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Turkey

a Global Attraction Centre for Research

Prof. Dr. Nüket YETİŞ, President

April 27, 2009, Istanbul

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“A Global Attraction Centre for Research “

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Outline

- TÜBİTAK
- The 2004 National Science and Technology Initiative of Turkey
- Recent developments
  - R&D expenditures
  - FTE researchers
  - Scientific publications
  - Patent applications
- Enablers
- Triggering mechanisms
- Future policy directions

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The Turkish Scientific & Tecnological Research Council

- is the leading agency, established in 1963,
- Annual budget around 850 milyon $
- Number of employees around 3000
- Researchers 70%

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- **is the leading agency, established in 1963,**
- **responsible for promoting, funding, conducting and coordinating research**
- **an autonomous institution, governed by the Scientific Board, reporting to the Prime Minister**
- **acts as an advisory agency to the Turkish Government on science and technology policy,**
- **is the secretariat of the Supreme Council for Science and Technology, the highest S&T policy making body**

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The 2004 National Science and Technology Initiative of Turkey

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Facts on Turkish Research Area Before 2004

- **Low level of public investment in R&D**
- **Low number of R&D personnel**
- **Lack of strategy,**
- **Low societal and political support**
- **Lack of demand for R&D**
- **Unbalanced distribution of R&D performance**

Sector	2002 (%)
Academia	64
Industry	29
Public Institutions	9

No way to be competitive!

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Rationale Behind the 2004 Initiative

Why invest in science & technology?

- If we don’t invest in science
  - –We are already investing in science of the others,
  - –We are losing our competitiveness,
  - –Then quality of our life is diminishing.

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What is National Competitiveness?*

“The degree of which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term."

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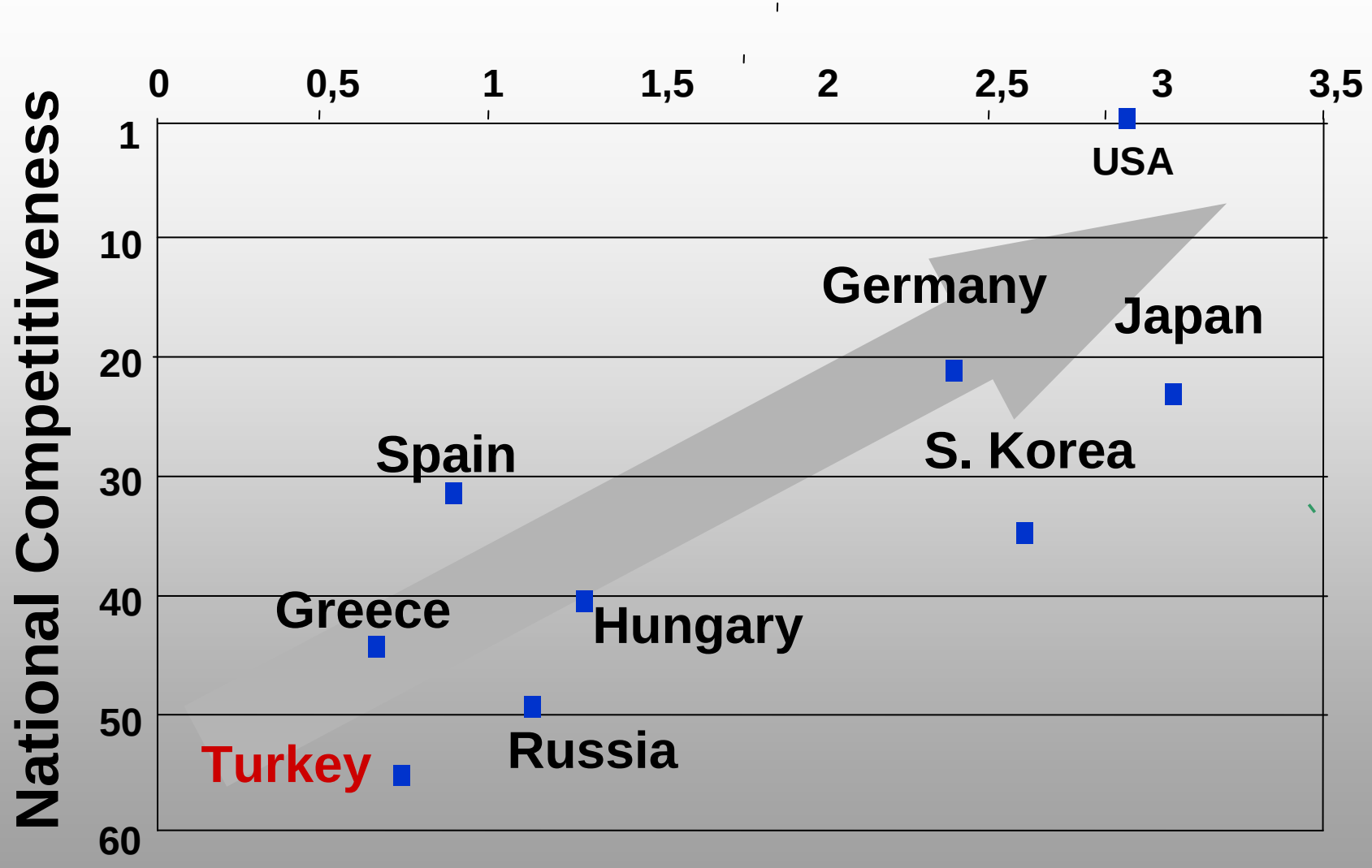
*OECD

R&D Expenditures/GDP (%) in 2004



* 2004, IMD, Competitiveness Year Book
* OECD, Main Science and Technology Indicators

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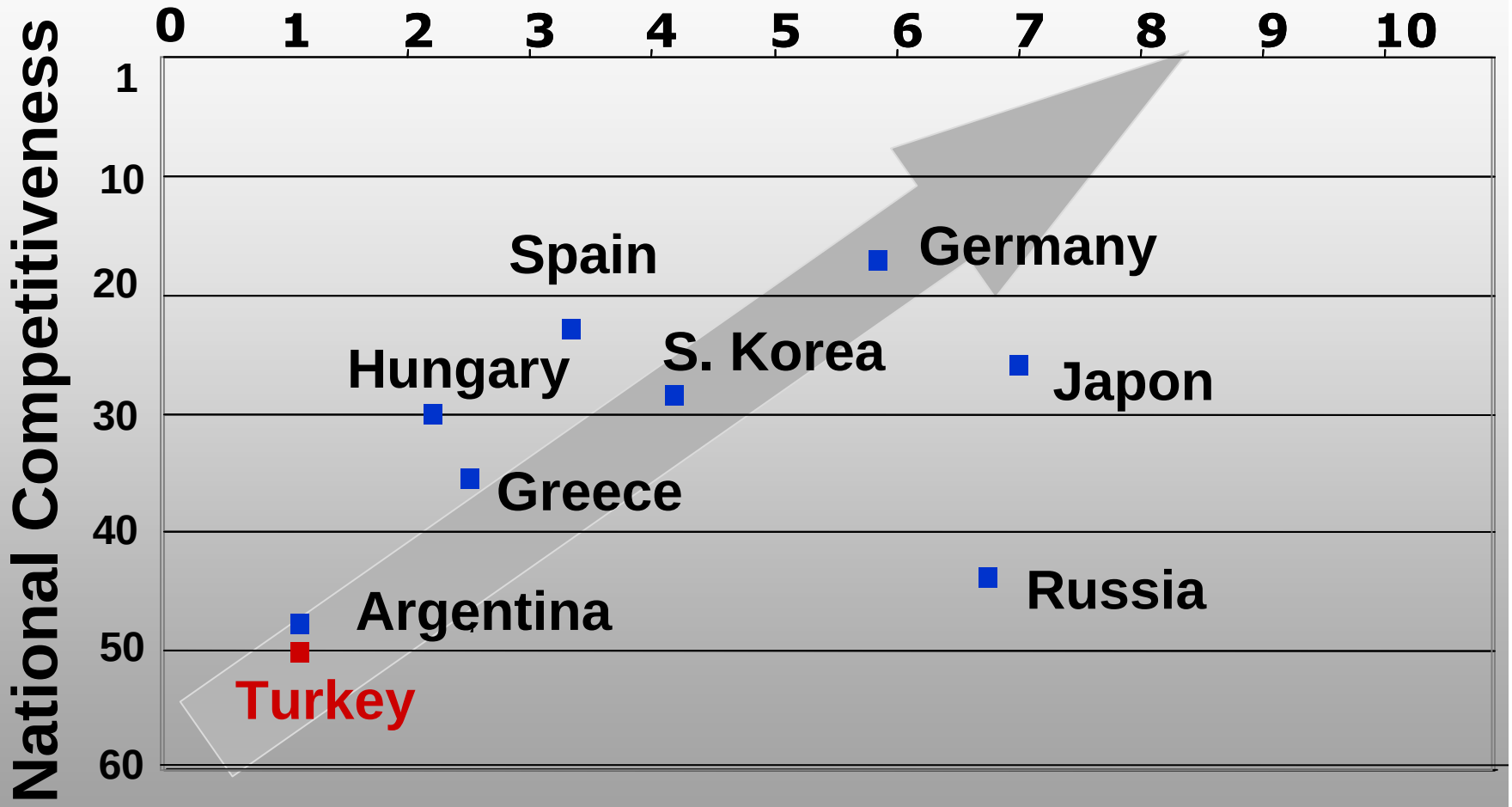
FTE Scientists/1000 workers in 2004



* 2004, IMD, Competitiveness Year Book

* OECD, Main Science and Technology Indicators

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Impact of technology to the development of the countries during the last 50 years

- **USA** **50 %**
- **France** **76 %**
- **Germany** **78 %**
- **UK** **73 %**
- **Japan** **55 %**

G.R. Mitchell, “The Global Context for U.S. Technology Policy”, 1997

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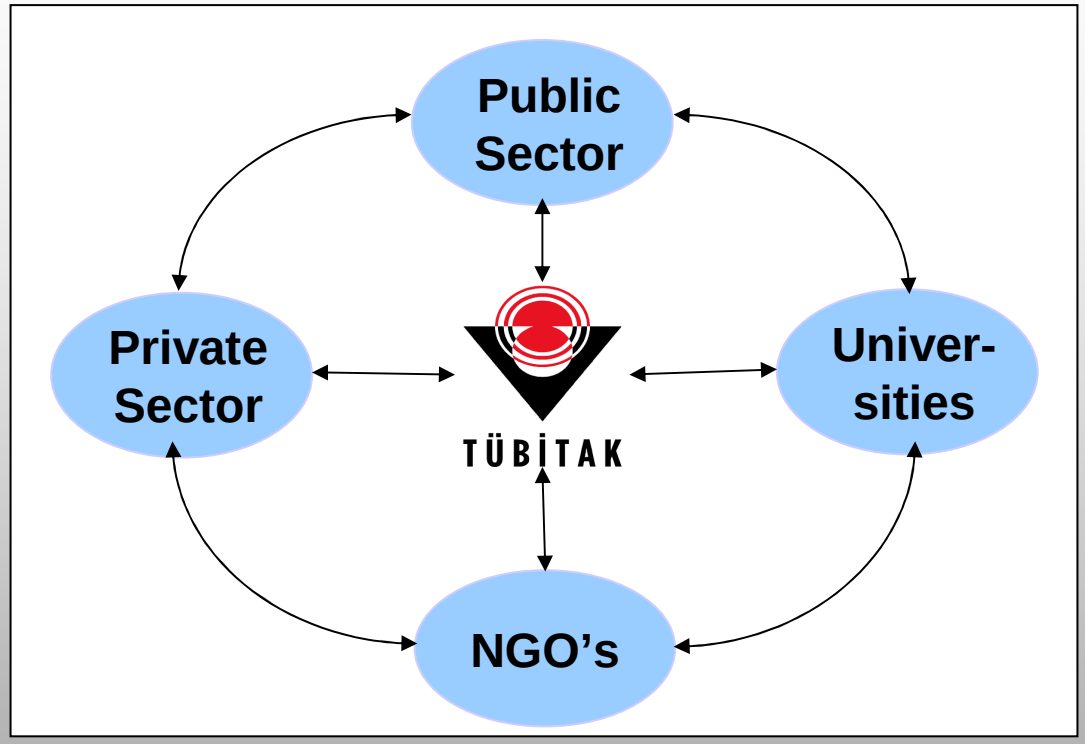
Mission of the National ST Initiative

Turkish Research Area



- To increase the quality of life in Turkey
- To find solutions to the problems
- To increase the Competitiveness of the country
- To increase the scientific literacy in the society

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Strategic Objectives

- **To increase the share of R&D expenditures in GDP**
- **To improve the absorption capacity**
- **To increase the demand for R&D**

* Supreme Council for Science and Technology, 10. Meeting (Decree 2004/1-3c)c

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Strategies

- To improve the R&D and innovation capacity
  - R&D personnel
  - R&D infrastructure
- To promote the technological and innovative activities of the private sector
- To establish precompetitive R&D and innovation aided Public procurement system
- To improve the national and international R&D collaborations
- To promote the science communication in the society and increase the scientific literacy

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Achivements...

- Strategic approach
- Greater financial resources
- International standards and norms
  - Frascati, Oslo ve Canberra
- New programs and mechanisms
- Restructured evaluation and selection system
- Performance monitoring and assessment
- Enhanced administrative and legal infrastructure
- National and international collaboration

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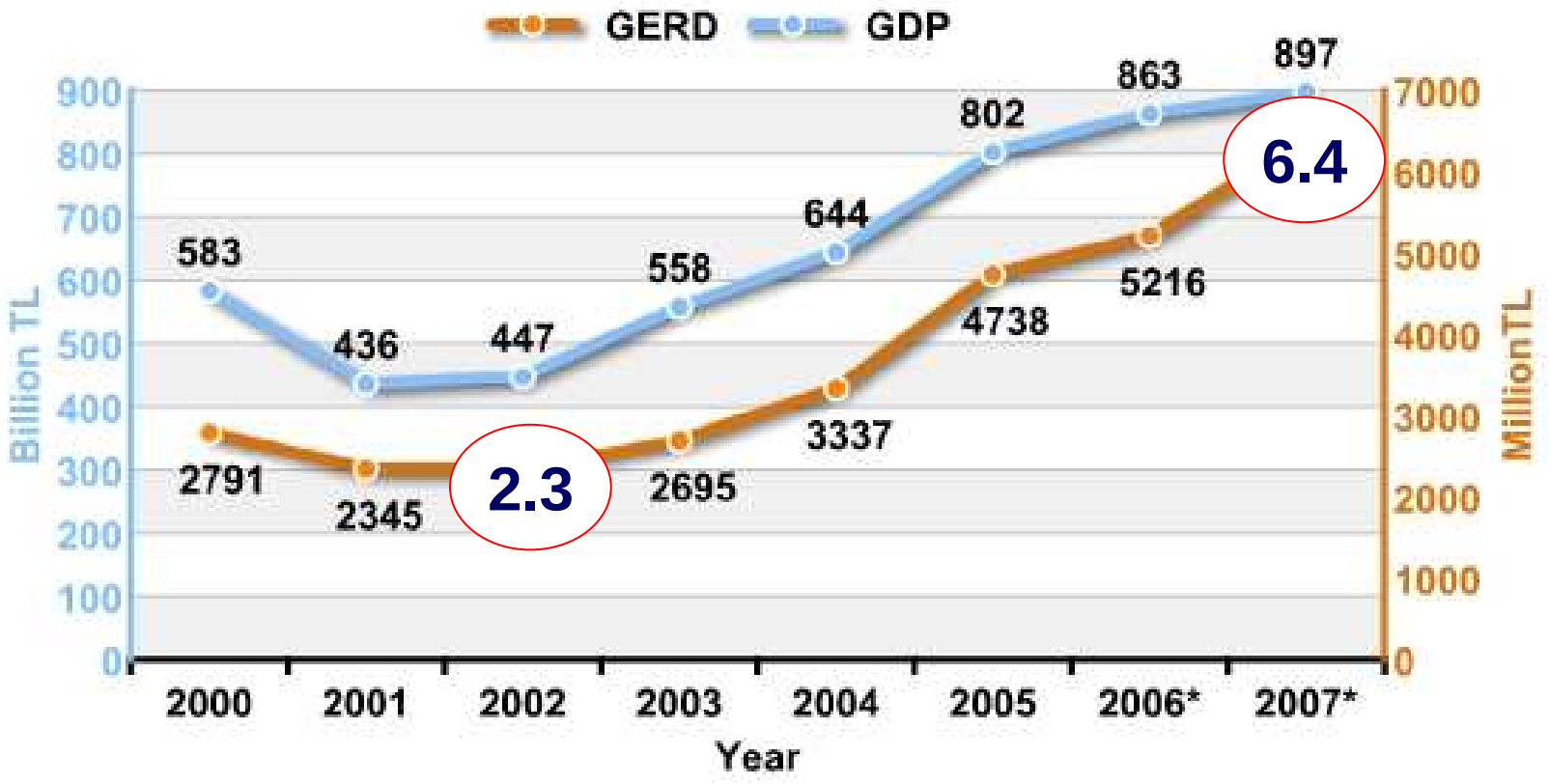
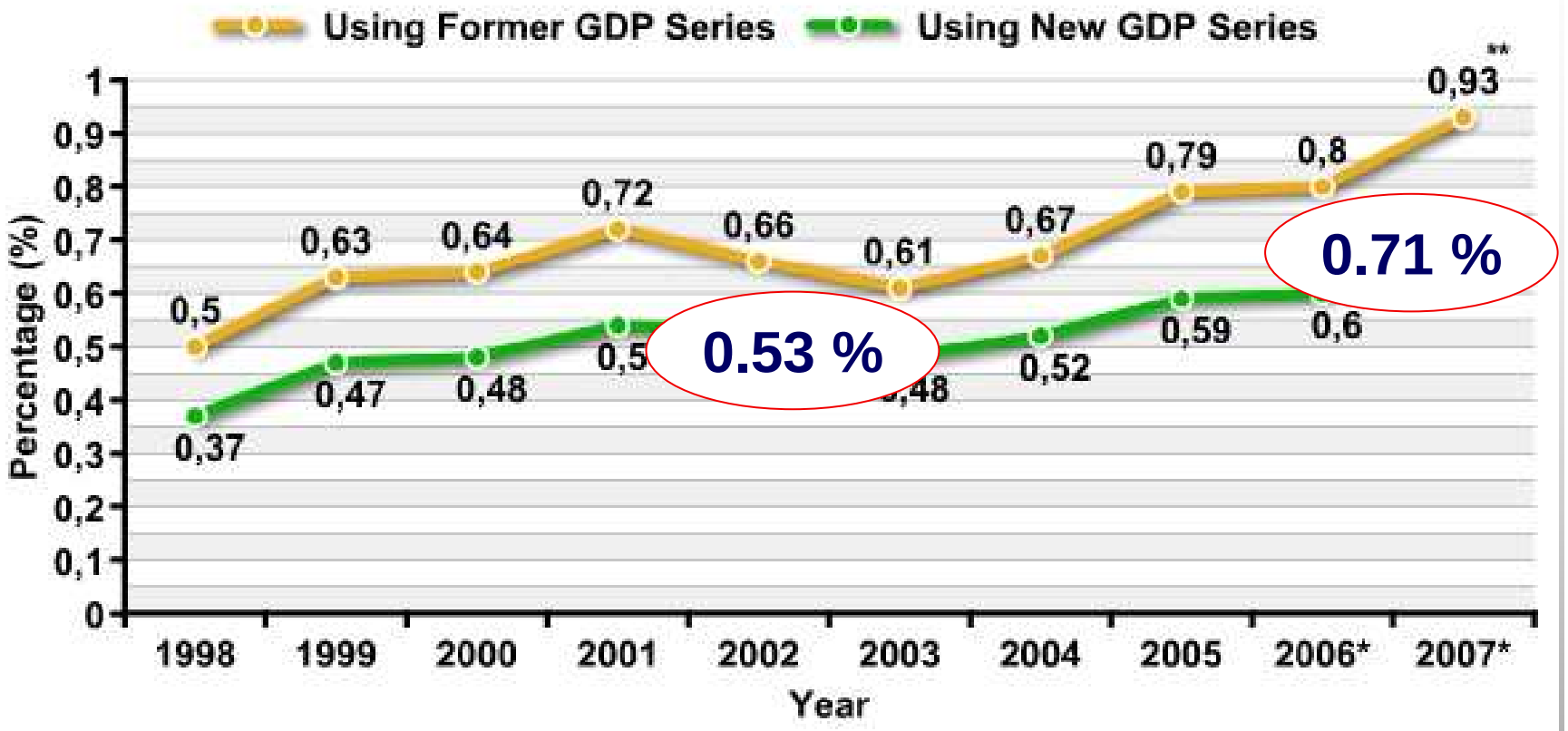
R&D Expenditures*



Increased to 2.7 fold during 2002-2007

* 2008 constant prices, Source: TURKSTAT and State Planning Organisation

GERD as % of GDP



2006, EU-27: 1.84 %

TR Target 2% by 2013

* Revision in the methodology.
**Estimation by TUBITAK. Source: TURKSTAT and EUROSTAT

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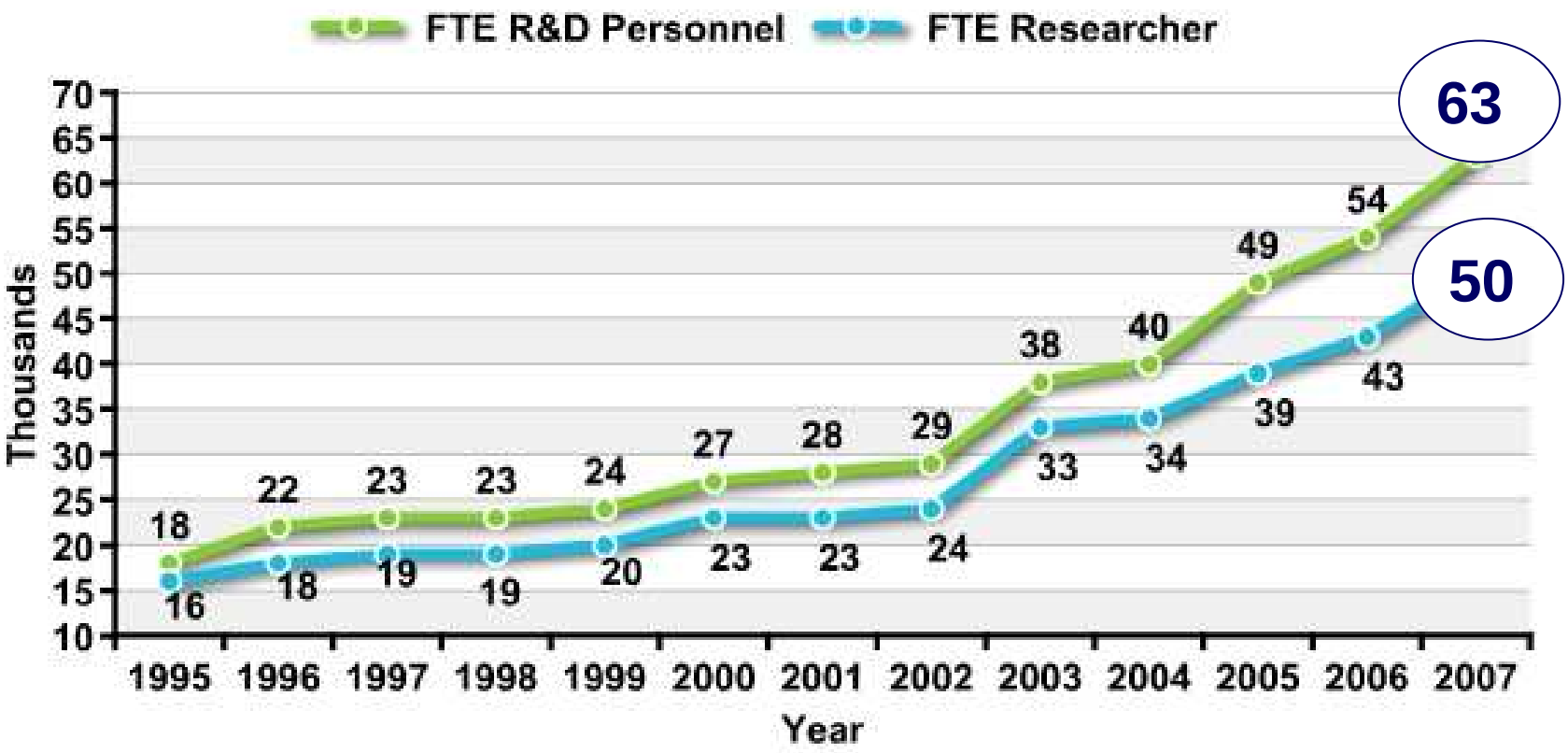
FTE R&D Personnel

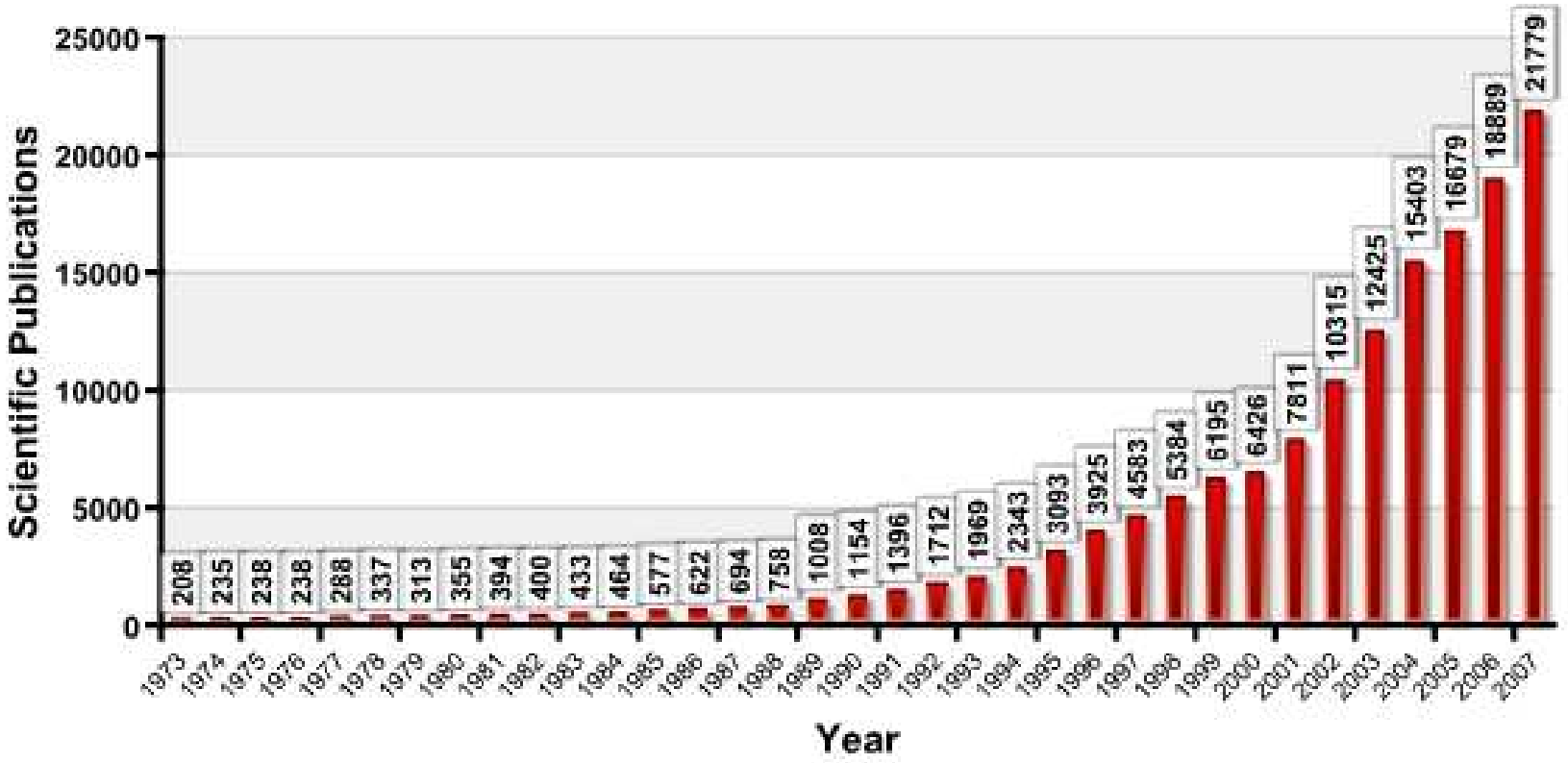


Increased to 2.2 fold during 2002-2007

TR Target 150 000 by 2013

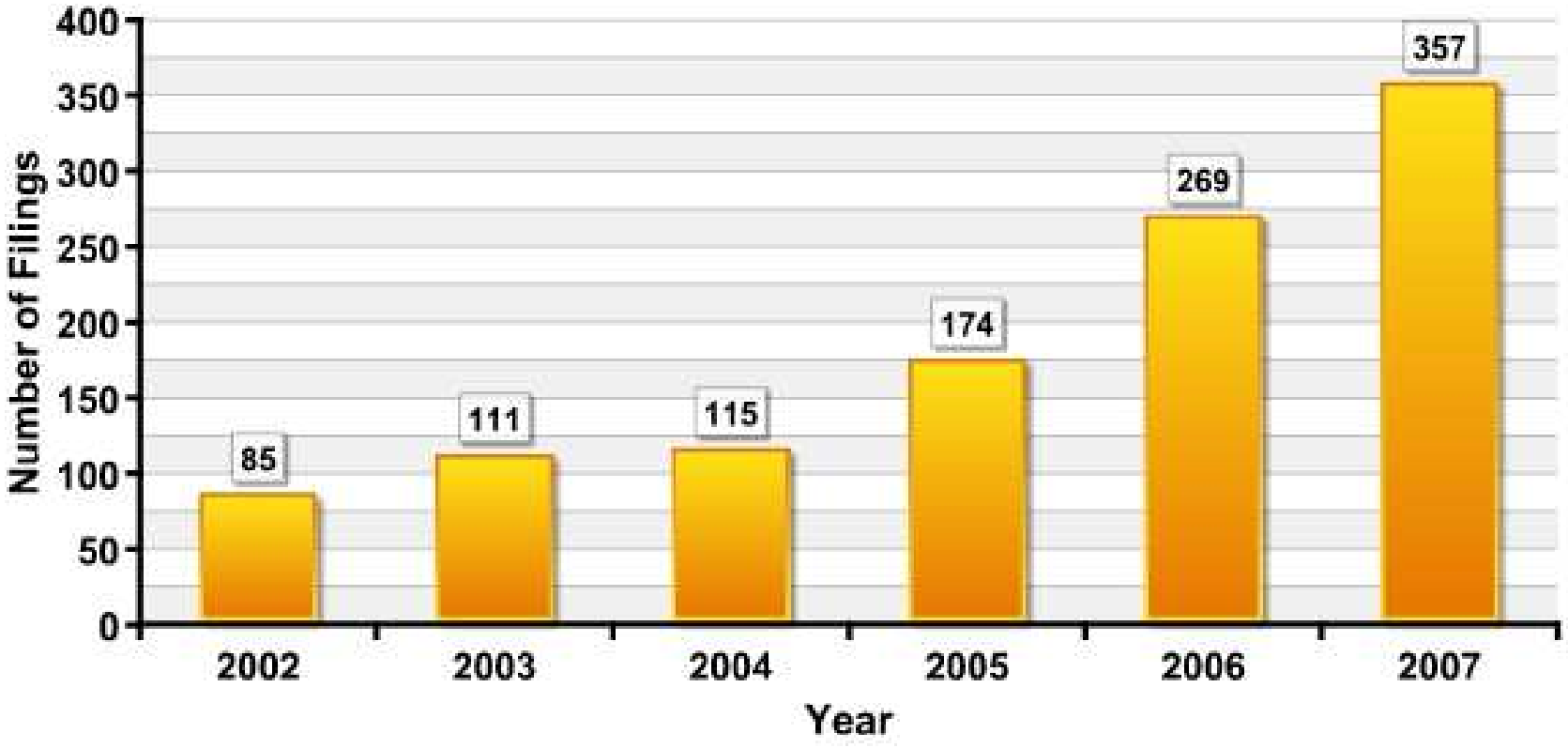
Source: TURKSTAT

Scientific Publications from Turkey



Source: ISI

PCT Applications From Turkey



Moreover, domestic patent filings and grants increased to 4.4 fold during 2002-2007

Source: Turkish Patent Institute and WIPO

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From 2002 to 2007 Turkey outpaced

- 2 countries regarding GERD (Finland, Denmark)
- 6 countries regarding FTE R&D Personnel (Finland, Denmark, Belgium, Austria, Greece, Romania)
- 5 countries regarding FTE Researchers (Finland, Denmark, Belgium, Austria, The Netherlands)
- 4 countries regarding Scientific Publications (Belgium, Poland, Taiwan, Israel)

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2002-2007 Increase (%)

Indicator	EU-27	Turkey
GDP*	24	63
GERD*	24	121
R&D Personnel**	8	119
Researcher**	15	107
Scientific Publications	32	111

Source: EUROSTAT and TURKSTAT
* PPS ** FTE

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Triggering Mechanisms

- Industrial R&D and innovation grants
- R&D tax incentives
- R&D and Innovation-Based Public Supply

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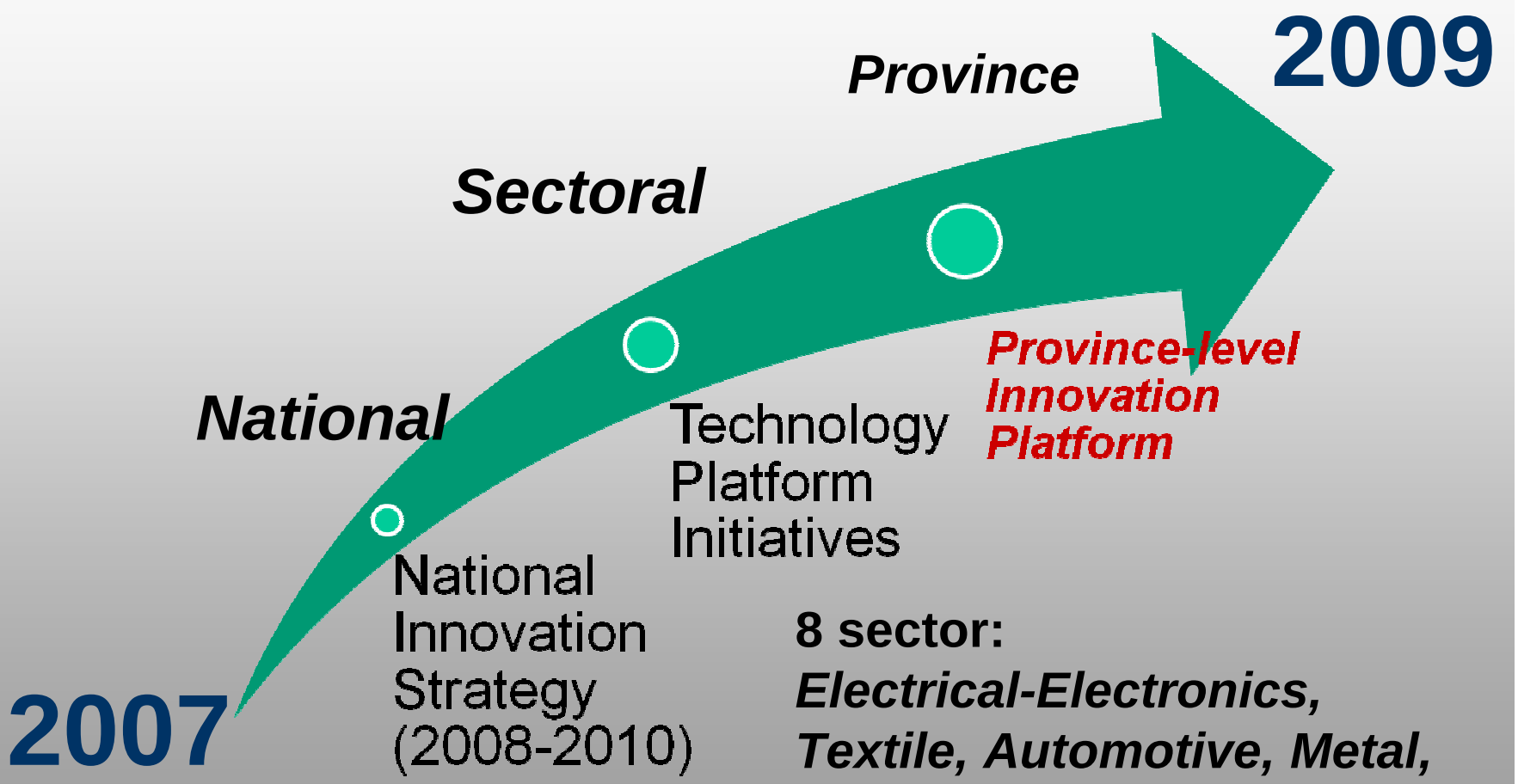
National Innovation Policy



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New Tax Incentives for R&D

- **100 % Tax allowance,**
- **100 % depreciation of R&D expenditures within 5 years**
- **Additional tax allowance for the centers that have more than 500 R&D personnel**
- **Exemptions in income tax for R&D personnel**
  - **90% for PhD holders, 80% otherwise**
- **The grant received from public or international R&D funds is exempt from income tax.**

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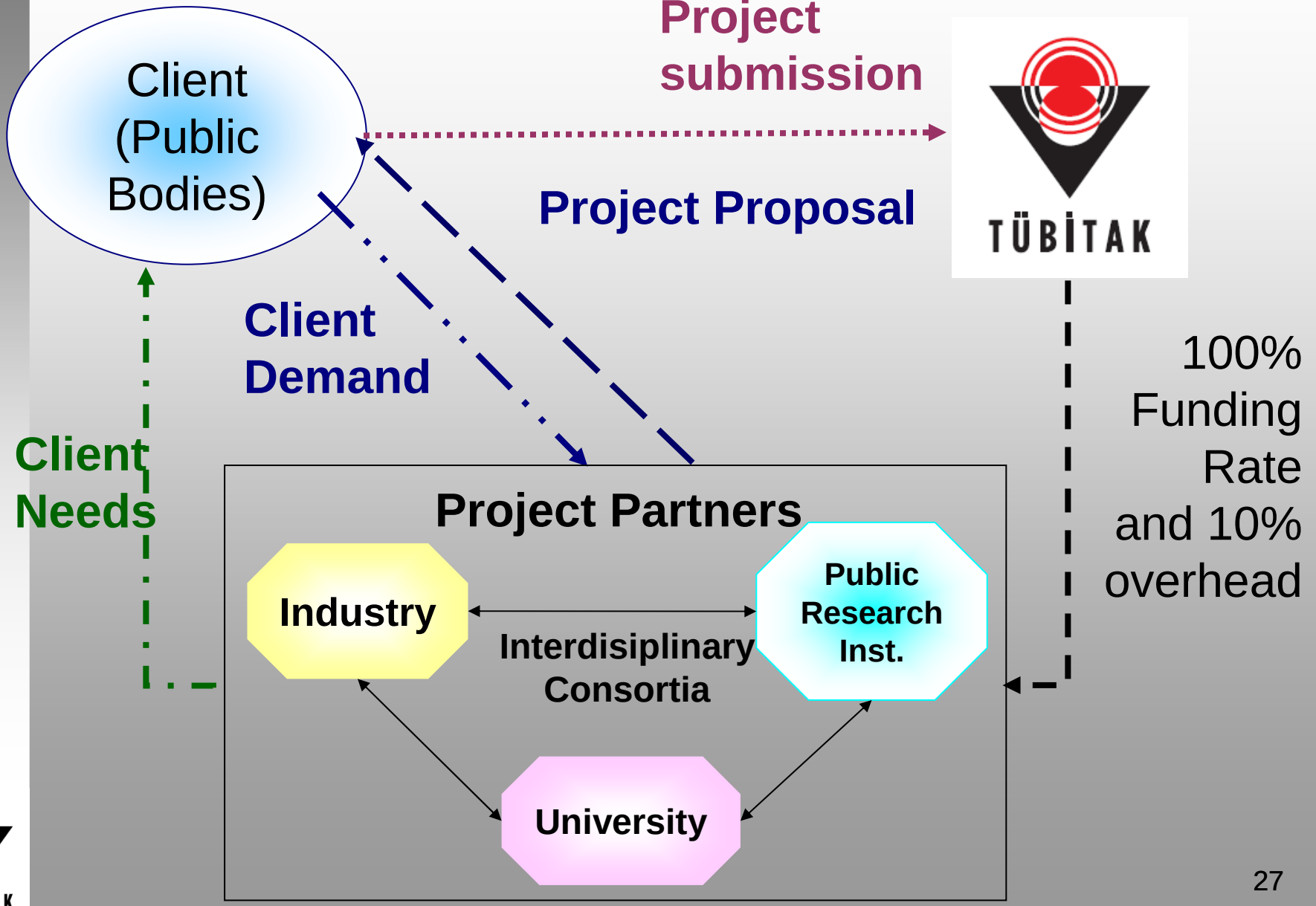
Precompetitive R&D Aided Public Procurement



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Political Support and Strategic Approach

- SCST, chaired by the Prime Minister, started to convene **regularly**
- National Science, Technology and Innovation **Policy and Strategy**
- 2005-10 **Implementation Plan**
- **Concrete Targets** (2013)
  - **GERD: 2% of GDP**
  - **FTE R&D Personel: 150.000**

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Political Support and Strategic Approach

- Devoting **financial resources** to this area
- Developing the necessary climate
  - Governance and legal infrastructure
- Areas under the **Prime Minister's Initiative**
  - **Developing Science and Technology Human Resources**
  - **Defense Research Program**
  - **Aerospace Research Program**
  - **Science and the Society Program**

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International Cooperation

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International Cooperation

1. Bilateral Cooperation

There are bilateral cooperation agreements with a variety of countries at the intergovearnmentl or inter-institutional levels

BELARUS, BULGARIA, CHINA, FRANCE, GERMANY, GREECE, INDIA, ITALY, HUNGARY, MACEDONIA, MONGOLIA, PAKISTAN, ROMANIA, RUSSIAN FEDERATION, SLOVAKIA, SLOVENIA, SOUTH KOREA, TUNISIA, UKRAINE, USA...

2. Cooperation with the International/Regional Organizations

Turkey is actively participating in the activities of a variety of European research programmes such as

EU Framework Programmes, COST (European Cooperation in the field of Scientific and Technical Research), ESA (European Space Agency), ESF (European Science Foundation) and EMBC (European Molecular Biology Conference); regional organizations such as Black Sea Economic Cooperation and Economic Cooperation Organization and international organizations like NATO, OECD and UNESCO.

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7th Framework Programme and EUREKA

- Champions League of R&D
- For the years (2007-2008) Turkey gains 35 M€
- Rate of return, regarding national contribution %97 (%24 for 6th FP)

- Pan-European network for industrial R&D programme.
- There are 38 EUREKA member states.
- In Turkey TUBITAK is the management and funding body
  - In 2007, ranked 28th
  - In 2008, ranked 12th

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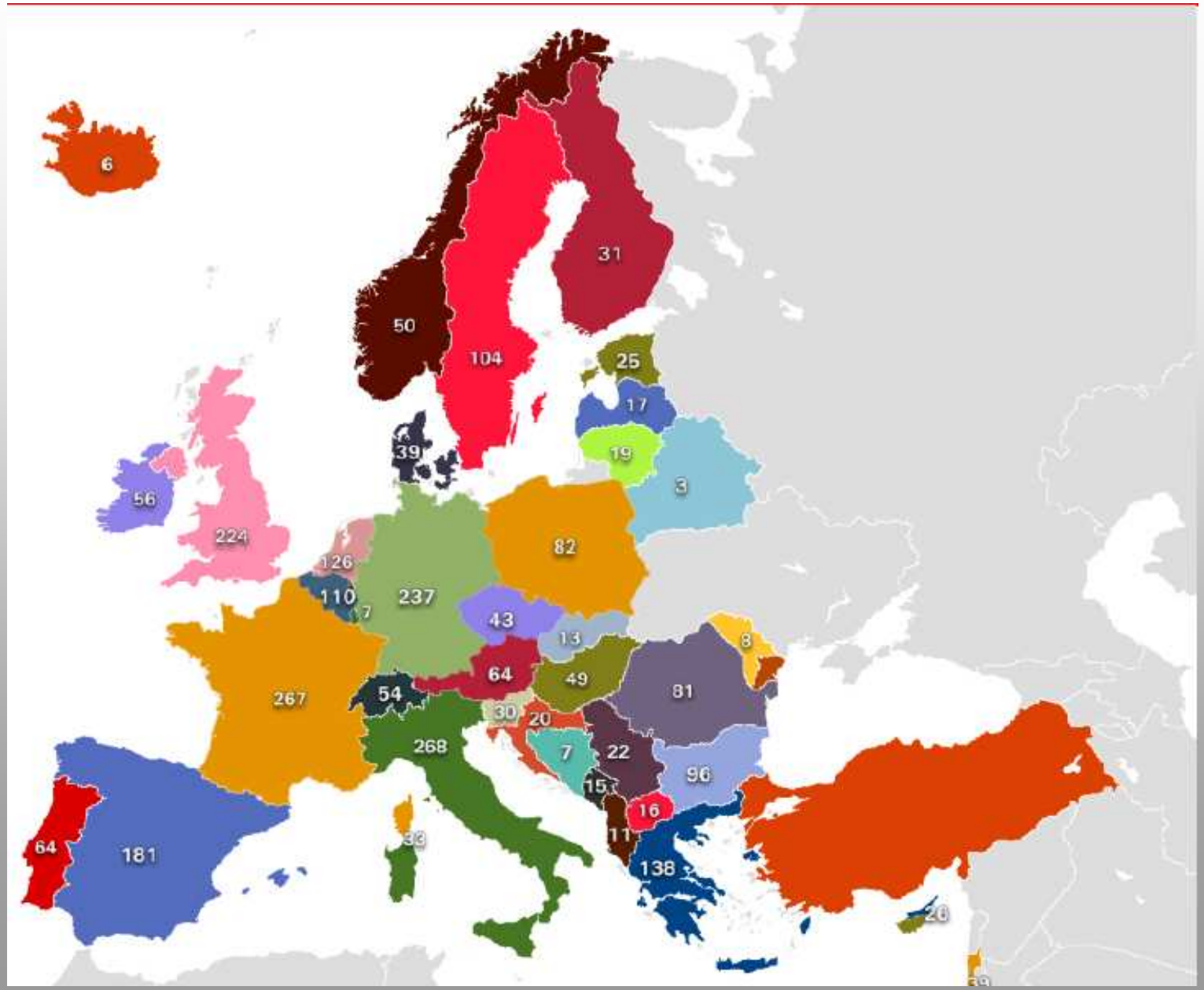
Cooperation Map of Turkey regarding 7th FP



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TURKEY 2008 PROGRESS REPORT*

Good progress has been achieved in the area of science and research. Overall, Turkey is well prepared in this chapter and is on track for integration into the European Research Area.

(*) Brussels, 5.11.2008

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Turkey's Potential for Further Progress

	Rank (Nominal)	Rank (Weighted*)
GDP	17	38
GERD	23	34
FTE R&D Personnel	18	34
FTE Researchers	18	36
Scientific Publications	18	44
Triadic Patent	28	31

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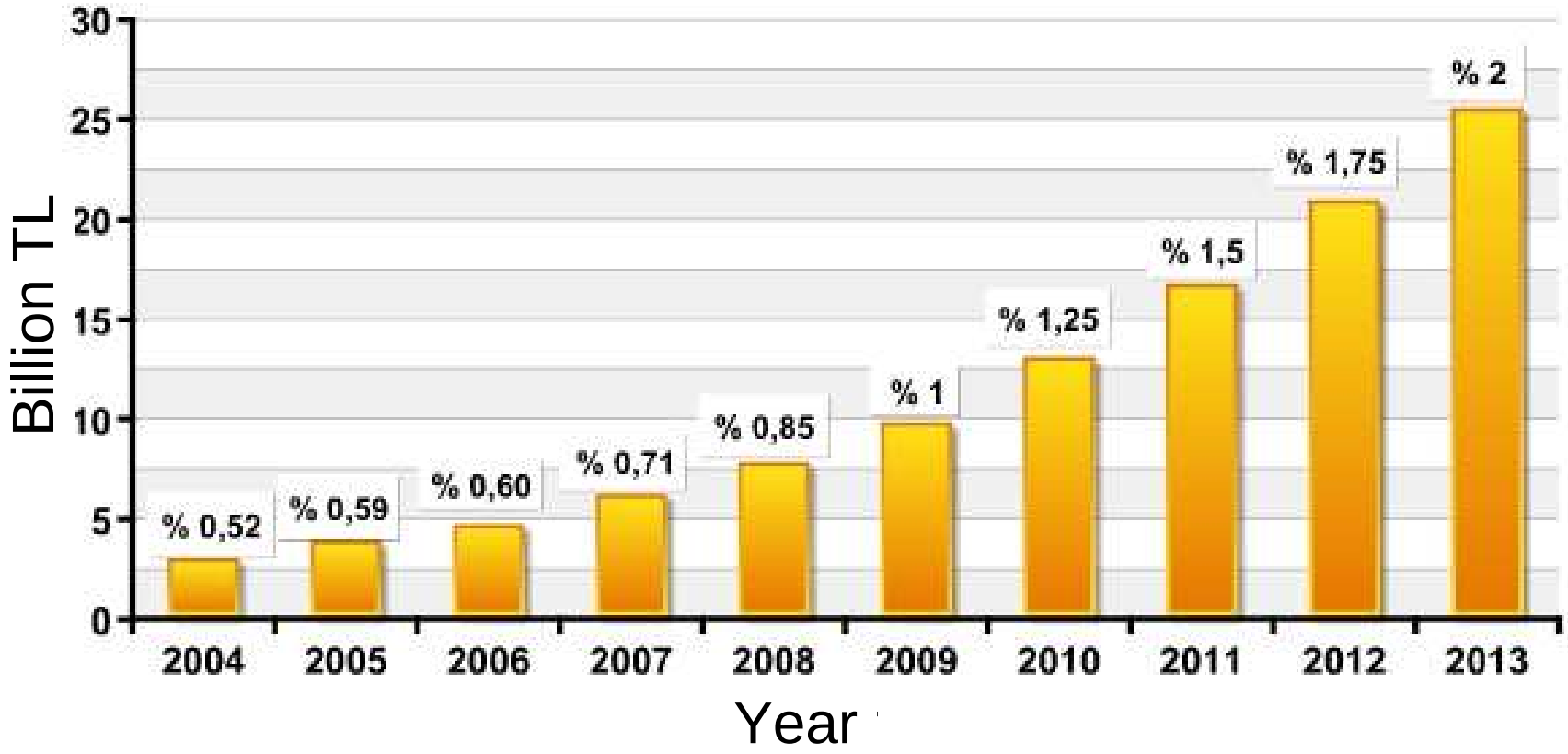
* Per capita for GERD and GDP, per million population for the rest

GERD Projection* (2 % Target)



25 Billion TL by 2013

*2008-2013 7 % increase of GDP

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Absorption Concerns?

Average Annual Growth (%) from 2000 to 2006

	GDP	GERD	Researchers (in FTE)
EU-27	4,0	3,8	2,8
TR	8,0	13,2	14,1

In Turkey:

demographics enable the personnel growth to fulfill targets on GERD.

Source: TURKSTAT and European Commission Key Figures Report 2008/2009

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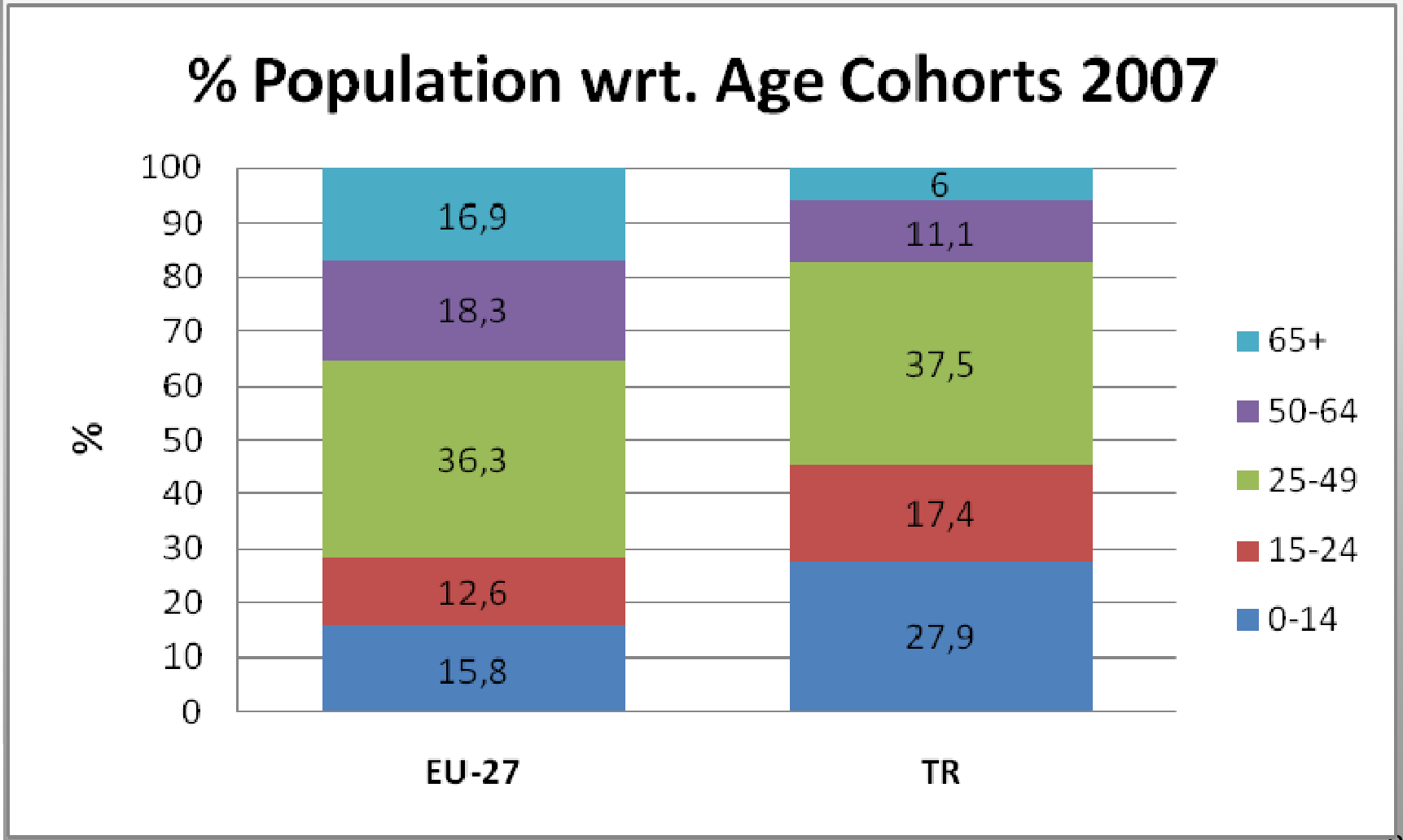
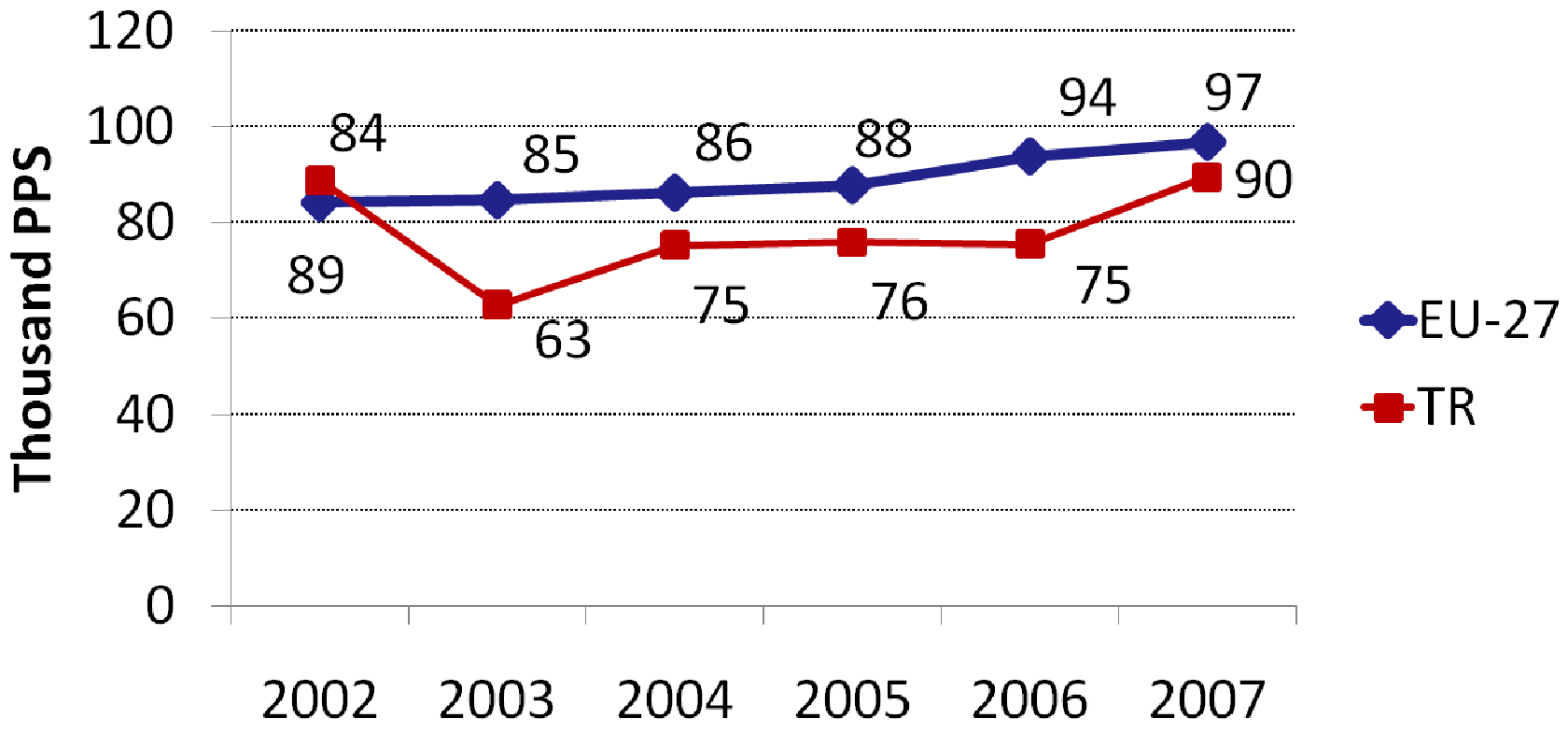
Sustainability in R&D Personnel Growth

Young population reinforces the increase in FTE Personnel



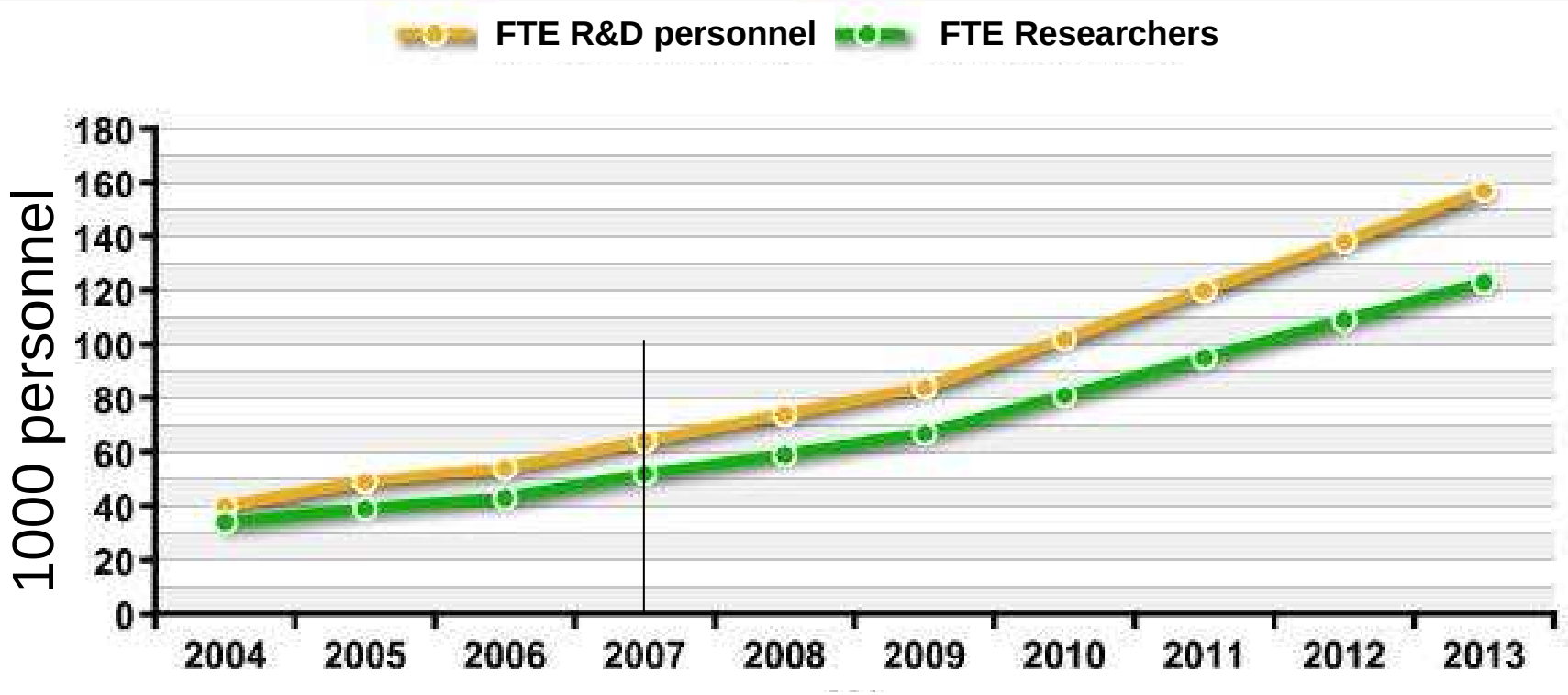
Source: EUROSTAT

GERD per FTE Personnel



Source: EUROSTAT and TURKSTAT

FTE R&D Personnel Projection



150 000 by 2013

Kaynak: TÜİK (2004-2007)

Future Directions

- Continuing investing in S&T
- Eliminating the barriers for the freedom of movement of researchers
- Establishing “Province level Innovation Platforms”
- Enhancing International R&D cooperations

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Conclusion

- Leap forward in RDI
  - Concrete evidence with indicators
- Political Commitment and Systemmatic Approach
- Policy Agendas
  - Public procurement for innovation
  - City-level innovation paltforms
- Complementing strengths
  - Demographic Advantages
  - Innovative Policy Tools

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“Let’s take the opportunity

to create a synergy

by complementing strengths”

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