

**PRIVATE INVESTMENT IN RESEARCH
IN THE NEW MEMBER STATES AND CANDIDATE COUNTRIES
REPORT OF THE WORKSHOP**

HELD IN SEVILLE, ON WEDNESDAY 18 MAY 2005

EUROPEAN COMMISSION, JOINT RESEARCH CENTRE (JRC)
INSTITUTE FOR PROSPECTIVE TECHNOLOGICAL STUDIES (IPTS)
SUPPORT TO EUROPEAN RESEARCH AREA UNIT

1. BACKGROUND AND OBJECTIVES¹

- In March 2002, the **Barcelona European Council** reviewed progress towards the Lisbon goals. It was agreed that investment in research and development (R&D) in the EU should be increased to reach 3% of GDP by 2010, with business research covering two-thirds of the increase.
- Acknowledging this goal, the **2002 Broad Economic Policy Guidelines** recommended stronger incentives for firms to invest in R&D while preserving sound fiscal policies.
- Afterwards, the **Spring European Council in 2003** invited the Member States to take concrete action on the basis of the Commission's 3 % Action Plan.
- JRC-IPTS is developing activities to **track and analyse policy developments** in the Member States, in the candidate countries, and in the associated countries, in view of the Barcelona targets.
- The JRC-IPTS activities in the area of industrial research focus on the monitoring, analysis, and **reporting of industrial research practices in Europe**, evaluating impacts and assessing prospective policy implications, against the background of global science and technology developments.
- The workshop's **objectives** were:
 - To share the most recent information (volumes, practices, key factors, and impact) on private R&D in the new Member States (NMS) and the Candidate Countries (CCs).
 - To provide an indication of the potential for private investment in R&D in these countries, as well as at identifying any lack of relevant information on the issue.

¹ The agenda, the list of participants and the material presented at the workshop can be found in the Annex.

- To suggest possible actions to improve the current situation for private investment in R&D in NMS and CCs.

2. INTRODUCTION

- **Patrice Laget** explained the present activities on industrial research and innovation at the Support for the European Research Area Unit. He pointed out that:
 - In the top private R&D-performing sectors, the intensity of R&D (R&D/sales) is comparable to that in the US and Japan, but the EU has a higher share of production in sectors that are low-R&D intensive.
 - The low private R&D investment levels EU are mainly due to the present industrial structure.
 - Private investment in R&D in the NMS and CCs deserves attention because of the potentially powerful positive effects on economic growth in the future, starting from a situation in which the NMS and CC have very low shares of industrial R&D in EU-25 BERD (Business Expenditures on R&D).
- **Participants from NMS and CCs** offered a short overview of the activity of their organisations and an introduction related to the R&D/private R&D situation in their respective countries:
 - Dr. Lubomír Lízal, PhD, Director CERGE-EI, Charles University, Prague, Czech Republic.
 - Dr. Sonja Radas, Institute of Economics, Zagreb, Croatia.
 - Dr. Marek Tiits, Institute of Baltic Studies, Estonia.
 - Prof. Janis Stabulnieks, Managing Director, the Latvian Technological Center, Latvia.
 - Prof. Rimantas Gatautis, International Centre of Knowledge Economy and Knowledge Management, Vilnius University, Lithuania.
 - Prof. Marzenna Anna Weresa, Warsaw School of Economics, Poland.
 - Prof. Adrian Curaj, Director, Ministry of Education and Research, Romania.
 - Dr. Snezana Krstic, University of Belgrade, Faculty of Technology, Serbia and Montenegro.
 - Mrs. Diana Demkova, Ministry of Education, S&T Policy Department, Slovak Republic.
 - Mrs. Marta Cimbakova, Ministry of Education, S&T Policy Department, Slovak Republic.
 - Dr. Peter Stanovnik, Director, Institute for Economic Research, Ljubljana, Slovenia.

- Dr. Mustafa Hatipoglu, the Scientific and Technical Research Council of Turkey (TUBITAK), Turkey.
- Mr. Huseyin Guler, the Scientific and Technical Research Council of Turkey (TUBITAK), Turkey.
- **Patrice Laget (JRC-IPTS) summarised the main messages** emerging from the first statements and discussions:
 - Many of the NMS/CCs have planned or are implementing plans to increase the volume of R&D investment.
 - The availability of skilled resources is of critical importance for the augmentation of R&D spending.
 - There is a need for more complete, detailed, and recent data.

3. PRIVATE INVESTMENT IN RESEARCH IN THE NEW MS AND CC - SHORT PRESENTATIONS

Dr. Lubomír Lízal: "Competitiveness and R&D in the Czech Republic: Internal Divergence"

- The Czech Republic ranks high in foreign direct investment (FDI) and value added created by foreign firms, but its economy is growing slowly, probably due to inefficiencies of the institutional arrangements affecting R&D (such as tax regulation, social security system) and of certain weaknesses of the R&D infrastructure (e.g. human resources).
- The results of the latest IMD and WEF competitiveness rankings for the Central and Eastern European countries were presented.
- Dr. Lízal provided an overview of some institutional settings influencing industrial R&D (e.g. taxation rules, entrepreneurship, patents). He also introduced the results of a project on the use of EU structural funds.

Prof. Marzenna Anna Weresa: "Private investment in R&D in Poland"

- Prof. Marzenna Anna Weresa presented an overview of the R&D sphere in Poland, where GERD is approximately 0.6% of GDP.
- A structural gap exists in the country. The majority (63%) of R&D funding is originating from Government budget (63%); only 31% of R&D is financed by private sources.
- The shares of private R&D funding vary considerably between Polish regions.

- The optimal level of government funding of R&D performed by business sector is 13%, according to the OECD. In Poland this level is low (8%). In the enterprise sector, the majority of R&D investment is performed by private businesses with 'pure' Polish ownership (~40% of the total). Companies with foreign capital invest 11% of total private R&D in Poland, but their share is increasing.
- It is important to gather and share information about the existing policy measures in all EU/CCs countries aiming at fostering private R&D. Also, she pointed out the need to assess the effectiveness of the policy incentives across countries.

Dr. Peter Stanovnik: "Key issues of business R&D in Slovenia and Croatia"

- Dr. Stanovnik highlighted the general characteristics of R&D in the region: the former EU15 spent up to 4 times more on R&D in the business sphere than NMS and CCs; the gap is, however, smaller in the government and educational sector.
- The share of wages in R&D spending is high.
- Reasons for the poor performance are:
 - The underdeveloped national and regional innovation systems.
 - The prevailing role of the public sector and the high education research capacities.
 - Weak co-operation between higher education and the business sector.
- Dr. Stanovnik summarised the main characteristics of the Slovenian and Croatian R&D and industrial R&D situation, and provided a short presentation on the Slovenian Automotive Cluster (ACS) as an example of good practice in industrial networking between business enterprises and academic R&D institutions.

Dr. Sonja Radas: "Private Sector in Croatia: Collaboration between industry and science"

- Dr. Radas provided information on the Croatian private R&D system. The private sector expenditures for R&D represent 0.48% of the country GDP. BERD has been growing since 1998, but it is still considerably lower than the EU average.
- 87.5% of private sector R&D expenditures is self-financed; only 1.8% of it originates from public sources.
- According to the conclusions of a study by the Institute of Economics in Croatia, collaboration between industry and academia is still weak in that country. Suggestion: incentives should be offered through tax breaks (not via direct interference of government) to support this important cooperation.
- Dr. Radas proposed to study the age structure of PhD holders and to identify the models of R&D funding.

4. PRIVATE INVESTMENT IN RESEARCH IN THE NEW MS AND CC - DISCUSSION

- **Andries Brandsma (JRC-IPTS)** provided a short overview of the work of the 3% Open Method of Coordination Expert Groups which report to CREST², particularly one of the CREST's Expert Groups, focused on "Policy Mixes".
- **Constantin Ciupagea (JRC-IPTS)** presented the work on "Gap index between Expenditure and Personnel in industrial R&D". Some attendees asked for clarification on the construction of the index.
- Some **suggestions for policy measures** aiming at supporting industrial R&D were formulated by participants from NMS and CCs:
 - To invest directly in defined priority areas.
 - To finance specific projects in the public research sector (business finding, mixed business and government funding).
 - To develop existing R&D units or to establish new ones in the industry.
 - To promote excellence.
- One of the key findings of the **EU Industrial R&D Investment Scoreboard** was that a few sectors undertake the vast majority of industrial R&D. Should NMS and CCs change the structure of their R&D then? And how can these countries attract high R&D-intensive FDI?
- The **consequences of FDI** on domestic industrial R&D were considered as a relevant issue for studying.
- If the objective is to increase the R&D intensity to 3% by 2010, then NMS and CCs need **structural reform**. What is the reasonable target taking into account their economic structure, and also taking into account that in some NMS and CCs the national objectives on R&D intensity are not in line with the 3% target either?
- Concerning the development patterns of **knowledge-based economy** (the essence of the Lisbon objective) for some countries the opportunity provided by spillover effects of R&D performed in other countries was raised. Smaller countries can benefit from the industrial R&D performed in other countries. The spillover from R&D is an important mechanism in the private sector as well. Studying the development pattern of Ireland could be relevant for some NMS and CCs.

² CREST stands for Committee for Scientific and Technical Research. It is the advisory committee to the Council and the Commission on subjects relating to scientific and technical research and, in particular, to the co-ordination of national R&D policies. Both Member States of the EU and other Countries associated to the EU R&D framework programme participate in CREST.

- The **availability and mobility of human resources** and the brain-drain was discussed widely. The flow of researchers from academy to company sector cannot be regarded as brain-drain.
- **Government support** has been broadly evoked. However, in the US, the government has mostly backed out from investing in industrial R&D).
- **Pietro Moncada-Paternò-Castello**, responsible for the "Industrial Research Investment" activities in the "Support to the European Research Area" Unit, summarised the key issues raised by the NMS and CC participants and contributed to the discussion making the following points:
 - There is a need for collection of better and more recent statistical data and possibly complement this with other sources and qualitative information.
 - There is a dichotomy between foreign-owned and local-owned companies. The former are more focused on innovation or applied research and show higher volumes of R&D investment.
 - Availability of capital and IPR are additional key issues, especially for R&D in smaller-sized enterprises.
 - R&D is more concentrated in manufacturing industries than in the service sector.
 - The structure of the economy and industry plays an important role in the overall private R&D investment picture.
 - The availability and mobility of human resources require attention and is a precondition for increasing R&D investment.
 - Behind the 3% target, there is a strategically relevant plan to stimulate and optimise the efforts that the EU should make to reach a greater knowledge-intensive society through investing more in research (Lisbon). He finally asked the workshop participants about their opinions and suggestions on how can NMS/CC be further helped to evolve towards more knowledge-intensive economies.

5. FOLLOW UP

- **Pietro Moncada-Paternò-Castello: “Approach for the JRC-IPTS activity focused on New Member States and Candidate Countries”**
 - Pietro Moncada-Paternò-Castello presented the proposed aims and structure of the activity. The objectives are to provide insight on private R&D in these countries by focusing on a set of strategically relevant issues.
 - The proposal is to approach six sector studies (mainly desk-based), including case studies where relevant. Each of these studies aim at investigating the private R&D investment situation in a limited number of NMS and CCs. As a result, conclusions would be drawn on:
 - Common features and differences.
 - Potential capacity.
 - Relevant issues for industry and policy strategy.
 - Participants were asked to comment on the adequacy of the proposed approach, to provide suggestion on which sectors of the economy the activity should be focused, and to identify what the most relevant analytical aspects are. Furthermore, Pietro Moncada-Paternò-Castello asked to express their opinion on the potential usefulness of the planned activity for NMS/CCs (including which use of the results would be made and by whom).

- **NMS and CCs participants proposed that:**
 - There was a proposal to establish guidelines on the indicators used in the study (define input/investments and output/performance indicators, and sources of information). Some concerns were expressed on the availability and reliability of existing data in some countries: in some new Member States or Candidate Countries the statistical systems do not cover all companies that perform R&D. The identification of data sources and data collection on the R&D was proposed in the framework of the planned JRC-IPTS project.
 - The automotive, chemicals, biotech, and ICT sectors were considered as most relevant industries for the study, at least in the beginning. However, most participants agreed on the relevance to implement the work focusing to a balanced share of high-tech and low-tech sectors.
 - It was suggested that industrial R&D patterns are examined differently in small and big countries, these two groups of countries having different perspectives (“critical mass issue”).
 - There was a proposal on examining factors underpinning the companies’ decision not to perform R&D.
 - The study should possibly distinguish between the indicators of basic research and applied research (first one is performed prevalingly by the government sector; the share of the second one is higher in the industrial sector).

- An interesting issue could be to study the motivations of a foreign company performing the R&D in a host country and not acting in the same way in another host country. As an example, some car producers establish R&D facilities in one country and not the other, despite the fact that have production facilities in both.
 - Potential groups of readers/users of the study in the NMS and CCs were defined broadly as following:
 - Government/policymakers.
 - Industrial associations.
 - Chambers of commerce.
 - Trade unions.
 - Domestic companies.
 - Analysts.
- **Pietro Moncada-Paternò-Castello answered to these comments** and asserted that the planned study should address quantitative and qualitative information and provide a better picture of the private R&D in NMS and CCs. In particular, he mentioned that:
- The study will also look into prospective evolution of industrial R&D.
 - Only a few sectors will be studied, but trying to find a balance between low and high-R&D intensive sectors.
 - The distinction between applied and basic research should be considered.
 - A particularly in-depth investigation should be carried out on some companies which have operations in several NMS and/or CCs.
 - The study's results will be forwarded to national and EU policy-makers, and the circle of their closest advisors. He asked the attendees for quick suggestions on the following:
 - Names of those potential users in their countries.
 - Names of people/organisations that could be contacted to support the collection and analysis of national data for the study.

Author of this report: **Dr Veronika Frigyesi**

ANNEX I

AGENDA

- 9:15-9:30 *Welcome coffee*
- 9:30-9:50 Welcome and introduction to JRC-IPTS activities on Industrial Research and Innovation (*Patrice Laget, Head of Unit, Support to European Research Area, JRC-IPTS*)
- 9:50-11:10 Short statements on the implications of the refocused Lisbon strategy for private R&D in the new Member States and candidate countries and the contributions expected from JRC-IPTS (*all NMS and CC attendees*)
- 11:10-13:00 Private investment in Research in the new MS and CC – (I) Short presentations by invited experts
(*Invited experts: M.A. Weresa; L. Lizar; S. Radas; P. Stanovnik*)
- *General situation on private R&D in new MS and CC, including business and policy environment - key issues*
 - *Examples of good research practices in industry and services*
 - *Main factors influencing private R&D*
 - *Potential economic impact of private R&D focusing on business sectors*
- 13:00-14:30 *Lunch break*
- 14:30-15:30 Private investment in Research in the new MS and CC – (II) Discussion (*all participants*)
- *Comments on the presentations provided by invited experts*
 - *Identification of strengths, weaknesses and opportunities*
 - *Common developments*
- 15:30-16:00 *Coffee break*
- 16:00-16:45 Brainstorming on possible follow up
(*All participants*)
- *Content of a JRC-IPTS activity (a study and Seminar) focused on the subject*
 - *Use of the results by new MS and CC*
 - *Suggestions for people and institutions to be involved in such JRC-IPTS activity*
- 16:45-17:00 *Conclusions*

CONTACTS (JRC-IPTS)

Pietro Moncada-Paternò-Castello (IRI Action Leader, Support to ERA Unit)

pietro.moncada-paterno-castello@cec.eu.int

Andries Brandsma, Support to ERA

andries.brandsma@cec.eu.int

Tel: 0034 954 488 287

Constantin Ciupagea, Support to ERA

constantin.ciupagea@cec.eu.int

EXTERNAL PARTICIPANTS

NAME		COUNTRY	ORGANISATION
Lubomir Lizal	Dr	Czech Republic	Charles University
Rimantas Gatautis	Prof	Lithuania	International Centre of Knowledge Economy and Knowledge Management, Vilnius University
Marzenna Anna Weresa	Dr	Poland	Warsaw School of Economics
Peter Stanovnik	Prof	Slovenia	Institute for Economic Research
Sonja Radas	Dr	Croatia	Institute of Economics
Janis Stabulnieks	Prof	Latvia	The Latvian Technological Center
Marek Tiits	Dr	Estonia	Institute of Baltic Studies
Diana Demkova	Mrs	Slovak Republic	Ministry of Education, S&T Policy Department
Marta Cimbakova	Mrs	Slovak Republic	Ministry of Education, S&T Policy Department
Adrian Curaj	Prof	Romania	Ministry of Education and Research
Mustafa Hatipoglu	Dr	Turkey	The Scientific and Technical Research Council of Turkey (TUBITAK)
Snezana Krstic	Dr	Serbia and Montenegro	University of Belgrade, Faculty of Technology
Huseyin Guler	Mr	Turkey	The Scientific and Technical Research Council of Turkey (TUBITAK)

PARTICIPANTS FROM JRC-IPTS

NAME	
Patrice Laget	Head of Unit, Support to European Research Area
Pietro Moncada-Paternó-Castello	IRI Action Leader, Support to ERA Unit
Andries Brandsma	Support to ERA Unit
Constantin Ciupagea	Support to ERA Unit
Alexander Tübke	Support to ERA Unit
Rene van Bavel	Support to ERA Unit
Patrick Eparvier	Support to ERA Unit
Veronika Frigyesi	Support to ERA Unit
Tibor Dory	Support to ERA Unit
Martin Ulbrich	ICT Unit
Manuel Fernández	Support to ERA Unit
Jan Kozlowski	Support to ERA Unit
Lesley Potters	Support to ERA Unit
Geomina Turlea	ICT Unit