Romanian Research and Development System, Support for Innovation and Entrepreneurship

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1. Project "MISS"

1.1. Introduction

- ***What is "MISS"?*** is a project financed by LLL Programme – Leonardo da Vinci.
- ***Aim of the project*** : to develop the contents for an Innovation Management training course based on NTIC (*New Technologies for Information and Communication)* and didactic resources which provide the collaborative learning.
- ***Project partners*** are: Institute of Technology Aragon, **Spain** (the coordinator) *Vocational Promotion Institute Styria,* Austria, Technology and Business Incubator Centre-CITAf, **Romania** and Business & Development Centre-BD, **Poland.**

1. 2. General Objectives

- To support participants in training and further training activities, knowledge sharing and personal development;
- To develop relevant and innovative e-learning contents
- To improve the quality and to increase the volume of co-operation between institutions/ organizations providing learning opportunities, enterprises, social partners and other relevant bodies throughout Europe
- To facilitate the development of innovative practices in the field of vocational education and training;

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1.3. Core Objectives

- Encourage the participation of professionals to develop knowledge through a methodological and innovative system :Computer Supported Collaborative Learning.
- Promote the knowledge transfer in Innovation through a pilot training action at European level.
- Give to the students, to small and medium company's professionals, skills, techniques and tools in Innovation management knowledge.
- Encourage the methodologies and Innovation techniques application in the countries that belongs to the partnership.

The experience of the partnership in transnational cooperation, e-learning, training and their common interest for innovation and technology transfer is very important for the project

1.4. Results

- Report on National Innovation from each country: Spain, Romania, Austria and Poland
- Innovation management training course from each country;
- Innovation transfer compendium
- E-learning platform didactic guides
- Training seminars in each country
- Project website: www.missproject.org

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2. Romanian National Innovation System

2.1 Introduction

Why innovation…?

Many people believe that innovation mean technology, but in practice this could be any thing, in any sectors: in enterprise increased its competitiveness.

(John Furth – Chief Strategist, Sony Corporation Japan)

What is innovation…?

An innovation is **the implementation of a new or significantly improved product** (good or service), or **process**, a new **marketing method**, or a new **organisational method** in business practices, workplace organisation or external relation***s.***

Schumpeter proposed a list of various types of innovations:

- Introduction of a new product or a qualitative change in an existing product;
- Process innovation new to an industry;
- The opening of a new market;
- Development of new sources of supply for raw materials or other inputs;
- Changes in industrial organization.

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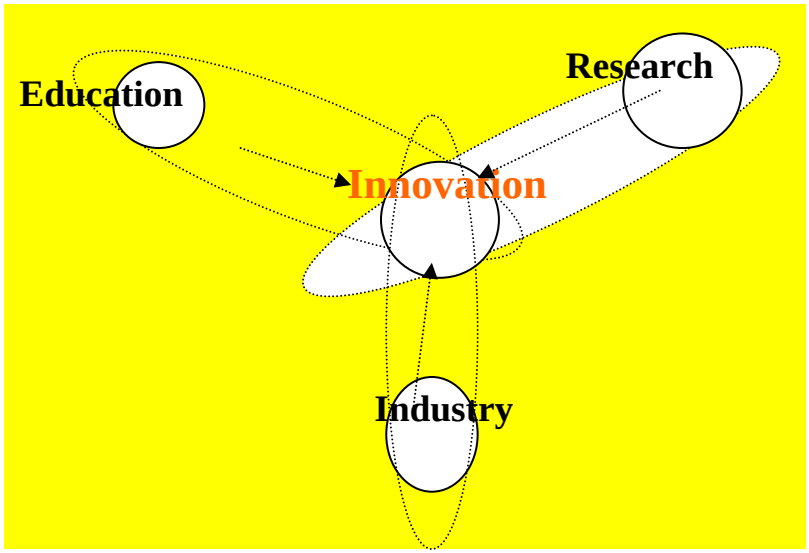
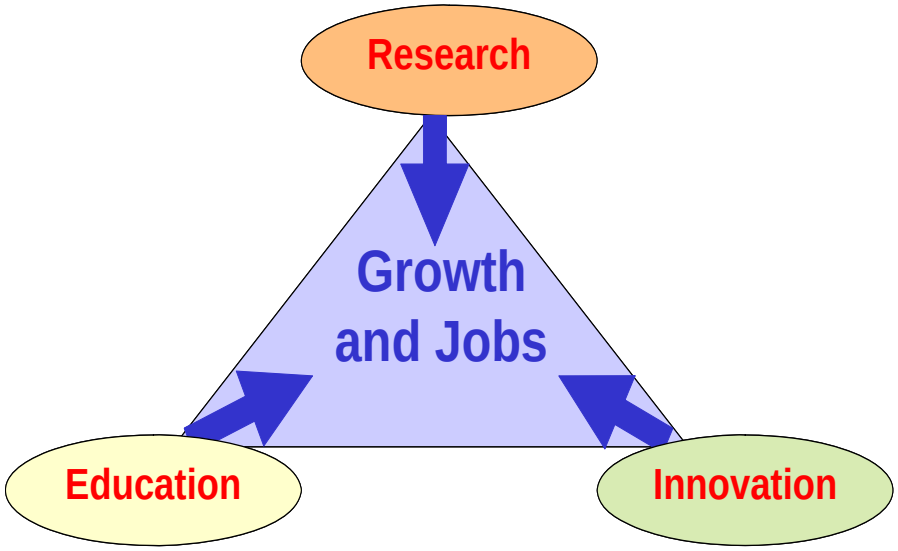
Why innovation is important ...?

...because is a key factor in growth and job creation.

Knowledge is the core of the Lisbon agenda, and underpins all its elements.

Research and technology are, together with education and innovation, the components of the "Triangle of knowledge" (*triple helix*)





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2.2 Romanian National Innovation System

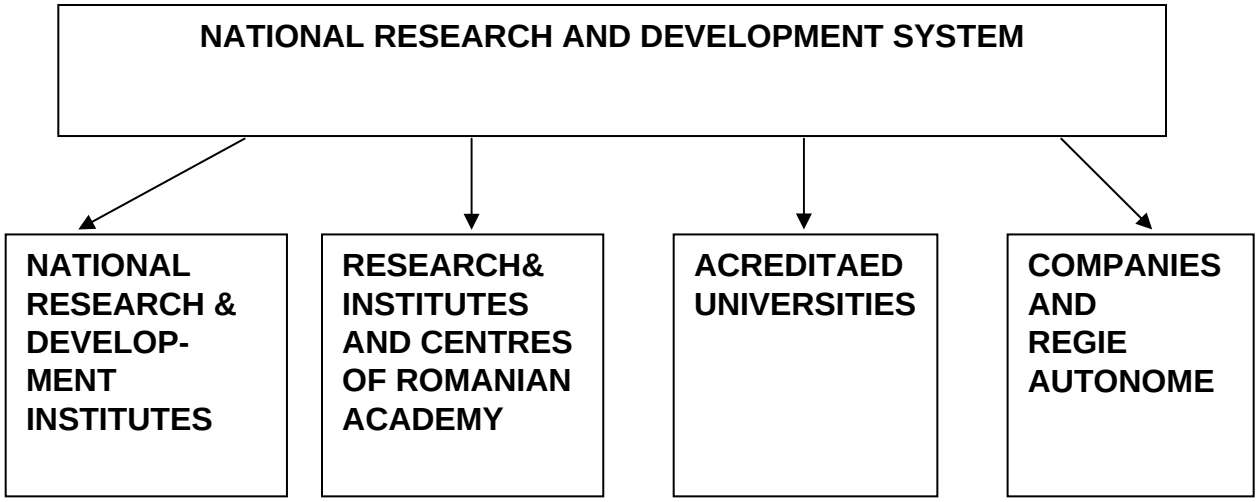
- Formed by of the assembly of public and private entities and institutions that have the R&D activity in their statutes.
- R&D system of national interest, includes the following categories of public entities, accredited according to the Governmental Ordinance 57/2002:

a) **national research-development institutes;**

b) **research institutes and centers of the Romanian Academy and of the thematic academies;**

c) **accredited universities or their departments;**

d) **research-development institutes or centers organized within national firms, national companies or *regie autonomes* of national interest.**



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2.2.1 R&D organization profile

Total: > 600 (2002/ state majority: 2/3; private majority: 1/3)

Technological Research Institutes (RTD institutes): >200 sectoral /industrial branches

- 38 National RTD Institutes

Universities

- 56 public universities
- 18 accredited private universities

Romanian Academy:

- 65 basic and advanced research institutes and centers socio-humanistic and technical fields

Academy of Agricultural and Forestry Sciences

- 25 institutes and centers of research , 91 stations of research and production

Academy of Medical Sciences

- 23 research centers and institutes;
- 12 hospitals affiliated to medical universities

Companies developing R&D activities

~ 250, in public and private sectors, including private non-profit organizations

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2.2.2 National Authority for Scientific Research (NASR)

- is the public authority that supervises and controls the settlements in its activity field to be applied correctly. Also, the Authority's role is to periodically ground, elaborate and update policies and strategies in the research, development and innovation field.

NASR implements the RD&I strategy by coordinating the programmes carried out through projects. The projects are realized by national organizations directly or by active participation at international programmes.

- The national programmes are financed in most cases by public funds, but also by private ones (co-financing), depending on the type of programme and organization.

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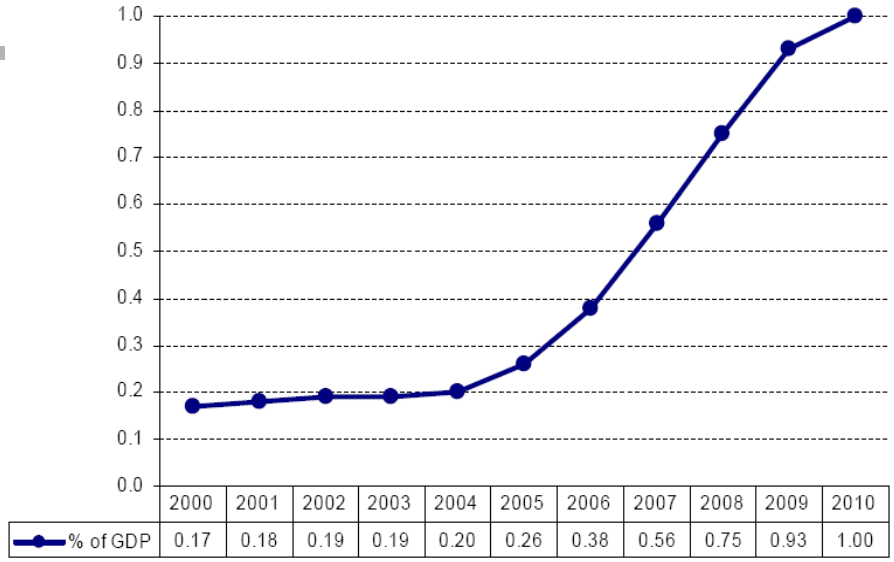
2.2.3 Financing Instruments

Main financing instruments are grants provided by NASR trough the following RDI programmes: 2007-13 National RDI Plan, particularly the Innovation Programme:

- 'Research of Excellence' programme ;
- Core R&D programmes ;
- Sectoral R&D programmes ;
- INFRATECH Programme ;
- IMPACT Programme ;
- Grants for scientific research.

The public expenditure increase from 2000 to 2008 as it is presented below



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
% of GDP	0.17	0.18	0.19	0.19	0.20	0.26	0.38	0.56	0.75	0.93	1.00

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2.2.4 National Innovation and Technology Transfer Network- RENITT

- comprises 42 entities (12 technology transfer centers, 15 technology information points and 15 technology and business incubators) as well as four Science and Technology (S&T) Parks in various regions of the country (NASR, December 2007).
- ReNITT covers all the national area, with important nodes in the capital and other major cities of the country
- Technology and Business Incubator Centre-CITAf is the first incubator In Romania, founded in 1992 within Mechanical Research Engineering Institute (ICTCM) with the Ministry of Education and Research support.
- It was accredited as Business Incubator Center by National Agency for Science and Research on 15.03.2006.

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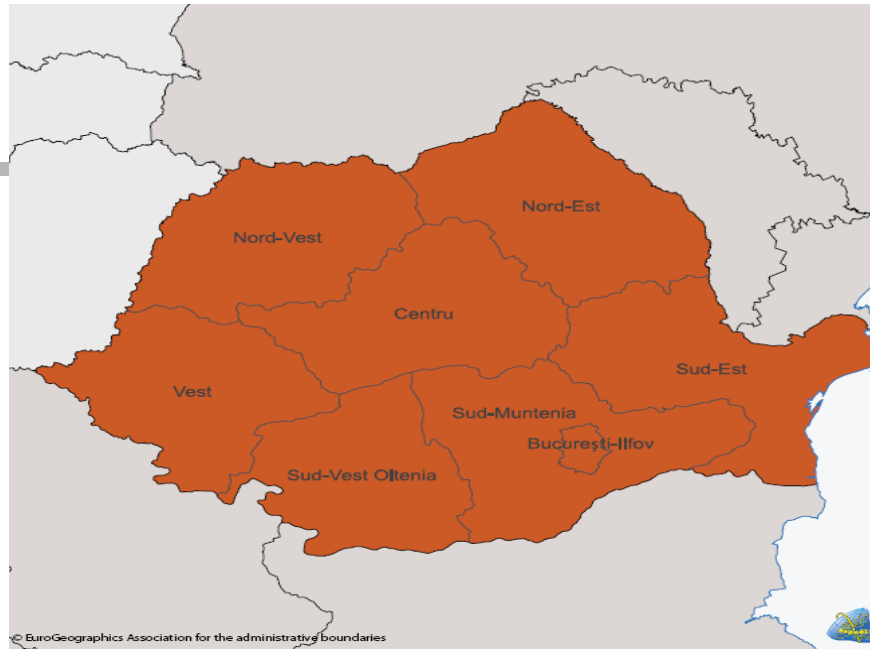
2.2.5 Regional development Agencies (1)

Romania has 8 Development Regions created in accordance with the provisions of EC Regulation no. 1059/2003 concerning the establishment of a common statistical classification of territorial units (4):

Region 1: North – East
Region 2: South – East
Region 3: South
Region 4: South – West
Region 5: West
Region 6: Noth – West
Region 7: Centre
Region 8: Bucharest – Ilfov



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2.2.6 Bucharest-Ilfov Region is Romanian Innovation and Research Center

Pole of the ICT industry Clusters

- in the hardware manufacturing sector
- in fine mechanics industry

Pole of the fine mechanics industry.

Pole of the constructions sector.

The constructions sector from the capital city's region is one of the most dynamic in Romania: the enterprises from the Bucharest-Ilfov Region generate over 32% (2,821 million Euros, in 2005) of the turnover at the national level in the constructions sector, record more than 41% of the total gross investments employing almost 23% of the total number of employees in the sector.

Pole of the plastics industry. With a concentration of 21% from the companies that activate in the plastic processing sector (out of the more than 1000 active companies at national level), the Bucharest-Ilfov Region also includes a cluster of the plastics industry.

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2.2.7 Research and technological transfer centers in the ITC field.

Among the research institutes in the ITC field, the most important one is ICI from Bucharest, the National Institute of Research and Development for Informatics, (*www.ici.ro).*

Other research and development institutes relevant for the ITC, electronics and electrical engineering fields are located also in Bucharest, for example:

- National Institute for the Research and Development of *Micro-technologies* (*www.imt.ro*);
- National Institute for Studies and *Research for Communications* (*www.cnscc.ro*);
- National Institute for *Design for Telecommunications* (www.telerom.ro) (established in 1952);
- National Institute for Electronic Research (*ICE*);
- Institute for *Electrical Engineering* Research, ICPE (*www.icpe.ro*);
- Institute for *Electrical Engineering Research* ICPE ACTEL (*www.icpeactel.ro*);
- Institute for Research and *Design in Automatics*, IPA (*www.ipa.ro*);
- Institute for *Research – Electrical Equipments*, ICME (*www.icpe-me.ro*);
- Institute ICPE-CA (*www.icpe-ca.ro*).

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2.2.8 Knowledge intensive services activities

- they are able to provide to enterprises non-technologic innovation services, which facilitates the growth of the productive sector competitiveness;

In this context, the European Commission wishes to encourage the development of service innovation as an engine of innovation for the entire European economy, targeting, in particular, the knowledge intensive services, as it is the branch with the highest innovation potential among the services.

The analysis of the KIBS sub-sectors indicates that the research and development activities are the ones for which the Bucharest-Ilfov region has the highest weight in comparison with the national total, exceeding 56% of the total number of enterprises.

Figure3: Enterprises in the R&D sector in Romania and Bucharest-Ilfov

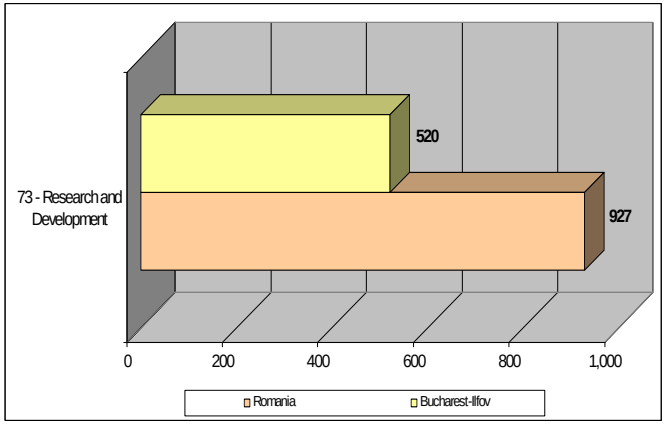
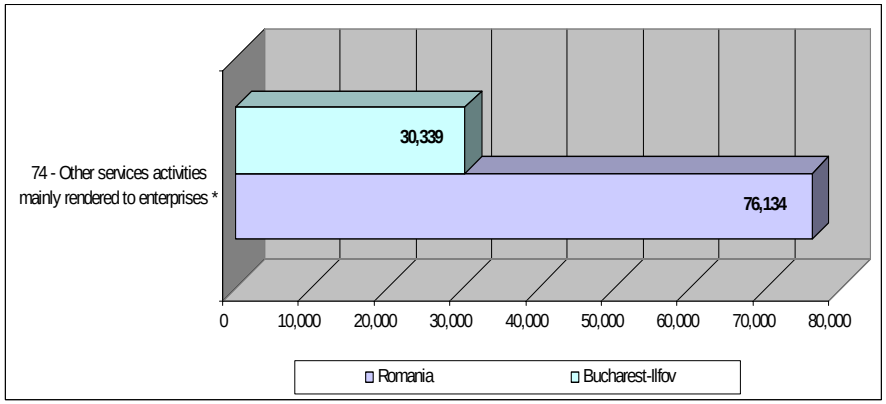


Figure4: Enterprises in Informatics and related activities sector in Romania and in Bucharest-Ilfov region



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2.2.9 Innovation performance (1)

The innovative profile of Romanian firms is still very low: over 80% of non-innovator firms, next to approximately 10% of intermittent innovator firms and a small percentage of strategic innovator, adopter and modifier firms. Innovative firms account for less than a fifth of the country's total number of active firms and workforce, and for about 42% of the total turnover of active firms.

are predominantly SMEs (83.4%) and operate mainly in industry (73%), while the rest are active in services (trade, real estate, transport and communications).

Figure 4: Innovative SME profiles

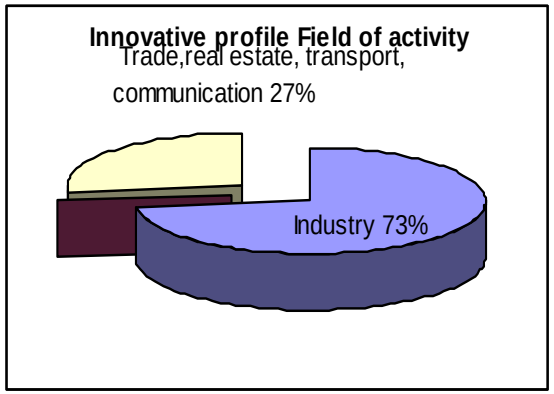
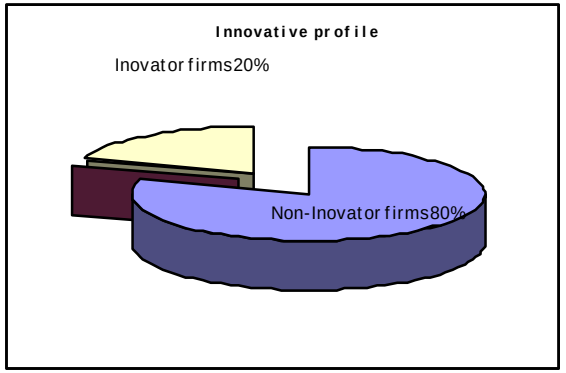


Figure5: Field of activity of SMEs



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2.2.9 Innovation performance (2)

Romania has a level of innovation performance that places it in the group of "catching-up countries". Other EU countries in this group are Malta, Lithuania, Hungary, Greece, Slovakia, Poland, Portugal, Bulgaria and Latvia. Romania's innovation performance has been increasing significantly faster than the EU average trend over the last five years.

The analysis shows that Romania is relatively efficient in transforming innovation inputs into Application outputs, but inefficient at transforming such inputs into Intellectual Property outputs.

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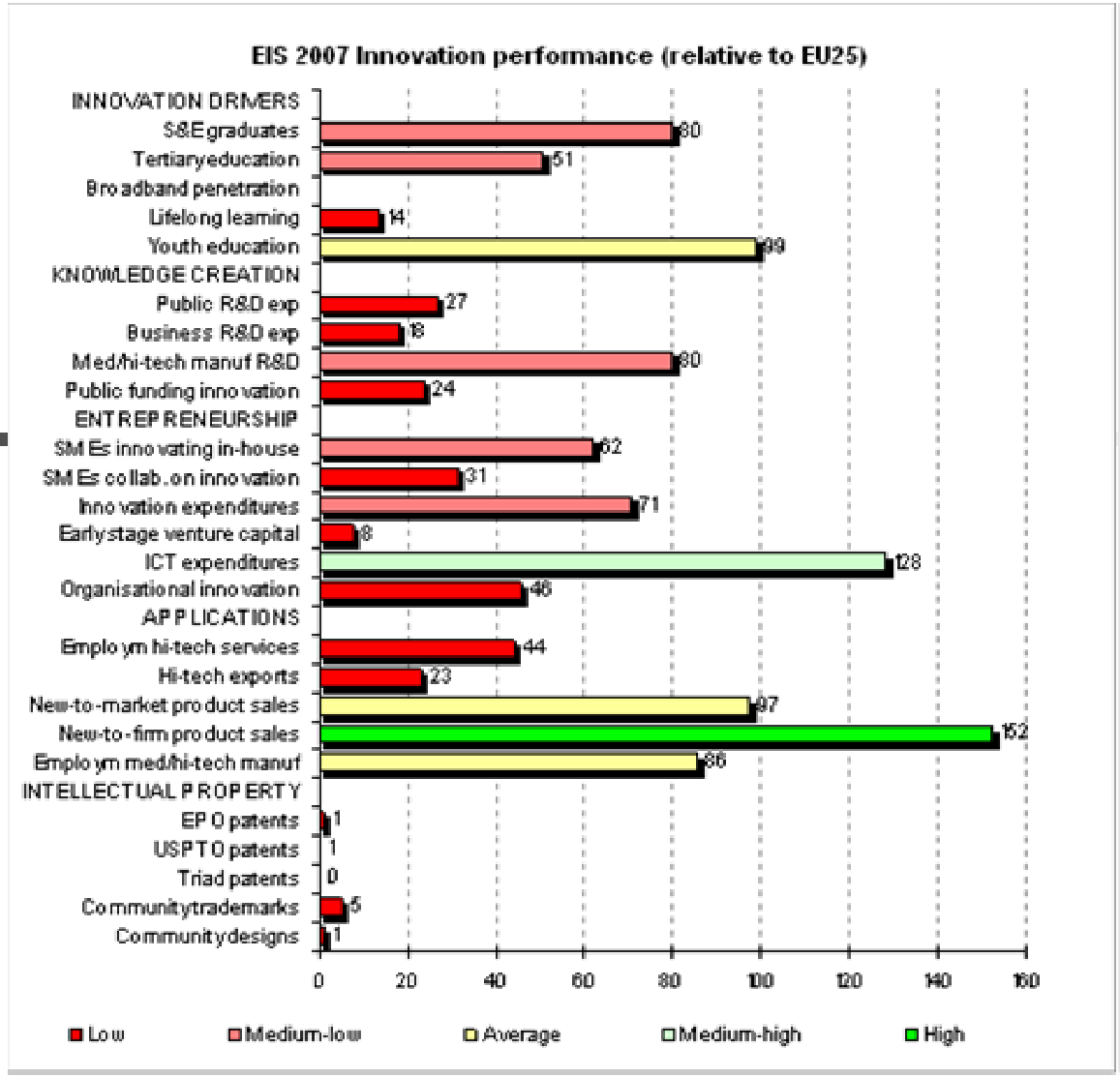
2.2.9 Innovation performance (3)



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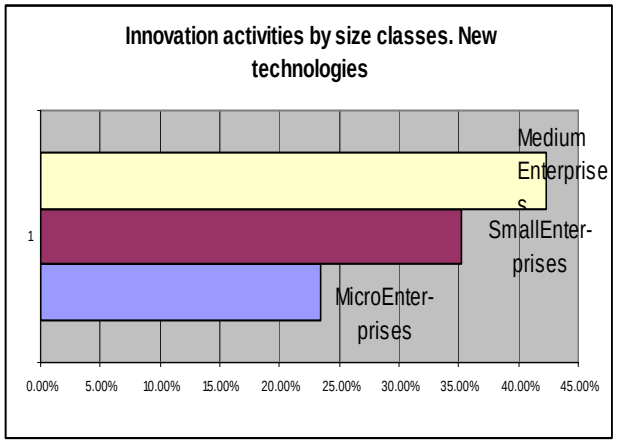
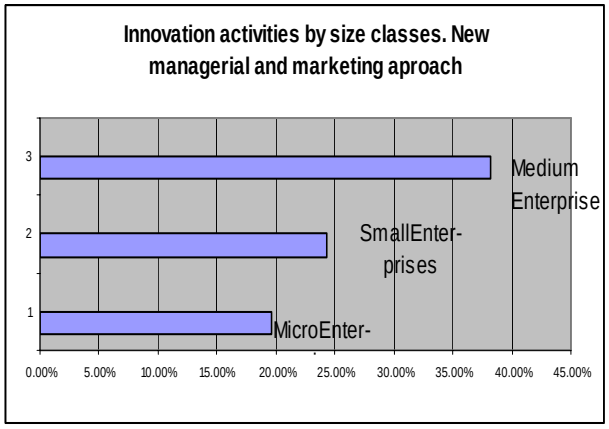
2.2.9 Innovation performance (4)

Innovation indicators in SMEs

Analyzing innovation activities in Romanian SMEs by size classes, we noticed that medium enterprises were the most interested in new managerial and marketing approaches (38,21%) and new technologies (42,28%), small enterprises focused mainly on new products (47,77%), while micro enterprises invested mostly in new informational systems (0,99%).





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3. Conclusions and possible orientation for future indicators in SMEs (1)

- The training offer in innovation management is very small in Romania.
- At University level there are several intentions to promote a Master Programme on Innovation Management.
- Increased competitiveness of the human capital could be achieved through life long acquisition of knowledge and competences and through the continuous up date of individual stock of knowledge and competences, continuous education and training.
- 'Research of Excellence' Programme can be considered as 'good practice'. It was launched in 2005 by the National Authority for Scientific Research (NASR) as a special instrument to prepare Romania's participation in European Research Areas (ERA) and FP_7 and to support the national consortia among R&D institutions, universities and companies.
- The innovation need financial support, dedicated programs and mechanisms such as : scientific parks, BICs, clusters.

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3. Conclusions and possible orientation for future indicators in SMEs (2)

- More targeted policies and programmes for improving technology transfer to the business sector are needed.
- This could encompass, among others, policies for supporting the evolution of the existing 'emerging clusters' into fully-fledged industrial clusters, with significant effects on economic development, especially at the regional level
- More targeted policies and programmes to support academic research and the development of the 'entrepreneurial university' concept, in correlation with regional development priorities, for which the presence of a local university can be an important prerequisite.
- Stronger collaboration between NASR and the regional development agencies (RDAs)

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Thank you very much for your attention!

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