclusions of the homeostatic nature of social capital to sustainability. The theoretical considerations were tested with empirical observations in an attempt to explain the deviations from sustainability. The integration processes are part of this sustainability and it would be important to increase our knowledge about the mechanism of social capital generating and its influence on the overall social and economic performance. The practical importance of such conclusions is obvious – it would facilitate considerably the decision-makers in their activity provided that there is a political will to apply these considerations correctly.

## **2. The Two Faces of the Social Units**

Traditionally the analysis of the social problems is concentrated on the formal social structures, formed according to the legal system and norms of the society. Weak attention is paid until now on the so called “soft social infrastructures”, which despite their informal character have powerful influence on the overall social performance. Social capital is in the core of the soft social infrastructures.

Before we turn our analysis in this direction we would like to comment briefly the meaning of social capital as there was serious evolution in the understanding of this category during the last decade. The idea of social capital has stemmed from the 1920's theories of the role of institutions and has reached a relatively complete form in the "new institutional economics" formulated later. As a starting point we use the definition of R. Putnam [Putnam, 1993; Putnam and others, 1993; here and next we use Grootaert, 1997], who defines social capital, as “a set of "horizontal associations" between people: social capital consists of social networks ("networks of civic engagement") and associated norms that have an effect on the productivity of the community”.

While the formal structure is distinctly constructed, the informal structure consists of many hidden elements and their study is difficult. Social capital is “the blood system” of the soft structure. We assume it is the feedback, which helps the social unit to behave sustainably and to keep this sustainability stable. In our view social capital is the homeostatic mechanism regulating flexibility and adaptability of the behavior of the whole social unit, which can not be reached by the formal structure. If the formal structure can formulate sustainability as an aim of behavior and undertakes adequate measures to reach it, its stability is supported just by the informal structures of the unit due to the feedback created by social capital.

The intergenerational equity in the distribution and allocation of resources, the basic feature of sustainable behavior, requires high qualities of the formal and informal social structures. The application of system dynamics modeling allows incorporating all feedbacks in the system, outlining all causalities and capturing both linear and nonlinear relationships. Modeling such a system is extremely difficult. Next we concentrate on the informal structures, where we expect to capture the effect of the

influence of social capital on sustainable behavior. To be successful in this analysis first of all we need to outline the mechanism of its generating. Although the analysis is concentrated on micro aspects of the problem, some of the conclusions can be extended in macro aspect too.

Traditionally social capital is identified with trust in society. In our view however trust is secondary, not primary elements in the creation of social capital. The start of generating social capital needs at least two persons possessing given personalities, that is, having some human capital, regarded not only as skill, experience and health, but including the value system of individuals as a precondition to generate trust and thus social capital.

At this point we are going out of traditional economic categories and enter into psychological, ethical and other issues, which make our further analysis very complicated. To apply system dynamics modeling and to facilitate our considerations we assume that the individuals generate social capital due to their human capital, which is formed by means of two other forms of capitals: moral and cultural. Traditional development literature says that as a complex of skill and health factors, human capital determines the state of labor as input in production of goods and services. We add to it the role of human capital in the process of formation of social capital, pointing out that the very formation of human capital is due to two basic groups of factors, which we divide into moral and cultural capitals. It is clear that they contribute to the creation of human capital since the birth of the individuals.

How could we define these two newly introduced forms of capitals in a way suitable for our analysis? Moral capital is formed in society as a result of accepted moral norms in it. Moral is relating to principles of right and wrong; or conforming to standards of behavior and character based on those principles (*The Free On-line Dictionary of Computing (2003)*). Moral capital is defined on this basis. According to S. Anthony "It's the values a society holds and passes on to each new generation in turn" (Anthony, 2004). Sison defines moral capital "as excellence of character, or the possession and practice of a host of virtues appropriate for a human being within a particular sociocultural context." "Moral capital is what makes a person good as a human being," (Zenit, 2004). Sison summarizes the meaning of moral capital as "integrity... perfects the human being as a whole person" (Zenit, 2004). To shorten our discussion we use the definition of moral capital within the triangle "justice, beneficence and temperance" ([Ratnapalap, 2003](#)).

Moral capital is the foundation of formation of all forms of capital related to the informal structure. We squarely agree with the opinion expressed in "The Moral Capital of Leaders: Why Virtue Matters," that "no amount of human, intellectual or social capital could make up for the lack of moral capital among workers for the long-term success of the enterprise." (Sison, 2003).

The formation of human capital is affected by moral capital in two ways: directly – by influencing the value system of individuals within the family background, and indirectly – by affecting cultural capital, which by its side influences the formation of human capital by the products of art, music and other cultural values. The links between

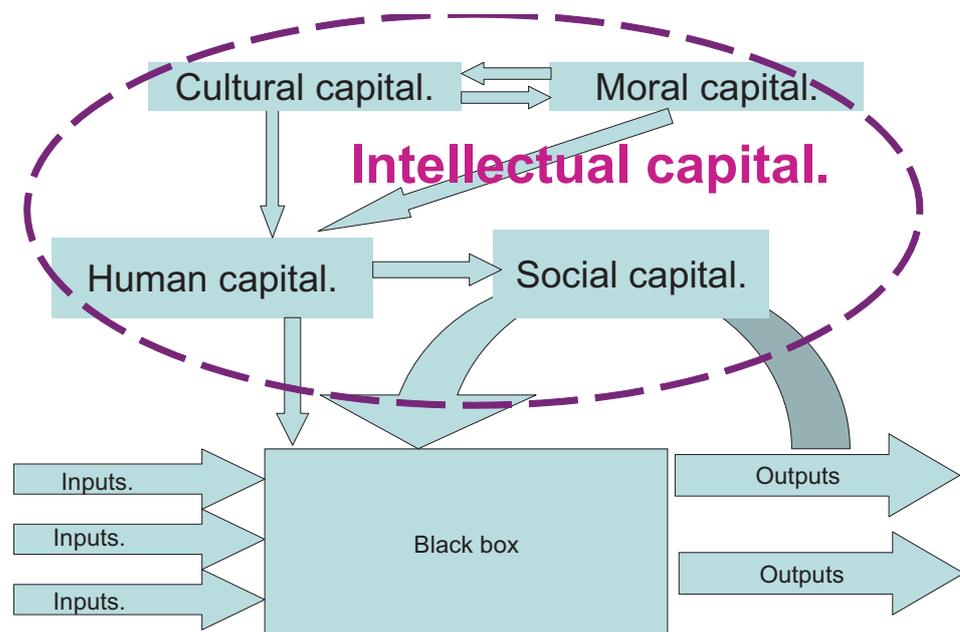
moral and cultural capitals are two-fold: the creation of moral norms induces the generating of cultural values; on the other hand the new cultural values also inspire new nuances of the moral norms in society.

From this perspective the economic understanding of cultural capital is different from that in sociology. Cultural capital is cumulative category having material and non-material forms, result of accumulation of previous generations' achievements. It can deteriorate if it is not maintained correctly. Not only many historic monuments have been lost forever in many places of the world, many habits, traditions, etc. nonmaterial elements of cultural capital have been forgotten by the present generations. Some of them could not survive the time, but the lost of the others was result of misunderstood cultural policy and lack of financial resources, which deprived the formation of social capital from the necessary stock of values.

In the light of these considerations we can outline some mechanism of generating social capital in a way determining sustainable behavior of the system (Figure 1).

Figure 1

The scheme of the mechanism of generating social capital.



The model presented above outlines the general scheme of generating social capital. To avoid ambiguity we sum up all the four “spiritual” forms of capital as intellectual

capital of the social unit. The scheme is complicated in for some forms of capital. For example according to it cultural capital is affecting and being affected by moral capital, next influencing human capital and the generation of social capital. In the ideal case it results in a high quality of social capital, which supports sustainability, when it is reached by the policy realized in the formal structure.

The importance of cultural capital is illustrated better when we analyze its effect in the behavior of the microeconomic units. Part of them is so called "firms' business culture". The good moral norms stimulate the whole hierarchy of the firm to work better and responsibly. One of the policies of firm's management therefore should be enhancing good moral capital in all the members of the firm. Good moral norms are needed to stimulate corporate culture and social responsibility of business. It explains why moral capital plays so important role in the triangle: moral, cultural, human capitals.

Moral capital is central in this triangle as it affects directly and indirectly both cultural and human capitals. Sison outlines the following ideas on how firms can promote the formation of moral capital among their workers.

- Fostering the right actions by practicing the virtue of justice, understood as adherence to the law.
- Investing in proper personal habits and corporate procedures by practicing the virtue of moderation in controlling the desire for immediate gratification.
- Fostering an upright character and corporate culture by practicing the virtue of courage. This sustains long-term worthwhile projects despite difficulties.
- Cultivating the proper lifestyle and corporate history by practicing the virtue of prudence, which disposes one to do what is good here and now, without losing view of the end goal. (Sison, 2003)

The big discussion on this topic is the compatibility of the market and the moral norms, which is very important for the transition societies. The arguments in favor of market are that it is regarded as "the best way to help resolve poverty" (McGurn in Zenit, 2004). At the same time the leading rule of decision making to survive in the market is efficiency, which often is in contradiction with the moral norms. The solution of this controversy is difficult, but the proper government interference or the properly defined property rights could help to find some mutually acceptable solutions. According to Ratnapala (2003) however the state can enforce justice but cannot practice or enforce beneficence without harm to justice. The problem is complicated by the fact that a lot of authors indicate on depletion of moral capital in industrialized democracies. In transition societies the situation is more complicated: on one hand there is restoration of some traditional in the past norms distorted during the communist time, on the other hand some positive norms creating during this period are destroyed without proposing new norms. The moral vacuum is extremely strong taking into account the high level of corruption in these countries at present.

Moral and human capitals affect social capital not only in horizontal aspect as stimulating the emergence of informal associations, but also in vertical aspect, from the perspective of ranking the social preferences of the community. Raymond L. Bryant (2005) outlines the features of the moral leadership and develops the theoretical perspective around the concept of moral capital assessing that concept through in-depth case studies of NGOs in the Philippines. He draws attention of NGOs as semi-formal structures, which plays important role of the formation of social capital. Bryant presents interesting analysis of “the ways in which the quest for moral capital is bedeviled by the need to compromise with political and economic elites, and the possibilities for NGOs to achieve political goals as moral leaders”.

We come naturally to a rather complicated chain of the mechanism of generating social capital, which analysis by means of traditional indicators does not allow capturing its feedback effect. For this aim we analyze the functioning of social capital in two aspects – horizontal and vertical, starting with the horizontal. High level of confidence is needed for the generating of a good quality of social capital in the informal association. Trust and based on its confidence plays the same role for social capital generating as expectations in economic behavior. No form of capital can be kept in sustainable form unless there is a high confidence among the members of the community (tribe, village, town, region, etc.). However while expectations are something more or less stable, the confidence is an extremely fragile, sensitive and often hidden element of social life.

The very confidence has multifarious dimensions. There is no society for which we could say that there is complete confidence among its members. And there is no need of it. Complete confidence is not required to keep social capital as a feedback of sustainability. Only those “critical” level is needed, which would support the stability of social capital to infiltrate undesirable outcomes. Roman [2001] stresses that “trust is easier between like-minded agents; co-operation encounters less opposition among people who share common interests; and cohesion is much easier to achieve when needs are similar”.

To complete the scheme we add the assumption of level of confidence as necessary but not sufficient condition for stable sustainable behavior. Social units normally have hierarchy and to create social capital within the whole hierarchy there is a need of vertical integration among the members of the unit. Nothing could be reached if the level of confidence is high on some levels, but does not influence the higher levels of social capital delegated them to put the feedback in motion, that is, in political decisions. This link is provided by the ability of social units to get to grips with the ranking of social preferences. If we assume that these preferences are formulated by the delegated institutions based on the signals from below, they obviously need the necessary feedback – the support from bottom-up. In such case we could define the social unit as one with a given level of integration between all the levels of hierarchy.

This creates some policy inconvenience. Confidence cannot be generated artificially or to follow as the direct outcome of a given policy. It is a result of some social relationships. Dasgupta [2002] indicates that “Mutual trust is the key to cooperation, social capital is merely a means to creating trust... institutions are formed and held

together by the beliefs members hold about one another and the world. Beliefs are the link between social capital and institutions". The measurement of level of belief (trust, confidence, etc.) is the starting point in testing the assumption of the role of social capital as a homeostatic mechanism in supporting sustainability.

### **3. Horizontal and Vertical Aspects of Social Capital**

The presented above analysis demonstrates how much is to be done to penetrate in the core of our social life. Next we concentrate on two important characteristics of social capital: level of confidence and level of integration. Taken together they constitute the powerful role of social capital as a feedback in supporting sustainability of behavior. We start with the classical category in macroeconomic theory – preferences.

There are many and various individual preferences in society. For the aims of our analysis we can divide them in two groups: preferences of personal and of social importance. They may coincide or overlap but in most cases their realization seems to be a zero-sum game.

When the individuals try to realize only preferences of personal importance (I want to become rich whatever is the price) we observe selfish behavior and the level of confidence in such a unit is as a rule low. Normally this is observed in disintegrated societies in which there are mechanisms invoking zero-sum outcomes of human behavior. Typical examples are totalitarian structures, in which freedom is depressed by various factors, including syndicate mechanisms.

To reach high level of confidence the most significant are the preferences of social importance. It does not necessarily mean altruistic behavior. The preference "I would like my region to be green and nature protected" is a preference of every normal human being. If there is a high level of confidence in society excluding free-riders, it may turn into a social preference and included in the system of ranking preferences by all individuals of the community. Thus it will germinate into a political objective by the delegated agents.

Our life is a sequence of realization of similar preferences. The realization of our socially significant preferences means that the social welfare in society increases in both Benthamian and Rawlsian interpretations.

It is quite normal that in our life we try to realize first of all preferences with individual significance. To realize them we interact with one another. In this process we need to reveal our preferences to the other agents of the economic life and depending on whether there are any conflicts of interest to achieve or not the expected results. This may be a zero-sum game in a lot of cases when the realization of individuals' preferences is mutually exclusive (competing for the same job position), or a sequential cooperative game (in complementary preferences). This difference is often rather fuzzy. When the aims in this game are not mutually exclusive, the agents may reach good results if they cooperate. Addressing the level of confidence in game

theory language, it means that to move from zero–sum interpretation to cooperative games we need to increase the level of confidence when the cooperative strategy is the winning strategy. This strategy cannot be realized unless there is a good level of trust among the players.

The importance of confidence is underlined not only in the economic but also in the other social sciences as law, sociology, etc. Brodie [1996] defines without exaggeration the role of mutual trust and confidence as “the heart of the matter”: This naturally puts the level of confidence in society as an integral part of the social capital since the formulation of this conception. Its evolution from “public physical infrastructure of a nation” to more practical and concrete formulations is evidence of it. Coleman [Coleman, cited from Baron, 2003] indicates the trustworthiness as a resource endowed by social capital. He defines social capital as a “particular kind of resource available to an actor”, comprising “a variety of entities”, which contained two elements: “They all consist of some aspects of social structures, and they facilitate certain actions of actors – whether personal or corporate actors- within the structure”.

These opinions are evidence of two features: first, confidence is strongly incorporated into the whole structure of social capital and second, its mechanism of keeping stability of the feedback is extremely complicated.

As we have already pointed out the social units are as a rule hierarchical systems and their behavior should be analyzed in horizontal and vertical directions. There are always some social needs, which individuals may transform as personal preferences and rank them according to their own interests. At the horizontal level it is easier to expect the same ranking within the same social group, but following the conditions of the Arrow’s Impossibility theorem (Arrow, K. 1963) at the vertical direction a complete consensus in the ranking is impossible in a democratic society. Does it mean that democratic societies cannot come to agreements in ranking social preferences?

It depends on the quality of social capital from the point of view of how much the society is integrated. Evidence of it is how fundamental objectives in society are realized. As an example, sustainable development can be indicated as such an objective. The question coming from this example is: Does the legal system support such development, which will not allow any form of capital to run off? Several conditions are necessary to create such a system: first, if it is a high-ranked individual preference for all the members of society, which believes in its real importance (ranking of social preferences), second, if there is a sufficient trust that this understanding is supported by all the members (level of confidence) avoiding free-rider behavior and finally if it is adopted by the incumbent government as an objective (high level of integration). This is an example of ideal, simplest model. In the attempts to produce more realistic models we face very complicated interrelations often difficult not only to gauge quantitatively, but even to verify qualitatively.

#### **4. The System in Dynamics**

As the behavior of individuals is constrained by many factors: financial, political, cultural, moral, etc., the level of ranking of social preferences needed to create high

quality of social capital is very complicated story. There are a lot of nuances in this story fluctuating between the egoistic and altruistic alternatives. It is normal to expect domination of the egoistic preferences, but often it may be difficult to define to which alternative a given preference is closer. For example, the preference “I would like to be healthy” may be formulated with the additions: “and I could realize it only if I have the necessary money for it” (egoistic alternative) or “if the health system in society improves” (altruistic alternative). If the second case prevails, this individual preference will turn into social preference and whatever happens with the health system in society, the individuals will send feedback signals to the macro-levels of social capital – the delegated representatives (Ministry of Health or other institution) so that it will get better continuously.

The agonizing attempts to improve the health system in Bulgaria are very indicative example of the renovation of social capital despite all controversies of transition. A lot of such attempts have been made during recent years. As the social capital starts to function on a new basis, it sends feedback signals of all irrelevances when undesirable outcomes are produced. Despite the political barriers put up against the feedback, it is a fact that the health system improves, although painfully and at a high social cost.

In the light of the on-going process of accession to the EU, the place of the Balkan societies in this scheme is a rather complicated story. Most of them can be regarded as a classical example of disintegrated societies, in which the basic impediment to sustainability comes mainly from the low quality of social capital. The low level of integration was typical for some of them since old times [Danchev, (1997)]. The effects are however not unidirectional.

The detailed analysis indicates that despite the disintegration, it is just the social capital, which helped the system to withstand a lot of tribulations in the long historic perspective. Living in the mountainous regions, the indigenous people were accustomed to solve problems relying mainly on their own resources. Social capital was strong within local communities, but very weak for the state as a whole due to the low level of integration, typical for underdeveloped societies. Thus the low level of vertical integration we observe now is not new for our history.

The state interference was typically weak even during the totalitarian stage and the proud independent individuals were not accustomed to obey much the rules imposed from above (a feature that helped them to a great degree to withstand the demoralizing effect of the suppressing machine during the Communist regime). In such a way the institutional basis of society traditionally remained lax. The popular Bulgarian saying “Every miracle lasts two days” is a reflection of the disobedience of local people to the decisions from above, and its both negative and positive effects are obvious now. The isolation between the local communities due to many reasons: historic situation, the natural mountainous conditions, etc. created the predominant spirit of disintegration. The level of confidence was historically low. It was one of the reasons the state twice lost its independence during its history.

The study of the state of social capital in the long historic perspective is therefore

useful to understand its present nature and thus the link between social capital and the realization of such social objectives as sustainable development, accession to the EU, etc. In a long historic period the level of social capital in the Balkans remained low in both its dimensions - as a level of integration and as a level of confidence. Brilliant examples can be found in the classical historic works of Z. Stoianov (Stoianov, 1977) from the second half of 19<sup>th</sup> century.

The situation changed with the development of capitalism and overcoming of feudal relationships in society (end of the 19<sup>th</sup> century). The penetration of Western culture and Western values has a positive influence, which transformed the perception of the nature of human relations in urban areas. The level of confidence started to increase with the level of development and so did the level of integration – an objective requirement of improving economic development. We can assume that it is a period of shift toward better sustainability, despite the low level of development of the basic forms of capital.

The imposition of the totalitarian system after WWII had controversial effect on the quality of social capital. The spirit of collectivism certainly played positive role to improve social capital, but the double standard of the totalitarian society could not be hidden for a long time from society and its demoralizing effect increased with the deterioration of so called “socialist way of living”. The process of “wild capitalism” starting with the beginning of the transition is not yet over although there are already signs of more soft and refined forms of social relations. The power groups dissipated into more hidden associations. On the other hand most of the Balkan nations understood the cost of the past illusions and the abuses of the ruling Communist (next renamed as Socialist) parties providing deliberately policy of disintegrating society. There are a lot of indications that both the level of confidence and the level of integration are now improving that is an important prerequisite to produce the quality of social capital necessary for successful realization of the present social aims.

The efficiency of this process strongly depends on the way the quality of social capital is improved. The experience of the advanced economies indicates that it is as a rule a slow process. The very fact that there are obvious signs of improvement of social capital is promising that the Balkan societies have their real chance to move efficiently toward realization of their modern objectives and thus to become an economically and politically integrated part of Europe, to which they naturally belonged for centuries.

##### **5. Empirical evidence: the social capital trap and the failures of the accession process.**

The transition to market economy in the South-Eastern European countries and the accession of some of them to the EU is a suitable example to illustrate the feedback role of social capital in realizing fundamental social aims. During the transition the economic deterioration was on a par with social and environmental degradation. The society now seems to have reached a turning point despite the miserably low standard of living.

A survey has been conducted to test the assumptions indicated above, and to study

the mechanism of generating social capital in various social groups. Valuable knowledge has been accumulated due to the assistance of the non-government organizations, social workers in municipalities, research assistants. For example “Zeleni Balkani (Green Balkans)” helped to collect interviews from 609 citizens of Bulgaria in different regions of the country. The social workers in Sofia and Burgas regions distributed more than 100 questionnaire on social capital among the minorities thus allowing investigating the social capital mechanism among the poorest parts of population. Valuable information has been collected for the generating social capital within the Bulgarian firms.

We can report here only part of these observations. *The level of confidence* among the members of society as a function of personal disposition was studied by presenting to the respondents a scheme of various levels of confidence ranked in the following way: 1. Belief in nobody, 2. I put everything under suspicion, 3. I am inclined to believe sometimes, 4. In most of the cases I believe, 5. I am trustful, although it often brings me disappointments and 6. I am credulous of everybody who passes by. The answers are distributed in the following way: 1. Belief in nobody – 33 answers or 5.66% of all 583 positive answers, 2. I put everything under suspicion – 87 answers (14, 92%), 3. I am inclined to believe sometimes – 137 (23,5%), 4. In most of the cases I believe - 177, 5 (30, 36%). 5. I am trustful, although it often brings me disappointments – 143 (24.53%) and 6. I am credulous of everybody who passes by – 6 (1.03%). The results can be assessed as a reflection of normal, moderate personal confidence in the member of society at the individual level. It is a good precondition for increasing the level of confidence in case the social conditions work in its favour.

*The level of integration* in ranking social preferences was estimated by questions reflecting the willingness to cooperate in case of problems emergence. Several groups of questions have been tested. The first one was the way the respondents would find the outcome of some difficult situations (which we sincerely wished not to happen to them). Five ranks have been given to the following questions (starting with 1 – definitely disagree and ending with 5 – definitely agree):

1. I believe that my friends will help me to cope with,
2. I believe only in myself to find outcome of the situation,
3. The society will take care of it and will help me,
4. The society is in such a state now that it is unlikely I'll find the outcome of some difficult situations.

The answers are summarised in table 1.

The results in table 1 demonstrate high belief in friends and very low belief in society as a whole. Let us recall that it is a feature observed in long historic perspective. It means that we detect high level of integration within the local communities and low level of integration within the society as a whole. It is not a good sign in favour of consensus in ranking social preferences as priority is expected to be given to the local

than to the national interests in voting for the future. A very important fact is the high disapproval of the statement that the state of society at present is such that it is unlikely to find solution of difficult situations. It means that the respondents do not think that the low level of integration is due to the present situation, but that there are rather other reasons for it.

Table 1

Alternatives to find outcome of difficult situations						
	1	2	3	4	5	6
1	35	41	83	104	305	12
2	27	38	80	125	310	3
3	415	99	44	9	8	3
4	285	79	98	37	54	23

In rows – questions, in columns – ranking starting from 1 – definitely disagree and ending with 5 – definitely agree, column 6 – do not know.

Sharing the problems with the other members of society is also regarded as an indicator of level of integration. We formulated the following alternatives of the question: “When you have a problem whom could you share it with?” I can share it with: 1. every passer-by, 2. my parents, 3. very good friend, 4. my wife/husband, 5. I can not share it with anyone. The results are distributed in the following way: I can share it with: 1. every passer-by – 14 (2,43% of all 576 answers), 2 - my parents - 35, 3 (6,08%), 3 - very good friend – 307 (53,3%), 4 - my wife/husband - 143 (24,83%), 5 - I cannot share it with anyone – 34 (5,9%). The “Do not know” answers were given by 12 respondents (not included in the calculations).

There are also mixed answers in the sense that the problems can be shared within various groups: 23 (3, 99%) respondents think they could share their problems with their parents and very good friend, 3 (0,52%) – with their parents and wife/husband, 17 – (2,95%) with very good friends and wife/husband.

Our conclusion is that the results can be regarded as quite realistic – the level of integration is distributed in a way, giving predominance to the very good friend (more than the half of the respondents), followed by the wife/husband - one fourth of the answers. The share of other alternatives is much lower and we do not discuss it. Unfortunately 6% of the respondents have no one to share their problems with.

Another indicator of the level of integration is the individual assessment of the relationships in society. We defined 6 alternatives starting with high level of integration (human is brother to human) and ending with (human is wolf for human) with intermediate levels as 2 – the level of integration is high, 3 - there is some alienation, but when needed everybody helps, 4 – everybody is indifferent to the problems of the others, 5 - the level of alienation in society is high. The votes are distributed in the following way: 1 - human is brother to human – 3 (0,51% from all 584 answers), 2 – the level of integration is high – 12 (2,05%), 3- there is some alienation, but when

needed everybody helps – 182 (31,16%), 4 – everybody is indifferent to the problems of the other people – 175 (29,97%), 5 - the level of alienation in society is high - 157 (26,88%) and 6 - human is wolf for human – 55 (9,42%). “Do not know” is given by 3 answers (not included in the calculation).

An important aspect of the assessment of the level of confidence and integration is the way in which the respondents see the possible solution of the problem. We formulated several basic ways of solution:

1. By means of the principle: “Help yourself so that God helps you too”,
2. I rely totally on the new government,
3. I rely on the president,
4. A strong hand is needed to solve the problems,
5. I rely on external assistance,
6. I’ll manage without any help,
7. No chance to solve the problems.

The answers are a reflection of two important aspects of social capital: level of self-confidence and belief in institutions. The popular principle in Bulgaria “Help yourself so that God helps you too” is supported by 295 of the respondents, which is reflection of some realistic view of the importance of self-mobilisation to solve the problems and overcoming of the “hope from above” behaviour inculcated into people’s heads during the Communist era. The belief in institutions is reflected in two questions: reliance on government and the president to solve the problems. Only 14 respondents rely on the government and 8 on the president, which can be considered as a lack of high confidence in the institutions.

These facts can be considered as worsening the quality of social capital in vertical dimension that restricts the ranking of social preferences and gives high value of self-reliance destroying thus the level of confidence among the members of society. This conclusion is confirmed also by the answers to the other questions.

The need of a strong hand to solve the problem is supported by 79 respondents, which is a reflection of some disappointment at the so called “democratic transition” in the sense that the respondents are disappointed not by the democracy but by the way the transition is going on. The reliance of external assistance is very small – only 25 respondents support it. The question: “I’ll manage without any help” is supported by 62 respondents and “No chance to solve the problems” by 27 respondents (15 declare “Do not know”, 3 mixed answers (the first plus others and 81 have not given any answer).

Our conclusion is that one of the reasons for low integration in society is the lack of

sufficient reliance on the institutions. Unfortunately other surveys also come to similar conclusion. The interviewing of 1109 respondents by the Bulgarian research firm SovaHarris [SovaHarris (2003)] related to the belief in the basic institutions indicates some drop of confidence in Parliament and government and a rise related to the president. Thus in comparison with December 2001 by June 2002 confidence in the basic institutions has changed in the following way: the Parliament - drop in those who approve the activity from 21.7% to 20%, rise of those who disapprove it from 53% to 60.9%; the government – a drop in those who approve it from 30.5% to 28.5% and a rise in those who disapprove it from 44% to 52,7%. Clearly there is a rise in confidence to the performance of the president, but according to the Constitution he plays a very modest role in the political life of the country.

## **6. Conclusions and Policy Implications**

The presented above information is illustration of how high is the demand for knowledge about the state of social capital and its influence on the overall performance. The analysis of the collected already information indicates that there are serious problems with the quality of social capital and taking into account its importance of the realization of the basic social aims, we expect difficulties in the real accession due to the insufficient quality of social capital. As a whole the present situation can be estimated as a moderate disintegration. Although one third of interviewees indicate that there is some alienation but at a time of need everybody helps, almost the same ratio is observed for the answers that everybody is indifferent to the problems of the others, with very close to the answers in favor of high alienation in society.

Normally this discussion invokes the question about the policy implications. Regrettably the politicians expecting some remedy from this discussion will be disappointed. Destroyed for decades, the regulator of sustainability – social capital – cannot be restored in the short run. The last 15 years of transition were not sufficient, moreover that during this period social capital kept on deteriorating and with the present meager positive results we could not expect a dramatic change. It explains to a certain extent why the reforms are so slow especially in the spheres related to social capital (for examples see the failures in the attempts to change the legal system in Bulgaria by several governments). Until social capital does not restore its feedback power, the economic reforms, the accession to the EU and all utmost social aims will move to realization painfully, slowly and with a great loss of social energy.

As social capital is a residual factor, its natural improvement will come from increasing standard of living, zero tolerance to corruption (declared as a primary task by one of the previous Bulgarian governments naturally abandoned after the election campaign), serious changes in the institutional structure. No doubt, the process of accession to the EU will play a very positive role. The harmonization of instructional structures, the inflows of structural and other funds in the region will replace the need for the “big push” traditionally promoted by the development economists to accelerate development with improvement of social capital and harnessing it to the whole mechanism of development. Positive influence will also have such activities as monitoring all forms of capital and increasing the transparency between the political

decision making and society.

The presented analysis can not pretend to reflect completely the state of social capital in Bulgaria or to reveal comprehensively its feedback role. It is necessary to add to it macroanalysis of the institutional structure, of the legislative system and of the other macro-elements of social capital to complete the picture. Although there are similarities with the other Balkan societies, there is a serious need for comparative analysis of the transition process in the other countries of the region. The joint efforts in this field in terms of cooperation and mutual discussion of the problems is one very good precondition to start useful initiatives for more comprehensive study of the link social capital – realization of social aims. It is one of the crucial elements in the search for finding the shortest ways of more effective integration of the Balkans not only with the rest of the European region, but with the rest of the civilized and developed world as well.

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## SUMMARIES

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**Rossitsa Chobanova**

### **DEMAND FOR KNOWLEDGE IN A NATIONAL ECONOMY**

*The paper argues the demand for knowledge is the main engine for knowledge-driven economic development. Taking into account the globalizing supply of knowledge, the development of a national economy is associated with specific for this economy need of knowledge. Recognition of that need by policy-makers is defined as demand for knowledge. This demand could influence definition of priorities of innovation for strategies and policy at national level. In this respect the problem which appears is how to identify the level of the demand for knowledge in a national economy and its sectoral and institutional dimensions as a starting point for formulation of a policy toward knowledge based development. The suggested methodological approach to solve that problem is based on positioning science, technology and innovation indicators as indicators for demand and supply of knowledge,*

*and on a concept for setting priorities for public investment in innovation, respecting social and economic development, driven by knowledge.*

*The paper presents some analyses of the demand for knowledge, conclusions and considerations for policy making on the case of Bulgaria.*

**Andrea Szalavetz**

### **THE ROLE OF INNOVATION IN PERIPHERAL COUNTRIES' CATCHING-UP**

*This paper investigates the channels for catching-up in a knowledge-based global world economy. We provide a tentative answer to the question through which channels information and communication technology revolution has facilitated peripheral (middle income) countries' catching-up. We show that innovation and the switching to a knowledge-based economy do not play a similar role in these countries' catching-up performance as in advanced economies. The engine of growth and technological upgrading is different in the case of these countries than in advanced economies. We then review the implications of this finding focusing on the role and the potential of innovation policy.*

**Liliana Mateeva**

### **NEW TRENDS IN INTERNATIONAL TECHNOLOGICAL COOPERATION, PERSPECTIVES FOR KNOWLEDGE CREATION AND ECONOMIC DEVELOPMENT**

*The paper looks at the new trends of international technological co-operation. It raises the issue of a broader understanding of the inter-company co-operation space, i.e. an innovation system*

at trans-national level. Learning interactions within this system, between institutional agents create prospects for effective international co-operation and deployment of innovation potential. Furthermore, technological co-operation through FDI is observed in order to highlight companies' incentives, as well as important conditions for realising positive effects of investment on economic growth and innovation both at home and in host countries. On the basis of an examination of FDI inflow trends and of the positive implications of investment on economic growth in Bulgaria, prospects are revealed for economic development, as well as for deployment of knowledge-based industries and modern service sector in the country.

**Nikolina Sretenova**

## **SOCIAL SCIENCES AND HUMANITIES IN THE REALITY SHOW OF TRANSFORMATION**

*As it is well-known, the basic concept of the EU FP6 is 'European Research Area' (ERA). The expectation of the EU policy makers is that ERA might strengthen the capacity of the European research potential in a given field in the context of Lisbon strategy.*

*The first part of this paper discusses the impact of EU FP6 on the shaping of the national programmes in Social Sciences and Humanities of the 'old' EU member states and current perspectives of the 'new' member states and accession countries, in particular Bulgaria.*

*The second part of the paper discusses some challenges, which Social Sciences and Humanities face nowadays in all post-communist countries, including Bulgaria.*

**Nako Stefanov**

## **FORMING PROJECT FOR BULGARIAN MODEL OF KNOWLEDGE ECONOMY AND KNOWLEDGE SOCIETY**

*The issues connected with the conceptualization of the new models of social and economic development in the Information Age, the so called "Knowledge Society" and "Knowledge Economy" are of great importance not only from theoretical point of view, but from a practical one. This material presents the case of so called "Broad Understanding" of Knowledge Economy versus the "Narrow Understanding". On that basis, necessary prerequisites for the development and practical implementation of such "broad understood knowledge economy and society" are discussed in the materials – the role of the state, the new organizational paradigm, the educational revolution and of course the creation of Homo creativus as the most important result and driver of the knowledge society and knowledge economy.*

**Anja Bauer**  
**Ewald Rametsteiner**  
**Gerhard Weiss**

## **INNOVATION IN TRADITIONAL SECTORS: FORESTRY IN CENTRAL EUROPE**

*When speaking about innovation researchers and policy makers in general focus on promising high growth and high-tech sectors. Innovation in mature industries, traditional sectors, or low-tech industries on the other side, is normally not regarded as an important issue. The role of low-tech sectors for economic development and innovation is often strongly underestimated. This paper focuses on innovative behaviour and the innovation system of a traditional sector that is generally regarded as being innovation-averse, the forestry sector in Central Europe. In*

recent years, changing technologies, changing consumer markets, decreasing wood prices and other factors have had a dramatic impact on forestry and forest-based manufacturing sectors. The role of forestry in national economies is steadily decreasing while societal and environmental demands increase. This implies the need to transform traditional view of being raw material supplier to being provider of a multitude of services, ranging from energy to recreation.

Based on the research results of EFI Project Centre Innoforce, the paper presents the innovation activities and innovation system in forestry in Central Europe. Drawing on the Sectoral Innovation System approach the paper aims to answer the following questions: What is the actual situation for innovation in forestry in Central Europe? What are the sector's knowledge and technological regime characterized by? What are the active actors in the sector's innovation and how do they interact? What is the influence of institutions on the innovativeness of the sector?

The paper shows that many framework conditions in forestry are not supportive to innovation. High fragmentation of ownership and consequently low average size of the forest holdings result in less full-time occupation in forestry, thus bringing small share of income from forestry. In general, innovation activity of forest holdings in Central Europe is rather low, especially for small forest holdings. Forest holdings focus on implementing organisational innovations, rather than wood- and non-wood products or technological innovations. Further, the paper illustrates that the innovation system in forestry in Europe is quite poor. The importance of innovation itself for the sector's future has been strongly emphasised by forestry policy-makers and stakeholders in European countries. So far, however, forestry sector lacks explicit innovation policies, strategies and programmes which would provide systematic innovation support.

**Rossitza Rousseva**

## **CAPABILITY BASE, INNOVATION ACTIVITIES AND PUBLIC POLICIES IN THE SOFTWARE INDUSTRY IN BULGARIA**

The paper analyzes the capability base, innovation activities and the role of public policies in the indigenous software industry in Bulgaria. Based on a survey data about capabilities accumulation in Bulgarian software companies and further analysis of external factors influencing development of indigenous software industries, the study identifies positive developments and challenges in development of the Bulgarian software industry and highlights areas for policy considerations.

**Michael A. McAdams**

## **EXAMINING URBANIZATION AND ITS IMPACTS IN THE BALKANS USING GIS AND REMOTE SENSING**

The Balkan area is experiencing rapid urbanization in some areas. Many of the Balkan countries share the same characteristics in regard to urban related policies including: limited or no controls on urban growth; poor compliance with E.U. environmental protection regulations, inadequate planning for the expanding demand on local and regional infrastructure (transportation, water, sewer, telecommunications etc.) and insufficient housing policies. GIS and Remote Sensing offer excellent tools to examine the impacts of urbanization on the economy, environment, transportation, agriculture, forestry and other issues in the Balkans which can assist in making better decision-making and policies. The use of GIS and Remote Sensing to examine urbanization is in its infancy in the Balkans. This overall umbrella topic could be impetus for several projects such as: creation of a GIS and Remote Sensing urban and regional databases for distribution over the Internet for researchers; the development of

*an urban spatial analysis group, standardization efforts for urban and regional GIS databases; integration of urban GIS by nation and region: development of a GIS education program to train professionals who are skilled in urban GIS databases: and identification of urban environmental problems by different scales.*

**Dragomir Gospodinov**

## **EUROPEAN ECONOMIC INTEGRATION AND DEVELOPMENT OF SCIENCE, TECHNOLOGIES AND INNOVATIONS IN THE RUSSIAN FEDERATION**

*Based on concrete experience and strategy models in the Russian Federation for lifelong learning and mobility, the **main problem** is, in the context of the Lisbon program, to formulate practical conclusions, which can be used in Bulgaria for forming policies for implementing the integrated directions for achieving growth and employment.*

*The concrete **main results** are presented in the following order:*

- 1. Macroeconomic priorities and tasks for changing the status quo towards execution of the President's decisions in the Russian Federation for setting the **new knowledge in the core of the production**: Russian Bank for Development, Program for maintaining high technological export, Innovation Fund, Russian Voucher Company, Special Economic Zones.*
- 2. Plans of the Russian government to support science, Russian Academy of Sciences, elite universities, to create special schools, scientific towns, etc.*
- 3. Methods for expanding the knowledge, through which the internationalization smoothly turns into socialization.*

**Liliana Pavlova**

## **TRANSFER OF KNOWLEDGE IN THE INNOVATION SYSTEM AND THE ROLE OF INTERMEDIARIES**

*The ultimate aim of each process is to present a new product, technology and/or process on the market. In fact this means introducing a new knowledge. Demand and supply of knowledge in the innovation system is a crucial factor both for the effective operation of the system and for the outcomes of the innovation process.*

*The main actor for the transfer of new knowledge in NIS/RIS is the intermediate organizations (IO). Adopting the interactive model of the innovation process reveals gaps in the system of innovations and calls for the independent connector of the different parts in the system or the so-called "liaison function". Their novelty, heterogeneity and diversification in the organizational actions hampers both the management process and decision-making in terms of innovation management. Indicative examples are some case studies from our practice concerning the difficulties for the self-nomination and determination of IO, as well as their recognition by local, regional and national authorities.*

*In regard with the mentioned above, the key line in the report is the needed policies for upgrading of innovation system in its missing parts for knowledge transfer such as liaison offices; technological parks; transfer centers, spin-offs, etc.*

**Carmen Nastase**  
**Laura Bouriaud**  
**Miika Kajanus**

## **WHAT ROLE DOES UNIVERSITY PLAY IN A REGIONAL INNOVATION SYSTEM – A COMPARATIVE AWOT ANALYSIS**

*Universities have an important role in regional innovation systems. In this study we evaluate and compare two different cases of regional innovation systems (RIS), one located in the north of Romania, in Bucovina area, and the other in Ylä-Savo region in the middle of Finland. Main focus is on how university is contributing to competences of a RIS. We use the A'WOT analysis, which is a hybrid method connecting Multiple Criteria Decision Support (MCDS) methods with SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. The method yields analytical priorities for the factors included in SWOT analysis and makes them commensurable. The research work done was based on experts' and actors' interviews, which were structured according to principles of the steps of the A'WOT analysis. SMART technique was applied in the A'WOT framework.*

*Both cases of RIS are described and analyzed. The main goal is to improve the theoretical and effective knowledge in the innovations and sustainable development field from a country with tradition: what management models are applied in countries with competitive industry; which are the costs of the marketing and management strategy implementation in companies; which are the obstacles for the entrepreneurs' development. The study will conclude by recommendations how to develop RIS competences, and especially the role of universities in this respect.*

**Plamen Pachev**

## **CHALLENGES AND PROBLEMS OF THE POLICIES FOR SUPPORT TO BULGARIAN SMEs IN THE EVE OF EU-ACCESSION**

*The social and economic role of small and medium scale enterprises (SME) in contemporary market economy is the major issue discussed in this paper, taking into account the specifics of the European region and the goals which should be formulated in the process of defining such policies – both economic and social – for the support of this important sector.*

*Further below, we shall briefly highlight several important aspects that relate to the issue of the contents and direction of the targeted government policy and other relevant policies for support to the small and medium-scale enterprises development in the Bulgarian economy which will be soon integrated into the EU. The issue related to knowledge transfer to the small business sector, as an element of the policies of the relevant responsible government institutions is of particular importance in this case, as is the context of modernization and “Europeanization” of the Bulgarian small business as an entrepreneurship task. Both stated issues, albeit looking differentiated and independent one from the other, are definitely inherent to the issue of small companies' competitiveness on the national and the common European market.*

**Radoslav Stanolov**

## **EUROPEAN INITIATIVES INFLUENCING THE INNOVATION NETWORKS DEVELOPMENT**

*EU initiatives for knowledge-based economy promotion have been analyzed in this paper from the viewpoint of their potential to influence the innovation networks development and the contemporary companies' business success.*

**Vasil Sivov**

## **EUROPEAN INNOVATION INITIATIVES AND THE BULGARIAN APPROACH**

*The study is dedicated to problems concerning European innovation strategy and its role for improving competitiveness and generating economic growth. The Commission seeks to develop the concept of "lead markets" where public authorities facilitate industry-led innovation by creating conditions for a successful market uptake of innovative products and services in a focused way. Primary targets are areas that respond to societal demands. Priority must be to establish strong innovation systems in all Member States. In terms of using EU funds to foster research and technology innovation, innovating could mean allocating structural funds for strengthening national research in addition to the already available Framework Programme and national R&D funds, rather than using these funds solely on infrastructure. That could be the stimulus for long-term innovative environment foundation, increase in the dynamics of innovation spread among the companies and create an opportunity to become a real innovator instead of passive technology user.*

*Several initiatives have to be undertaken immediately in order to improve the possibilities for innovation in Bulgaria. The most important ones are: creation and development of a national innovation programme; creation and development of an action plan for innovation; establishing dedicated funding schemes for financing innovation and supporting the creation of innovative firms; and, creating a specific government body with responsibility for development and co-ordination of innovation policy.*

**Adelina P. Milanova**

## **ORGANIZATIONAL CULTURE AND MOBILIZATION OF KNOWLEDGE**

*The challenges of the modern world have imposed more and more convincingly the heterodoxy in the economic analysis and the multidisciplinary approach, typical of nowadays economy – the knowledge based economy. This fact has created new focuses of analysis in the context of a rather significant process – the process of European economic integration.*

*The idea is to represent the author's version and to "open" frames of mind towards reasoning on the conceptual study of the correlation between our organizational culture (its dimensions, relativity of national and organizational aspects, specific features and messages when it is defined as a subject matter of business anthropology) and the complicated process of consolidation of knowledge (as constructiveness, stability and perspective of the process).*

*Correlations (at micro level) will be used, outlined and proved in the study of particular cases, to show the determining role of cultural context in the realization of one of the basic imperatives of general economy – the organization and mobilization of knowledge as its principal resource.*

**Vasil Tzankov**

## **CONSTITUTIONAL AND LEGAL PROTECTION OF THE NOVELTY OF BUSINESS METHODS – STATE, PROBLEMS, POSSIBLE SOLUTIONS**

*The author draws the conclusion that at this stage in Bulgaria a constitutional and legal arrangement of the innovations and particularly of business methods is not yet developed.*

*At the same time in USA and Germany this question has been discussed since 1980; there are decisions of the Federal Supreme Court about the possibility of differentiating a new kind of*

intellectual rights and their protection by the existing legal system. In short, the concept that business methods are *sue generis* rights emerges, but in USA the avoidance of legal protection of these methods is unknown.

In Bulgaria the constitutional regulation should be arranged so that to create engagement or obligations of the legislative body to search for the novelties in the economic life and their legislative arrangement. So, a text for encouraging the innovations in economics and protection of the subjects of intellectual property could be included in the constitution.

At a legal level, the principles and criteria for patentability of business methods, developed here, should be taken into consideration in the eventual future, a legal arrangement of these novelties in business should be recommended. The indirect idea of such constitutional and legal approach creates conditions for a greater economic freedom and respectively faster rate of economic growth in Bulgaria. Because, if the constitutional arrangement of the elements of the economic freedom, part of which are the subjects of the industrial property, in other words patents, business methods, trademarks, etc., is missing, it is not certain whether the current legislation will respond to these challenges and national needs.

**Veselina Maneva**

## **ENFORCING THE INDUSTRIAL PROPERTY RIGHTS IN BULGARIA IN ACCORDANCE WITH THE TRIPs AGREEMENT**

Concerning satisfaction of the requirements of the TRIPs Agreement and the Intellectual property rights enforcement Directive – 2004/48/EC, with Decree No 22 on 3 March 2006 the Council of Ministers approved a Regulation, which regulates the procedures and way of interaction between the governing bodies applying the rights in Bulgaria: Ministry of Culture, Ministry of Internal Affairs, Ministry of Justice, Customs Agency and the Patent Department through establishing a national system for exchange of information in the area of copyright and its similar rights, and the industrial property. The activity of the Inter-department Council between these institutions is regulated.

The analysis of the practice so far shows that, as a whole, the regulations of the Bulgarian legislation in the area of the intellectual property to a great extent correspond to the EU law (Report of the European Commission for the progress of Bulgaria in the process of the accession in 2004, p. 58). The last changes of the legislation in the area of protection of the intellectual property – Law on changing and amending the Law on the trademarks and geographic symbols and the Law on industrial design, promulgated in State Gazette No 73 on 05.09.2006, operating since 06.10.2006, as well as the Law on changing and amending the Patent Law, promulgated in State Gazette No 64 on 08.08.2006, operating since 08.11.2006 – finalize the process of harmonization the Bulgarian legislation in this area with the Community law and guarantees the creation of conditions for establishing a stable national legal system.

**Stefka Naumova**

## **ECOLOGICAL LEGISLATION AND THE RIGHT TO INFORMATION REGARDING ENVIRONMENT**

The article discusses the connection between knowledge pursuit in the process of European economic integration and the right to information and extent of legal knowledge of the environmental law.

The ecological legislation as a branch of the effective legal system has some specific features that distinguish it from the other fields (branches) of law. Ecological legislation is specific with the fact that legislative resolutions in this area have impact on large groups of people during long periods of time. Therefore, persistent series of EU directives, regulations and decisions

*emphasize the public relations and awareness of the so called 'affected' public with regard to the state of eco-systems and the broad participation of NGOs in developing and adopting the new ecological strategy principles.*

*In this context the relation between ecological legislation and the right to information with regards to environment occupies a special place. It is a focus of the EU ecological policy itself. The EU regards the right to information as one of the main instruments for assuring sustainable development, decrease of the risks to human health and preservation of the main components of the eco-system. The reason thereof lies in the fact that the level of environmental legal conscience largely determines the efficient implementation of the state strategy for environmental preservation, which is of extreme significance for the community's prosperity.*

**Vassil Prodanov**

### **DEMAND FOR PHILOSOPHICAL KNOWLEDGE IN KNOWLEDGE-BASED SOCIETIES**

*This paper presents a study of the changing role of philosophy in the knowledge-based societies. The main point is that periods of radical changes are characterized by an increased need of philosophy. Respectively, the current most innovative societies in the whole history need increasingly philosophical reflection. In Bulgaria the demand for philosophy is more urgent as result of the radical shift of the ideological and worldview framework. The second point in the article concerns the relationship between philosophy and market. The notion of "philosophy market" is developed, connected with the competitiveness of philosophical ideas, concepts and literature and the growth of applied philosophy research on a global scale. The transformation of the human capital into a major factor in society presupposes philosophy as a key resource for the organization and behavior of this capital.*

**Yolanda Zografova**

### **SOCIAL-PSYCHOLOGICAL KNOWLEDGE AND DEVELOPMENT OF NEW CONCEPTIONS AND BEHAVIOUR MODELS**

*In the context of the dynamics of integration social processes, new challenges arise in the field of the social psychic. The paper emphasizes on one of the most complex problems: the necessity of development of new representations concerning the contemporary requirements towards the individual's self-realization and his role in formal and non-formal structures and relationships. The social-psychological knowledge and research have a very considerable function – to analyze and provoke new behavior models, relevant to the modern demands of the social milieu. Within the priorities of the modern social psychology, is the cognition of the profound psychic mechanisms, which regulate the quotidian person's activity and behavior, strongly influenced by the information processes, the social-economical and cultural modifications.*

**Nadezhda Nikolova**

### **CONTEMPORARY INFORMATION SPHERE IN THE LIGHT OF KNOWLEDGE-BASED ECONOMY**

*This paper discusses the computer education, information culture and knowledge information. The attention is drawn to the role of the synchronization between economical, ruling and statistical thinking. This will lead to decisions for a better adaptation to the economical situation.*

**Marta Sugareva**  
**Vassil Kovatchev**  
**Kamellia Lillov**  
**Ivan Garnizov**

## **PROBLEMS OF GENERATING AND DIFFUSING KNOWLEDGE IN DEMOGRAPHY IN THE EDUCATIONAL SYSTEM IN BULGARIA TODAY**

*The paper attempts to explain the present situation and existing problems in the processes of generating and diffusion of scientific knowledge in the field of demography in our country. More precisely, the state of the two levels of education - higher and secondary – is studied in the context of the scientific knowledge generated and provided to the young people in the mentioned area.*

*The respective situation of educational systems and the position of population studies in them in the education system in other European countries is explained in the paper (Check Republic, France, the Netherlands).*

*Various possibilities of organizing and presenting the teaching material are discussed, namely in secondary schools. The possibilities to introduce certain elements of demography in various subjects, such as Geography, Biology, Psychology, Mathematics, etc. are explained.*

*For the university level it is argued that an urgent need for improving research and teaching in one or more university centers exists. Demography should be taught in a much larger volume than now, and at a higher professional level, especially at the second (Master's) level, and at the third (doctoral) level, in order to reach the European standards.*

*All these efforts should meet the demands and requirements of the international organizations (EAPS, IUSSP, etc.), as well as the needs of the Bulgarian society itself: its governing bodies, the press, the policy-makers, NGOs, communities and settlements, etc.*

**Dragoş Constantin Vasile**  
**Radu Emilian**

## **INNOVATION AND THE PARADIGM OF WORK AND PERSONAL LIFE**

*Companies in the knowledge-based economy can reach a higher level of competitiveness if they learn how to compete not only under price and quality pressures, but also under the imperatives of much bigger flexibility and innovation. Promoting innovation and creativity within organizations depends on the employees' capacity to mobilize their energy as whole persons, as well as on the organizational context of work. A factor conducive to creativity and innovation that seems to gain the management's attention is the relationship between work and personal lives of the employee. The reconciliation of work and personal life goals is seen more and more as a win-win game by organizations and governments.*

**Katya Vladimirova**

## **QUALITY OF THE HUMAN FACTOR AND CHALLENGES FOR THE NEW ECONOMY AND EUROPEAN INTEGRATION NECESSARY CHANGES FOR BULGARIA**

*Now and even more in the future the quality of the human factor and its productivity has a decisive significance for the success of any country, organization and individual. The human*

*factor determines the potential for development, choice opportunities, and its productivity is a criterion for created opportunities for effective use of this potential. The management is what forms, connects and interacts with both factors. The character, the specific of the factor human resources, as well as the long-term aspect of the process of forming a realization suggests the use of strategies and plans, standards, and having in mind the interests of the main partners in this process: state – organizations – individuals; state – local authority – households; employers – representatives of workers and employees and others. There is a need for a policy combining the interests of the three main participants in the process: state, business organizations and individuals or their households.*

*The management of the processes of forming and using higher quality workforce suggests having in mind the processes of fast developing integration and globalization, the participation of the country, different organizations and individuals on the European and world markets.*

*The paper discusses the matters of social model and EU employment strategy, quality and qualification of the workforce, evaluation of the labor quality and the necessary criteria in the context of the international comparisons, quality characteristics of the employed and management of the process of development of the human potential in the conditions of the new economy and fast running processes of integration and globalization.*

**Claudia – Elena Țuclea  
Gabriela Țigu**

## **KNOWLEDGEABLE WORKERS – SOURCE OF COMPETITIVE ADVANTAGE**

*Traditional companies are built on familiar bedrock of buildings, plants, and inventories. Competitive advantage is viewed in terms of scale and volume stemming from high-capacity use of machine-based factories. Such an approach fails to recognize how the leverage of knowledge is becoming a key to long-term success.*

*Nowadays, organizations must recognize that power resides in the minds of their best people, who are diffused throughout the business, and organizations are becoming more dependent on people than ever before.*

*Recruitment and employment of knowledgeable workers are becoming very important issues for Romanian managers. Competitiveness is the only chance to deal with a much challenging market, especially after European integration.*

*In this paper, we present the results of a survey on the views of Romanian managers about the most effective strategies for recruitment, motivation and retention of knowledgeable workers. The study investigated two groups of managers: the first group included the managers who had never been involved in activities related to human resources, and the second, the managers who had been involved. The managers from the first group chose theoretically the strategies they considered most effective, while the managers from the second group indicated the strategies they applied. An important difference has appeared.*

*In this way, we would like to show that human resource management becomes a valuable tool for competitive advantage.*

**Svetla Boneva**

## **THE BOLOGNA PROCESS FOR THE ESTABLISHMENT OF THE EUROPEAN HIGHER EDUCATION AREA**

*The article reviews the essence and the objectives of the Bologna process for the establishment of the European Higher Education Area (EHEA). The Bologna process has started with the signature of the Bologna Declaration that laid the basis for the establishment of the EHEA by 2010. In the Bologna process today participate 45 European countries. The article summarizes*

*the advance in this process as reported by the regular meetings of the Ministers in charge of higher education.*

*The thesis of this research is that there are three pillars underpinning the EHEA:*

- *a harmonized framework of qualifications for bachelor, master and doctoral degrees in the EHEA and the mutual recognition of degrees and periods of studies;*
- *the European quality assurance standards in higher education;*
- *the synergy between the EHEA and the European research area (ERA) that strengthens the competitiveness of higher education (especially at the level of doctorate studies).*

**Alexi Danchev**

### **STUDYING THE QUALITY OF SOCIAL CAPITAL AS A PREREQUISITE FOR SUCCESSFUL ACCESSION TO THE EU**

*During the process of accession the role of social capital increases due to its function of a feedback to keep stable the sustainability of development. Two basic measures of social capital are considered: the level of confidence (trust) among the members of society and the level of integration (consensus in ranking the social preferences). The author illustrates these assumptions in a case study of Bulgaria by means of a survey, which reflects some of the basic indicators of social capital. It is pointed out that at present both levels are in a relatively good state in micro aspect, but at macro aspect the level of integration is not high, which creates problems with the consensus of ranking social preferences.*

*The conclusion is that the need to increase the studies of the mechanism of generating social capital, which is expected to help the improvement of its quality, is one of the paramount prerequisite for successful accession to the EU.*

