RESEARCH POLICY OF CROATIA: TOWARDS EUROPEAN INTEGRATION

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TOWARDS EUROPEAN INTEGRATION IN S&T

Since 2003 Croatia made significant efforts to strengthen S&T system in order to make it correspondent with European standards of scientific excellence and economy requirements.

Croatia's accession negotiations with the European Union (EU)
opened on the 4th October 2005

….brought Lisbon and Barcelona targets into the S&T policy agendas of Croatia

The screening processes for sectors relevant for S&T

Science and Reserach (Chapter 25)	Education and Culture (Chapter 26)	Innovation policy (Industrial policy-Ch.20.2)

….have been successfully finalized with overall conclusions that:

- from the legal and institutional point of Croatian systems are harmonized with the *acquis;*
- capable to participate in European programmes.

LISBON AND BARCELONA TARGETS - TURNING POINT IN CROATIA'S S&T POLICY

Recognition of research and innovation as the main drivers of Croatia's:

- **Integration into European Union;**
- **Competitiveness on global market;**
- **Moving towards knowledge-economy.**

Growing recognition that existing resources of economic growth generated mainly from:

•Defensive inter-sectoral restructuring (dismiss of workers);
•Domestic market consumption (government as a main customer);
•Low-cost foreign direct investments (R&D is not involved)

… are coming to their exhaustion and the knowledge based factors are becoming important .

Lisbon target: **Europe should become "the most competitive and dynamic knowledge-based economy".**

Barcelona target: to achieve 3% of GDP for R&D (2/3 from industry)

TRANSITION TO KNOWLEDGE SOCIETY

Support from the highest political levels……

The first nation-wide conference entitled: Croatia – towards knowledge econmy, Zagreb fair, December 2005

INCORPORATION OF LISBON AND BARCELONA TARGETS IN THE S&T POLICY DOCUMENTS

Science and technology policy of the Republic of Croatia 2006-2010, (MSES, 2006)

Action plan for S&T policy implementation 2007-2010 (MSES, 2007)

INCORPORATION OF LISBON AND BARCELONA TARGETS IN THE S&T POLICY DOCUMENTS

The four main challenges are identified as follows:

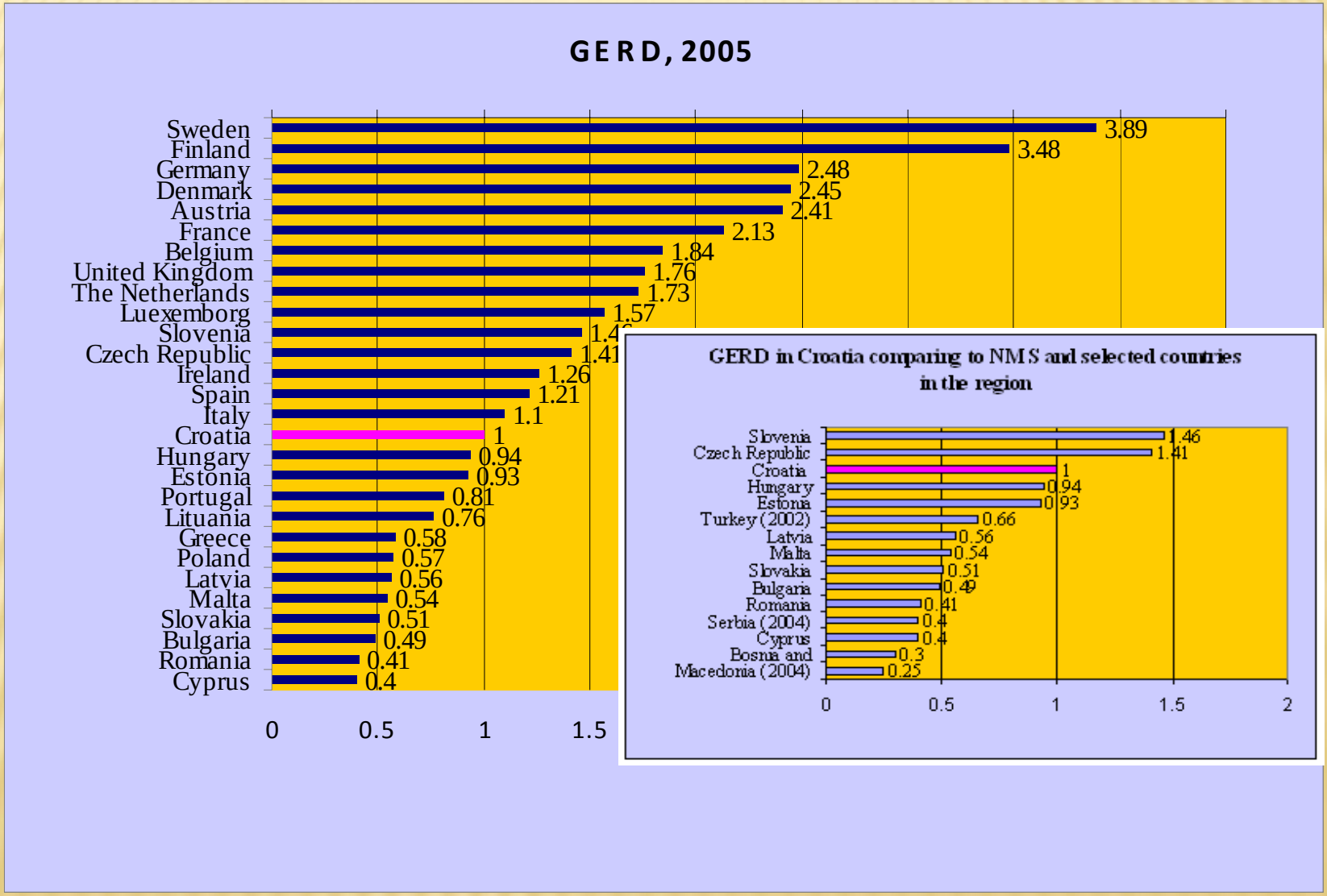
- Increase investment in research and development towards the "3%" (from 1.0% of BDP in 2005)
  - an increase in funding for R&D at a rate of at least 25% annually.
  - the goal is to reach a 1:1 ratio of public vs. private sector investment in R&D (share of BERD in GERD is 42.1% in 2005);
- Modernise the mission and management of science institutes and universities toward national priority areas and industry needs;
- Strengthen cooperation among science, government and industry in order to produce new knowledge, innovations, goods and employment;
- Increase participation of Croatian scientists in EU framework programmes.

THE CHANGES IN R&D SYSTEM ARE ALREADY ON THE WAY.....

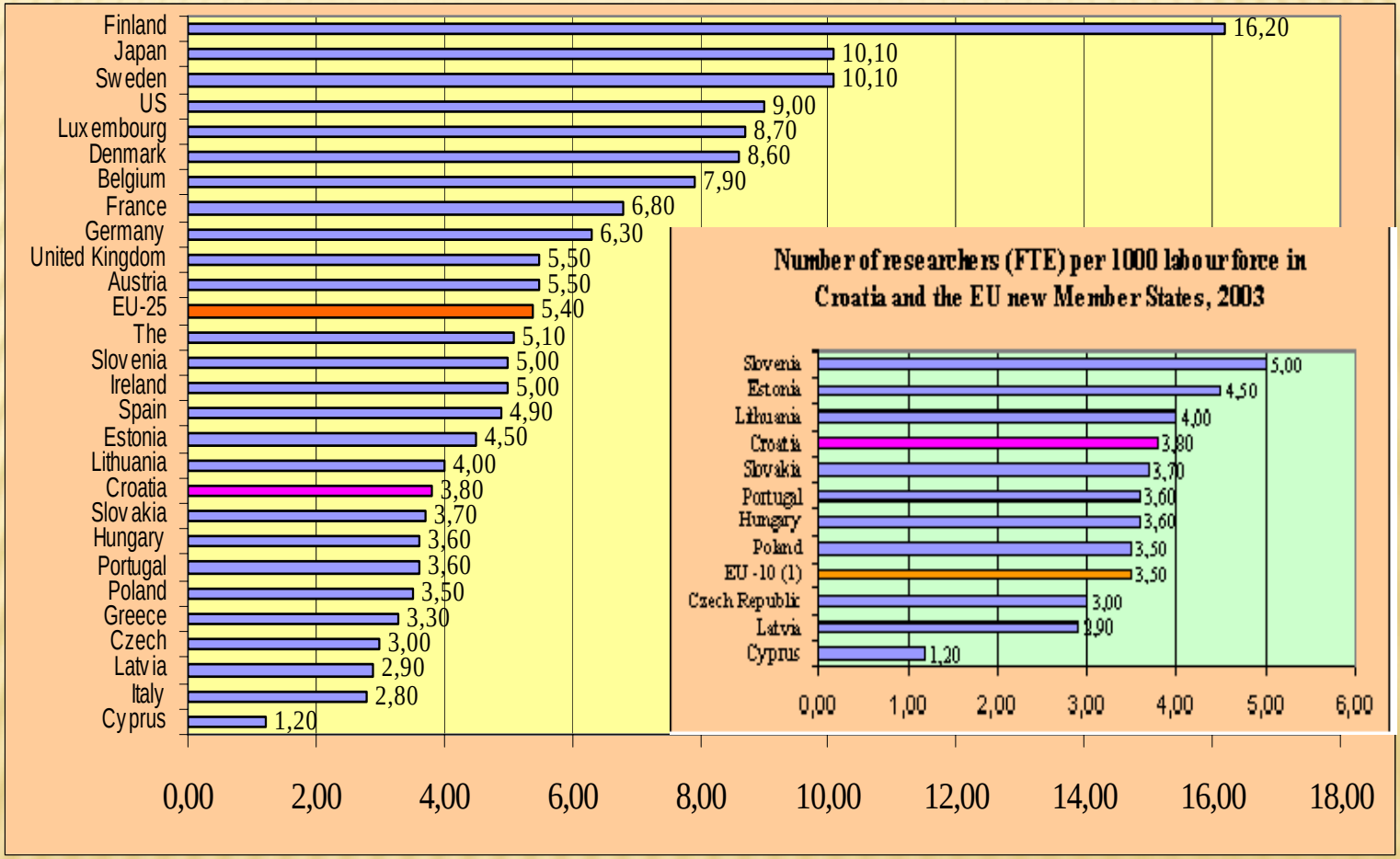
Examples:.

- GERD is constantly rising, from 0.77 % of GDP in 1997 to 1.24 % of GDP in 2004
- the MSES budget for education and science has increased for 33% in the 2003-2007 period (by €360 million)
- the budget for the scientific projects has been increased for 52%, over 2002 and amounted to €19.5m in 2006 (an increase of €6.6m since 2002);
- almost 5,300 new jobs have been created in science and education from 2004 to 2007, of which 1,400 have been opened in science and 1,280 are solely for new junior researchers;
- World Bank approved the loan of €31 million for science and technology (Science and Technology Project).

CROATIA IS A REGIONAL LEADER IN R&D INTENSITY: INVESTMENTS IN R&D



A POOL OF RESEARCHERS IN CROATIA IS LARGER THAN IN MAJORITY OF THE COUNTRIES IN THE REGION



Number of researchers (FTE) per 1000 labour force in Croatia and EU 25, 2003

R&D and Innovation System

GOVERNMENT OF THE REPUBLIC OF CROATIA

PUBLIC SECTOR

Ministry of Science, Education and Sports (MSES)

Directory of Science

SCIENCE AND HIGHER EDUCATION POLICY

- National Science Council
- National Council for Higher Education
- Scientific committess (1-6)
- Agency for Science and Higher Education (ASHE)
- National Science Foundation (NZZ)

INOVATION POLICY

- Technological Council
- BICRO
  RAZUM, TEHCro
  VENCro IRCro, CONCro
- CROATIAN INSTITUTE FOR TECHNOLOGY
- STP PROJEKT
- IPR UNIT

Ministry of Economy, Labour and Entrepreneurship (MELE)

The SMEs and Cooperatives Division

POLICY OF SMEs AND ENTREPRENEURSHIP

- Supporting programmes for SME development
- Development of entrepreneurial infrastructure

PRIVATE SECTOR

INDUSTRAL POLICY AND POLICY OF ENTREPRENERSHIP

- Croatian Chamber of Commerce
- National Competitiveness Council
- Croatian Agency for Small Businesses (HAMAG)
- Trade and Investment Promotion Agency
- Centre for SME policy (CEPOR)
- Croatian Employers Association (HUP)

Universities

Public institutes

Other legal R&D entities

Technological and development centers

Information support (CARnet

Technical infrastructure patents, standards, statistical data, ...)

Business incubators

Enrepreneurial centres

Free economic zones

Regional development agencies

Entrepreneurial zones

Commercial institutes

Corporate institutes

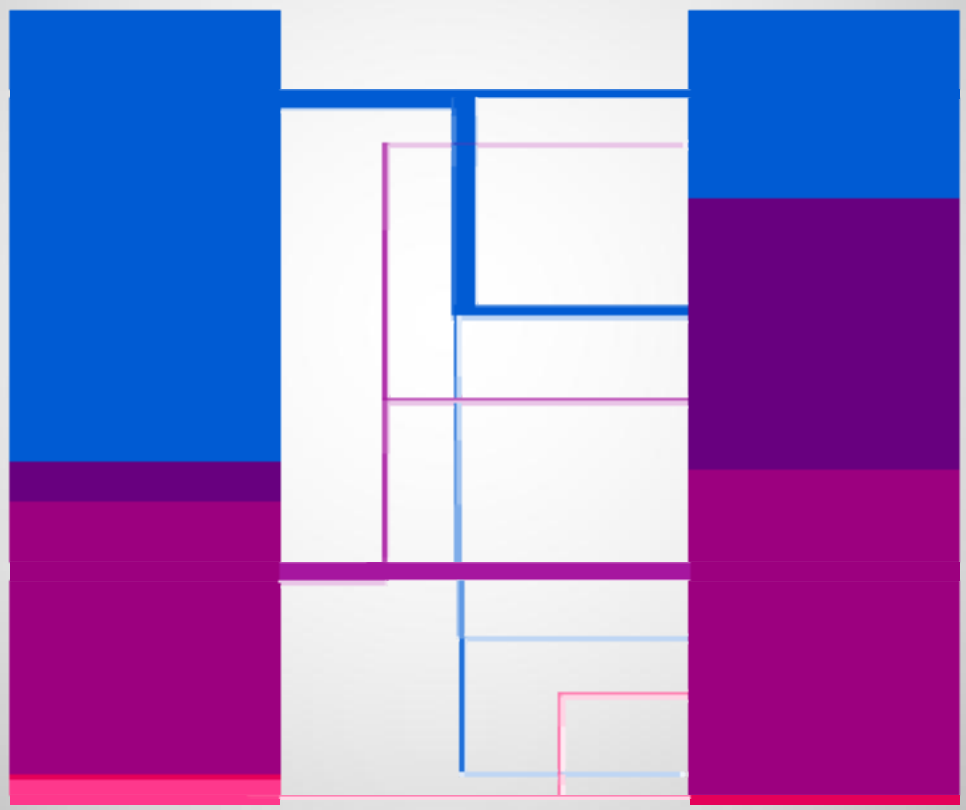
REGIONAL/LOCAL DEVELOPMENT INITIATIVES

- ICT incubator Varaždin
- Regional development agencies
- Regional chamber of commerce
- Technology park Zagreb…

Picture 1. INSTITUTIONAL SET-UP AND THE MAIN PROGRAMMES OF THE CROATIAN INNOVATION SYSTEM SUPPORTED BY THE MSES

Research founding flows in Croatia 2005 (HRK thousands)

GERD = 2,311,712 (100%)



FUNDING BODIES OF R&D IN CROATIA

1. Ministry of Science, Education and Sports (MSES):	National science base – “national pool of knowledge”
2. National Science Foundation (NZZ):	Support to university reform, support for PhD students, “Brain-gain” programme, Partnership in basic research, etc
3. Business Innovation Centre of Croatia (BICRO):	(RAZUM), knowledge-based companies (TehCro), technology infrastructure (VenCro)venture capital industry (IRCro) R&D services for companies business (KonCro) competitiveness programme;
4. Croatian Institute for Technology (HIT):	Technological projects (TEST);
5. Unity through knowledge fund (UKF)	Stimulate return of Diaspora, cooperation with Diaspora

BASIC FINANCIAL INSTRUMENTS OF MSES FOR R&D

MSES

1.Institutional funding (block grant)
including salaries for researchers (35% of the MSES budget for R&D);

2. "Research projects"
competition-based programme - research grants for scientific projects, (17% of the MSES budget);

3. Junior research program
grants for new employment positions for young researchers (31% of MSES budget for R&D);

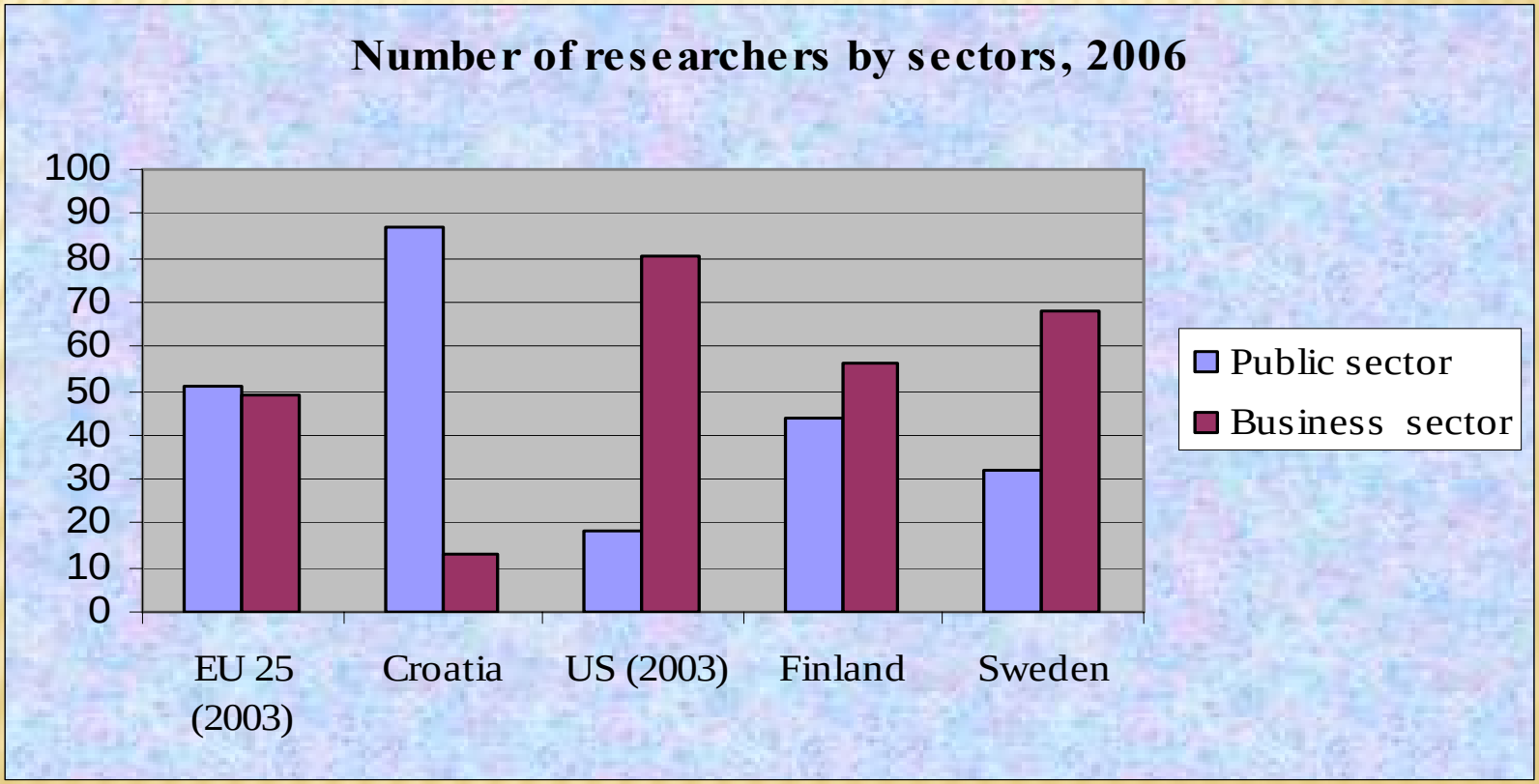
4.Set of research-supporting programmes:
- Scientific Publishing,
- Scientific and Professional Conferences and Associations
- Scientific Equipment;
- Foreign magazins

MSES runs only one programme shaped by thematic priority, Applied information technology projects (I-Projects)

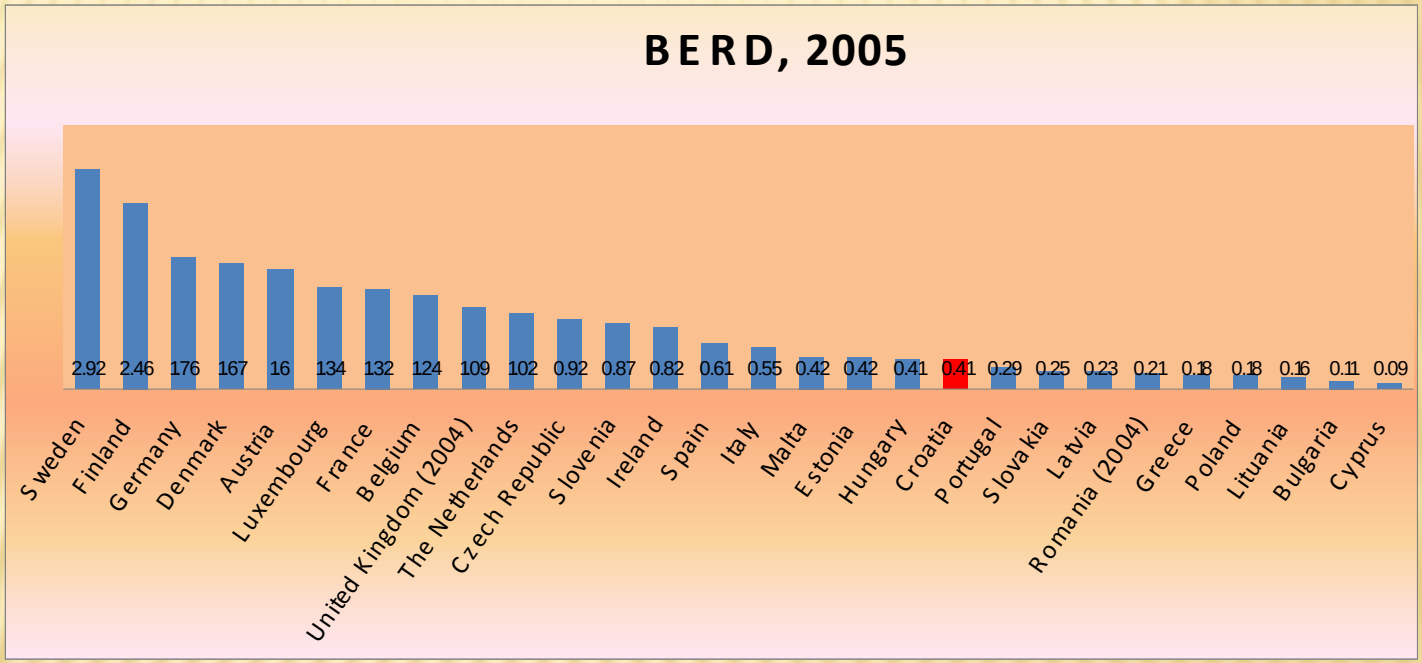
HORIZONTAL MEASURES VS. THEMATIC PROGRAMMES!?

SHORTCOMING OF R&D SECTOR: STRUCTURAL IMBALANCE IN NUMBER OF RESEARCHERS

In developed countries private R&D sector dominates over public sector in research intensity – investments in R&D and number of researchers. In Croatia the situation is just the opposite: public sector (HE and government) employs 87% of researches, while business sector employs modest 13 %



SHORTCOMING OF R&D SECTOR: STRUCTURAL IMBALANCE IN R&D INVESTMENTS



BUSINESS R&D SECTOR IS WEAK

- it does not have a critical mass of researchers (14-15% of researchers)
- investments in R&D oscillates at around 0.4% of GDP
- share in GERD is about 45%.

The contribution of business vs. public sector to R&D in Croatia should be reversed in order to make transition o knowledge society

Private research institutes

Commercial institutes (13), e.g. Energy Institute, Ship-building Institute, the Civil Engineering Institute, the Tobacco Institute, the Mediterranean Institute for Life Sciences, etc.

Corporate institutes (5): the **Ericsson Nikola Tesla**, telecommunication company, the **INA**, oil company, the **Končar –Electrotechnical Institute**, electric company and the **GlaxoSmithKline Research Centre** Zagreb, pharmaceutical company, **PLIVA-Institute**, pharmaceutical company

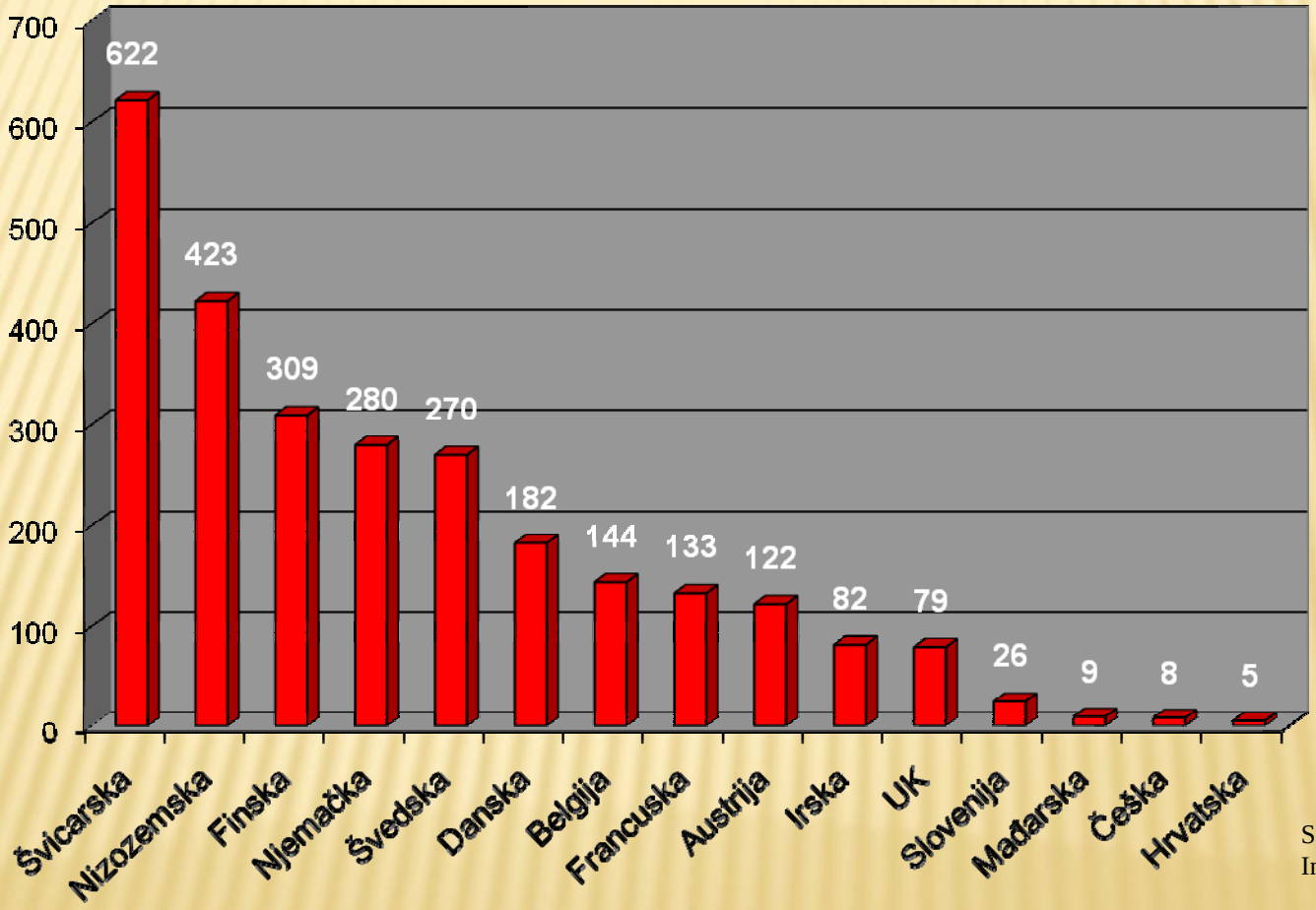
SCHORTCOMING: WEAK SCIENCE-INDUSTRY COOPERATION

VERY COMPLEX PROBLEM because it does not depend on
- research sector alone;
- good will of actors

It depends on, e.g:

- structure of industry and production (LM tech);
- technological capabilities of companies (number of patents, quality management;
- absorption capacities of economy (internet hosts, educated labour force, etc.)

NUMBER OF PATENT APPLICATION IN 2004 ON ONE MILLION OF INHABITANTS



Source: Eurostat, Structural Indicators database.

EU FRAMEWORK PROGRAMMES

Croatia became a full member of the FP6 on 1 January 2006 (before: status of a third country, limited access to funding)

For full participation - a total of €6.4m was paid out in 2006

All the funds Croatia invested have already returned

Croatia ranks among the most successful countries in the region

The majority of projects are in the following areas: Knowledge-Based Society, Information Society, Life Science, Genetics and Bio-technology in the Service of Health

Its inclusion in the European Technology Platforms (ETPs), in Competitiveness Innovation programme (CIP) is very modest

EU STRUCTURAL FUNDS

As an EU candidate country, Croatia was eligible only for pre-structural funds (SAPARD, ISPA, CARDS, TEMPUS)

Focused mainly on capacity building and Croatia's preparation for EU membership (civil society, corruption, national statistics, etc.) and
NOT FOR RESEARCH FUNDING.

Since 2007 Croatia is eligible for the IPA programme (Instrument for Pre-Accession Assistance), an integrated instrument that will replace the pre-accession programmes

The MSES participates in two projects within the Regional Competitiveness Operational Programme

IPA –IPA- Instrument for Pre-Accession Assistance BUDGET (2007- 2010/ M€)

		2007	2008	2009	2010
1	Assistance in transition and institutional building	47,6	45,4	45,6	39,5
2	Cross-border cooperation	9,7	14,7	15,9	16,2
3	Regional development	44,6	47,6	49,7	56,8
4	Human resources development	11,1	12,7	14,2	15,7
5	Rural development	25,5	25,6	25,8	26,0
	TOTAL	138,5	146,0	151,2	154,2

589,9

IPA- PARTICIPATION OF MSES

(1)
Development of the bio-technology incubator

(2)
Science and Innovation Investment Fund - support the "third university function", i.e. knowledge transfer between the university and business sectors

The total value of the programmes is €10.5m

ERAWATCH – RESEARCH PROGRMMES

MSES

1. Research projects
2. Junior research program
3. Scientific Publishing
4. Scientific and Professional Conferences and Associations
5. Scientific Equipment
6. Procurement of foreign magazines
7. Applied information technology projects (I-Projects)

NZZ

1. Brain-Gain – PostDoc
2. Brain-Gain - Visitor
3. Brain-Gain - Senior
4. Partnership in basic research
5. Support for Croatian scientists in joining the European Science Foundation Program
6. Fellowships for doctoral students
7. National research training courses and summer schools
8. Science award

UKF

Unity Through Knowledge Fund

ERAWATCH – POLICY DOCUMENTS

Official Gazette123/2003	Croatia in the Twenty-First Century- Science
Official Gazette 108/2003	Act on Scientific Activity and Higher Education
NZZ, 2004	Strategic plan of the National Science Foundation
MSES, 2006	Science and Technology Policy of the Republic of Croatia 2006-2010
MSES, 2007	Action Plan for the implementation of S&T policy 2007-2010

ERAWATCH - INSTITUTIONS

State body	Ministry of Sceince, Education nad Sports (MSES)
State body	National Science Council (NSC)
State agency	Agency for Science and Higher Education (ASHE)
Nat. foundation	National Foundation for Science (NZZ)
Academy	Croatian Academy of Sciences and Arts (CASA)
Academy	Academy of Medical Sciences in Croatia (AMSC)
Academy	Croatian Academy of Engineering (CAE)
Res. institute	Ruđer Bošković Institute (IRB)
State agency	Croatian Institute for Technology (HIT)
Information source	Croatian Bureau of Statistics