



Redefinition of the Mission of the Public Institute



**The EU Region
of the Future**

FORSCHUNG AUSTRIA

**"Technology Transfer in the European Region Adria-Alpe-Pannonia -
Challenges, Opportunities and Initiatives"**

22 August 2007 Alpbach



Vertragsunterzeichnung mit dem Ruđer Bošković Institut, 28.2.2007



Erschienen in "Kleine Zeitung Ennstal", 01.03.2007

Nach Slowenien folgt jetzt Kroatien

Joanneum Research kooperiert nun auch mit Zagreber Spitzeninstitut.



Ruđer Bošković Institute (RBI) Zagreb, CROATIA

Neven Žarković (MD,PhD) Senior scientist

zarkovic@irb.hr

2003/2004 - Associate director for science RBI

2003 - RBI associate project co-ordinator for the co-operation with the World Bank (STP)

2004/2005 - Advisor to director general of RBI

2005 – Counsellor for the international affairs at RBI

2005 – Study director for the specialist studies in Project Management

2006 – Study director for the Ph.D. studies in Molecular Biosciences

2007 – in charge for collaboration with universities (Osijek, Dubrovnik, Split, Zadar) and Bussines & Administration College (Zaprešić)



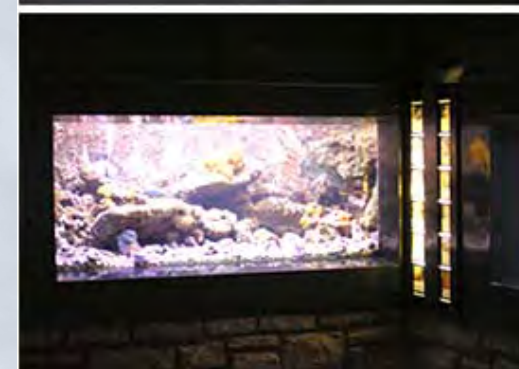
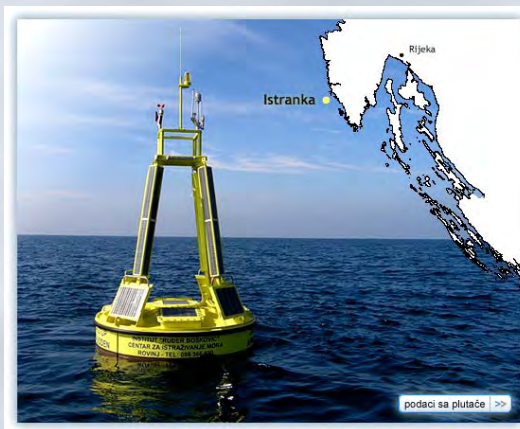
Arial view of the RBI campus



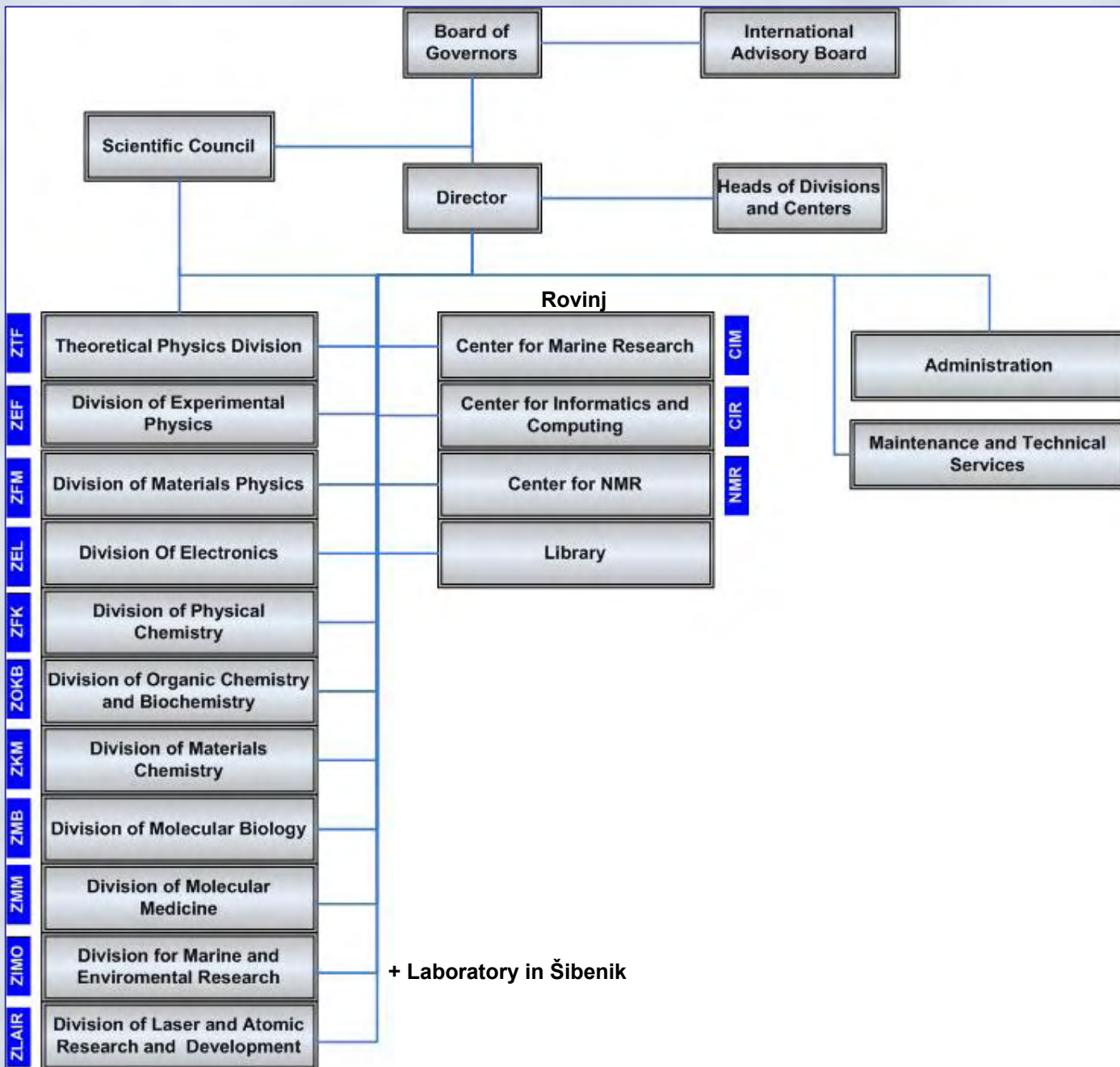
20 000 m² campus area; 82 equipped laboratories



CIM Centar za istraživanje mora
Center for marine research
Institut Ruder Bošković Rovinj

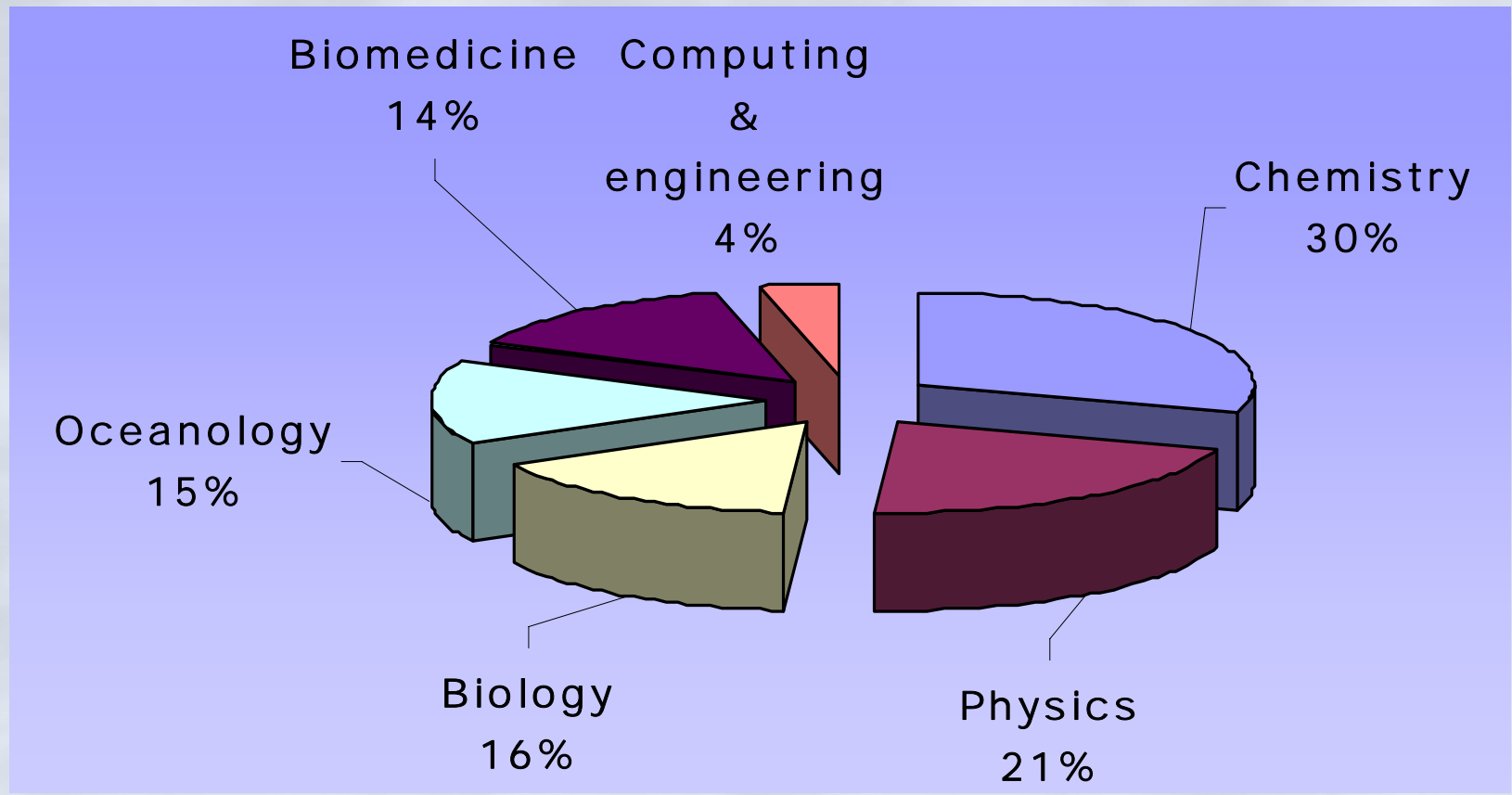


Organizational structure





Overview by branches



Employees 2007: PhD 362; PhD students 219; total 827

2004: PhD 342; PhD students 136; total 731



RBI scientific performance :

RBI scientists - 5% of the total produce 25 % of the total Croatian scientific output

RBI concentration of advanced scientific equipment

Scientist's performance indicators:

- **number and quality od scientific papers (Journal impact factor, citations)**
- **promotions: 3 international peer reviewers**

- **enagements in higher education**

- **lack of innovation activities – no IP**
- **poor collaboration with industry**



RBI – mission 2003/2004

**based on proclaimed strategy of
“Knowledge Based Society”**

**1. PERMANENT - Excellent Basic Research –
broad spectrum – defining priorities**

2. From 2003 - Education

**Contribution in particular in PhD studies – collaboration with all
universities – international level**

**3. From 2003 - Development and support for novel technologies,
comercialisation of research - technology transfer**

2002 - STP - WB - IRB

BP 2004 - 2008 - not accepted

BP - conditions for:

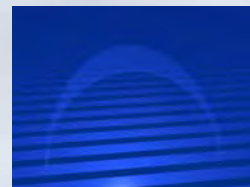
1. Existing basic researches
2. Commercial activities through projects
3. Science Park
4. Joint business with SME

Conditions (IRB):
65 % grant
35 % credit
0 % interest





The Board of Directors of Ruđer Bošković
Institute and Horizonte Venture Management
like to invite you to the following presentation:



Cooperation of Reserch and Development Institutions with Venture Capital

- How to exploit the economic value of inventions and intellectual property?
- What is Venture Capital and how does it work?
- In which fields Venture Capital companies invest?
- Examples for cooperation of Reserch and Development Institutions with Venture Capital Companies
- Spin-off mechanisms

Presentors will be:

- **Dr. Sc. Franz Kraiss** – member of the Academy of Sciences, New York
- **Dr. Sc. Matej Penca** – president of the Slovene Society of Chemics

Thursday, 11. December 2003, at 9.30, dvorana Krilo



RBI - redefiniton of mission

The mission of Rudjer Boskovic Institute (RBI) is to provide the science expertise indispensable for the development, prosperity and well being of Croatia

1. Basic Research

to increase the quality and strengthen international collaboration (EU FP, COST, bilateral, etc.)

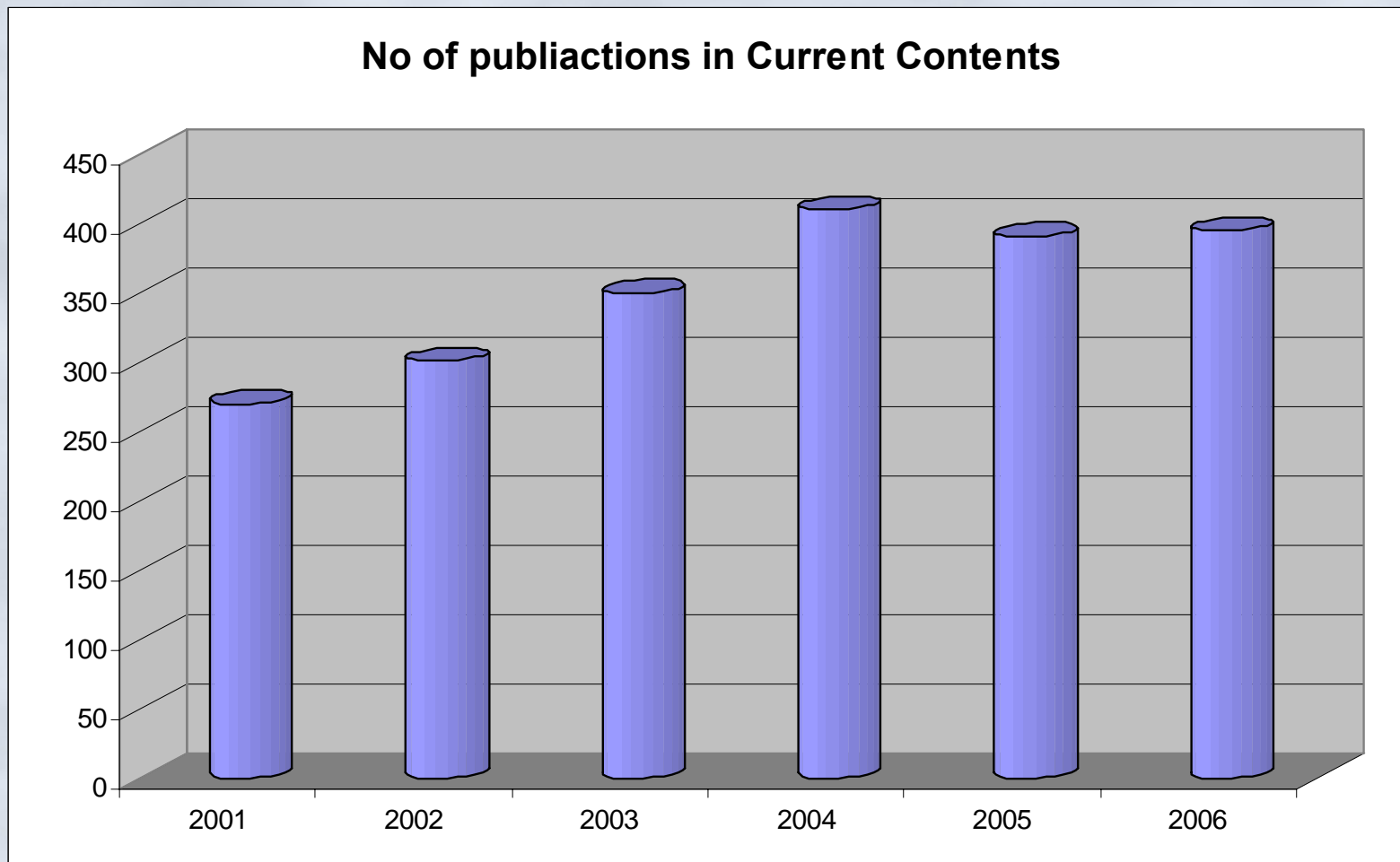
2. Education

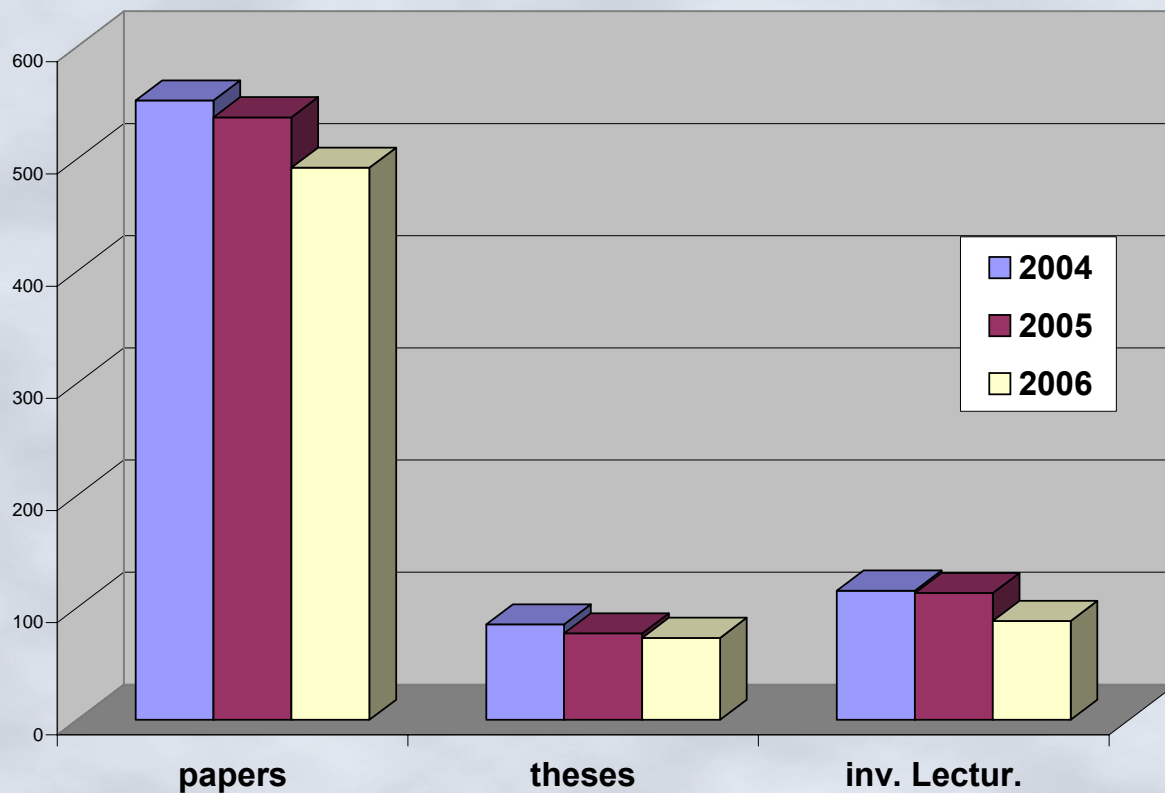
RBI must more strongly contribute to higher education through collaboration with all national universities

**3. Since 2005 - Commercialization of knowledge
– IP and technology transfer**



RBI scientific performance – CC papers





125 projects in basic research (MZOS)

65 international projects (bilateral, FP6, IAEA, COST, etc.)

11 applied and technological projects

	2004	2005	2006
Citations:	4837	5424	5780

Distribution of University Centres in Croatia

RBI delivers 99 (under)graduate courses -190 (post)graduate courses (PhD studies)




PhD studies:

Molecular Biosciences
Univ.'s Osijek, Split and Dubrovnik

Environment and Ecology –
Univ. of Osijek

Tumour Biology - Univ.'s
Split, Dubrovnik and Zadar

Biophysics, Univ. of Split



Graduate Studies on Project Management High School for Business and Management in Zapresic (Zagreb)
~ 100 students (INA, KONCAR, public sector, SMEs)
– first graduates in June 2007
- 180 + 120 ECTS credits
TITLE: Specialist - Project Manager



JUNE 2007 – Ministry of Economy – Competition of the High Schools & Universities – **“The best bussines project“** denoted “Development of Genuine Assays for Oxidative Stress Research” – **R&D!**

PROJECT MANAGEMENT AGENCY 2007/2008

SCIENCE PARK?



EU projects

4 years ago: 2 FP5 projects 301.569 €

Present situation:

FP6 21 projects contracted 3.600.000 €

FP7 1st call (April) 32 project proposals submitted

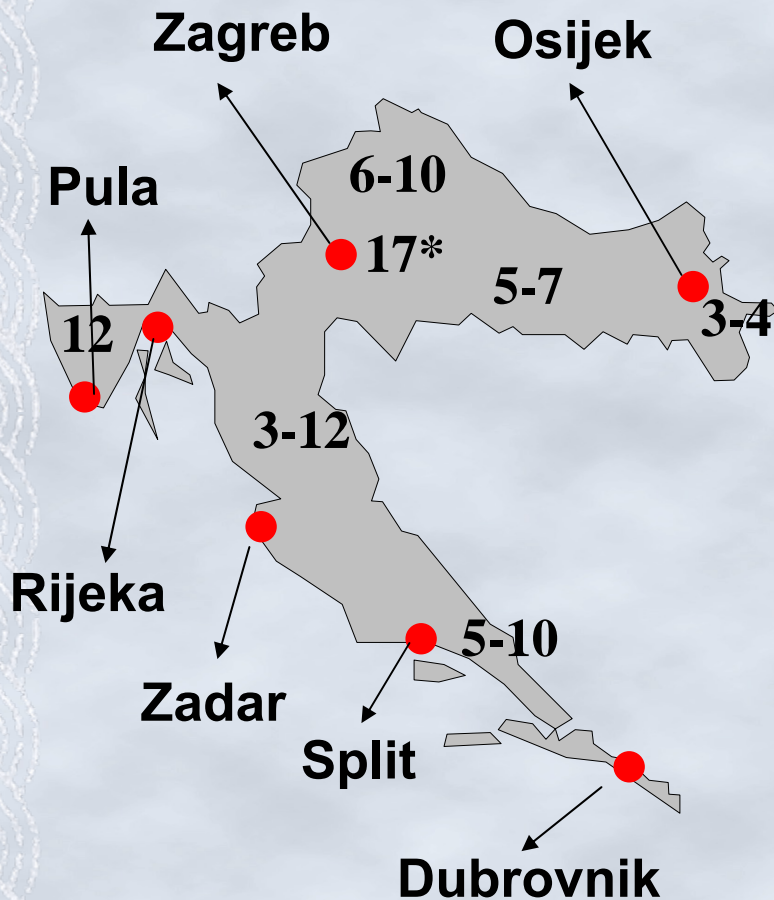


Annual revenue (2006)

(in 1000 €)

1. Ministry of Science, Education & Sports and Ministry of Finances	25 229	89.0%
2. Private sector	2 145	7.6%
3. Inter. Funds (EU, IAEA, bilateral, donations)	952	3.4%
Total	28 326	~ 20 000 in 2004

Croatian Science Potential



7 UNIVERSITIES

- 55 FACULTIES

- 4 ACADEMIES OF ARTS

- 3 UNIVERSITY DEPARTMENTS

32 PUBLIC RESEARCH INSTITUTES - RBI

5 INDUSTRY RESEARCH INSTITUTES

3-12.000 REGISTERED SCIENTISTS (?!)

RBI ~ 580 RESEARCHERS - 25% OF CROATIAN CC (SCI) ARTICLES

* - estimated regional GDP (thousands € per capita)



Science and technology policy 2006-2010

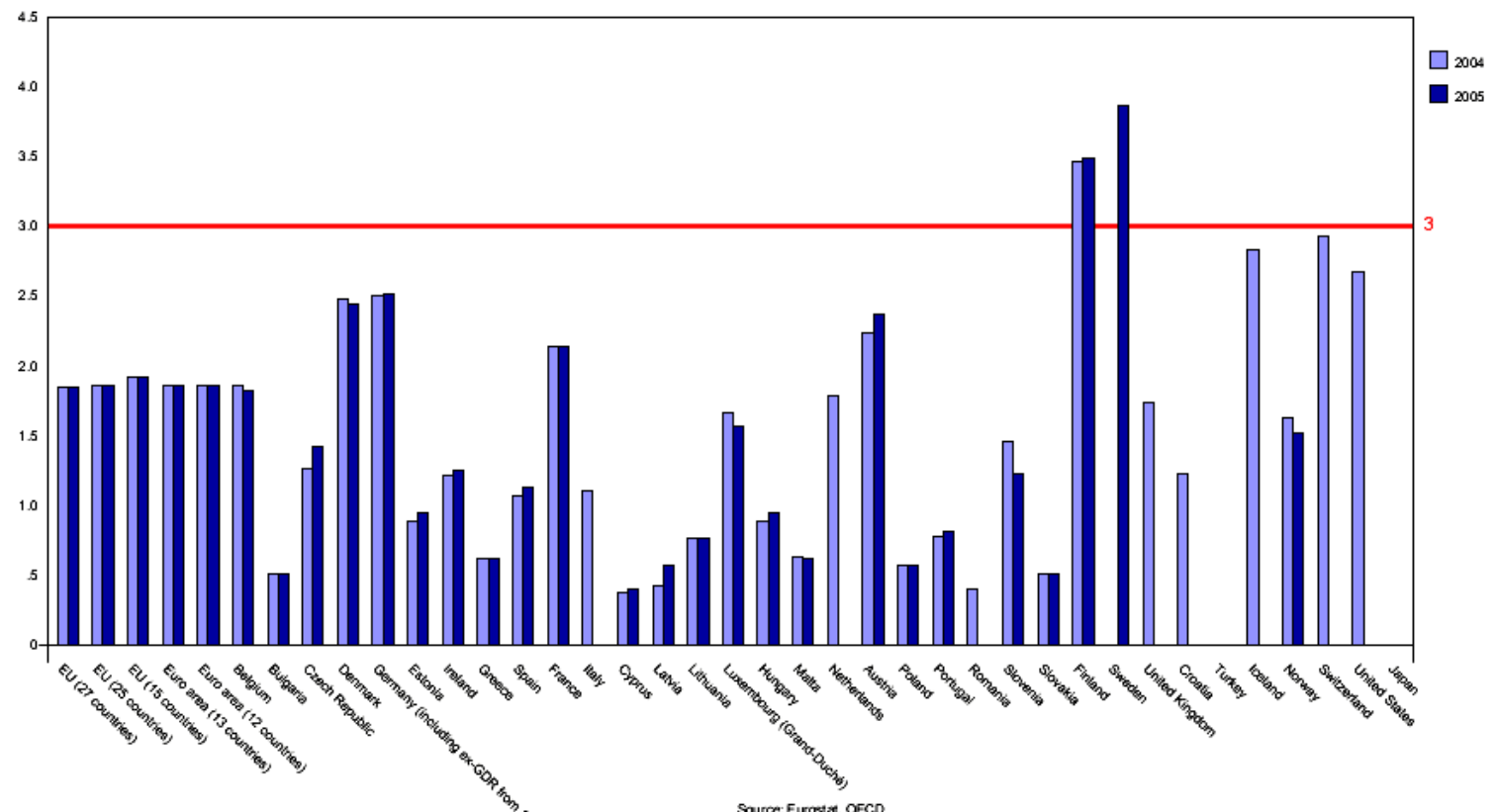
Accepted by the Croatian Government May 2006

Aiming to:

- 1. Increase of R&D investments from 1.3 % to 3% of GDP in 2010**
- 2. Restructuring of public research institutes to meet national priorities and needs of economy**
- 3. Support and stimulate international collaborations**
- 4. Support the commercialization of academic research**
- 5. Strengthening the mindset for technological development and innovations**
- 6. Bring out legal and tax measures favourable for private sector investments in R&D**
- 7. Increase the labour force level of education (only 12% with higher education)**



Gross domestic expenditure on R&D (GERD)
Percentage of GDP

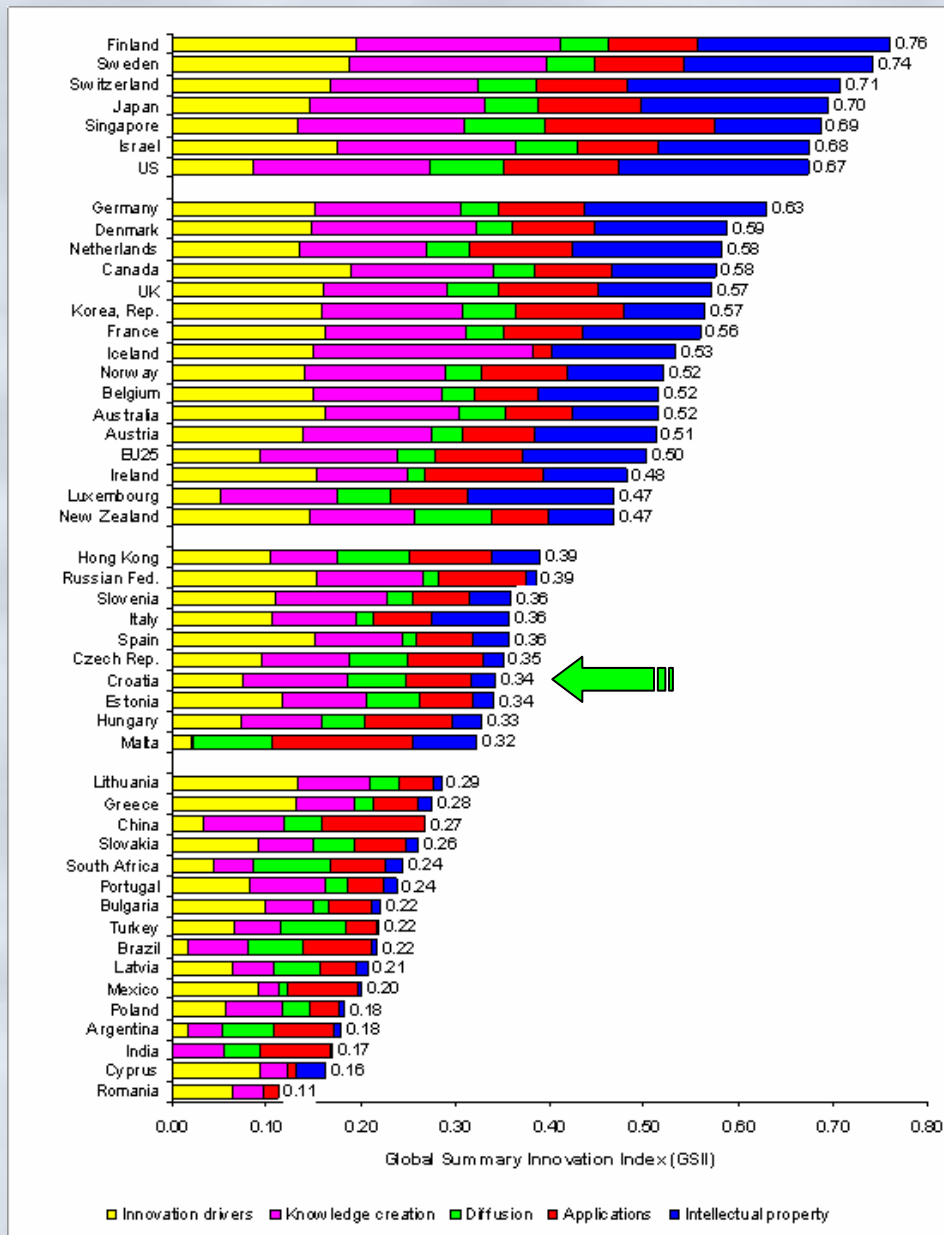


Source: Eurostat, OECD

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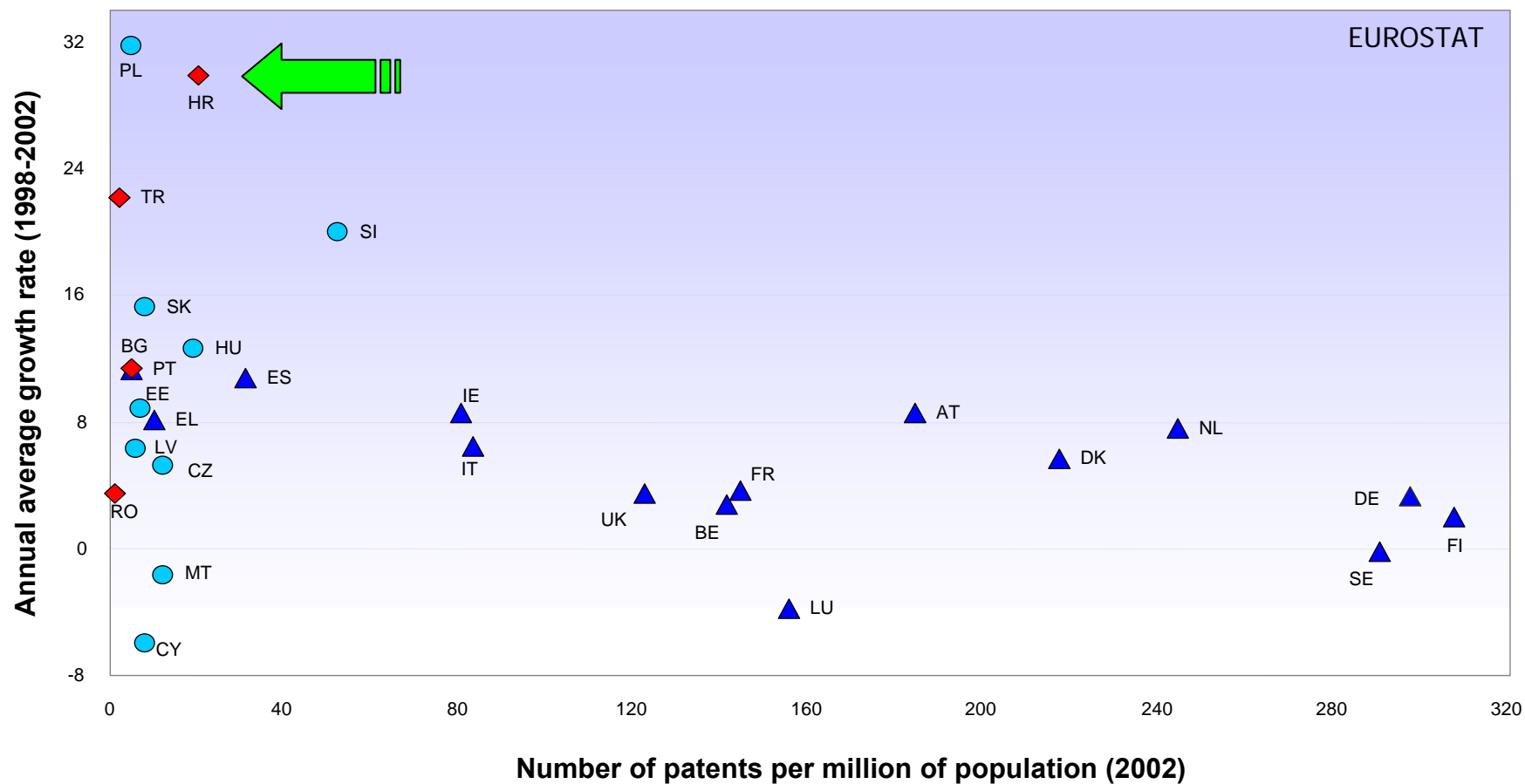


Global Innovation Scoreboard



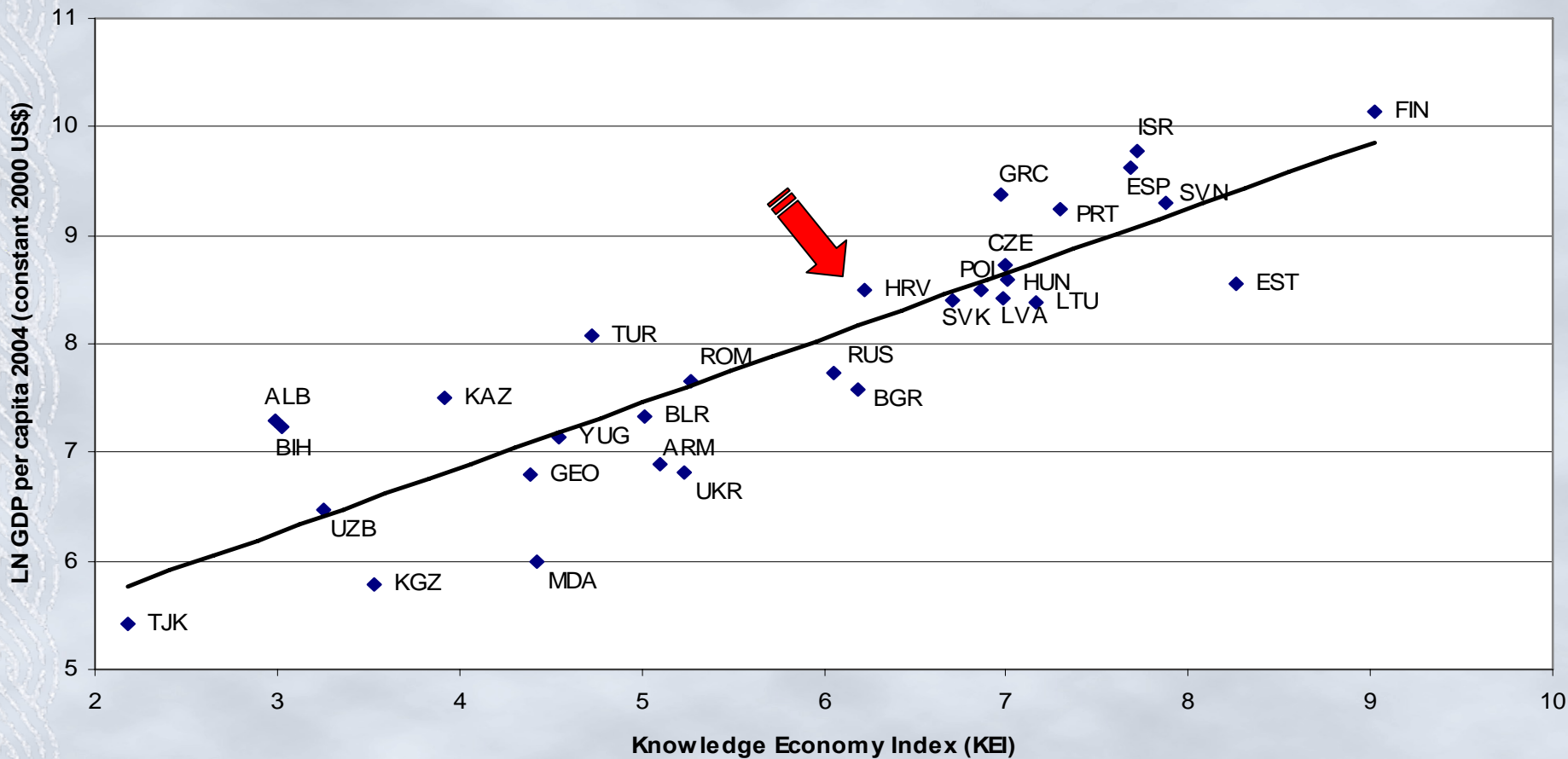


The number of patents per million of citizens and average annual growth rate





Relationship between GDP per capita and KEI





The Lisbon Review 2006

Measuring Europe's Progress in Reform



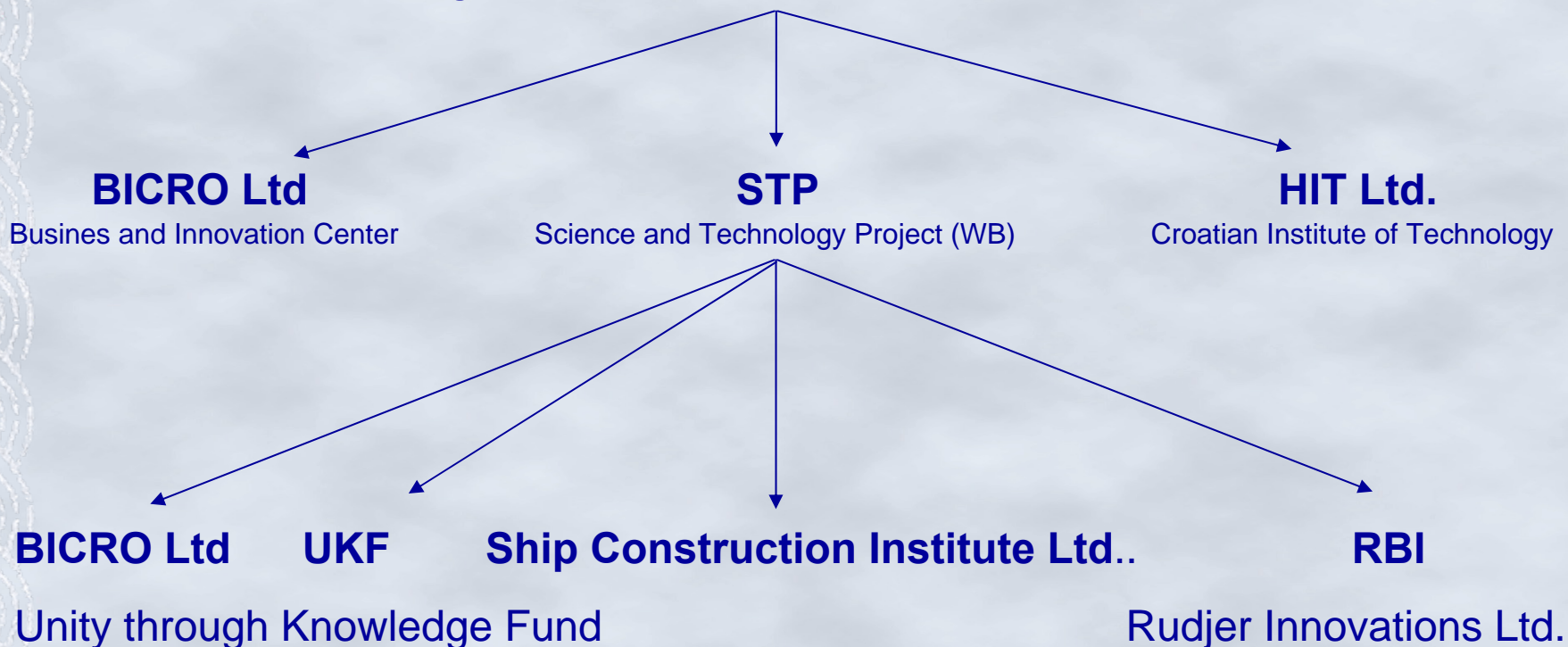
p. 8 – “Croatia’s and Turkey’s scores are very close to each other and well ahead of the next best performer, Romania. What is perhaps more remarkable is that both Croatia and Turkey score higher overall than Poland, a present EU member.”

Table 4: Ranking and Scores of Potential EU Member Countries

Country	Final Index		Subindexes							
	Rank	Score	Information Society	Innovation and R&D	Liberalization	Network Industries	Financial Services	Enterprise	Social Inclusion	Sustainable Development
Croatia	1	3.93	3.89	3.32	4.07	4.65	4.53	3.81	3.40	3.96
Turkey	2	3.92	3.22	3.27	4.46	4.12	4.91	4.21	3.52	3.66
Romania	3	3.59	3.21	3.17	3.89	3.51	4.19	3.81	3.62	3.33
Bulgaria	4	3.31	3.09	2.92	3.49	3.86	3.80	3.43	2.87	3.00
Macedonia, FYR	5	3.28	2.51	2.79	3.56	3.71	3.98	3.51	3.17	3.04
Serbia and Montenegro	6	3.14	2.80	2.94	3.50	3.39	3.77	3.32	2.80	2.59
EU25 Average		4.84	4.58	4.24	4.92	5.36	5.60	4.59	4.40	5.05



Ministry of science education and sports





The Unity through Knowledge Fund has been created by the Croatian Ministry of Science, Education and Sports with the aim to use potential and establish cooperation between the Croatian scientific and professional Diaspora.

The Fund is financing collaborative research projects and knowledge-based business activities of expatriates and Croatian researchers, institutions and companies.



- focused towards strengthening education, research and innovation (»knowledge triangle«) - integrates contributions of various participants and through that creates a unique structure – »knowledge community«.

General functions of the CIT:

- **Implementation of financial measures that support technologically based and innovative entrepreneurship;**
- **Coordination and organisation of institutions aimed for development, transfer, implementation and financing the network of technological institutions on the national level;**
- **Consulting in the field of technology transfer, know how, technological development and R&D;**
- **Development of the »Business Intelligence« and »Technology Foresight« systems;**
- **Implementation of the TEST Programme.**



IRCRO – R&D in SMEs

KONCRO – Business skills – SMEs - competitiveness

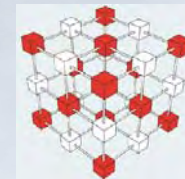
RAZUM – Start ups

TEHRO – Technology in research institutions

**VENCRO – Venture Capital – Public private investment fund -
Horizonte Venture Management**



The National Foundation for Science, Higher Education and Technological Development of the Republic of Croatia



Partnership in Basic Research OBJECTIVE: To improve cooperation between research institutions, industry and entrepreneurship and increase extra budgetary investments in basic research

ELIGIBILITY: Croatian universities, faculties, and public research institutes in cooperation with extra budgetary sources of **FUNDING** (from Croatia and abroad)

FUNDING: The budget per project is 500.000 kn (for projects lasting up to 3 years) including material expenses, equipment, salaries, travel costs and cooperation.

Partner institution participation and co-financing of 30% is mandatory.

DURATION: The call for proposal is open until June 2007.



Rudjer Innovations Ltd.

RBI's Agency for Innovations
and Technology Transfer





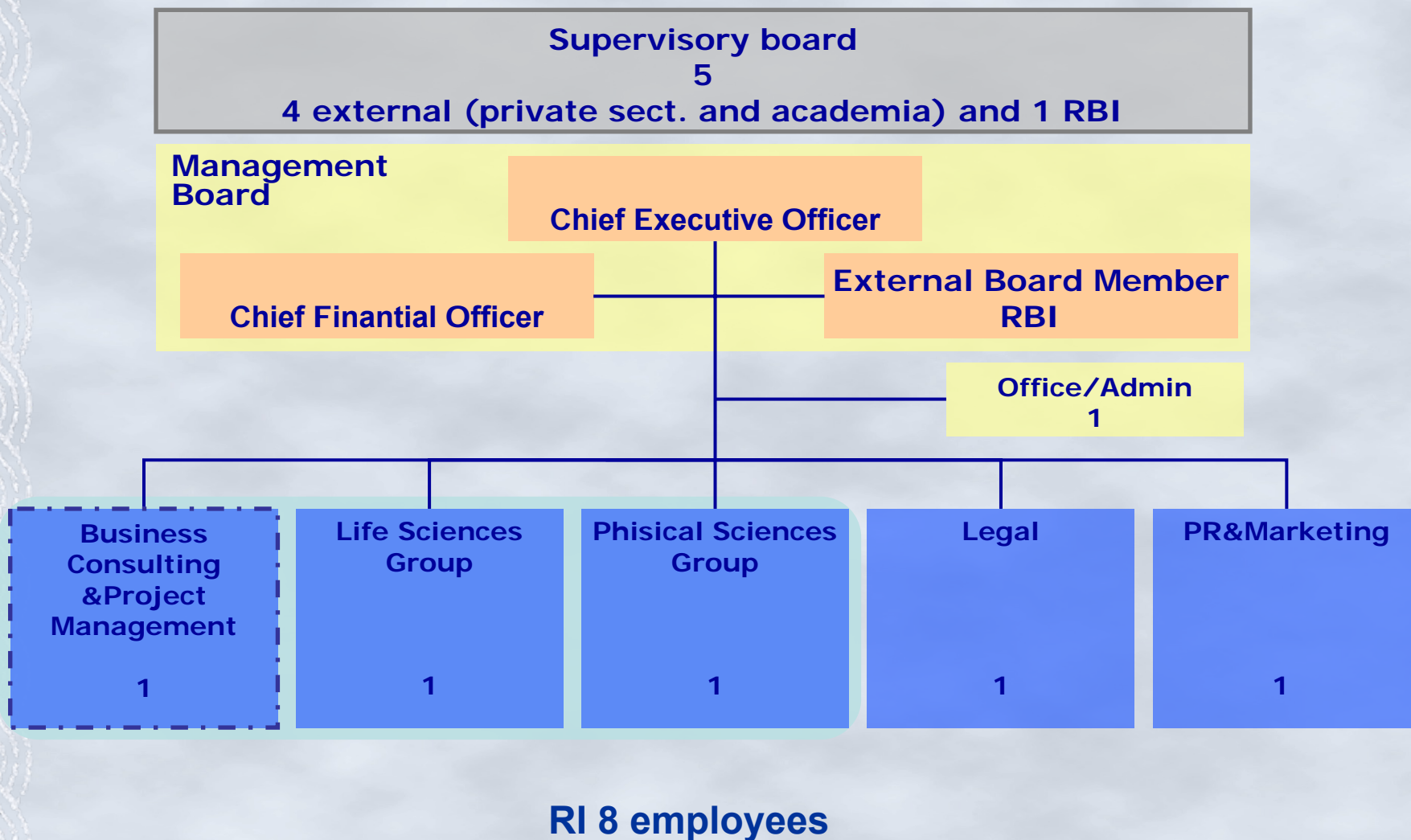
Rudjer Innovations Ltd.

Activities:

- Evaluation of RBI's intellectual property
- Protection of IP (patenting, trade marking, copyrighting etc.)
- Development of commercialisation models (licensing, spin-out, new companies, joint ventures etc.)
- Financing of RI and RBI staff education on IP protection and technology transfer
- Providing RBI with industrial research contracts
- Consulting, services and project management
- Financial support for early stage projects with IP and technology potential



Rudjer Innovations- organisation





Transfer of Intellectual Property

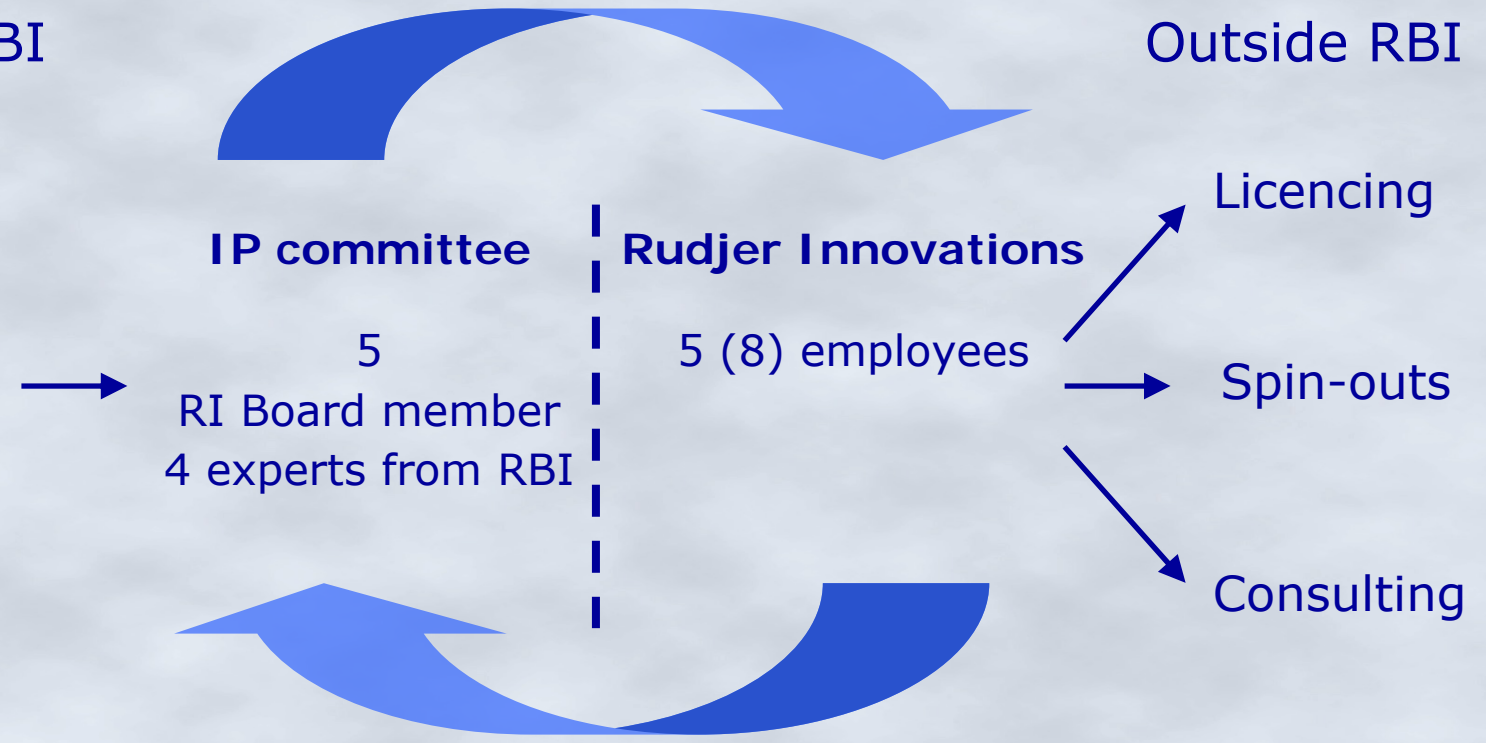
RBI & RI example

Korper & Haramija Law Firm

Assignment of IPR

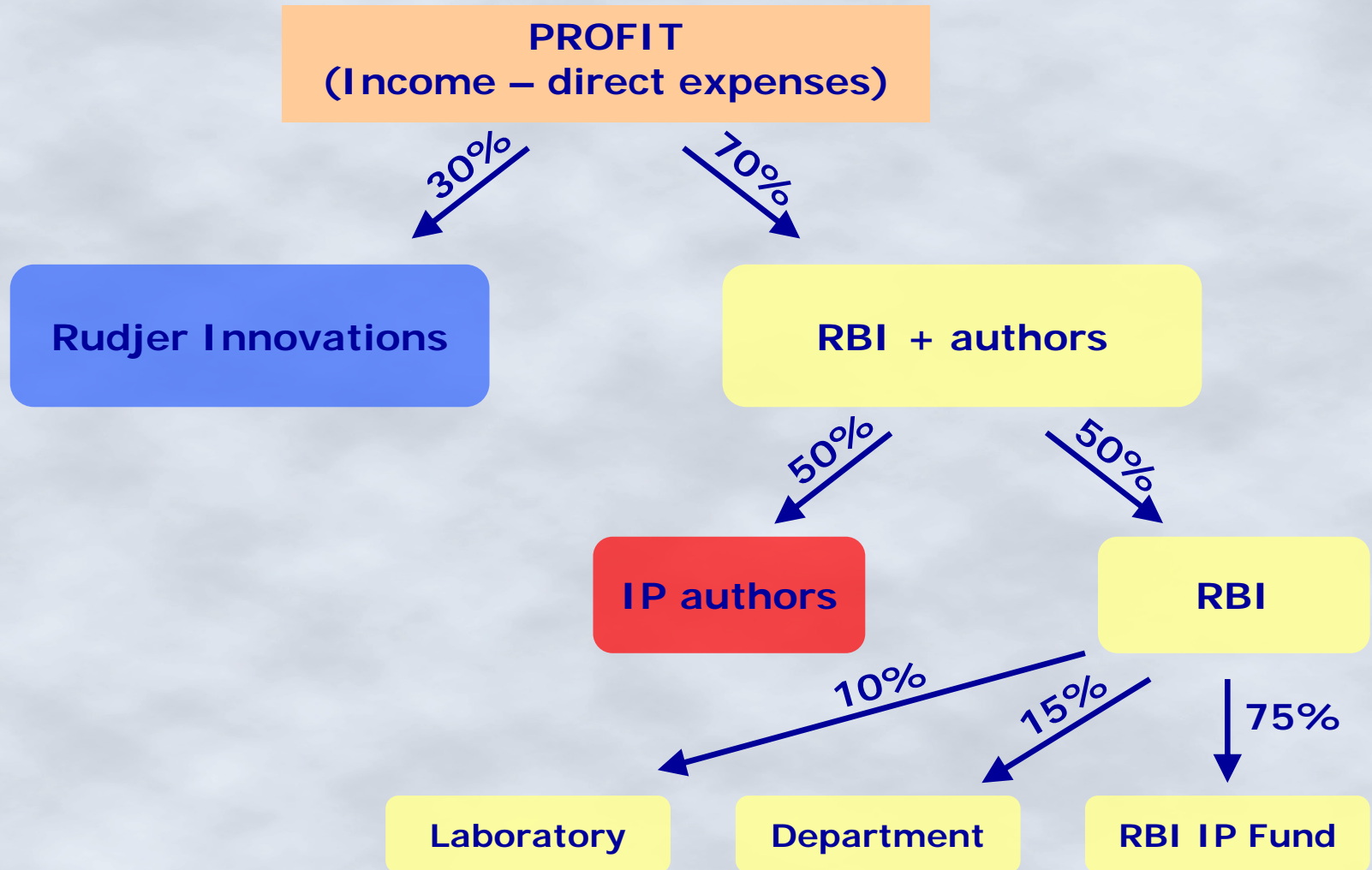
Inside RBI

Outside RBI

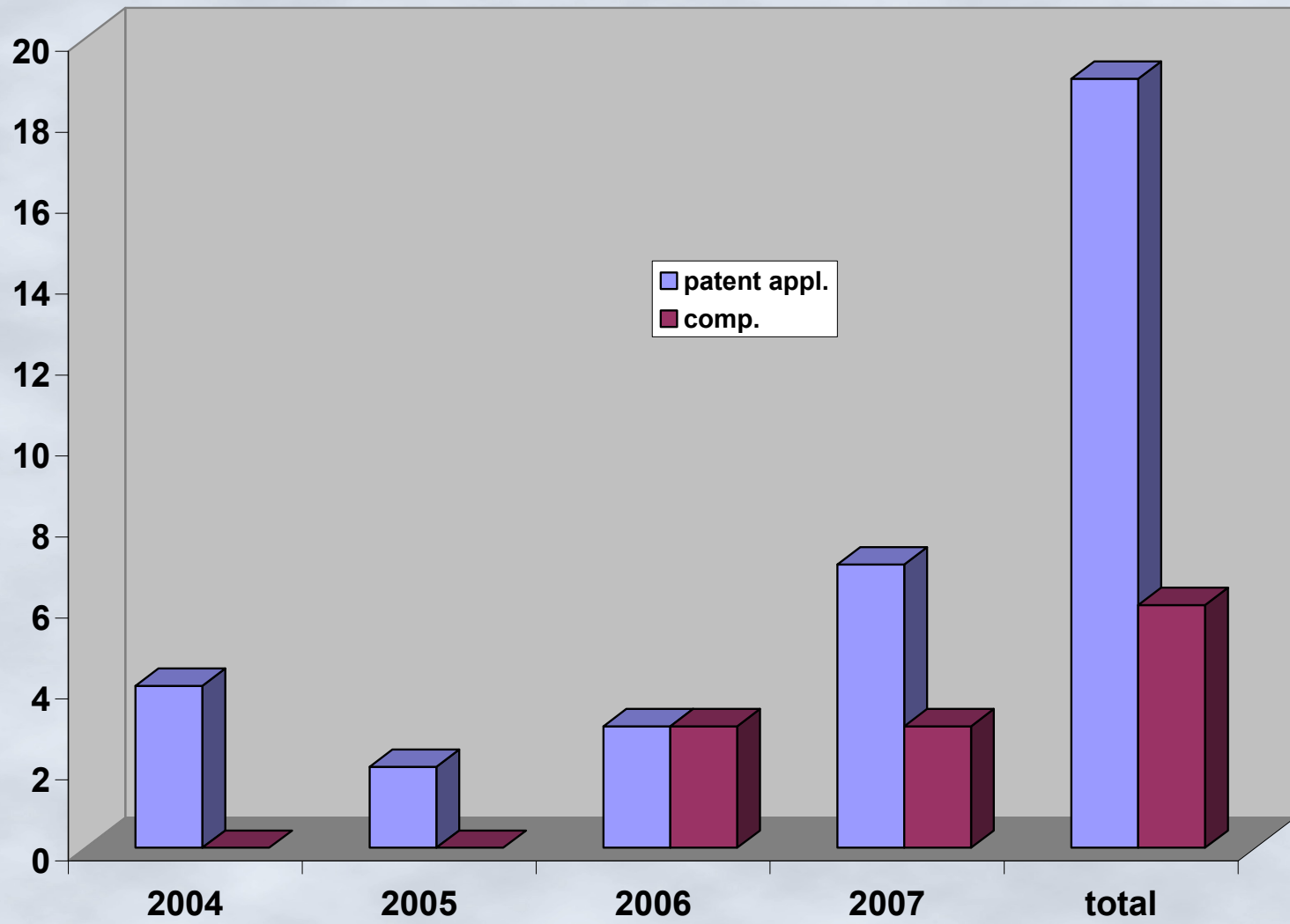




Share distribution scheme



RBI patent applications and start up companies





Start up's and joint ventures:

BioZyne Ltd. – anticancer compounds, EP; 100% RBI ownership

Chirallica Ltd. - separation of pharmaceutical enantiomers, chiral HPLC, 15% RBI ownership

Communication Technologies Ltd.- private/public partnership of RBI and private Institute for Information Innovations; 25% RBI ownership

2007:

Rudjer-Medicol Diagnostics Ltd.- 80% RBI ownership- private/public partnership of RBI and private Medikol Diagnostics Ltd.

QRNG – production of random number generating device – 30% RBI ownership and 70% inventor's ownership



July 2007

Free for researchers

Commercial users

> 3.000 registered users

> 10 GB provided

> 130 countries

