



Socio-economic barriers of Research and Development sector in Croatia

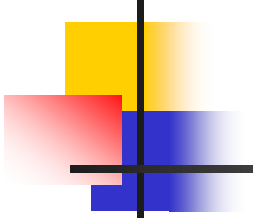
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Contests

- Analysis of the R&D sector
- Socio – Economic Framework and linkages with R&D sector development
- The Influence of the Financial Sector on national R&D sector development



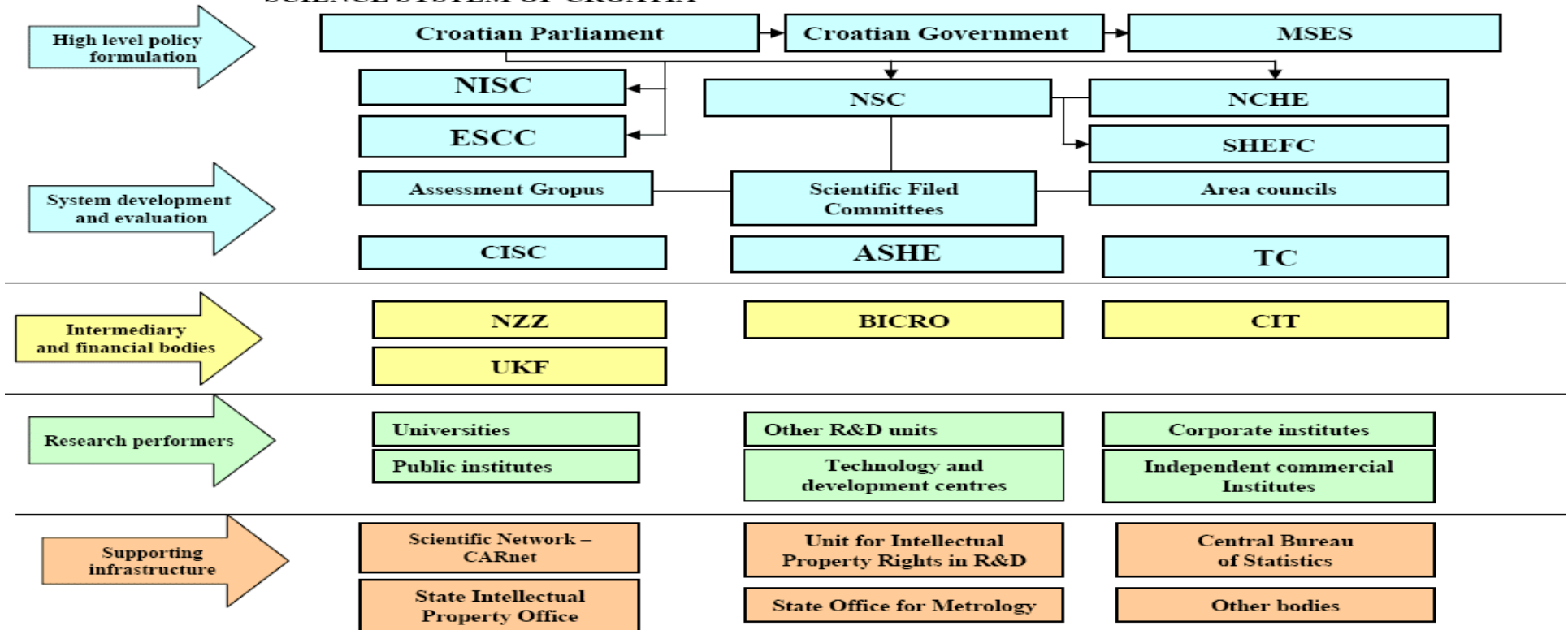
The National Science and Research Sector – Characteristics

- R&D activities heterogeneity
- Technology - new product development and/or material resources saving (**new division of labour**)
- Engel's law
- The Approaching to the EU – new priorities **constraints of the R&D system?**

The National Science and Research System – Key Institutions



SCIENCE SYSTEM OF CROATIA



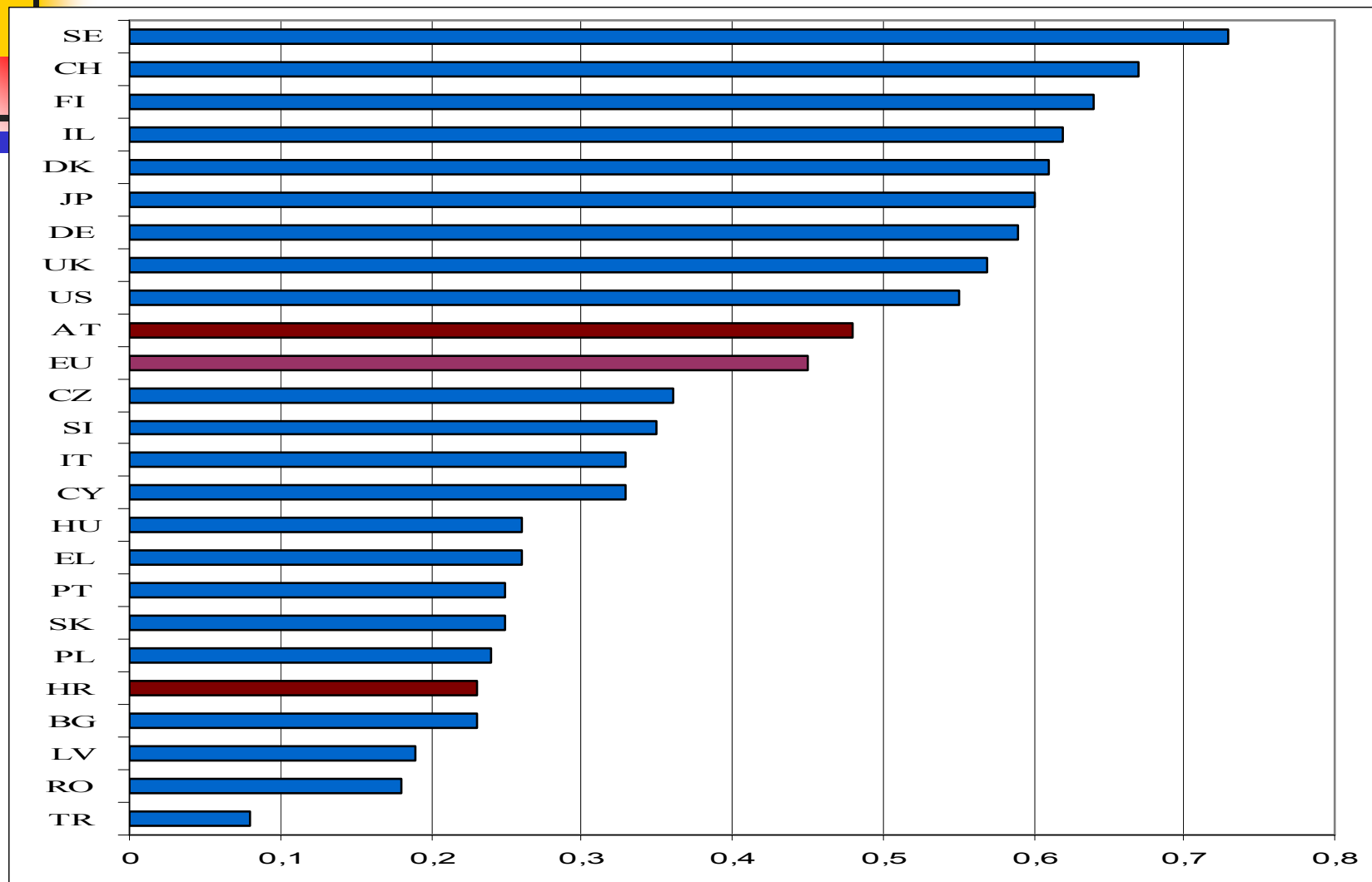
Legend:

MSES – Ministry of Science, Education and Sports
NISC - National Information Society Council
ESCC - Education, Science and Culture Committee
NSC - National Scientific Council
NCHE - National Council for Higher Education
SHEFC - Science and Higher Education Funding Council

CISC - Croatian Innovation System Council
ASHE - Agency for Science and Higher Education
TC – Tehnological Council of MSES
CIT – Croatian Institute of Technology
UKF – Unity through Knowledge Fund
BICRO – Business Innovation Centre of Croatia
NZZ - National Foundation for Science, Higher Education and Technological Development

Innovation Index Summary

Croatia Vs. EU-27



Source: EIS – European Innovation Scoreboard (2008)



Development Barriers of the R&D sector

- **Low level of Inventive Activities**
- **Low Complexity of Innovation Activities**
- **Low share of R&D Employees in total number of employees compare to the EU 27 average**

Knowledge Generation and Diffusion facilitated by Socio – Economic Framework?



- **Weakening export competitiveness measured by various comparative and competitive indicators (see Aralica 2009, EIZ 2009, Jošić, 2008);**
- **Knowledge transfer increase is a result of imports increase (equipment acquisition) and FDI increase in smaller extent; Investments into lower value added production (cf. Fagerberg, Srholec, Knell 2007);**
- **Absence of the main expected results in the Croatia approach to the EU.**

The Influence of the Financial Sector on the R&D Sector



- Continuous interaction between financial and real sector - influence on the R&D sector
- Two main mechanisms, interests rates and foreign exchange rate, de facto fixed rate exchange policy
- 'Capital inflow' without export of the capital causes balance of payments problem as well as foreign debt increase
- Insufficient number of the econometric scientific papers aimed at researching the finance sector and the technology sector interdependence

Financing Instruments aimed at R&D activities in 2009 (ERAWATCH methodology)

■ Promoting the establishment of new indigenous R&D performing firms

RAZUM – financing firm's seed capital (7.3 mil EUR)

VENCRO program – government initiative encouraging potential fund managers to start venture capital funds

TEST aimed at finance of pre-commercial research activities and the development of new product and/or processes up to the prototype point and/or pilot solutions

Ruđer Inovacije commercialising fundamental scientific research results.

■ Stimulating greater R&D investment in R&D performing firms;

IRCRO – programme for R&D investment finance within SME's (300 thousand EUR since 2007)

KONCRO – building SME competitiveness 119 thousands EUR (24 projects)

MELE- two schemes 1) New product development finance (2.2 mil. EUR); 2) Financing business process aimed at strengthening national competitiveness within the national SME sector.

■ Stimulating firms that do not perform R&D yet;

Several Projects within FP 6 i FP 7 SME Association (Brodarski Institut as a RTO and business sector participants Doking, Pewa, Emergo and Damko)



Financing Instruments aimed at increasing R&D (II)

- **Attracting R&D-performing firms from abroad**
 - No visible financing scheme
- **Increasing extramural R&D carried out in cooperation with the public sector**
 - TEHCRO – finance and maintenance of science and technology parks 3 million EUR;
 - MELE financed 6 technological parks 148.9 thousands EUR; Cluster imitative oriented towards WB countries
 - NZZ – managerial instruments in basic research
 - HIT foresight programmes seeking to envisage future technology demand
(R&D investments demand)
- **Increasing R&D in public sector**
 - (AZVO, BICRO, HIT, UKF, Ruđer Inovacije)



Conclusion – The Sustainability of the R&D System

- The increase of effectiveness of the R&D sector need to be connected with achieving broader social economic objectives i.e. increase competitiveness, employment and living standards
- Existence of an adequate financial system which could facilitate the R&D sector!!!