Promoting Research at UJ

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CeSTII

- Est. 2002 via DST ring-fenced grant in Knowledge Management research programme
- Research on the NSI, Information Society and KM
- Now into third R&D Survey; 1st Innovation Survey; 1st Knowledge Management Practices Survey
- Clients: DST, NACI, PNC-ISAD
- Partners & Collaborators: Stats SA, OECD, Statistics Canada, UCT, TUT, U Pta
- Developmental agenda

National System of Innovation

- Institutions and organisations and the interactions among them
- R&D as a central aspect of sustainable innovation
- R&D activity conditioned by path dependence (history) and operating environment
- R&D Surveys capture inputs to R&D
- R&D indicators - essential component for planning and benchmarking competitiveness

Performing R&D Surveys

- Forty year history
- OECD Frascati Manual guidelines
- "R&D comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including the knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications"
- Voluntary survey
- Grey areas: definition of R&D; borderline institutions; permanent and contract staff

What is measured?

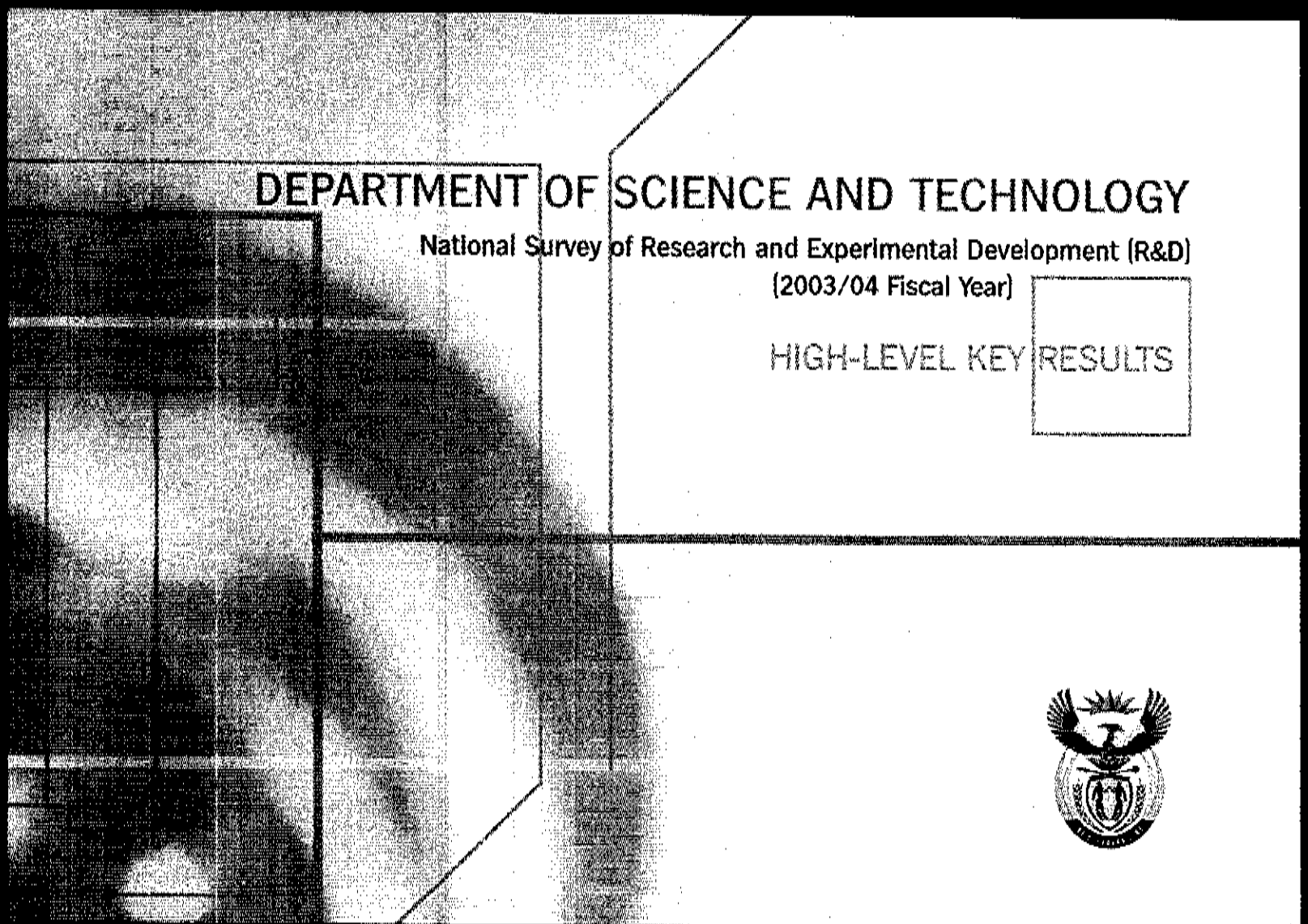
- Expenditure – labour costs, capital and current
- Type – basic, applied, experimental dev't
- Sources of funds
- Staff by activity; level; headcount; gender; FTE
- Research fields; Socio-economic objectives
- Location of research
- Research collaboration

R&D Surveys do not measure research outputs

Main indicators of R&D

- GERD/GDP
- FTE Researchers/1000 employed
- R&D expenditure/Researcher
- Research output per Researcher
- Research impact factor
- Licences granted
- Patents applied for and awarded by location
- Royalties paid
- Etc.

The story unfolds



DEPARTMENT OF SCIENCE AND TECHNOLOGY

National Survey of Research and Experimental Development (R&D)
(2003/04 Fiscal Year)

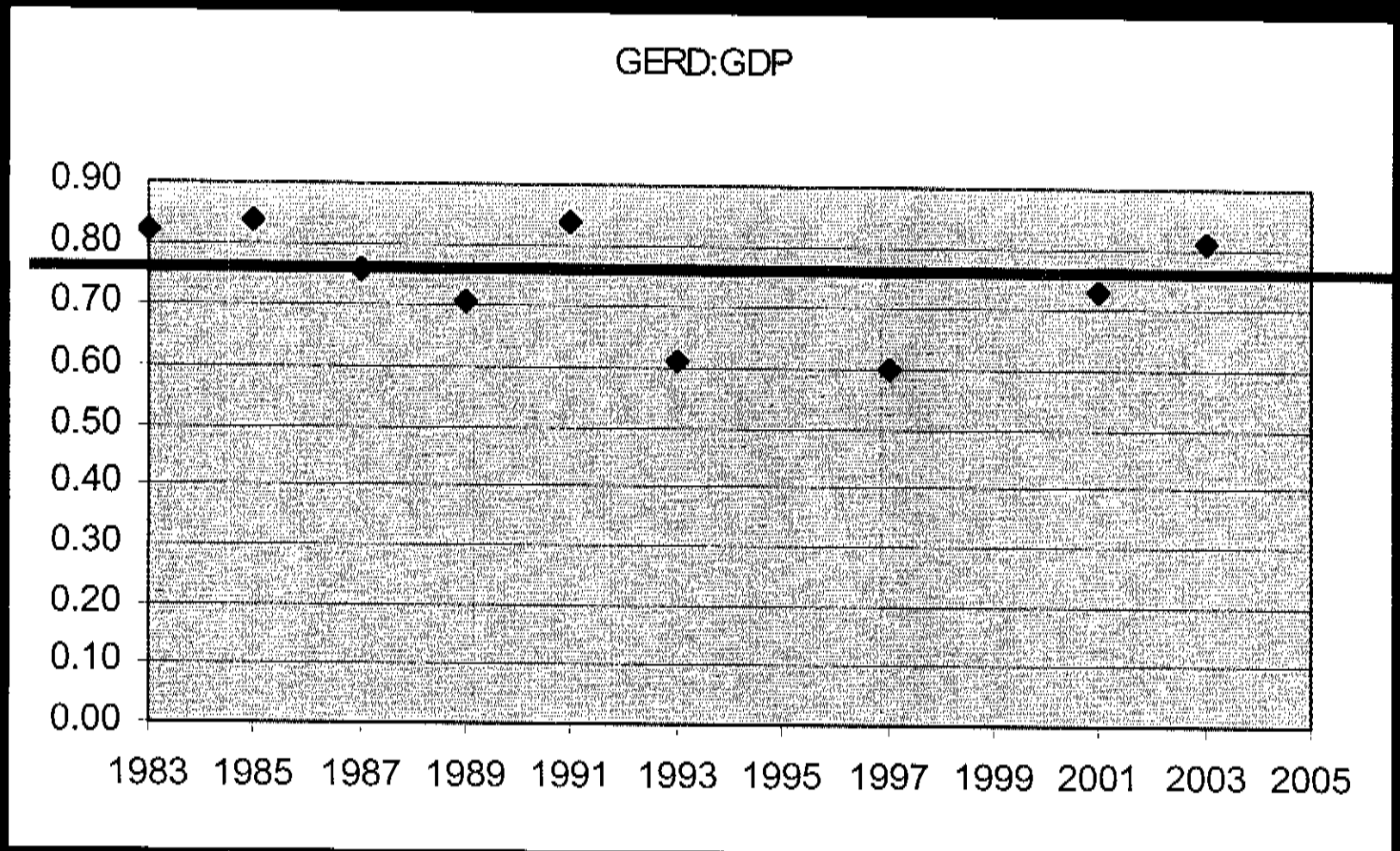
HIGH-LEVEL KEY RESULTS

Main findings

- South Africa spent about R10.1 billion, or 0.81% of GDP, on research and development (R&D) in 2003/04.
- The 2003/04 figure represents an improvement from the 2001/02 survey which found R&D expenditure to be R7.5 billion or 0.76% of GDP.
- The National R&D Strategy targets spending 1% of GDP on R&D by 2008.
- South Africa has a total of 25 185 full time equivalent (FTE) R&D personnel.
- About 40% of these personnel comprise the 14 129 FTE researchers or academically qualified people.

- Women researchers now comprise 38% of the total researchers compared to 11.2% in Japan, and 28.4% in Norway.
- The business sector is the major performer of R&D in the country and performs 55.5% of all R&D undertaken.
- The higher education sector undertakes 20.5% of national R&D.
- Government performs 21.9% of the total but finances 28.1% of total R&D.

GERD/GDP



OECD (2005) *Main S&T Indicators* (pending)

Fig 3:

Gross expenditure on R&D as a percentage of GDP 2003* (International Comparisons)

*or latest year available

* Organisation for Economic Cooperation and Development

** Expanded European Union (25 states)

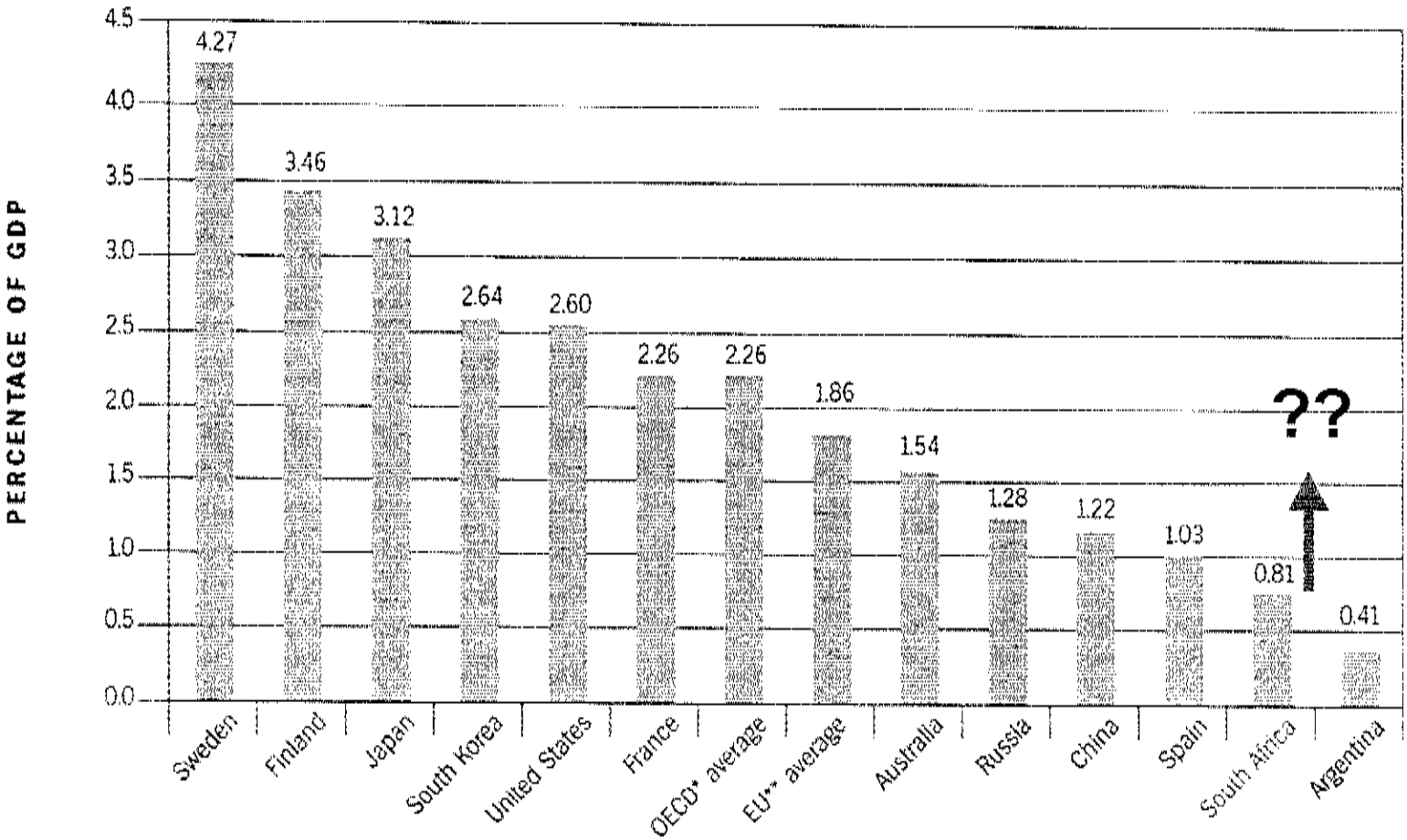


Fig 4:

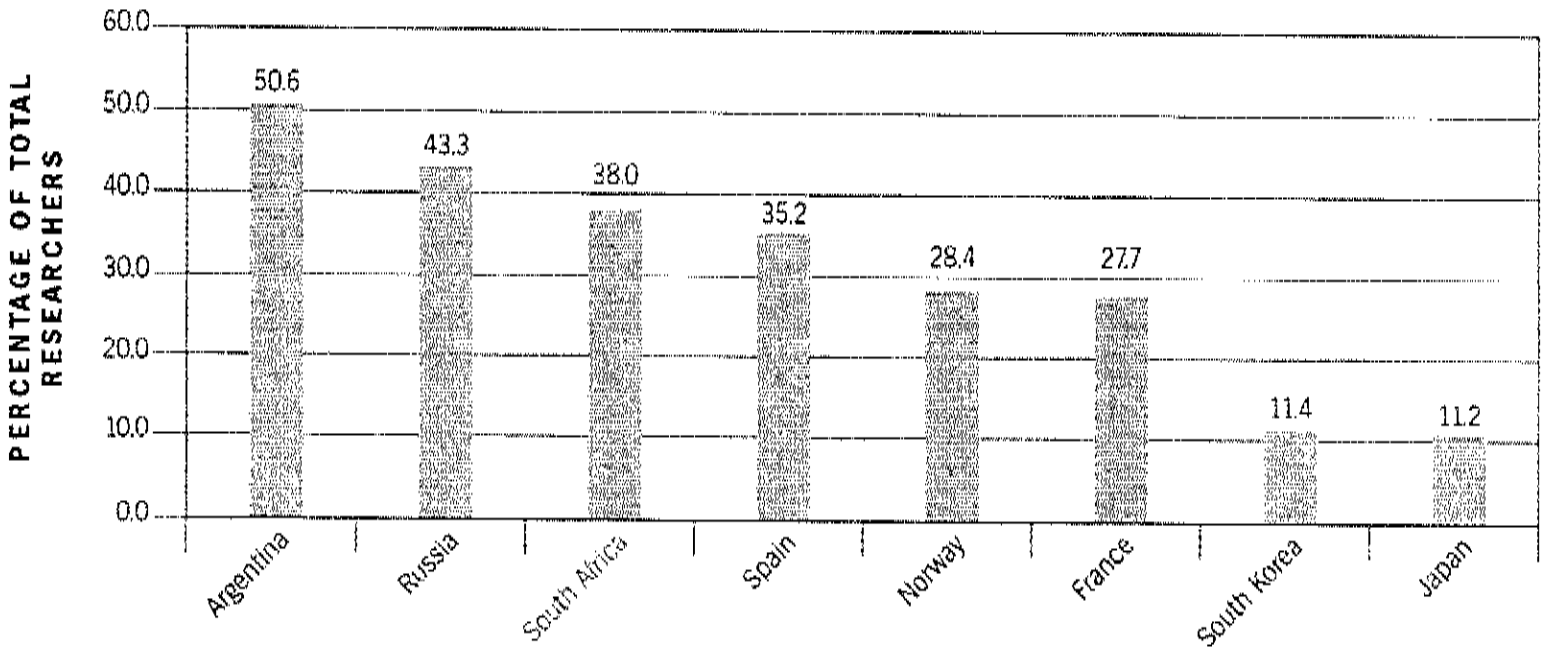
Number of Full Time Equivalent (FTE) researchers per 1000 total employed in 2003* (International Comparisons)

*or latest year available

Fig 5:

Women researchers as a percentage of total researchers (headcount) 2003* (International Comparisons)

* or latest year available



Constraints to moving country rank

- Static flows from school to research careers
- Static number of FTE Researchers
- Therefore static absorptive capacity and static outputs
- Global competition for skills
- Playing in global markets requires R&D commitment
- The need for a joined-up high level skills approach across government

Fig 7:

Performance of R&D by Sector (South Africa, 2001 & 2003)

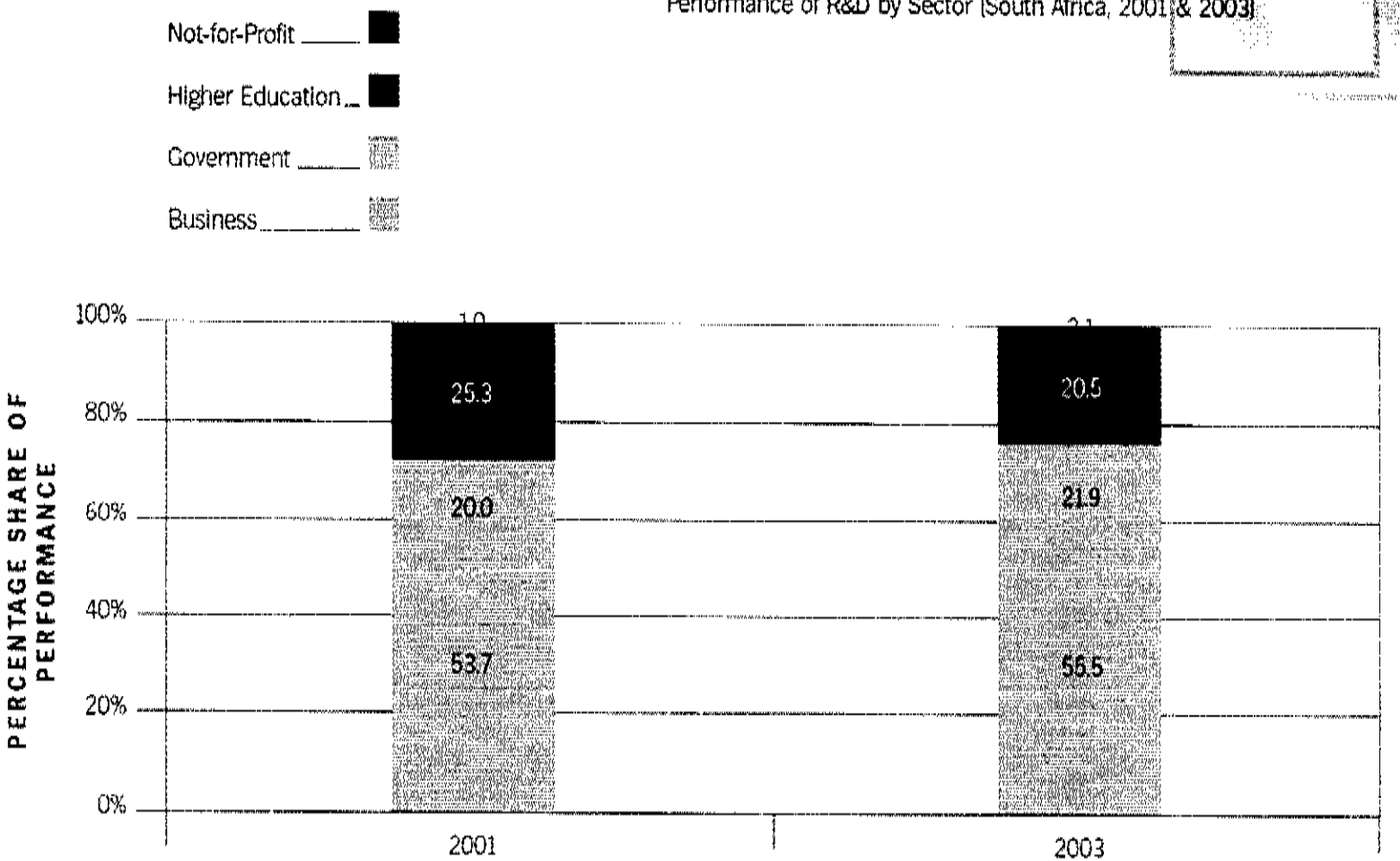


Fig 9:

Expenditure on R&D by major research field
(South Africa, 2001 & 2003)

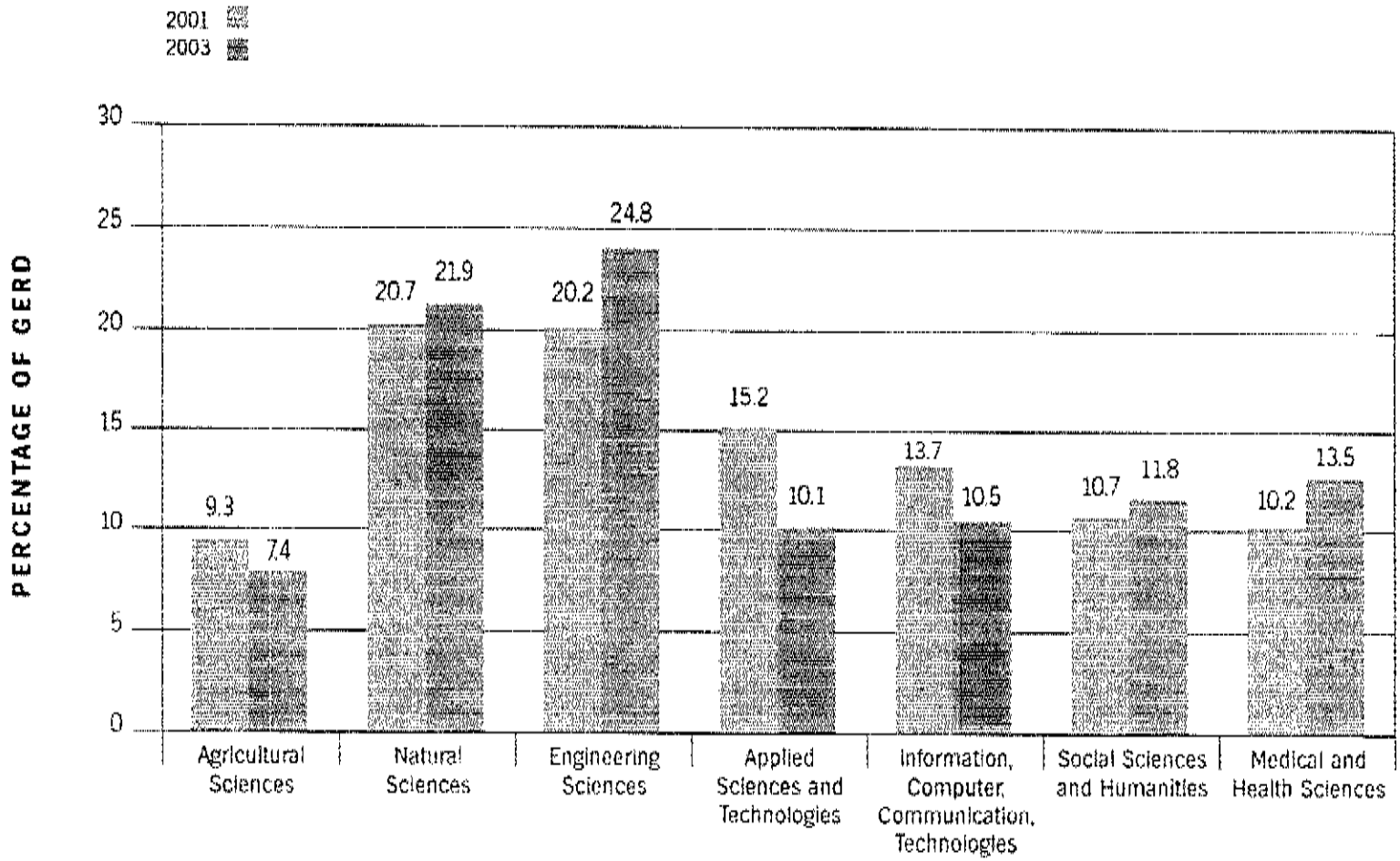
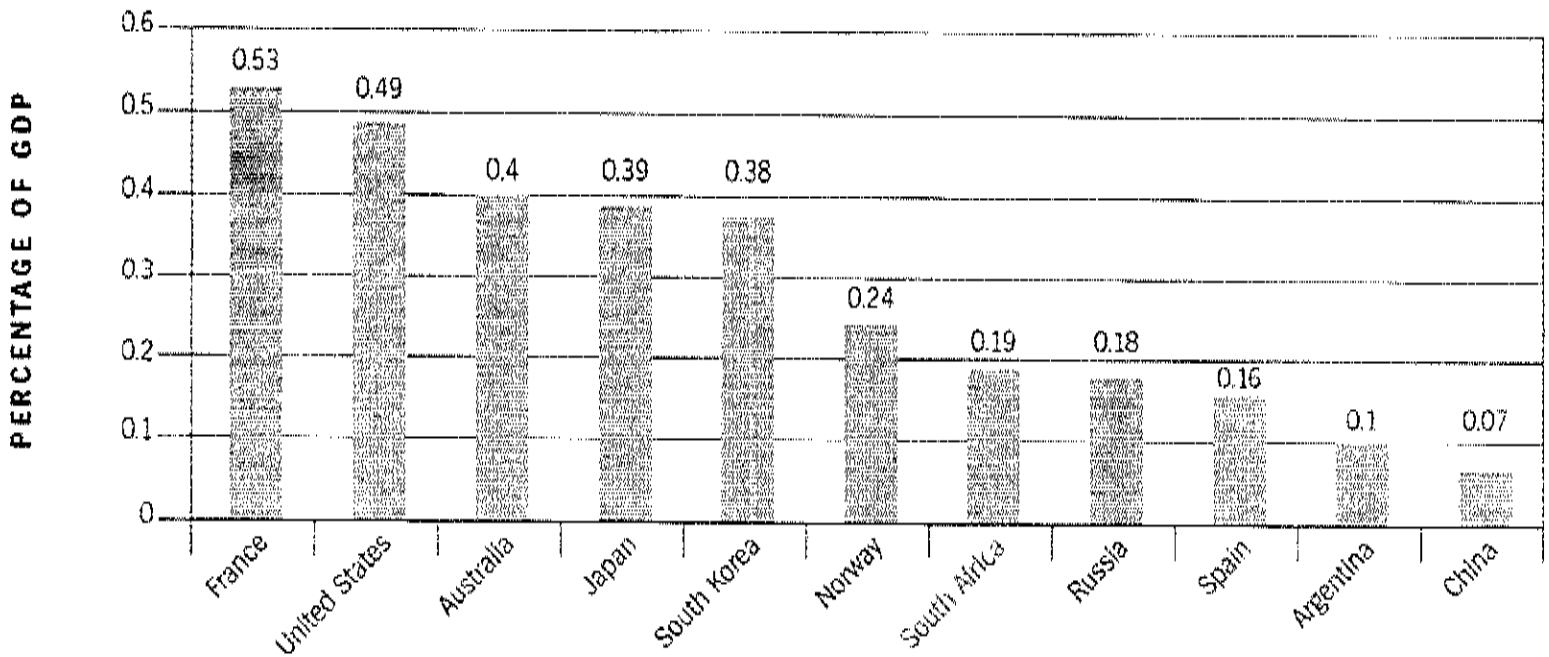


Fig 11:

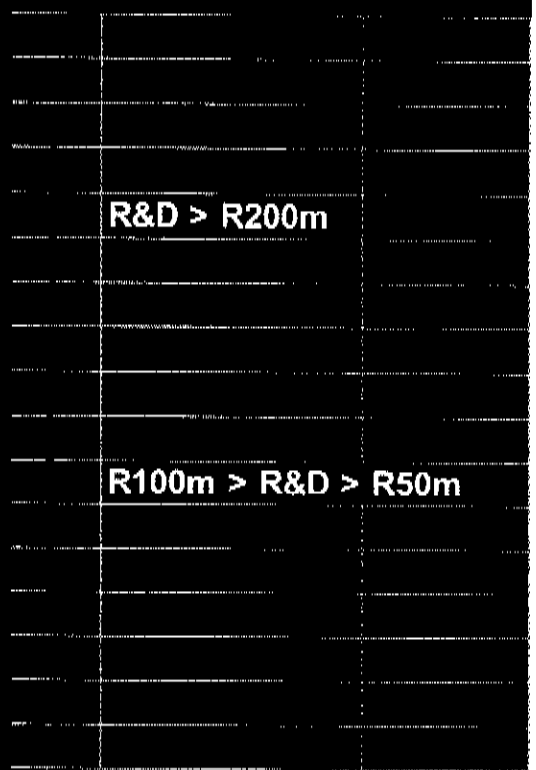
Basic research as a percentage of GDP 2003* (International Comparisons)

*or latest year available



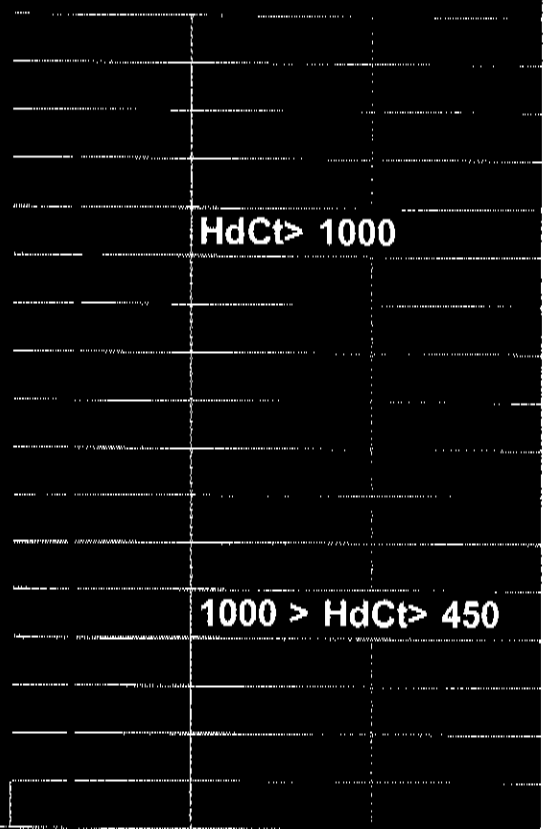
Who spends what?

Rank	2002	Rank	2004
1	UCT	1	U Witwatersrand
2	U Pretoria	2	UCT
3	U Natal	3	U Pretoria
4	U Stellenbosch	4	U Kwazulu Natal
5	U Witwatersrand	5	U Stellenbosch
6	U Free State	6	**U Johannesburg**
7	U Western Cape	7	U Free State
8	UNISA	8	Potchefstroom U
9	Rhodes U	9	UNISA
10	Potchefstroom U	10	Tshwane University of Technology
11	Randse Afrikaans U	11	U Western Cape
12	U Port Elizabeth	12	Rhodes University
13	Tech Pretoria	13	U Port Elizabeth
14	U Durban West	14	
15	Technikon Witwatersrand	15	



Where are the 'Researchers?'

Rank	2002	Rank	2004
1	U Pretoria	1	U Pretoria
2	U Witwatersrand	2	UCT
3	U Natal	3	U Stellenbosch
4	U Stellenbosch	4	U Kwazulu Natal
5	UNISA	5	UNISA
6	UCT	6	U Witwatersrand*
7	Potchefstroom University	7	**U Johannesburg**
8	UNIN	8	Tshwane University of Technology
9	U Free State	9	UNIN
10	U Western Cape	10	U North West
11	Vista U	11	U Free State
12	Randse Afrikaans U	12	U Port Elizabeth
13	Tech Pretoria	13	Rhodes U
14	U Durban West	14	U Western Cape
15	Rhodes U	15	



* Provisional data

Moving rank (1)

- Establish a strong sense of mission
  - Role for Council? Stakeholder representation
- Create a guiding coalition
  - Who are the research leaders? Task Team: Academic
- Vision and strategy
  - Sharper focus - research strategy?
  - What are the competitive advantages?
  - Possibilities w.r.t. customers, clients, competitors and collaborators
- Communicate, communicate, communicate
  - What is the intent, and why? Stakeholder participation

Moving rank 2

- Empower and reward the Researchers
  - Teaching loads; performance awards
- Generate short term wins
  - Support for PhDs and Post-doctoral fellows (financial and cultural)
  - Support niche areas with facilities
- Consolidate and promote further gains
  - Ensure consistent and joined up U J policies
- Strengthen research culture
  - Celebrate research achievements
  - Highlight research on the web site

'A confluence of possibilities'

- Council Research Prize – social responsibility
- Vice Chancellor's Research Prize – competitive research
- Status of the DoE publication award
- Link promotion to excellence in research, teaching and community service (weighted?)