

# CHALLENGES AND OPPORTUNITIES IN BUILDING A KNOWLEDGE-BASED ECONOMY IN ROMANIA

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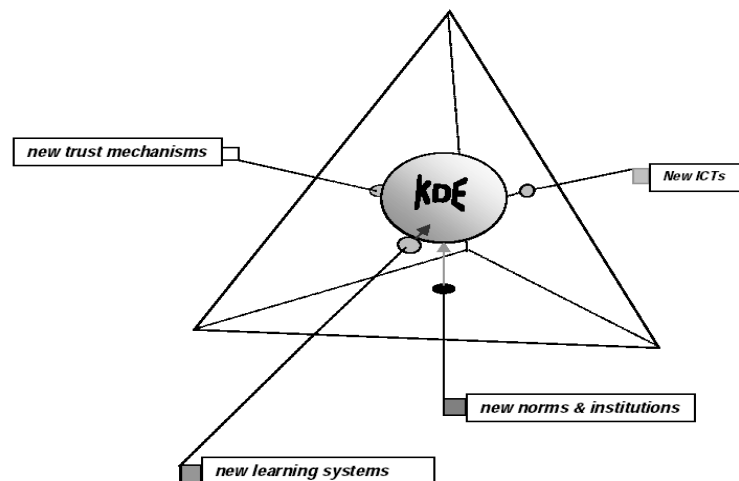
## Abstract:

The main objective this paper is to assess the stage of the Knowledge Economies in the EU Accession Countries, which is very difficult a task because of the incipient awareness of the subject and the lack of indicators, and second to compile and evaluate the existing scattered pieces of strategies. The situation of Romania is looked into more carefully. This paper focus on challenges Romania faces and respectively on opportunities given by the development of a knowledge-based economy for Romania. As a result all these might ensure: a strong and durable economic development and decrease of social and economic discrepancies; a better (and quicker) integration into the European Union and the world economy; more opportunities for setting up of a national competitive system; creation of a culture of communication and knowledge motivation; turning knowledge into capital; training regarding the use of knowledge; promotion of continuous innovative system.

As illustrated by the model of *the Pyramid of the Knowledge Economy (figure 1)*, the *knowledge communities* are found to participate to some degree in four distinct **domains of innovative activity**:

- ◆ adaptation and intensive use of **new ICTs** – particularly as a tool to support productive transactions, including commercial and financial exchange, and professional communications among the actors forming spatially distributed communities; to enable new processes of codification, and modes of broadcast and interactive circulation of information throughout the society at large.
- ◆ development of **new systems of learning** -- which here includes organized modes of acquiring new knowledge, both through instruction and inquiry, and the establishment of procedures to verify the effectiveness of the instruction given, and the reliability of the knowledge acquired.
- ◆ formation of **social norms and institutions** -- through either the emergence of informal conventions or the deliberate institutionalization of roles and relationships of responsibility, whether by the promulgation of a procedural authority, or explicit rules for organizational governance.
- ◆ adoption or creation of community-specific **mechanisms of trust-formation** – which operate to reduce the costs of transactions among individuals identified associated with the community, of selecting among those seeking to enter it and integrating new recruits; such mechanisms also enable validation of communications among widely distributed participants, or ensure the privacy and security of transactions involving sensitive information; they also may be directed to addressing problems of establishing and maintaining the external credibility of the particular “products” or services identified with particular sub-groups.

**Figure 1. The Pyramid of the Knowledge Economy. Complementary subsystems**



Source: Paul David, Public Dimensions of the knowledge-driven economy, II.1

For the candidate countries, accession means entering a highly competitive, knowledge-intensive regional and global market. They need to *develop strategies to use existing and new knowledge* to i) *improve performance in traditional sectors*, ii) *exploit opportunities for leapfrogging*, iii) *develop competitive new sectors*, they need to learn from other countries, as well as to develop strategies for own situations and current context. *The challenge* is double fold for the Eastern European Countries, since they should devise policies for the transition to the market economy, as well as policies and strategies for the transition to the knowledge economy. The *main pillars*<sup>1</sup> in the framework “K4D” (*Knowledge for Development*) for these countries are:

- *the economic incentive and institutional regime that provides incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship,*
- *the educated, creative and skilled people,*
- *a dynamic information infrastructure and*
- *effective national innovation systems.*

Applying the concepts of the knowledge economy suggests the need for a *paradigm shift*, from resource driven urban economies to knowledge driven economies (figure 2).

**Figure 2. Knowledge Economy as an Agent of Change in cities**

<b>Old paradigm</b> Resource driven economies	<b>New paradigm</b> Knowledge driven economies
<b>Quantitative factors</b> Labor Raw materials Premises Bulk transportation Energy	<b>Qualitative factors</b> Qualifications Research and development Local suppliers Reliable infrastructure Good living conditions
<b>Subsidizations</b> Tax allowances Grants and direct subsidies Low user charges and rents	<b>Entrepreneurial</b> Friendly and stable policy environment Effective and honest promotion Competitive attraction of capital, innovation and qualified labor

<sup>1</sup> Kevin Cleaver, A Preliminary Strategy for Developing a Knowledge Economy in EU Accession Countries, Preface

Source: Kevin Cleaver, *A Preliminary Strategy to develop a Knowledge Economy in EU Accession Countries*, adapted from Professor Grzegorz Gorzelak, Warsaw University (2001)

*The challenge* for the accession countries like Romania is to devise and implement a coherent national strategy that engages all sectors of the economy and society, uses the financial and technical support of the international community in a coordinated and efficient fashion, and sets realistic goals backed up by clear policy frameworks. Consistent and timely execution of policy goals and reforms is key, since it takes time to create the "virtuous cycle" of reform, innovation, increased foreign investment, institutional and behavioral change, and growth in opportunities for both individuals and organizations, that will make these countries innovative and competitive economies within the European Union<sup>2</sup>.

From the beginning of their transition toward market economies, the central and east European accession countries have benefited from growing interest, cooperation and support from a range of international partners. Multilateral and bilateral government assistance (financial and technical) for economic, social and political reform has been substantial. The international private sector has increasingly seen these countries as promising targets for investment and for new markets. A variety of non-governmental organizations have played an active role in supporting reform in the region<sup>3</sup>.

*The European Union* has been, and will continue to be, a major source of financial and technical support for the accession countries in virtually all aspects of their effort to build knowledge economies. The "E-Europe plus" initiative provides significant technical support to the accession countries as they lay the groundwork for the information society in their countries.

*The Organization for Economic Cooperation and Development (OECD)* provides substantial resources for analysis, benchmarking, policy formulation and networking on a broad range of issues related to the knowledge-based economy



### **HOW USEFUL IS THE KNOWLEDGE ECONOMY PERSPECTIVE IN UNDERSTANDING THE CHALLENGES ROMANIA FACES AND THE OPPORTUNITIES THAT EU ACCESSION PROVIDES TO ROMANIA?**

The perspective for the development of a knowledge-based economy for Romania will ensure:

- a strong and durable economic development and decrease of social and economic discrepancies;
- a better (and quicker) integration into the European Union and the world economy;
- setting up of a national competitive system;
- creation of a culture of communication and knowledge motivation;
- setting up of knowledge generating structures;
- training regarding the use of knowledge;
- promotion of continuous innovative system.

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<sup>2</sup> Final Report of the Knowledge Economy Forum "Using Knowledge for Development in EU Accession Countries", organized by the World Bank, Paris, February 19-22, 2002, Ch. 4

<sup>3</sup> Final Report of the Knowledge Economy Forum "Using Knowledge for Development in EU Accession Countries", organized by the World Bank, Paris, February 19-22, 2002, Ch. 3



## WHAT ARE THE MOST DIFFICULT CHALLENGES ROMANIA FACES IN BUILDING A KNOWLEDGE-BASED ECONOMY?

The most significant challenges Romania faces are:

### A. Development of an enabling economic environment and institutional environment:

- Awareness of the need for knowledge at policymakers', businesses, civil society level (knowledge-oriented education and training; development of a knowledge culture and motivation; overcoming the "*inertia*" to changes).
- Integration into the international knowledge flow under legislative and logistic compatibility; identification of world and European trends in knowledge economy; communication opportunities and brain drain prevention.
- A flexible and adequate knowledge management in connection with: production of new knowledge; effective use of the existing knowledge; education based on creative thinking; management of the new knowledge flows and exchanges; creation of a legal framework to stimulate knowledge; creation and stimulation of excellence centers, expansion and strengthening of research networks.

### B. Measures to provide human resources for the knowledge society

- Development of education and knowledge society:
- Integration into the world research and innovation system: development of the ability to absorb and disseminate the outcome of research across the economy; integration of research units into European and world R&D networks; international training programs for young researchers; promotion of international cooperation in knowledge production and use;
- Stronger links of education and research with the real economy and stronger public-private sector partnership: fostering *creativity*; building and strengthening the national research and innovation network and innovation and technology transfer programs (scientific and technological parks).
- Training the trainers;
- Narrowing down geographic, cultural, social, economic discrepancies.

### C. A coherent and enabling legal environment to foster a knowledge economy

- Develop an adequate legal framework to stimulate knowledge and to protect intellectual property;
- Support to *open competitive markets and the liberalization of sectors*.

### D. Building an adequate (information) infrastructure

- Building and expanding modern communication infrastructure
- Cheap and quick access to Internet: establishment of a competitive environment for cheap connection and utilization; high access speed; accessible equipment.
- Provision and promotion of e-content.

### E. Building an efficient innovation system

- Building a research and innovation network;
- Innovation and technological transfer programs (scientific and technological parks)
- Developing the capacity of the economy to absorb R&D achievements
- Incentives for the creation and development of innovative SME's



## DIAGNOSIS OF THE PRESENT STATE OF ROMANIAN KNOWLEDGE-BASED ECONOMY

The Romanian competitive advantage in the production and the use of knowledge is dependent on *Romania's resources and capabilities* in this field. The strategy for the development of a knowledge-based economy should be based on how best to use the existing resources and capabilities:

*The BrainBench Global IT IQ Report* positions Romania as *the fifth* *the sixth worldwide*, in the classification of geographical areas with the highest number of certified professionals in 30 of the most critical information technologies. The highly skilled workforce of Romania makes Romania an ideal environment for development activities.

**Critical success factors:**  
**Coherence of strategy implementation, strategic control, education improvement, identifying finance, the right use of resources**



## SOME RECENT HISTORY REGIME

- In March 2001 the *Group for Promotion of Information Technology* was instituted and the National ICT task force. It functions as a *task-force*, led by the Prime-Minister and having as members another seven Ministers of the Romanian Government. This group ensure a coherent and coordinated approach for the implementation of the Information society in Romania. Later this becomes important for building a knowledge-based society.
- The extension of the e-Procurement system to national level became a key component in the process of modernising the Romanian Government. By procuring electronically, the Romanian Government can lower the cost of inputs, also encouraging the private sector to move to B2B. It also creates the premises for lowering corruption, reducing bureaucracy and ensuring transparency, in the effort of building efficient and effective public sector, capable of sustaining long term development.
- *The National Regulatory Authority for Communications-ANRC*-is the institution entrusted with the implementation of the national policy in the sector of electronic communications and postal services. ANRC will promote competition in every sector of the electronic communications and postal services markets, will take all appropriate measures in order to create a favorable environment for the development of investments and innovation.
- *The Network of Romanian R&D units-comprises* are grouped into the following categories: *entities of the Romanian Academy; entities subordinated to and coordinated by the Ministry of Education and Research; entities subordinated to and coordinated by universities and other central institutions and independent entities.*
- *The Romanian Education Network (RoEduNet)*- created in July 1993. Today, the *RoEduNet* data communication infrastructure covers the national territory, connects and offers international connectivity and remains open to all universities as well as to non-profit scientific and cultural institutions.
- *The Romanian National Research and Development Network (RNC)*-is a national project which focuses on: setting up technical and organizational infrastructure meant to provide national and international services for the Romanian scientific research community; providing a rapid and competitive tool for the exchange of information in the framework of R&D community; providing support for information, documentation and scientific and technical cooperation considering research teams and topics and R-D programs. RNC is a member of the following European organizations: *TERENA (Trans European Research and Education Networking Association); CEENet (Central and Eastern European Networking Association); International link: Connection to LORAL ORION -USA.*



## **OPPORTUNITIES AND SOME PRIORITIES FOR ROMANIA ON ITS ROAD TOWARDS A KNOWLEDGE-BASED ECONOMY**

Some of Romanian opportunities in a knowledge-based economy are:

- Education and training within a knowledge-based economy;
- Research, development and innovation;
- Culture in the knowledge-based society;
- Public (civil society, policy makers, specialists in various fields) awareness campaign on the importance of knowledge economy and information society development in Romania;
- The development of a new attitude: *a new "culture"* of communication and cooperation in the new knowledge-based society;
- Knowledge-based economy infrastructure (development of the national internet);
- The required legislation and institutional framework
- The adjustment of public administration to the knowledge-based society and the development of other public services;
- Development of a strong ICT industry;
- The role of the financial, banking system and e-commerce.



## **NATIONAL MAJOR INITIATIVES**

Considering Romania's effort to develop a functional and prosperous market economy based on knowledge, the following achievements might be mentioned:

- passing some of the regulations and laws, consistent with those in the EU: electronic signature; e-commerce; e-tax; e-procurement; intellectual property rights; protection of private data; access to public information; liberalization of the telecom market;
- Computerized education programs: computer aided education; electronic management of the education system; e-learning;
- A significant growing position of the IT sector in the economy;
- Initiation of the competitive funding of research and higher education;
- Telecentre network;
- Public information centers;
- Development of communication systems: radio communications, mobile telecommunications, multimedia telecommunications, *ORACLE*, *CYSCO*, *INFOSOC* academic initiatives;
- An economic and institutional environment that provides incentives for the efficient use of the existing and new knowledge and growing entrepreneurship

In my opinion the issue of *a long-run sustainable development* should not be discussed without considering *the new economy* and the knowledge-based society, which is driven by knowledge and creativity and where human resources will play a more critical role in the creation of wealth. It goes without saying that knowledge and information are becoming more important than ever before as we move toward the new economy. Consequently, forward-looking nations are positioning themselves strategically *to face the new challenges* engendered by the new economy & knowledge-based society: they are investing heavily in their human resources and putting structures in place to enable them to exploit the treasures within their people. For instance, organizations in those countries are encouraging creativity and new thinking among their employees and citizens. Romania might become the dumping ground of ideas, services and products of other nations.

The way I see it, the challenge is how to lure foreign investment and promote industrial development while simultaneously empowering our human resources with relevant skills and knowledge through education, training and at the same time tapping their creativity. Ideas and creativity are real treasures for a country like Romania. Ideas build countries. Leaders should make it their priority to mine such treasures through the creation of innovation and idea creation centers and institutions.



**KBE in ROMANIA**  
**THE KNOWLEDGE-BASED ECONOMY IN ROMANIA AT A GLANCE. SOME RECOMMENDATIONS**

**Existing National Strategy + Coordination Structure**

... have to change and reflect the new 'knowledge-based economy' paradigm. There are many economic...  
**Build-up Alliance with:**  
Private Sector, NGOs, Civil Society

- The countries of Central and Eastern Europe (CEECS) are lagging behind the leading

**Public Awareness**  
**Confidence Building: Involve Mass-Media**

eventually occur in the CEECS as well.

**EDUCATION:**  
**Existing Mechanisms to Run and Manage Projects**  
**(PMU's for WB Projects, PHARE Experience)**  
**-UNIVERSITIES-**  
**LLL Strategy (EC)**  
**Information Society**  
**RoEduNet, RNC**

- There be a much higher level of *interplay between the communities, the private sector*

**BENCHMARKINGS**

**LEGISLATION**

Government, after all the stakeholders have been consulted, this strategy has to be made public and its implementation should be monitored in a transparent and

**Electronic Governance**

**ICT**  
**Development of Infrastructure**  
**EContent, Consistent DataBases**

**R&D**  
**Technology Transfer**

**Knowledge workers**  
**Innovation oriented attitude**  
 +  
**Technology Transfer -> SME's, new entrants**  
**Networking**  
**Social cohesion + Inclusion of disadvanded groups**

**ECONOMY, SOCIETY, CITIZENS**

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