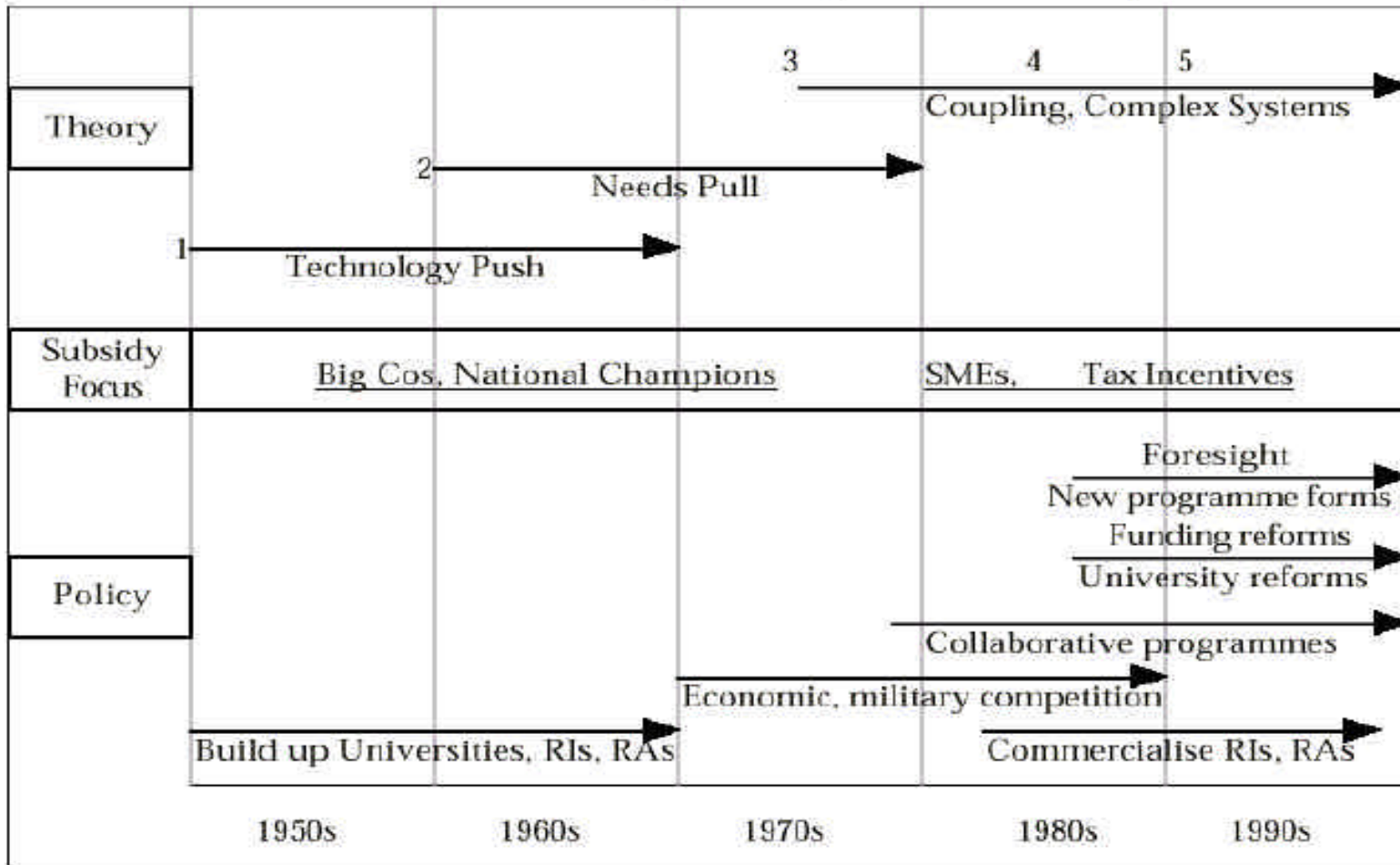


Case Hungary

National policy priorities and R&D programmes in the field of ICT

Sándor Bottka, ISTC delegate
National Office for Research and Technology

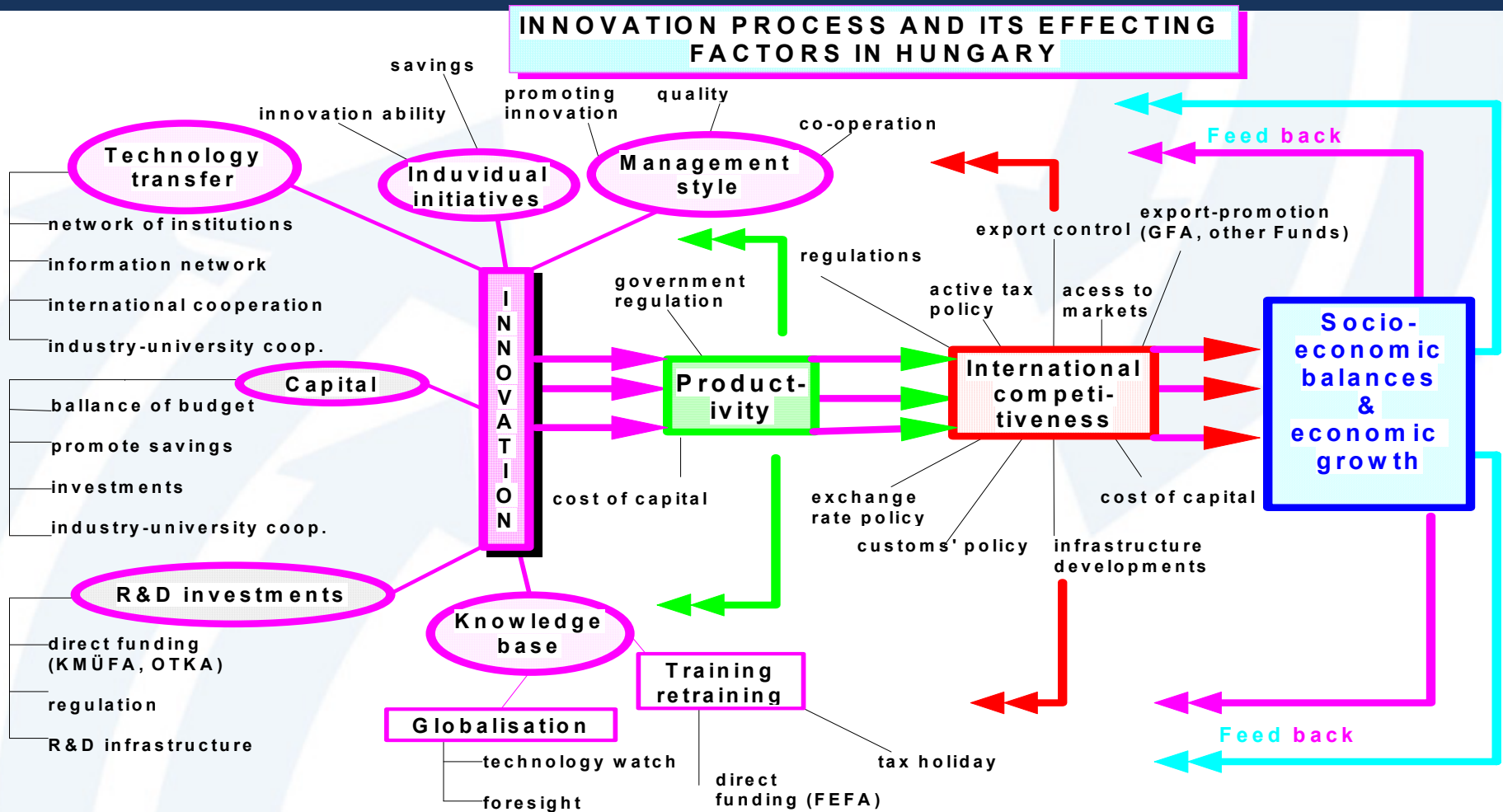
These long processes in Hungary were coming into the light in a compressed way after the political changes from the late 80s.



Source: Erik Arnold and Katalin Balázs, Methods in The Evaluation of Publicly Funded Basic Research, Technopolis Ltd, 1998



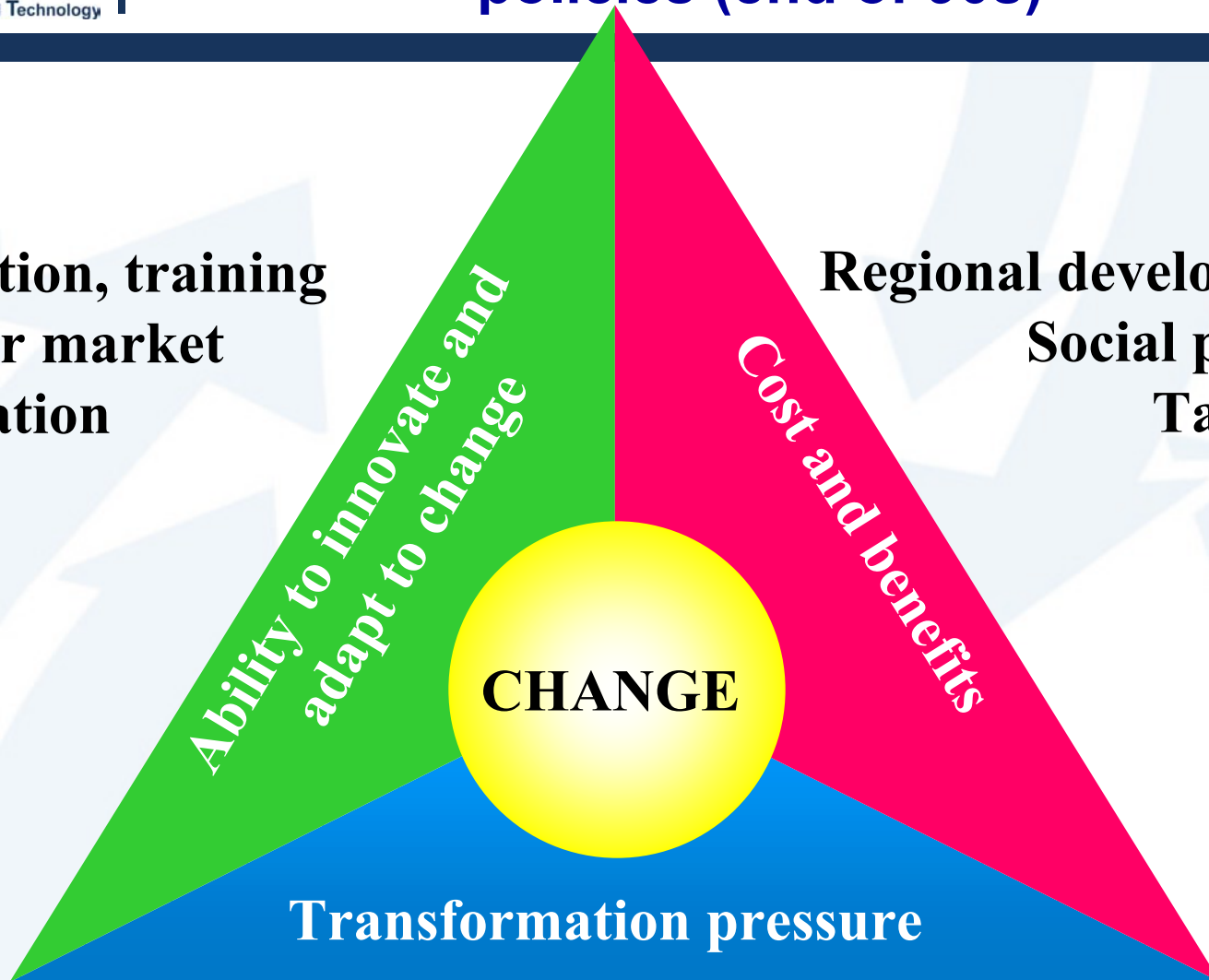
Innovation Policy in Hungary, 1995



It has not been endorsed, but it had an impact. E.g. a Technology Foresight exercise started. The S&T community is afraid of a strong governmental activity.

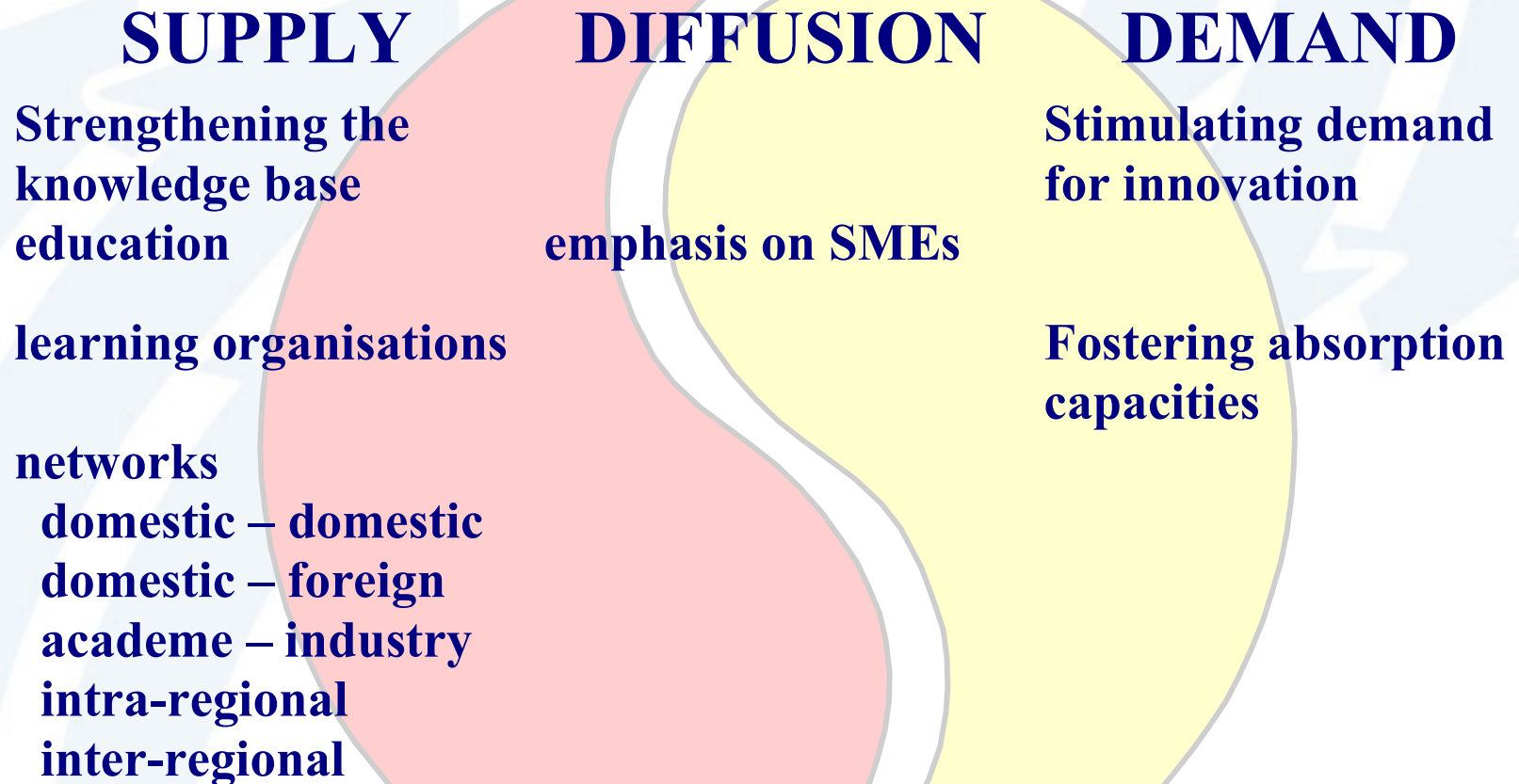
Education, training
Labour market
Innovation

Regional development
Social policies
Taxation



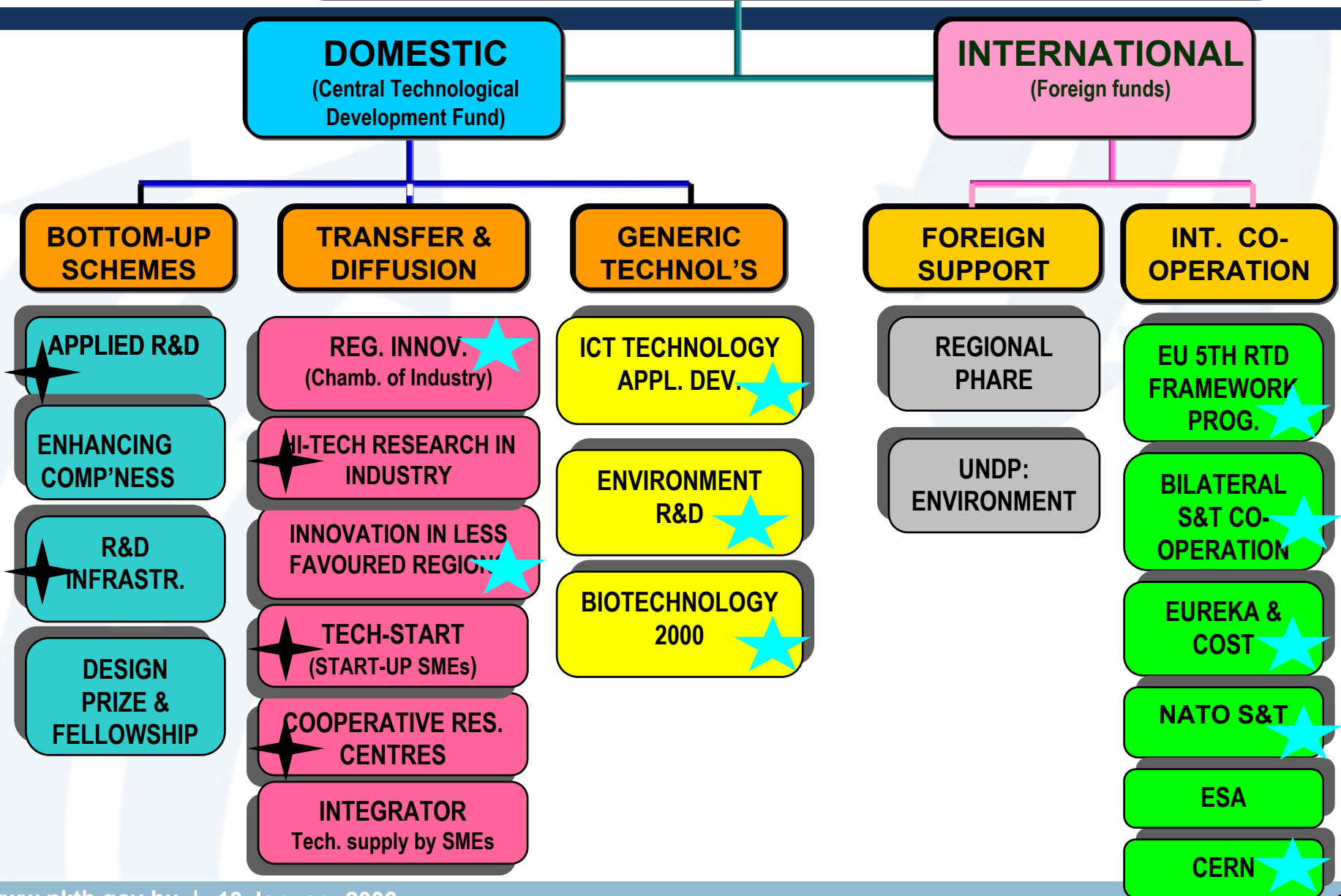
Macroeconomic, Trade, Competition

Based on "The globalising learning economy:
Implications for innovation policy"

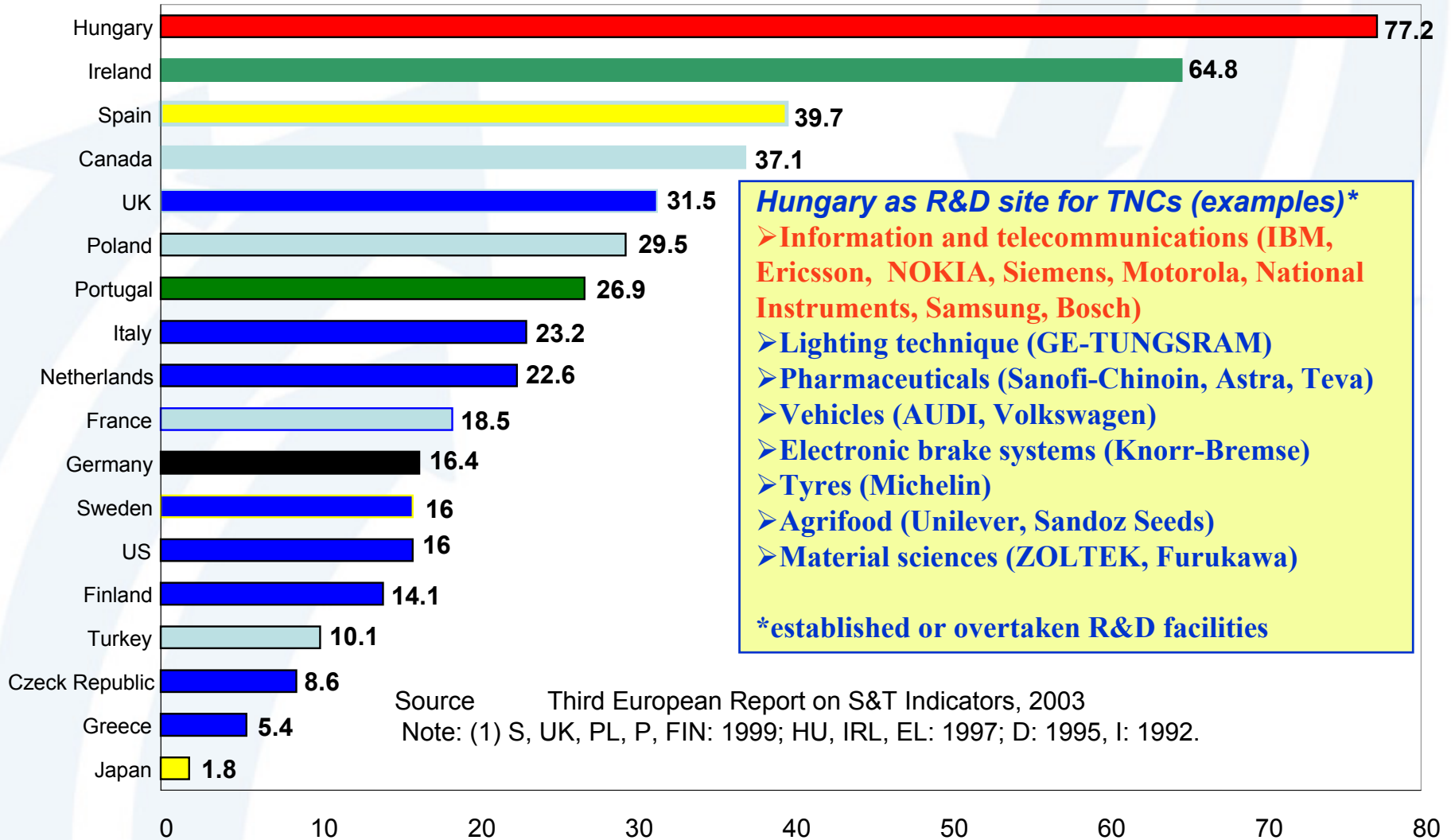


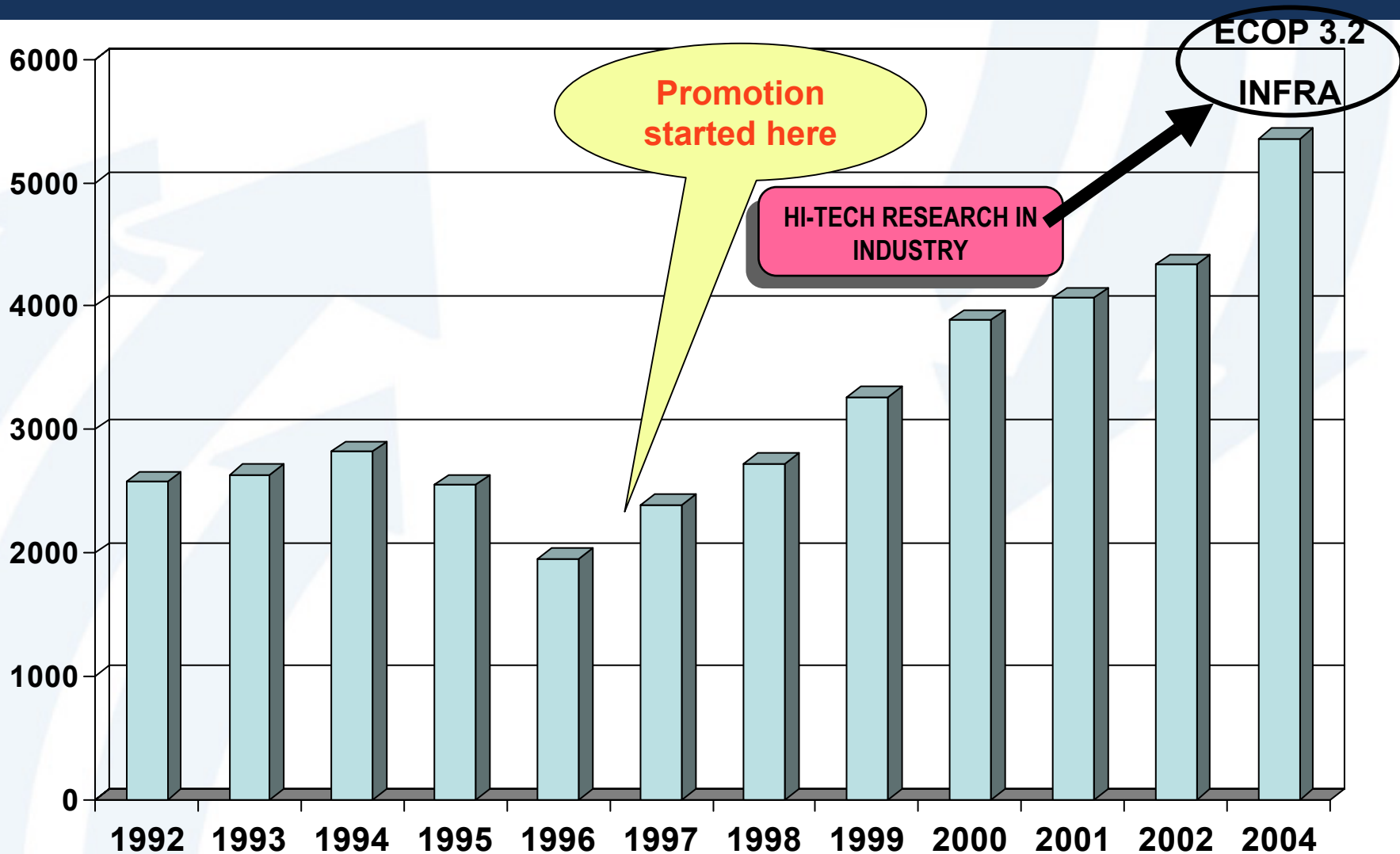
- **Knowledge-base, networks**
 - ◀ Cooperative Research Centre;
 - ◀ High-tech research in industry;
 - ◀ Mecenatúra
- **Generic technologies**
 - ▶ IKTA-3 (ICT) program
 - ▶ Biotechnology-2000 program
 - ▶ Environmentak R&D program
- **Innovation at company level**
 - ◀ Tech-Start
 - ◀ Applied R&D (bottom-up)
 - ◀ INTEGRATOR
 - ◀ Regional innovation
 - ◀ Industrial Design Prize and scholarship;
- **R&D infrastructure**
 - ◀ R&D instrumentation and informational infrastructure;
 - ◀ FP5 liaison offices;
- **International S&T collaboration**
 - ▶ EU FP5 proposal preparation,
 - ▶ Intergovernmental Bilateral S&T collaborations (add-on-cost);
- **Innovation policy support**
 - ◀ Technology Foresight program;
 - ◀ Studies, assessments;
 - ◀ Best practice;
 - ◀ Evaluation, project management.

RESEARCH AND TECHNOLOGY DEVELOPMENT FUNDING SCHEMES, late 90s



Share of foreign affiliates in manufacturing R&D, %, 1998 or latest available year (1)





Year of establishment of the programme: 1996

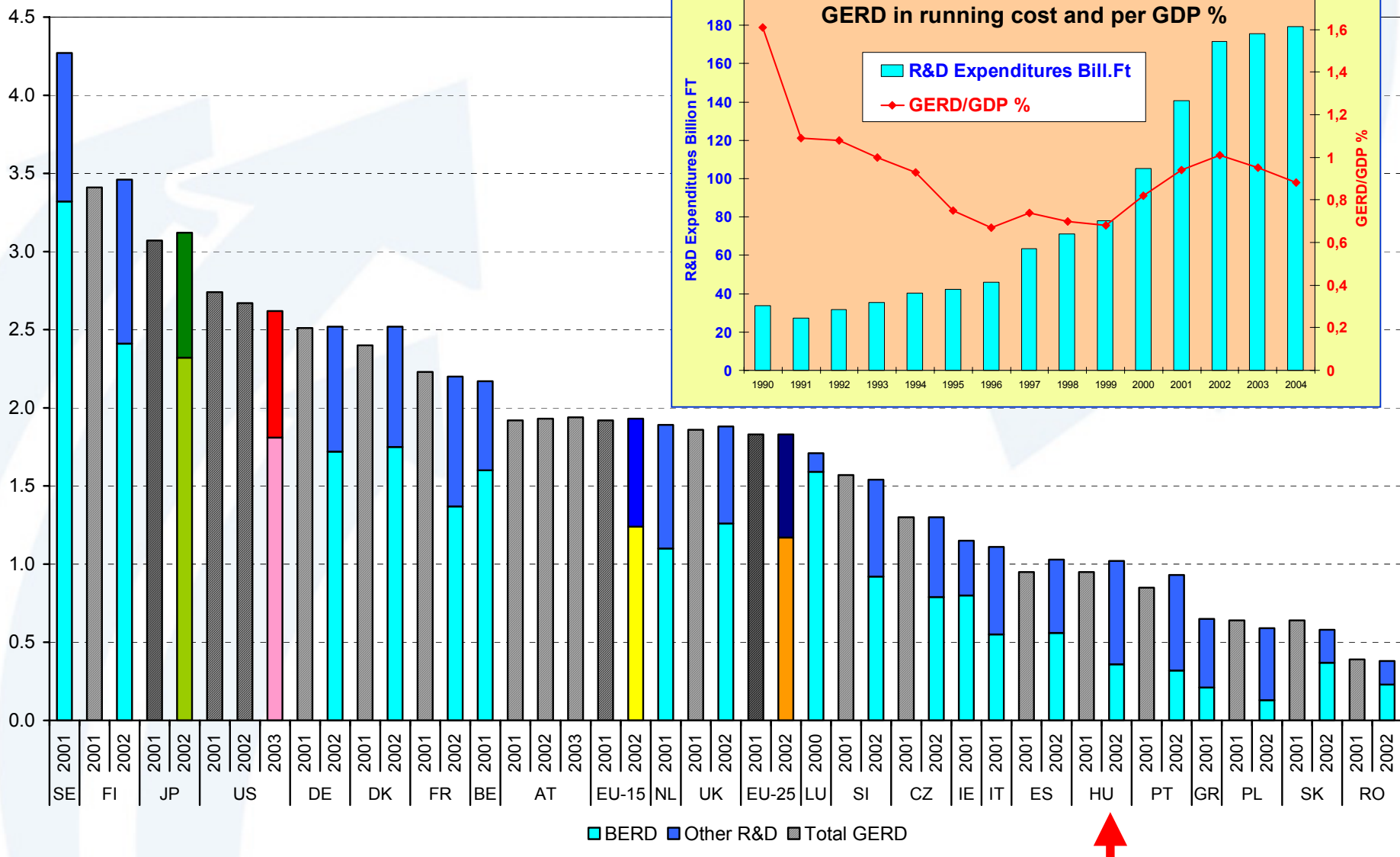
First call for proposals: 1997 (1999, 2000, 2001, 2002)

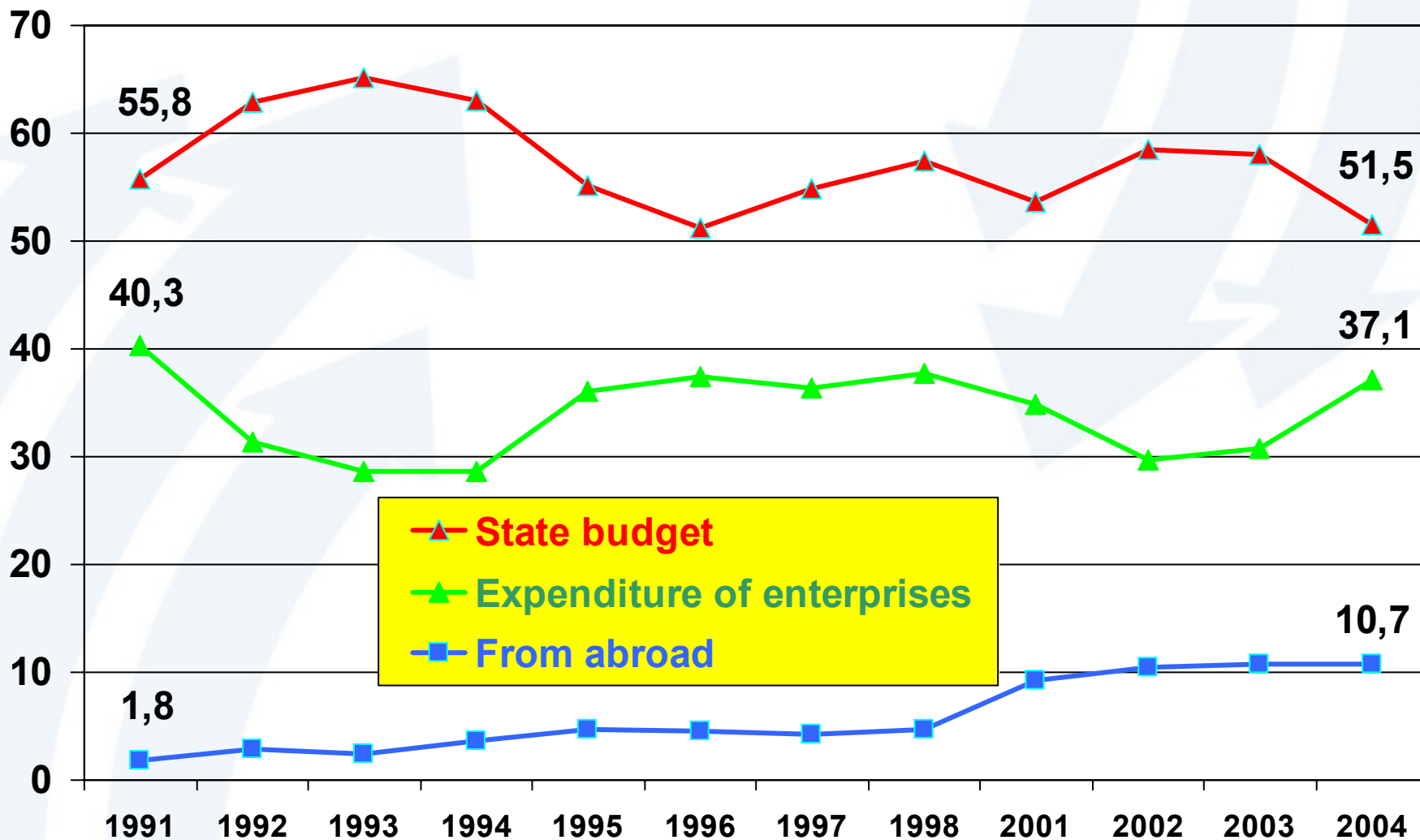
- **Objectives (IKTA-5):**
 - (1) development and trials of new tools, services and processes with market potential,
 - (2) development of applications of public interest, information services, information and knowledge management, information and communication technologies.
- Priority areas include the development of open source, free software, educational, healthcare and medical applications.**

(The first Call – IKTA-1 - was dedicated to the contents' development.)

In year 2000 the R&D Agency was integrated into the Ministry of Education, and the NRDP was introduced with Priorities below for ICT:

- Integrated intelligent sensors,
- Development of speech technologies,
- Mobile and integrated telecommunication networks,
- Application of analogous detection-processing methods and telemetric technologies,
- Telematics methods of intelligent transport,
- Bionics.





SOURCES

Budget: 51,5%
Enterprises: 37,1%
Other domestic: 0,7%
Foreign sources: 10,7%

2004 (preliminary)
Total R&D expenditure:
179 bill HU (M€ 716)

GERD/GDP
0,89%

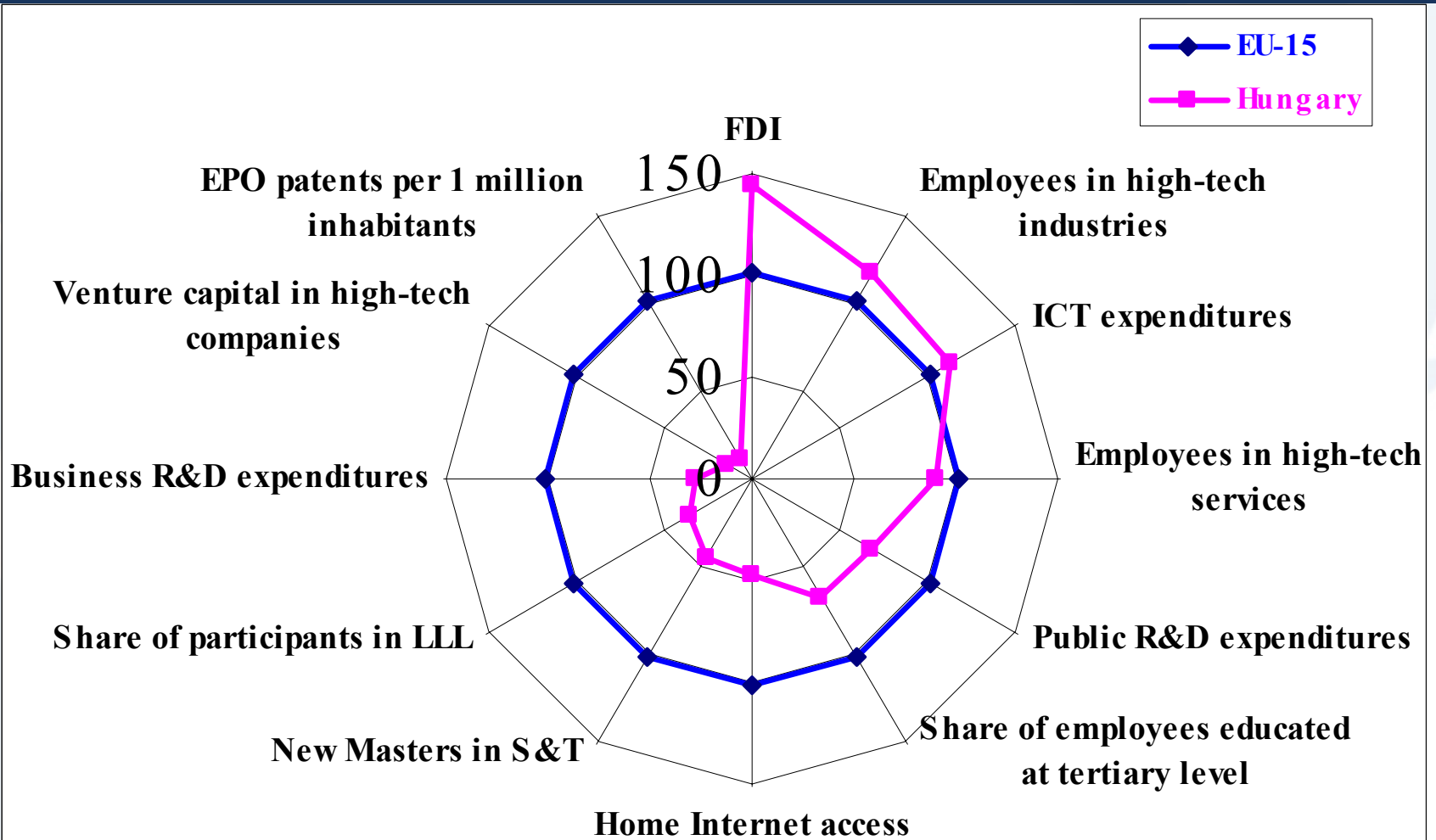
Current exp.: 82,1%
Capital exp.: 13,9%
Other.: 3,9%

Basic res.: 34,7%
Applied res.: 30,7 %
Exp. dev.: 34,6%

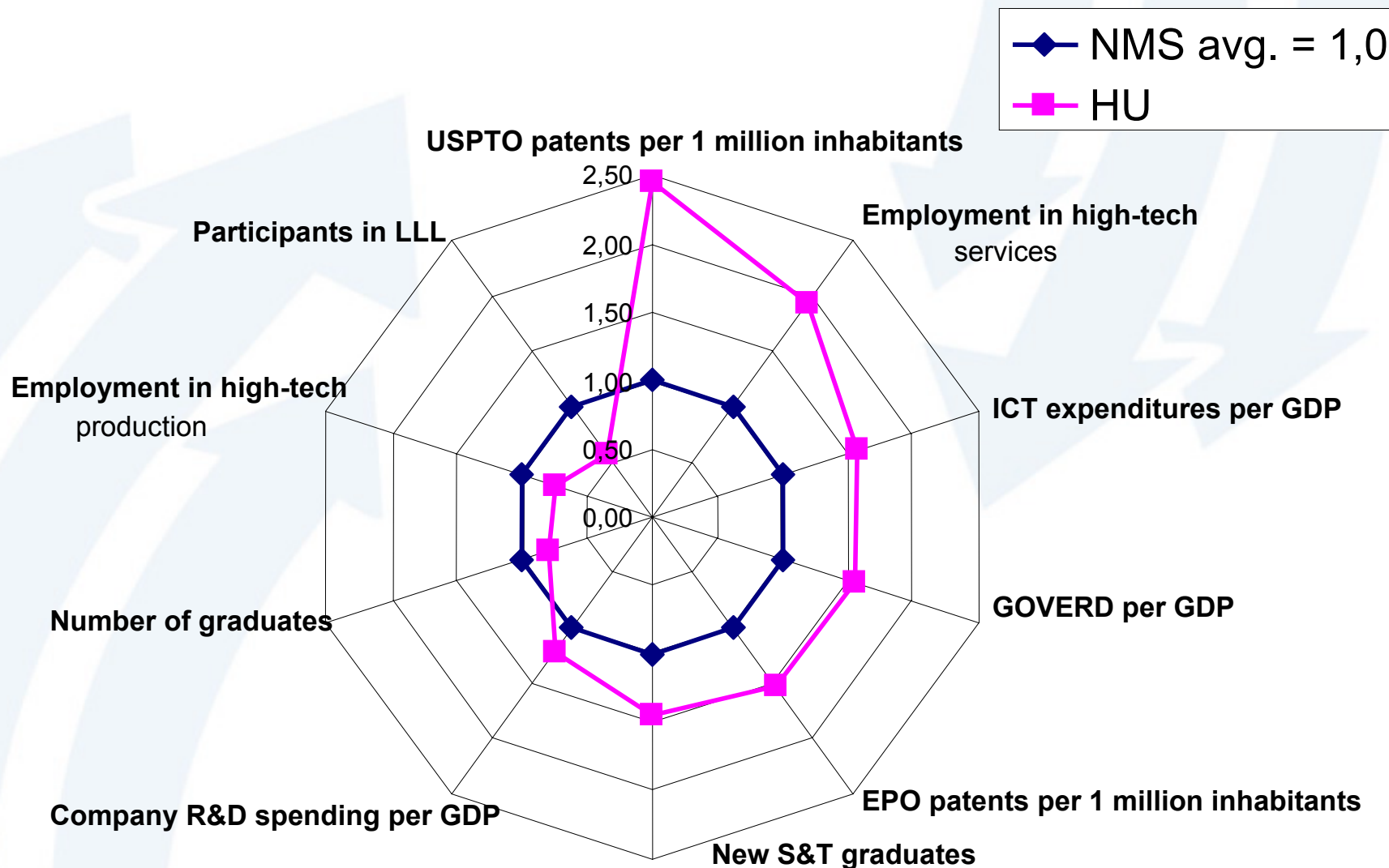
Higher educ.: 25,9%
Entrepr.: 43%
R&D inst.: 31%

SPENDING

HU strengths and weaknesses: Some indicators (EU-15 = 1.00)



Some indicators relative to new EU members' average.



Major strength

- **Internationally recognized, high level research tradition at university and academic level**
- **Good track record in natural sciences, engineering and medical sciences**
- **International companies with R&D activities are locating into Hungary**
- **Research is integrating into international R&D networks (Framework Programme)**

Major weaknesses

- **The amount of R&D expenditures are low**
- **R&D is predominantly state funded**
- **R&D infrastructure is obsolete and the research staff is an ageing population**
- **The innovation activity of corporate sector is low**
- **The link between the R&D sector and businesses is weak: the spin-off activity is low**

Major opportunities:

- **A closer economic integration with the EU-countries**
- **Increasing demand on the faster spread of results in the field of R&D**
- **Rapid development of high-technology sectors**
- **Increasing weight of knowledge intensive sectors**
- **An expanding service sector**

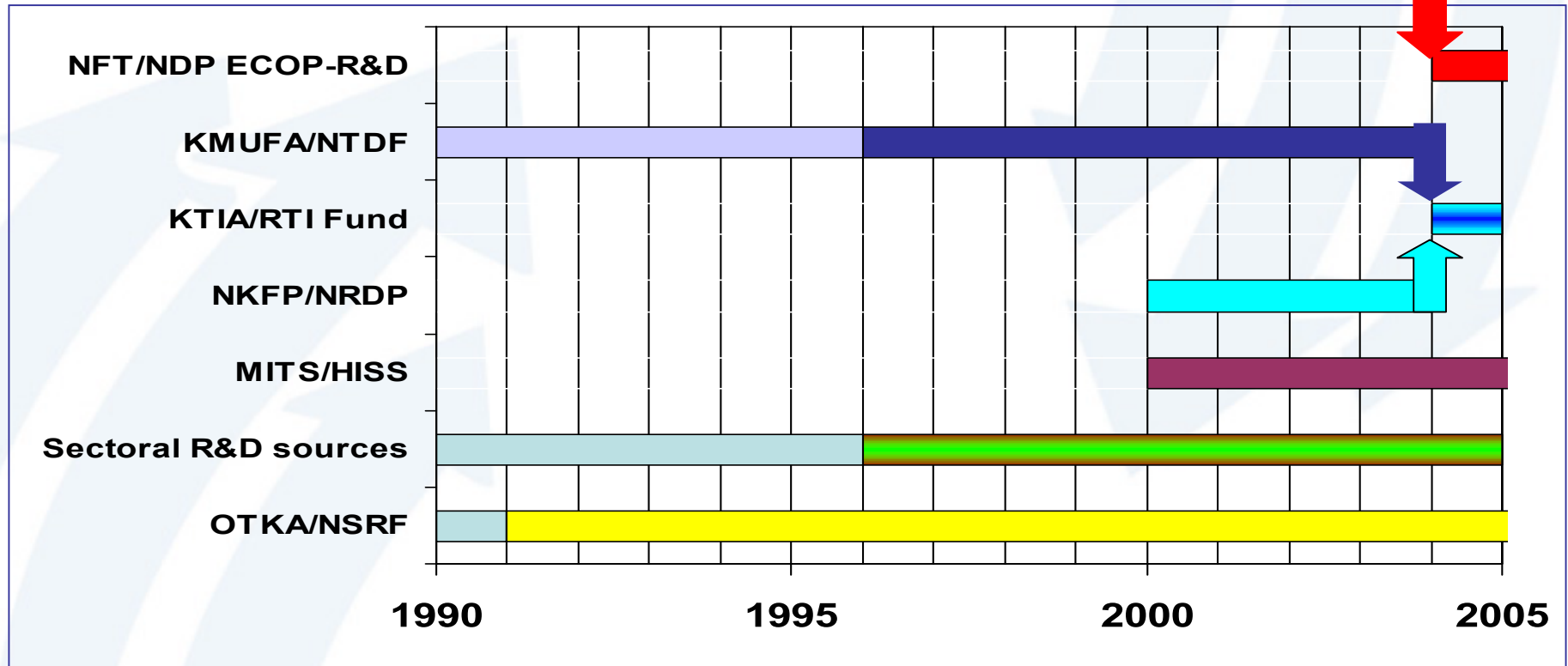
Major threats:

- **Unfavorable external macroeconomic conditions**
- **Increasing regional disparities**
- **Brain drain**
- **Rural regions falling behind**
- **An increasing gap in IT use between sections of society**

Outcome: R&D went high on the political agenda, and

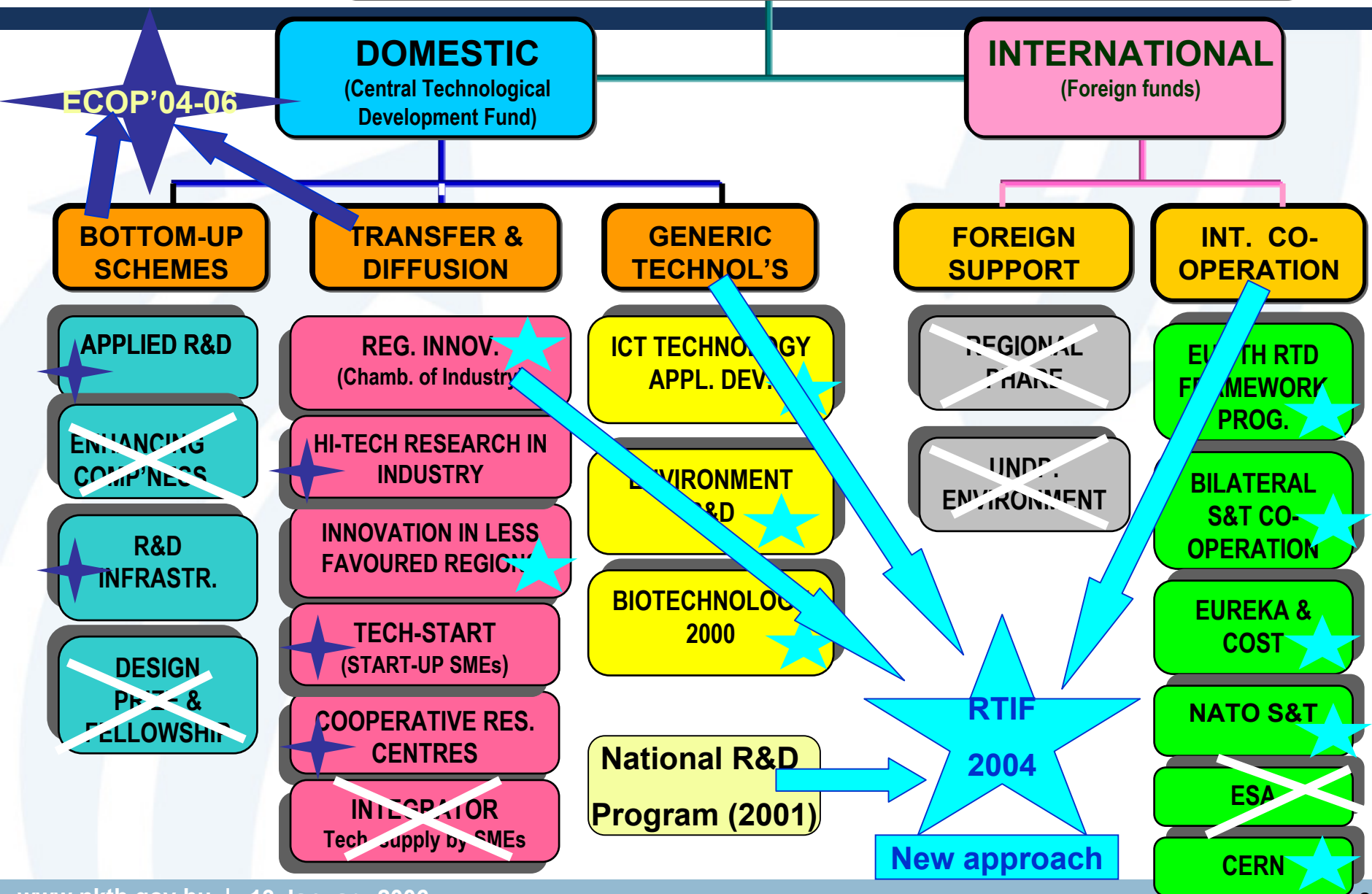
There is again an independent RTD Agency; new law on R&D&I Fund (2004), and new law on Innovation (2005)

EU Structural Funds + HU Budget



NDP-ECOP: National Development Programme-Economic Competitiveness Operational Programme
NTDF: National Technology Development Fund
RTIFund: Research and Technology Innovation Fund
NDRP: National R&D Programme
HISS: Hungarian Information Society Strategy + Budget line (including e-gov actions)
Sectoral R&D sources: sectoral budget lines (like: Health, Transport, Administration, ect.)
NSRF: National Scientific Research Fund

RESEARCH AND TECHNOLOGY DEVELOPMENT FUNDING SCHEMES, 21st century



Hierarchy of objectives and priorities of the NDP

(a) Overall long-term objective

(Improve the
quality of life)

(b) Global objective

Reduce the
income gap

(c) Specific
objectives

Increasing the
competitiveness of
the economy

Improved use of
human resources

Better environment
and more balanced
regional developm.

(d) Priorities

More competitive
productive sector

Increased
employment and
human capacities

Better infrastructure
and cleaner
environment

Strengthened
regional and local
potential

Technical
assistance

(e) Operational Programmes

ECOP

ARDOP

HRDOP

EIOP

ROP





INVESTMENT PROMOTION		THE PROMOTION OF SMALL AND MEDIUM-SIZED ENTERPRISES		R&D AND INNOVATION		DEVELOPMENT OF THE INFORMATION SOCIETY & ECONOMY
Development of capital attraction		Development of the technical and technological background of small and medium-sized enterprises		Support of application-oriented co-operative RTD activity ARD		The development of e-economy, e-commerce
Upgrading the corporate sector		Development of entrepreneurial culture and knowledge		Facilitate research, technology transfer and cooperation at public & non-profit research entities RI & CRC		Development of the information industry
Improvement of infrastructure in the entrepreneurial sector		Development of co-operation within the SME sector		Reinforcement of corporate R&D capacities and innovation skills TST-INFRA-SME		E-administration
						Expansion of broadband telecommunication infrastructure

Measure 1 (public-private co-operation).

Support to application--oriented co-operative R&D activity, including ICT

Measure 2 (public research institutions).

Improvement of the conditions for research, technology transfer and co-operation at publicly financed and non-profit research facilities

2.1 Research infrastructure at public institutions

2.2 Co-operative Research Centres

Measure 3: (corporate R&D and innovation)

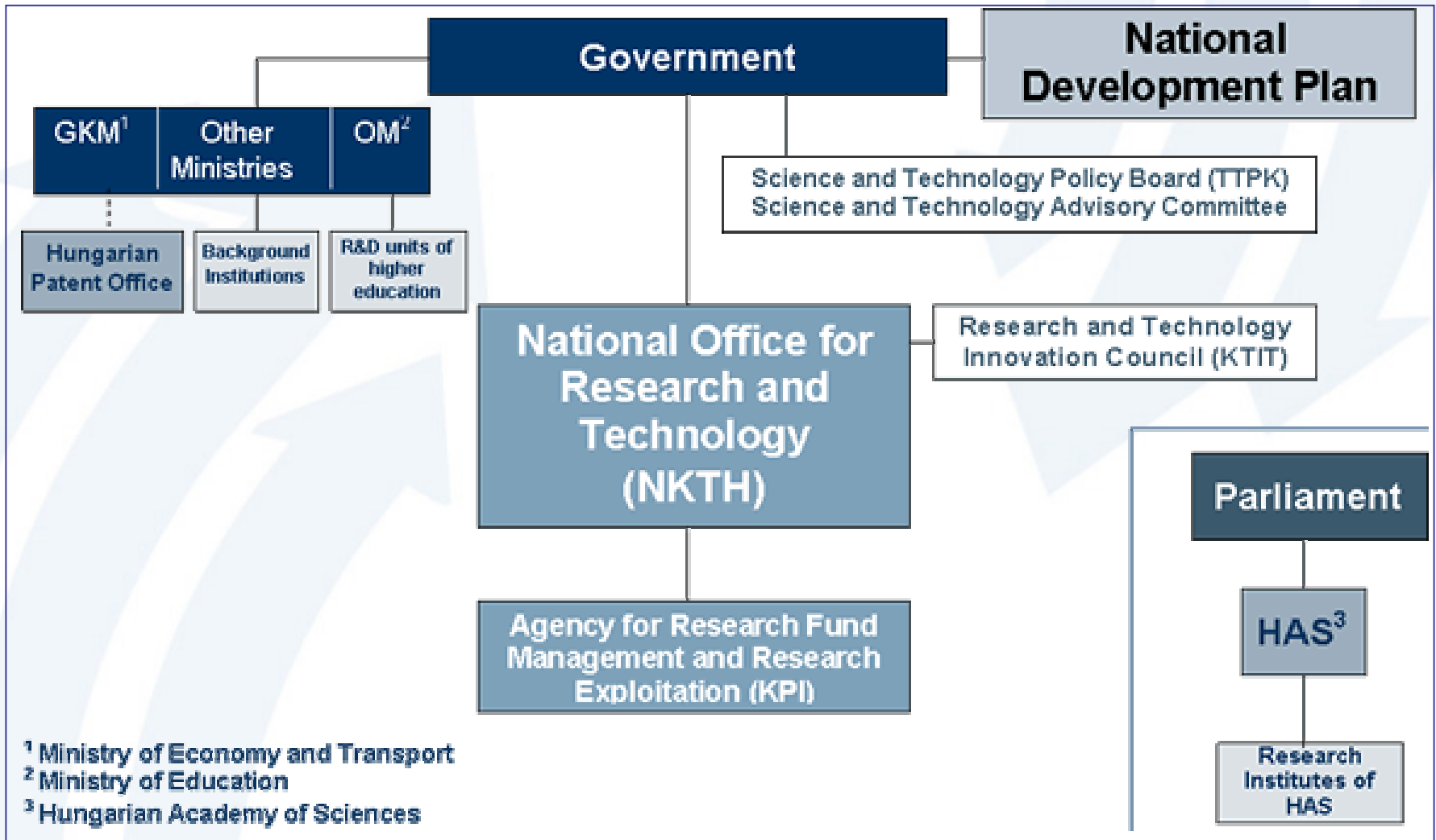
Support to the development of corporate R&D and innovation capabilities

3.1 Support for the creation and initial innovation tasks of technology-and knowledge-intensive start-ups and micro enterprises (spin-off)

3.2 Development of corporate research infrastructure linked to the creation of new research jobs

3.3 Incentives for SMEs to sub-contract R&D and acquire the right to use existing R&D results.

Submeasure	3y fund	Spent'04	ICT%
Measure 1 (public-private co-operation).			
1.1 ARD	61,2 M€	100%	27%
Measure 2 (public research institutions).			
2.1 RI	27,6 M€	100%	50%
2.2 ECOP-CRC	18,5 M€	100%	27%
Measure 3: (corporate R&D and innovation)			
3.1 TST	12,4 M€	30%	58%
3.2 INFRA	12,4 M€	18%	45%
3.3 SME	6,4 M€	33%	27%
Total	138,2 M€	83%	29%

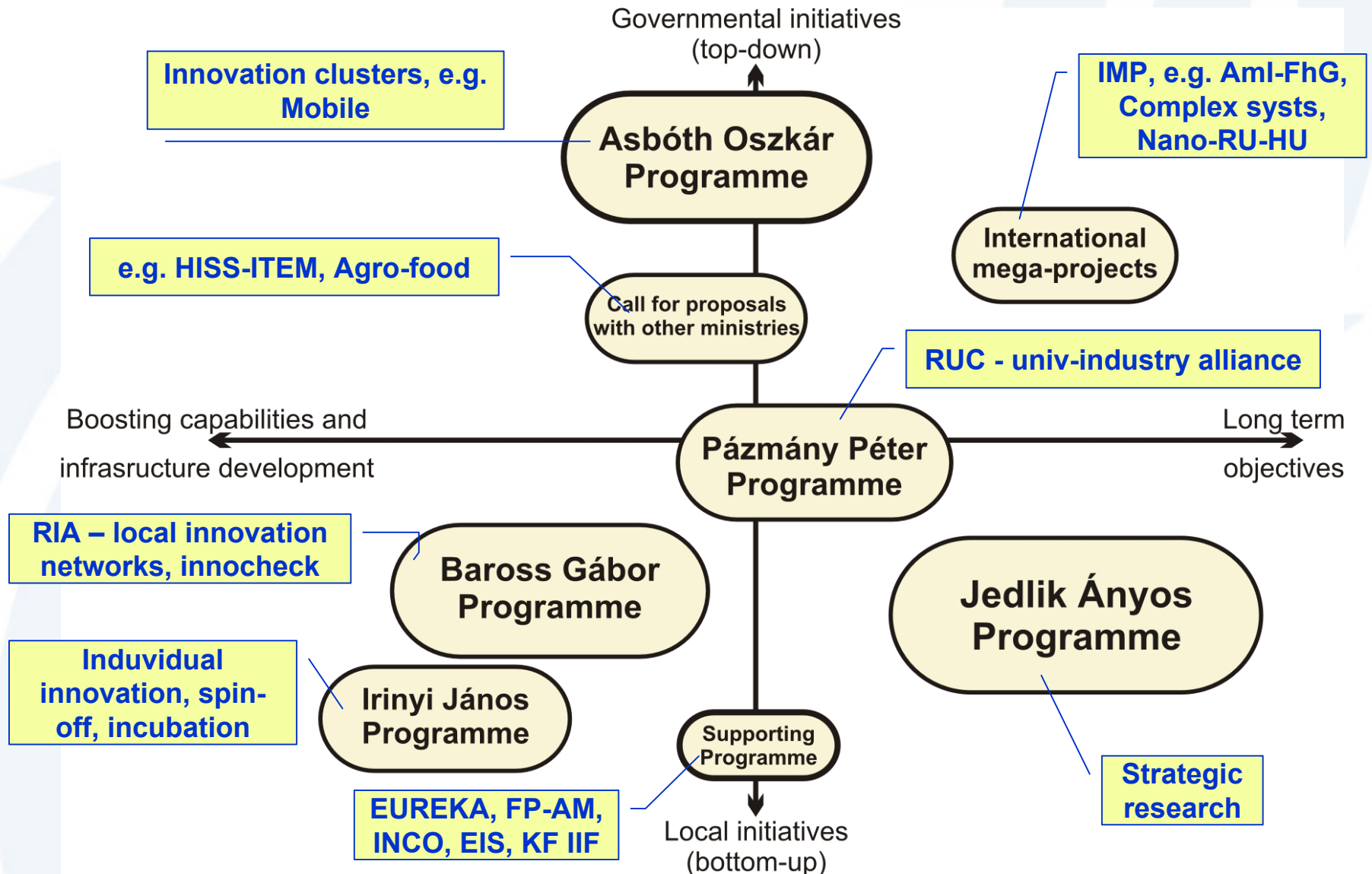


Within the current circumstances even
the increase of the R&D resources
would not lead to a leap of the
development!

Have to act in a different way!

- achievements -
- utilizations -
- team-work -

- **Focusing:** concentrate the resources to the „pulling” activities, to the promising fields;
- **Utilizations:** new Hungarian products, new innovative – and post-doc - jobs;
- **Regional decentralization:** subsidiarity, effective National Innovation System



Pázmány Péter Program:

- Support the creation of Regional University Knowledge Centers (RUC), and their collaboration with industry. Objectives: create research universities, and deploy the research results in the economy.

Jedlik Ányos Program:

- Support long term strategic research, with enormous potential for scientific and economic breakthrough. (Follow-up of the National R&D Program)

Asbóth Oszkár Program:

- Support the creation of innovation clusters in sectors great potential for technology and economic development. (e.g. Mobile)

Irinyi János Program:

- Support the realization of individual innovative ideas and creation of technology incubators.

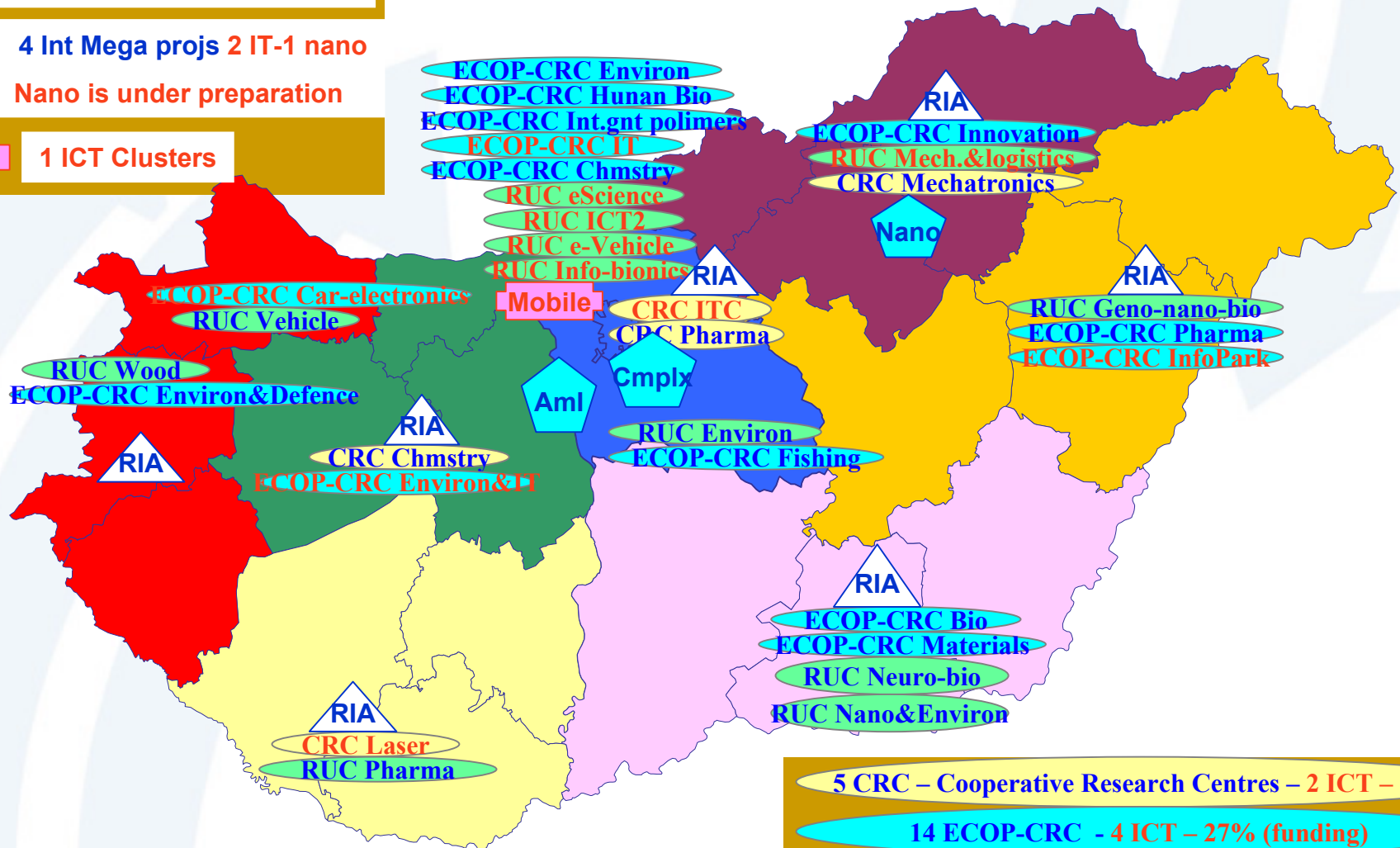
Baross Gábor Program:

- Support the SME's innovation through promoting the regional collaboration of the innovative players. (e.g. Regional Innovation Agencies - RIA)

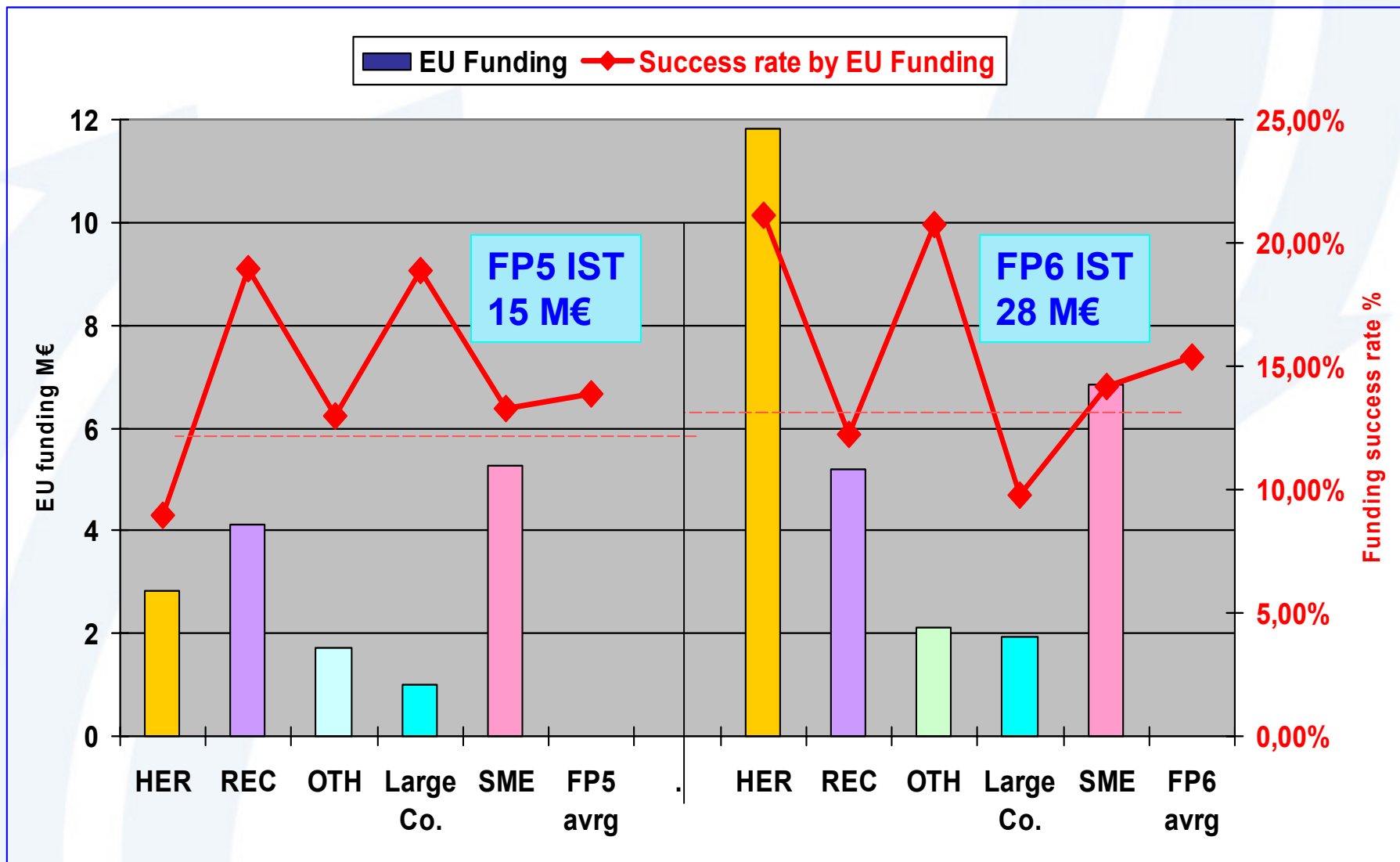
New Programs (2000-)2005 (20-40% related to ICT)



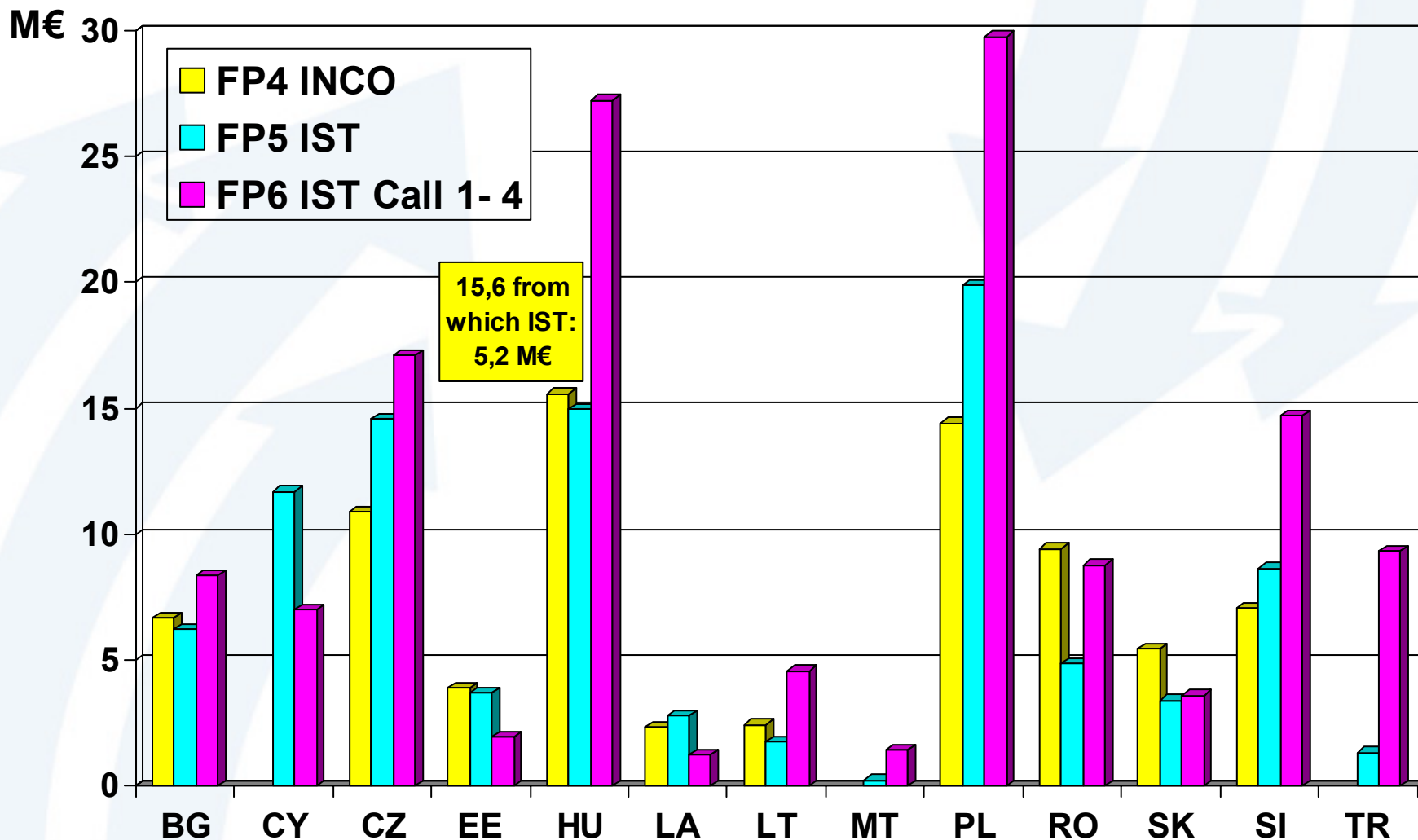
-  **7 Regional Innov. Agencies**
-  **4 Int Mega projs 2 IT-1 nano**
Nano is under preparation
-  **1 ICT Clusters**

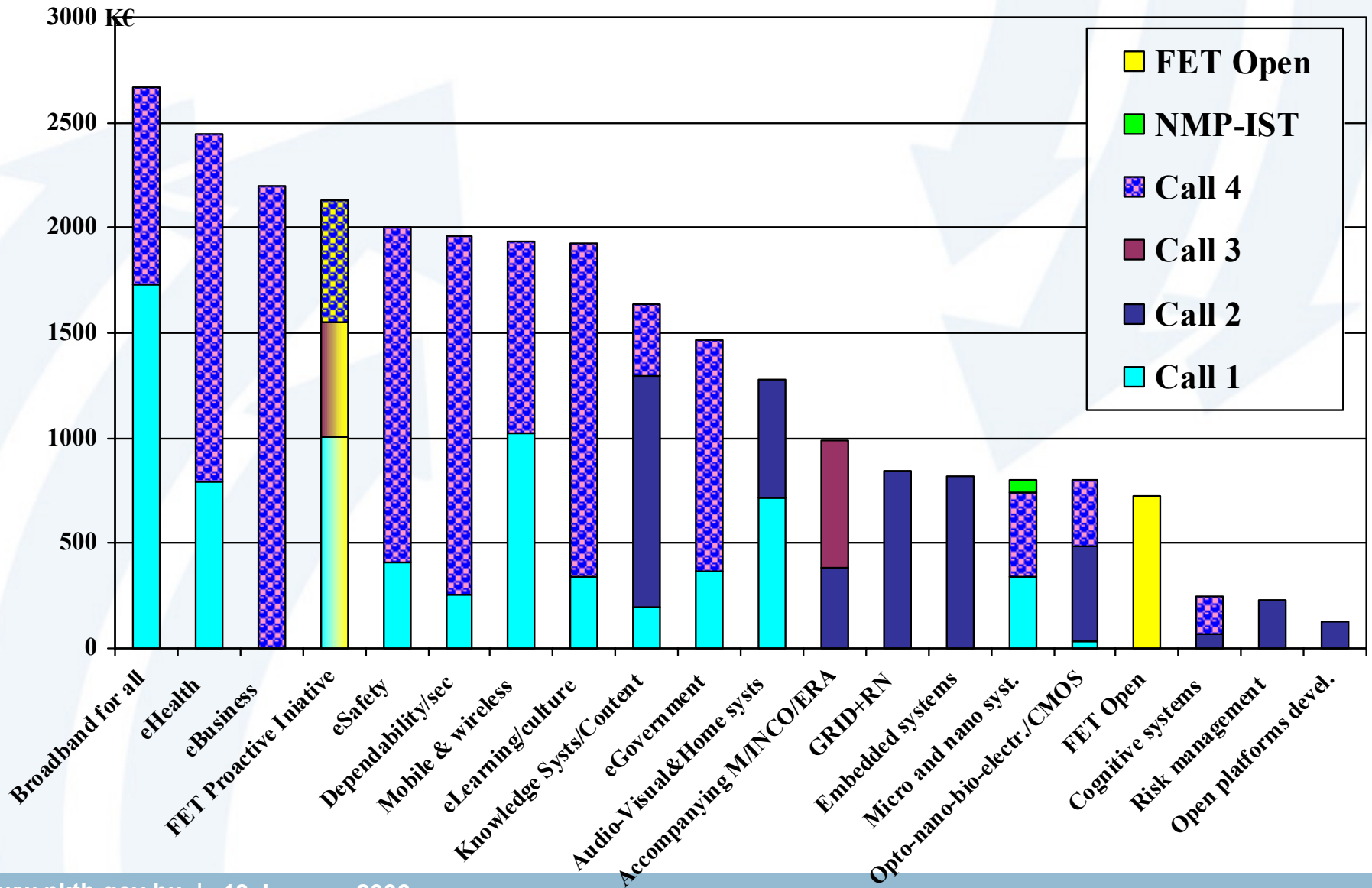


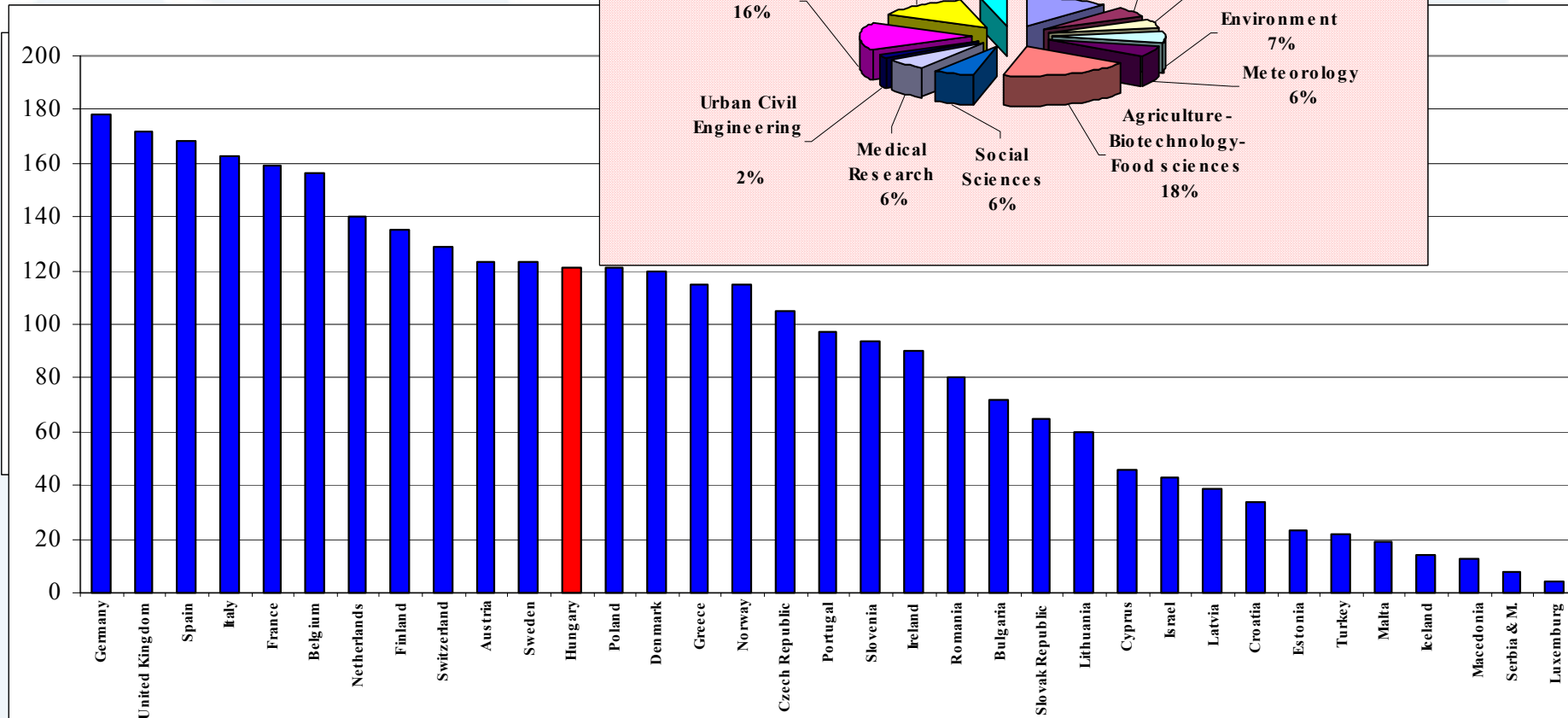
- 5 CRC – Cooperative Research Centres – 2 ICT – 17%
- 14 ECOP-CRC - 4 ICT – 27% (funding)
- 12 RUC – Regional Univ. Knowledge Centres – 5 ICT – 20%



- **100% RTD tax credit (also available for subcontracted R&D activities if the partner is public or non-profit university or research institute) – since 2001**
- **300% RTD tax credit if the company lab is located at a university or public research institute – from 2004**
- **Tax free employment of students up to 53 kHUF/month (equals to the official minimum wage) – from 2004**
- **Accelerated amortisation (depreciation) of R&D, ICT and machinery investments (2 years) – since 2003**
- **Option to create tax-free investment reserves up to 500 M HUF – since 2003**
- **70% tax release for R&D donations of public benefit**
- **Faster tax reimbursement (speeding up the procedure)**

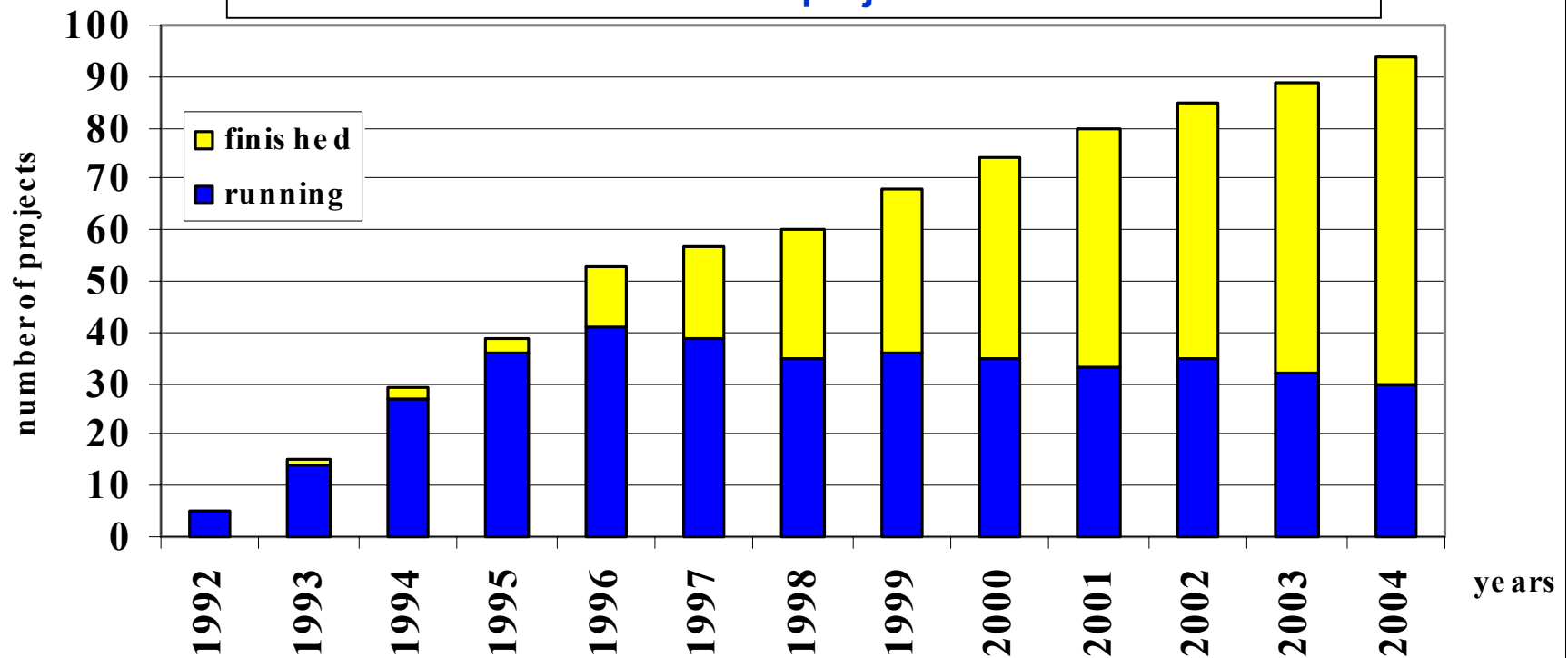




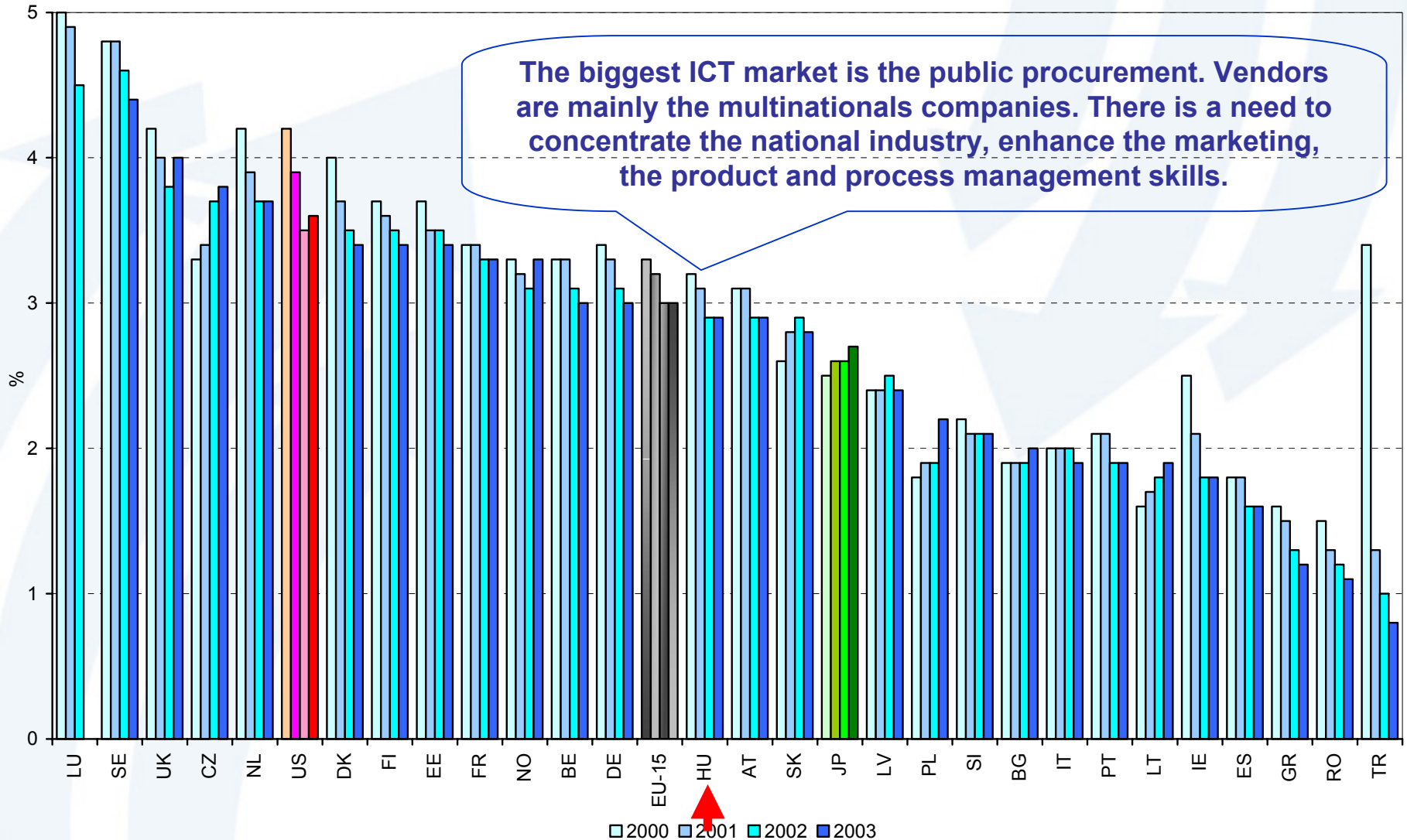


HU in 33 running projects:

- **Information Technology:** 4 projects + 1 umbrella
- **Communications:** 2 projects + 1 cluster
- **Robotics:** 2 projects + 1 umbrella

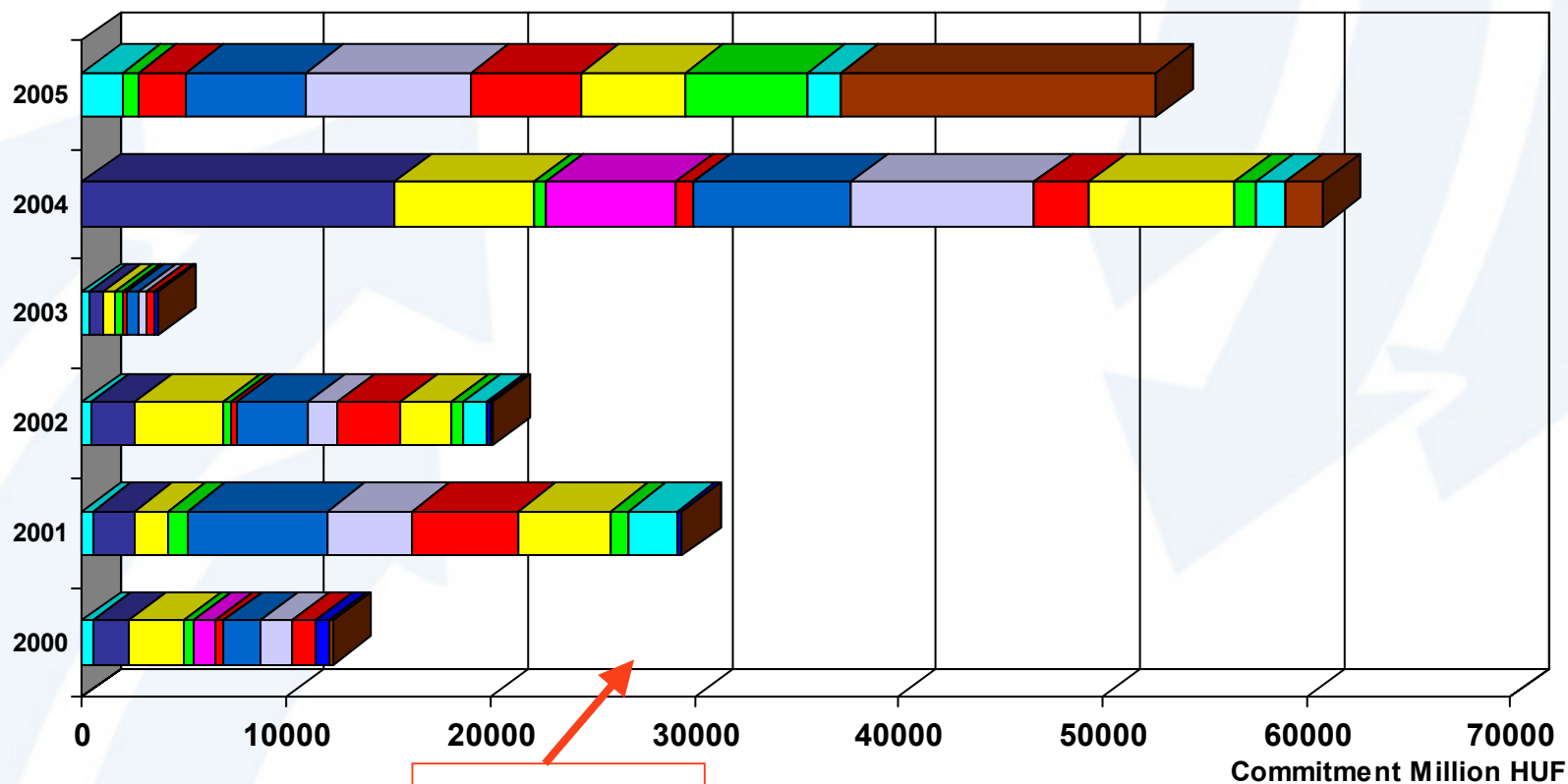


IT expenditure as percent of GDP (2000-2003)

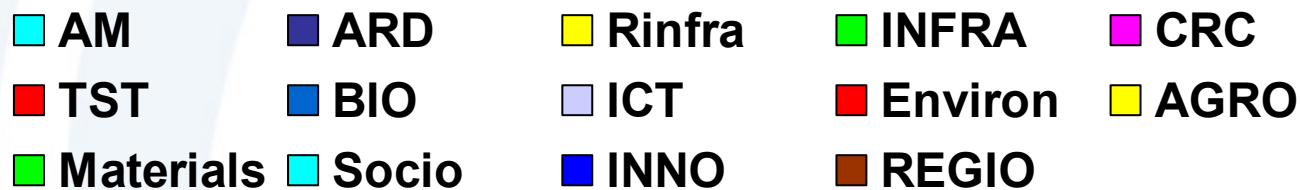


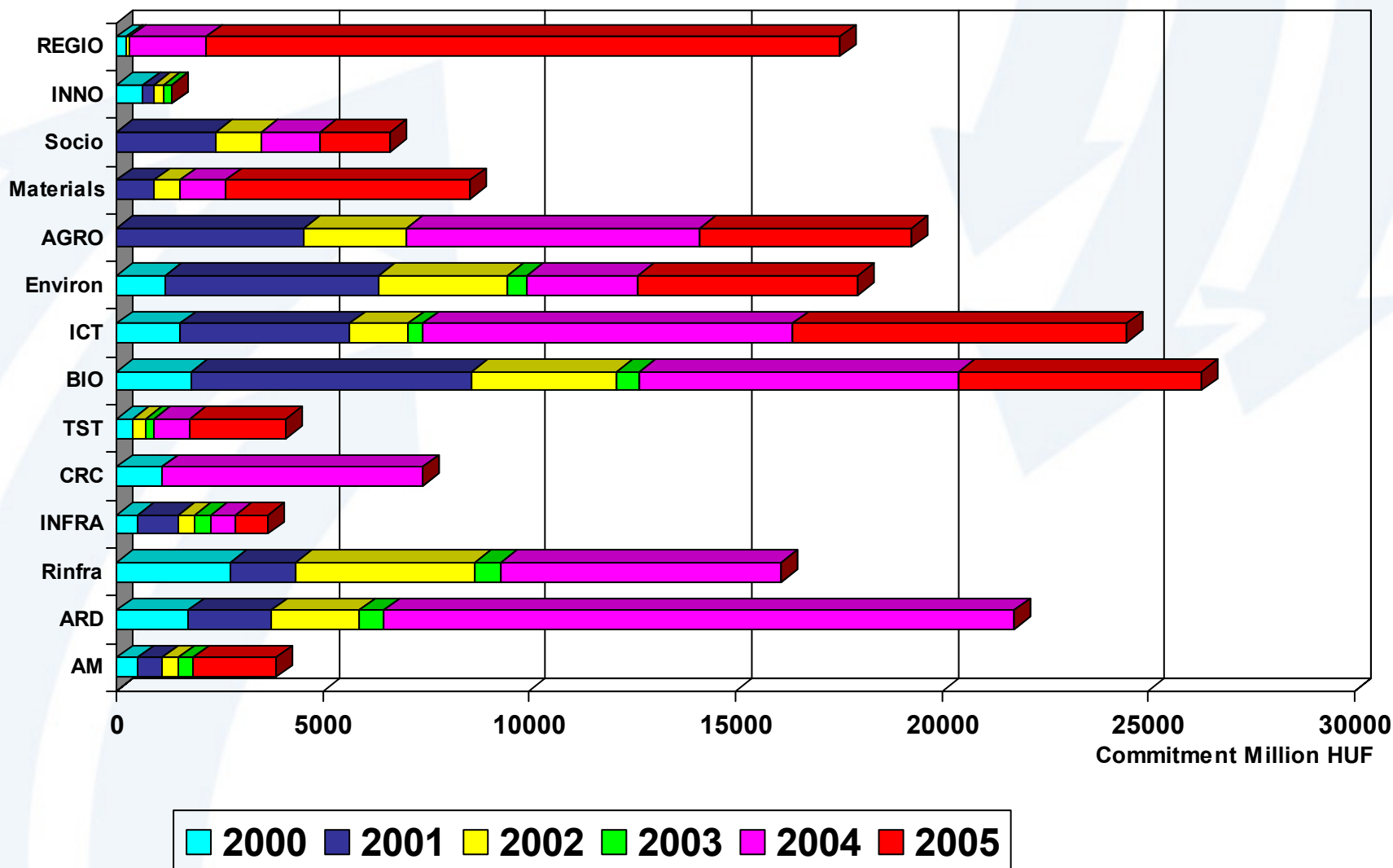
Lénárd Fülöp / Philipp E. A. von Lenard (1862-1947)	1905	Physics
Bárány Róbert / Robert Bárány (1876-1936)	1914	Physiology
Zsigmondy Richárd / Richard A. Zsigmondy (1865-1929)	1925	Chemistry
Szent-Györgyi Albert / Albert von Szent-Györgyi (1893-1986)	1937	Physiology
Hevesy György / George de Hevesy (1885-1966)	1943	Chemistry
Békésy György / Georg von Békésy (1899-1972)	1961	Physiology
Wigner Jenő / Eugene P. Wigner (1902-1995)	1963	Physics
Gábor Dénes / Dennis Gabor (1900-1979)	1971	Physics
Polányi János / John C. Polanyi (1930-)	1986	Chemistry
Oláh György / George A. Olah (1927-)	1994	Chemistry
Harsányi János / John C. Harsanyi (1920-2000)	1994	Economics
Kertész, Imre (1929-)	2002	Literature

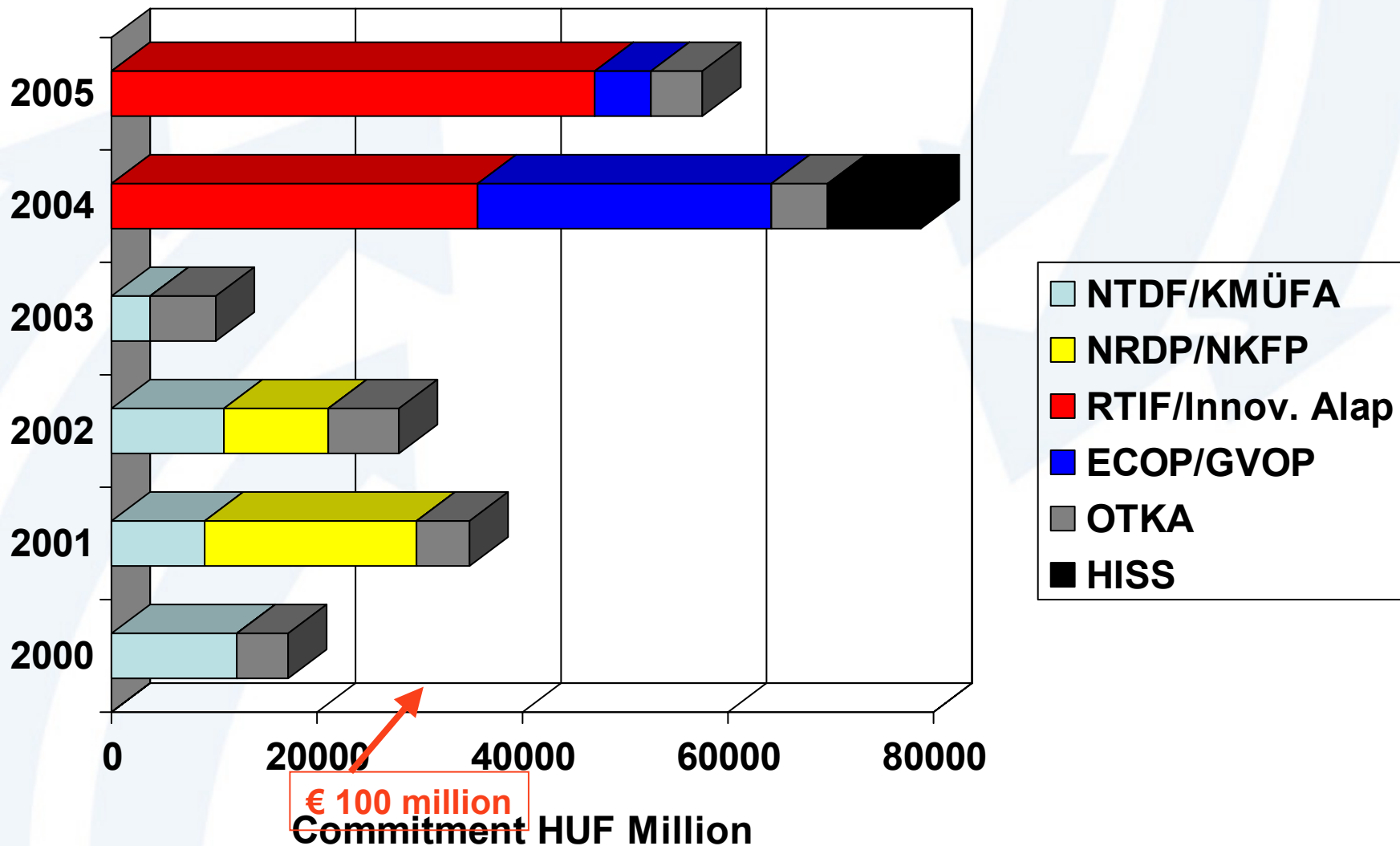
Cumulative (NTDF, RTIF, ECOP R&D) commitment (2000-2005, estimate)



€ 100 million







- Program initiation/seed phase/ is essential, the relevant information from the seed phase of the EU FP and the MAS's programs could be useful.
- Please come and take part on the Budapest workshop titled: „Design of national IST programs in the context of ERA coordination”, 9-10 March, 2006, Budapest, Hungary
- Thanks for the event and for your attention.