



Research in Slovenia

8 November 2005



SLOVENIA

Basic data

Area: 20 273 km²

Population: 2 mio.

Constitution: Parliamentary democracy

Population density: 98.0 per km²

Capital: Ljubljana (population 330 000)

GDP 12.447 €/capita (2003)

GERD as % of GDP: 1.52% (2003)

by government sector 0,54%

by business sector 0,90%



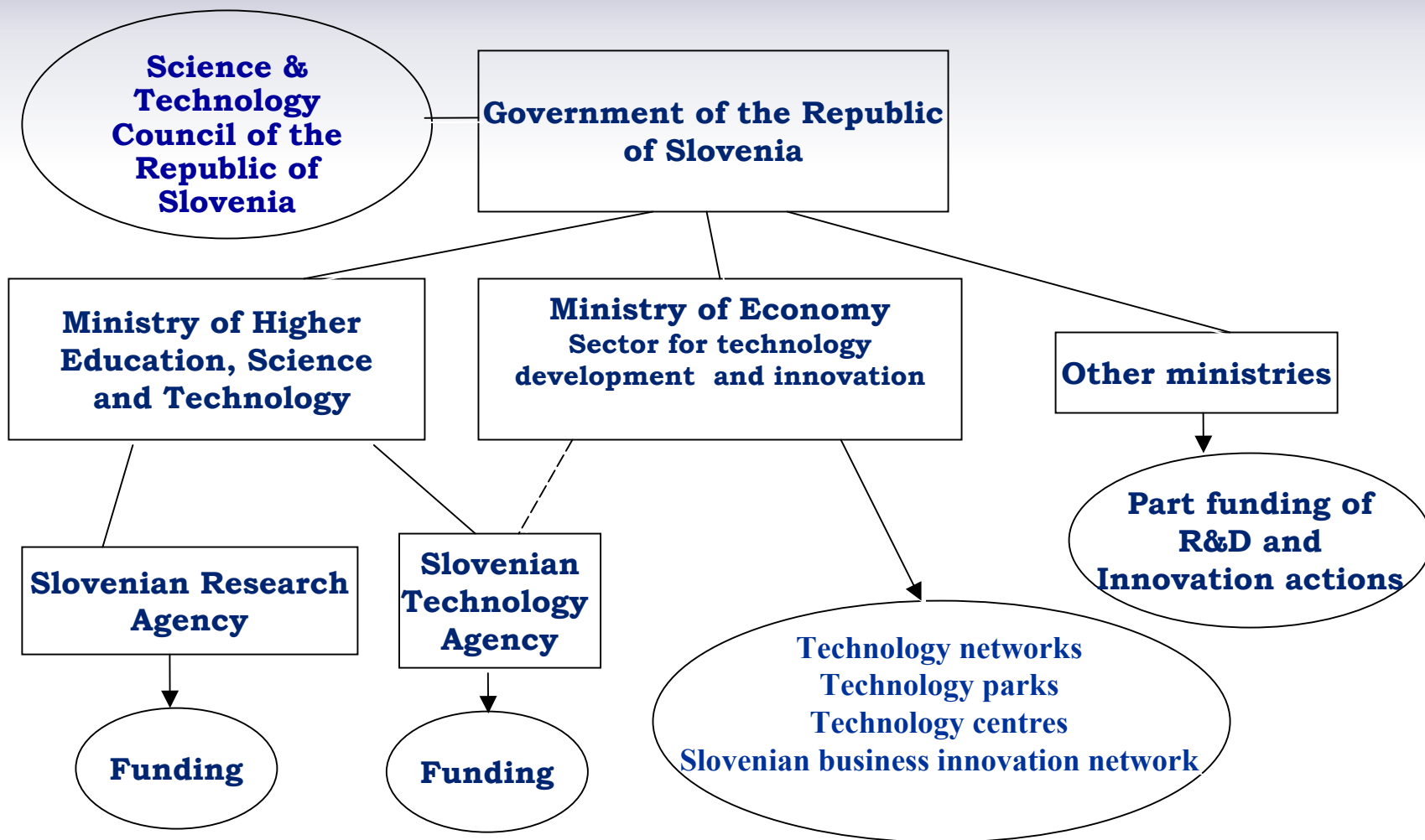


Characteristics of Slovenian R&D System

- **Small R&D system**
- **R&D in public sector of relatively high quality with well established international cooperation**
- **Negligible brain drain**
- **Modest cooperation between the research, education and business spheres, as well as within those spheres**
- **Academic research not enough driven by “joint goals of understanding and use”**



Institutional organisation of public R&D sytem





Research Policy / Funding System

Government sector

- Ministry of Higher Education, Science and Technology
- Ministry of Economy
- Other ministries (Ministry of Defence)

➤ **Agencies** (established in 2004)

- Slovenian Research Agency
- Slovenian Technology Agency

➤ **Foundations:**

- Slovenian Science Foundation
- Ad Futura

Business Sector



Strategical / policy documents

**Research and Development
Activities Act 2002**

**Single Programming
Document 2004-2006**

**Strategy for the development
of Slovenia 2005**

**National R&D Programme
2006-2010
(in final stage of adoption)**

**information and communication technologies
advanced materials and nanotechnologies
complex systems and innovative technologies
technologies for sustainable development
health and life sciences**



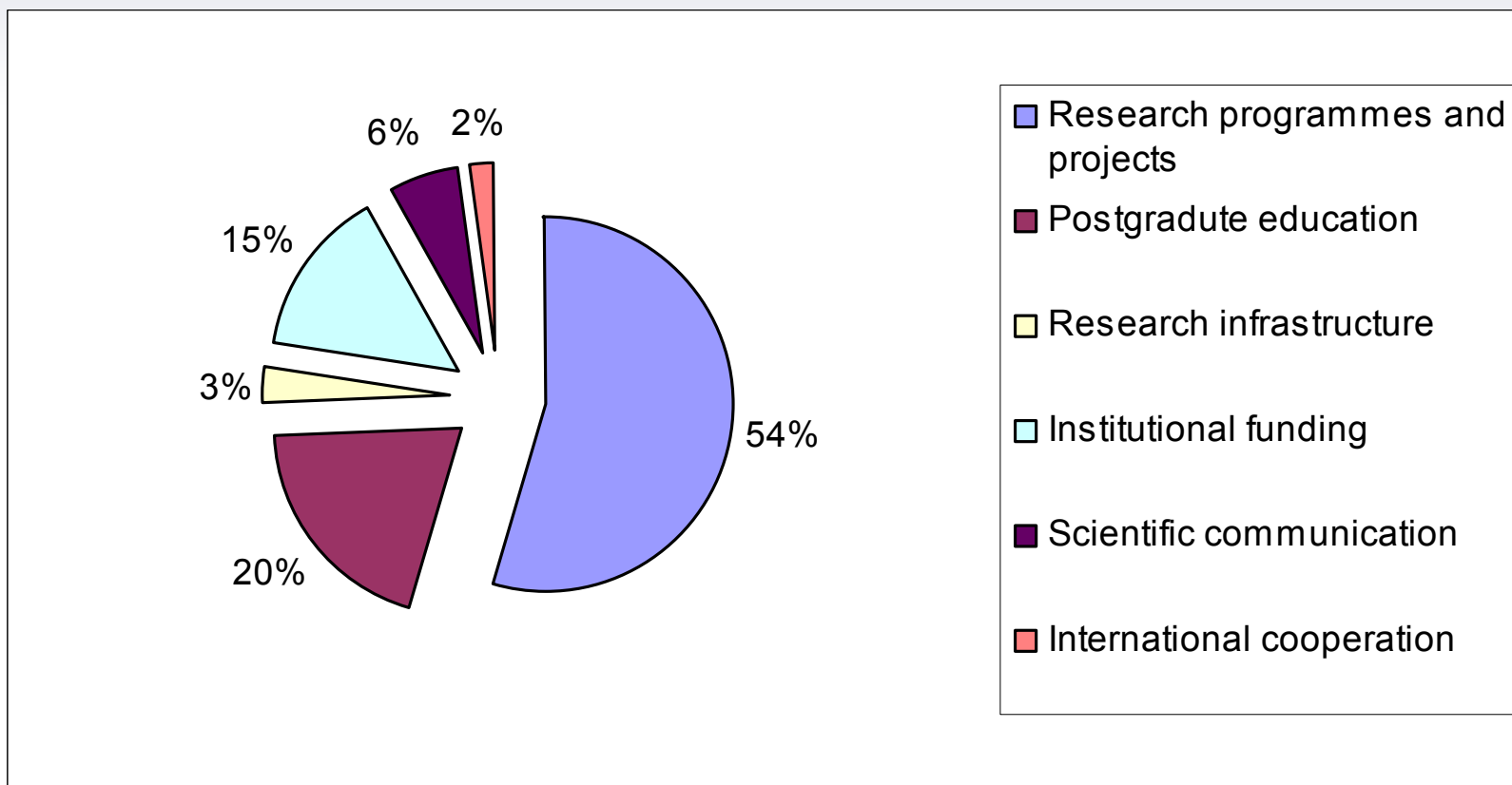
National funding instruments

- **Research and infrastructure programs (IP like projects): 5 years**
 - 262 research programs (2004 to 2008)
- **Research projects: 2-3 years**
basic / applied / targeted research projects
- **Postgraduate education**
- **Research infrastructure**
- **Institutional funding**
- **International co-operation**
- **Scientific communication**



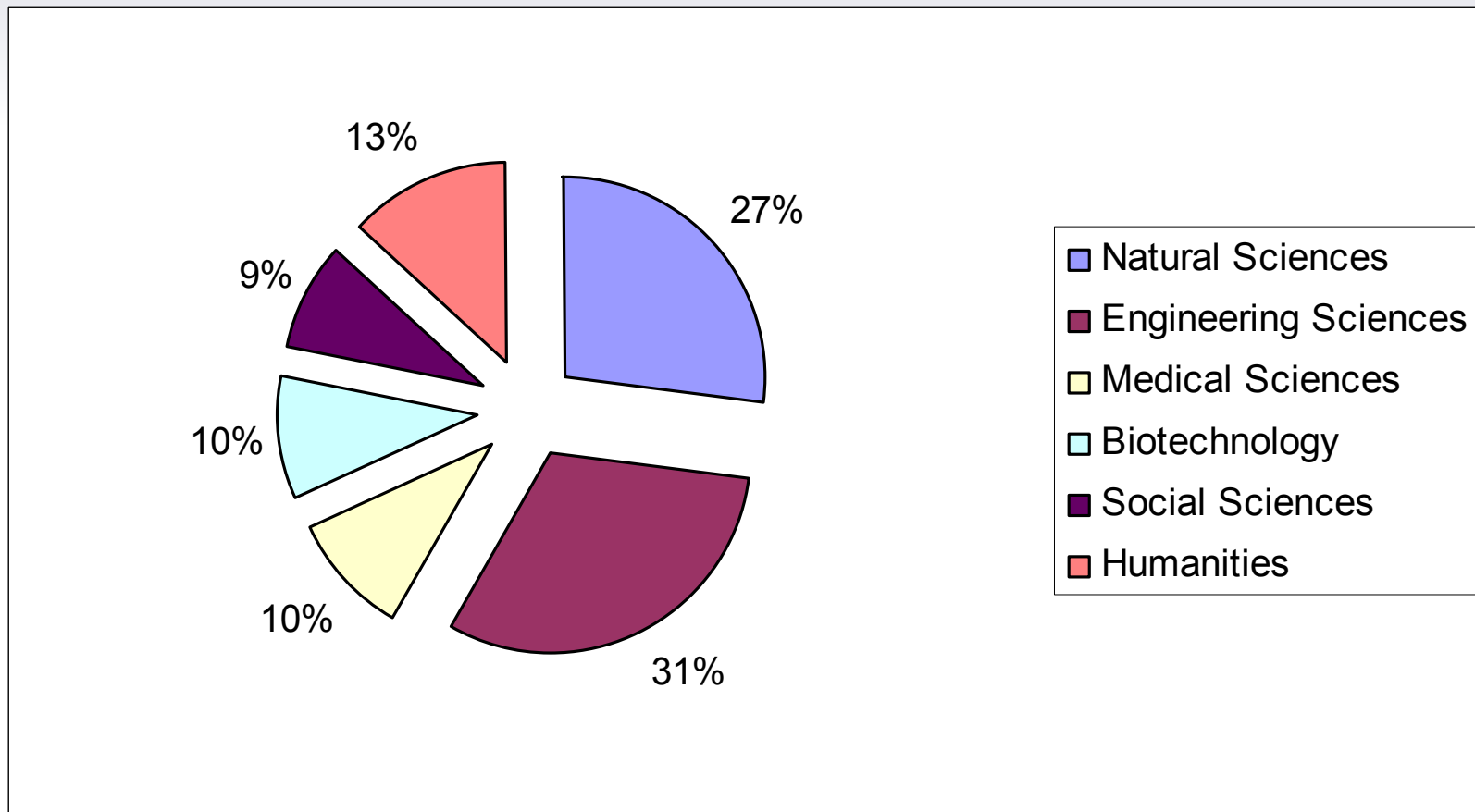
Budget of the Ministry by main instruments, 2004

Budget of the Ministry 2004: 132 M€





Budget of the Ministry by main fields of science, 2003





International bilateral co-operation

- **Bilateral cooperation: 22 concluded agreements and 706 projects in 2005 (between two institutions)**
- **Slovenia strives to establish a higher level of institutionalised bilateral cooperation with states considered as Slovenia's most important partners, and redirect bilateral cooperation to multilateral or regional joint R&D projects contributing to ERA**
- **Special attention paid to Western Balkan (ERA WESTBALKAN)**



International multilateral cooperation

- **EU programs (6th Framework Program and EURATOM)**
- **Other European research and development programs (COST, EUREKA)**
- **NATO Science Programs**
- **Co-operation with international organisations (UNDP, UNIDO, ICGEB, ICS, CERN, ICPE, ICTP, ICSD, EMBC, IIR)**



Research programme

- **It is a research field expected to be relevant in the next 10 years and important for Slovenia**
- **Every 5 years there is a public call for a new round of research programmes according to National R&D Programme**
- **Preparation, implementation, and evaluation by Slovenian Research Agency**
- **The decision to start the research programmes is taken by the Government**



Research programme – cont.

- **Implemented by programme groups in public research institutes, universities, higher education institutions and private and/or public legal entities with research activities**
- **Minimum 5 researchers (Ph.D), plus professional and technical staff, doctoral students from one or different institutions**
- **Slovenian Research Agency administratively support the research programmes**
- **Evaluated by annually reports, final evaluation conducted at the end by indicators as scientific excellence, social and economic relevance, human resource development, and international cooperation**



IST Research Programmes

NATURAL SCIENCES

- Selected topics in theoretical computer science and combinatorial optimization

ENGINEERING SCIENCES

- Systems and control
- Mechatronics systems
- Modelling, simulation and control of processes
- Telecommunication systems
- Technologies, services and business in the next generation networks
- Telematics
- Advanced methods of interaction in telecommunication
- Algorithms and optimization methods in telecommunication
- Computer systems, methodologies and intelligent services
- Information systems
- Parallel and distributed systems
- Computer structures and systems
- Knowledge technologies
- Artificial intelligence and intelligent systems
- Computer vision

systems and
cybernetics

telecommunications

**262 research programmes >
17 IST research programmes**

computer and
information sciences

SOCIAL SCIENCES

- Decision support systems in global electronic commerce



Main IST Research Actors

17 public research institutes:

- Jožef Stefan Institute
- Institute of Mathematics, Physics and Mechanics

2 public research infrastructure institutes:

- Academic and Research Network of Slovenia
- Institute of Information Sciences

3 Universities:

- University of Ljubljana, Faculty of Computer and Information Science
- University of Ljubljana, Faculty of Electrical Engineering
- University of Maribor, Faculty of Electrical Engineering and Computer Science
- University of Maribor, Faculty of Organizational Sciences

10 independent HE institutions

300 research units in the business sector

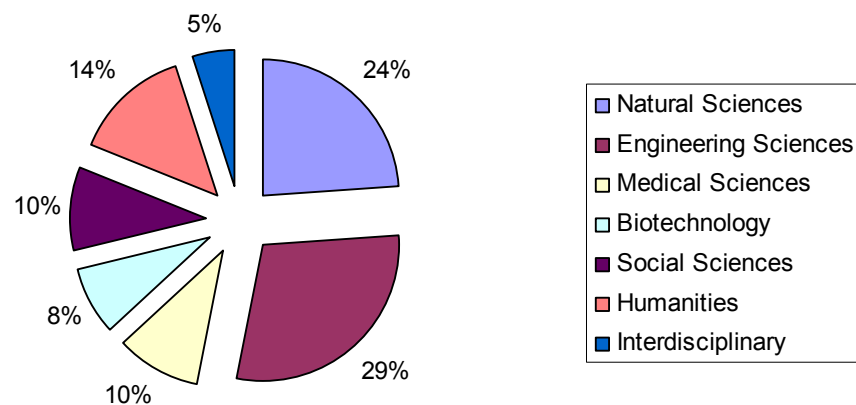


Call for research projects in 2005

- first time called for interdisciplinary research projects
- first time called for proactive research projects

IST topics

- e-life style
- information systems supporting national and cultural heritage
- security
- new product development





Targeted research programmes

“Competitiveness of Slovenia 2001-2006” > thematic priority “Information Society”

“Knowledge for security and peace 2004-2010” > thematic priorities “Communications and information systems” and “Security and defence”

- **GRID**
- **recognition/synthesis of Slovenian speech**
- **distributed information systems**
- **agent technologies**
- **security**
- **mobile communications**
- **geographical information systems**

23 IST projects in 2004



National R&D Programme 2006-2010

- Evaluation criteria not oriented enough toward object driven research
 - Independent evaluation difficult to achieve in a small country
 - No thematic priorities and systematic encouragements for emerging areas
 - Control over public financing R&D activities not efficient enough
 - Too few opportunities for reintegration of Slovenian researchers from abroad
 - Not enough survey of transfer of research results
- Definition of thematic priorities
 - Definition of priority instruments
 - Increase of R&D financing and change of its structure
 - Improvement of conditions for R&D activities
 - Enlarge the transfer of research results
 - Improvement of the control system
 - Monitoring of the implementation of the National R&D Programme
 - Encouragement of international cooperation