



Evolution of Student Interest in Science and Technology Studies:

Quantitative analysis

Contributing factors

Possible policies

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The OECD Global Science Forum:

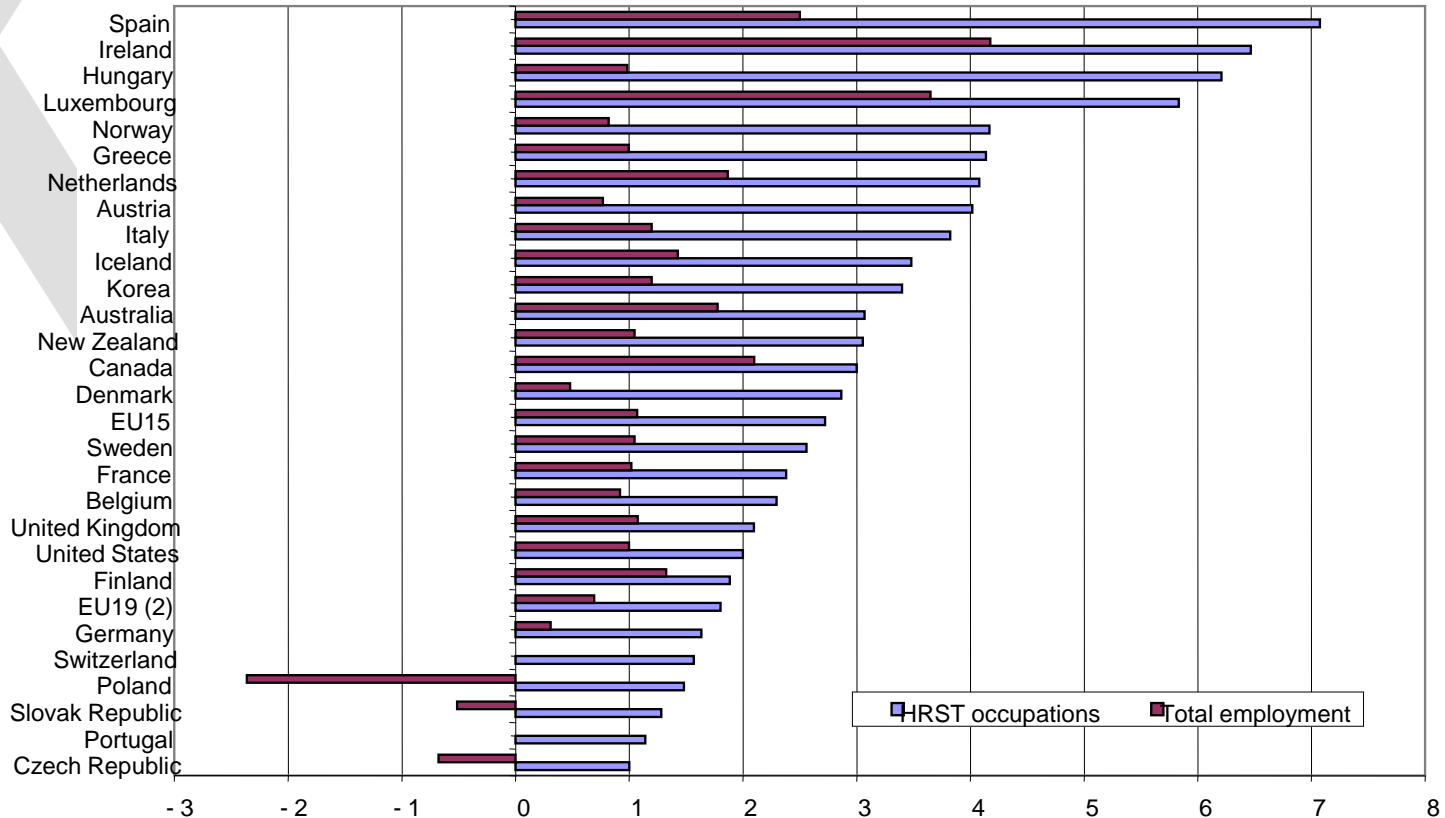
- A tool for **consultation** among high level Policy makers
- **Goal**: identify and maximise opportunities for international cooperation in scientific research by:
 - ***Exploring opportunities*** for new or enhanced international co-operation in selected scientific areas.
 - ***Defining international frameworks*** for vital national or regional science policy decisions.
 - ***Addressing the scientific dimensions*** of issues of global concern.



Three questions :

- **What are the trends and characteristics of student enrolment in S&T studies ?**
- **What are the factors contributing to student's choice ?**
- **What are the possible policies to increase enrolment in S&T studies ?**

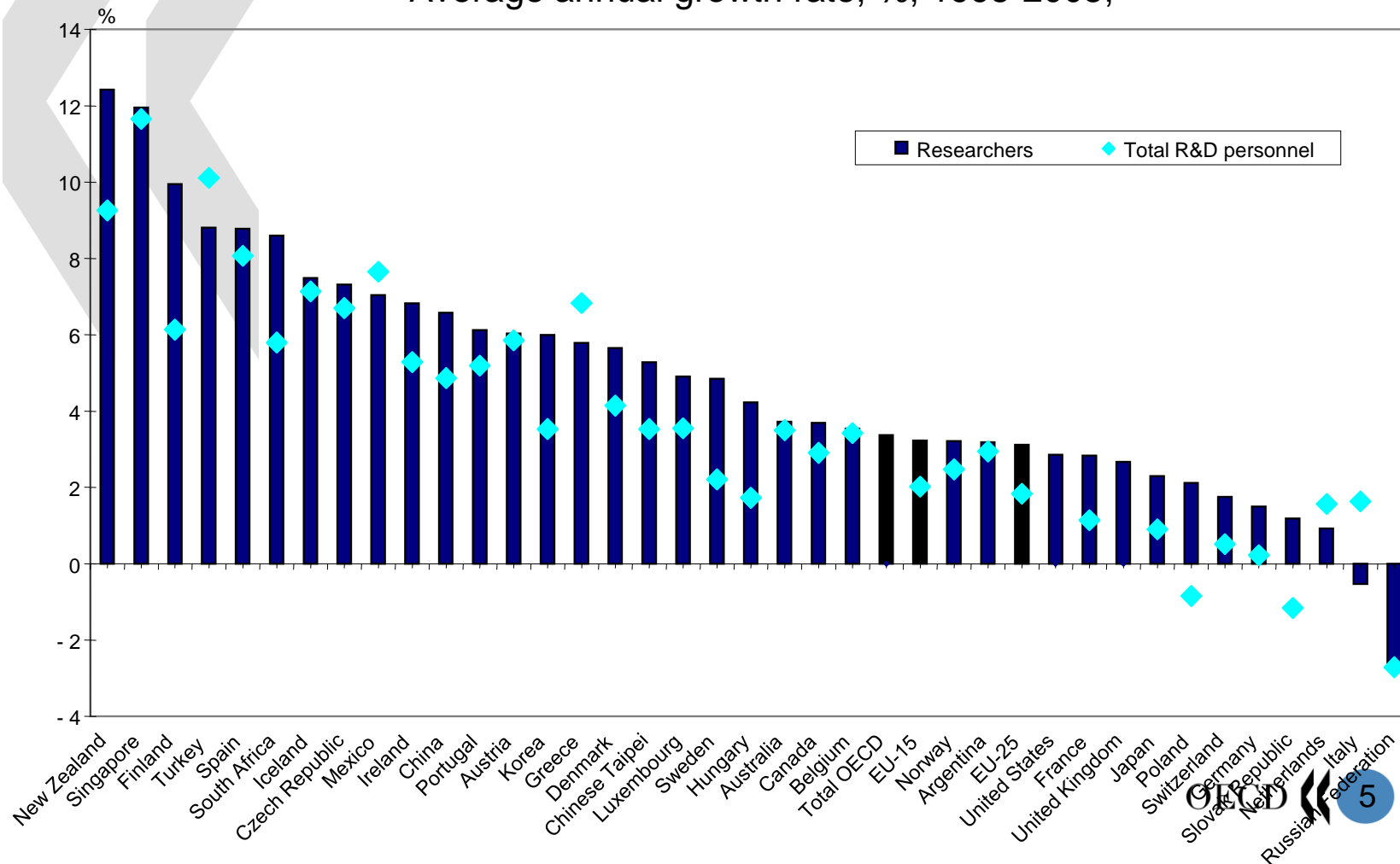
- **The demand for human resources in S&T is growing faster than employment**
- **Demand for human resources in S&T is expected to increase further**



General context:

Strong growth in R&D personnel in most countries

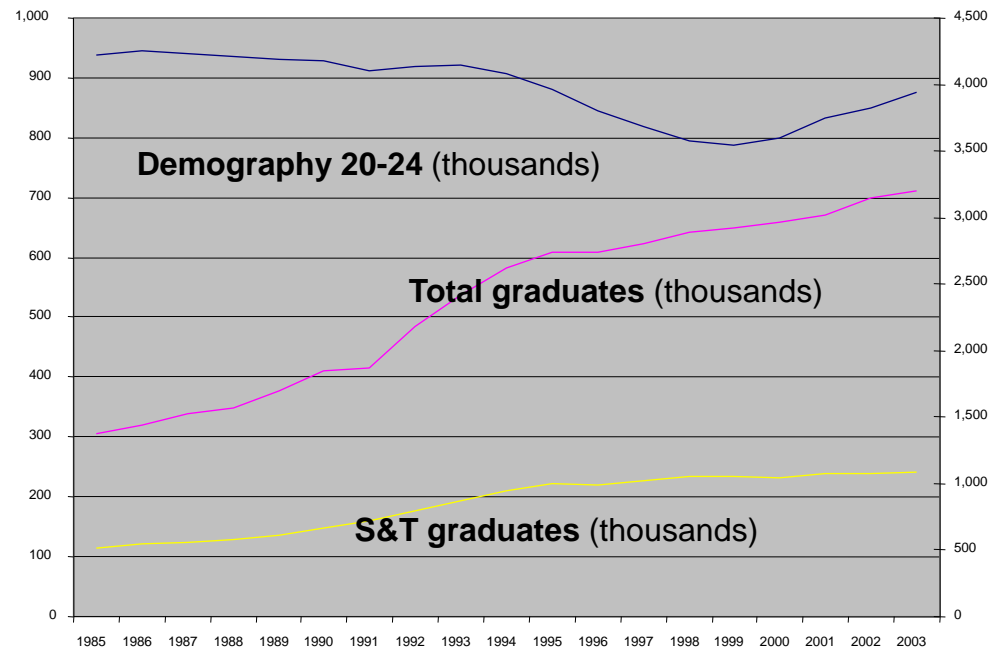
Average annual growth rate, %, 1995-2005,



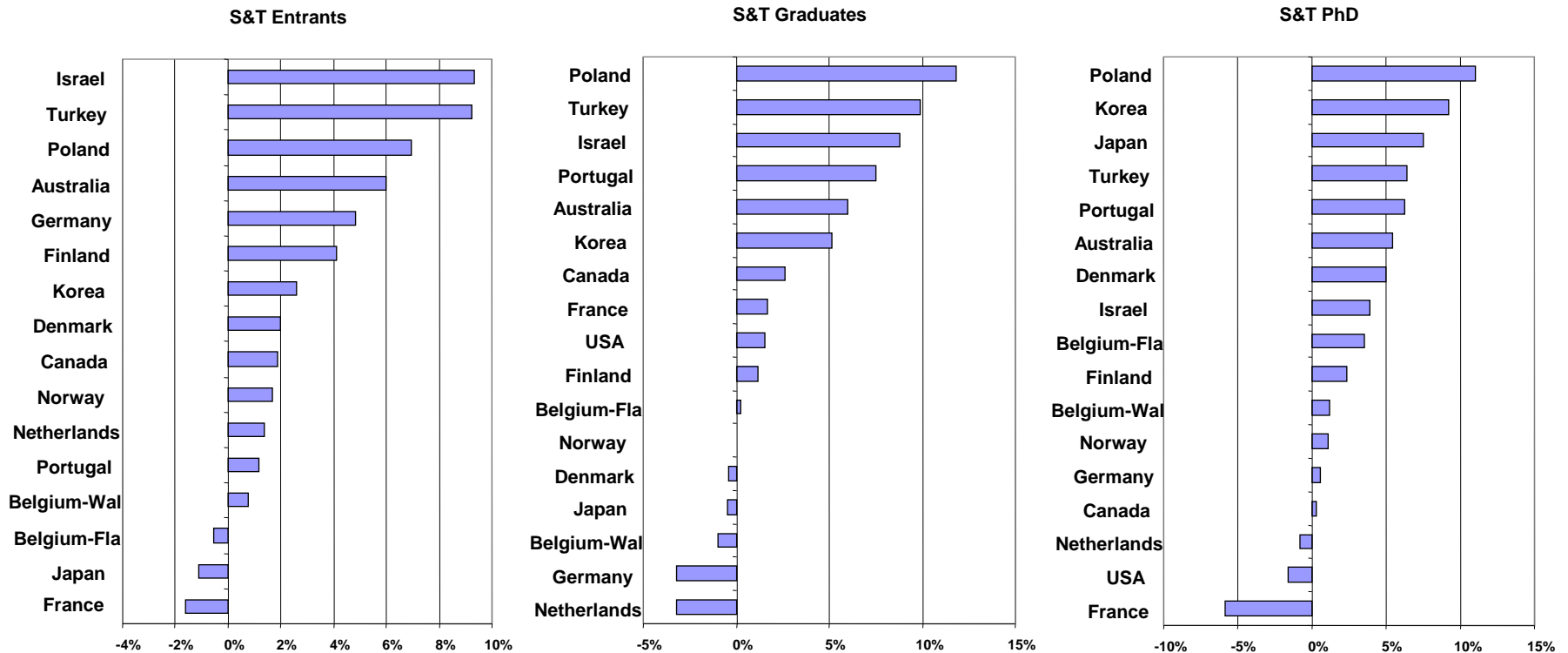
General context:

- **A demographic situation which is not favourable**
- **A growing enrolment rates in higher education**

Evolution of graduate students in France

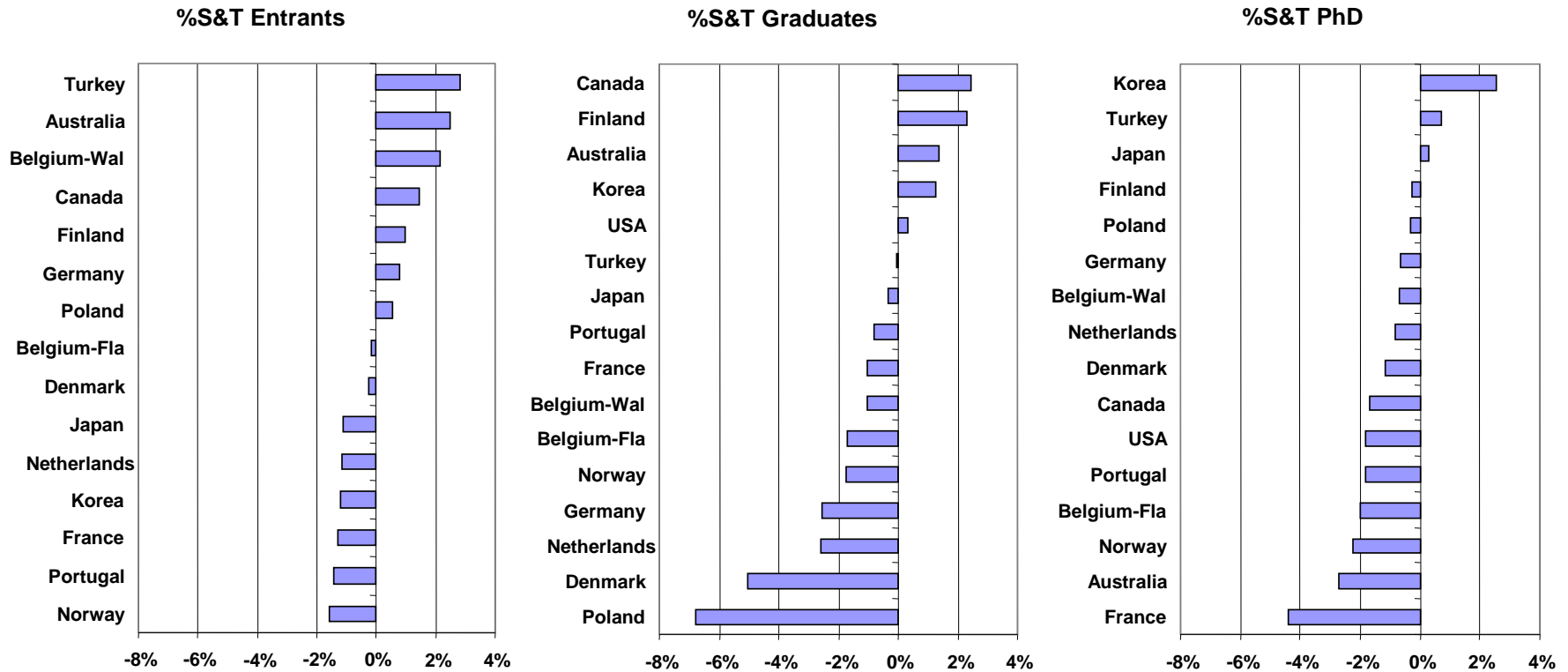


Absolute numbers of new entrants in tertiary education, graduates and new doctorates in S&T disciplines **have generally increased** over the period



Number of S&T students 1993-2003; average annual change

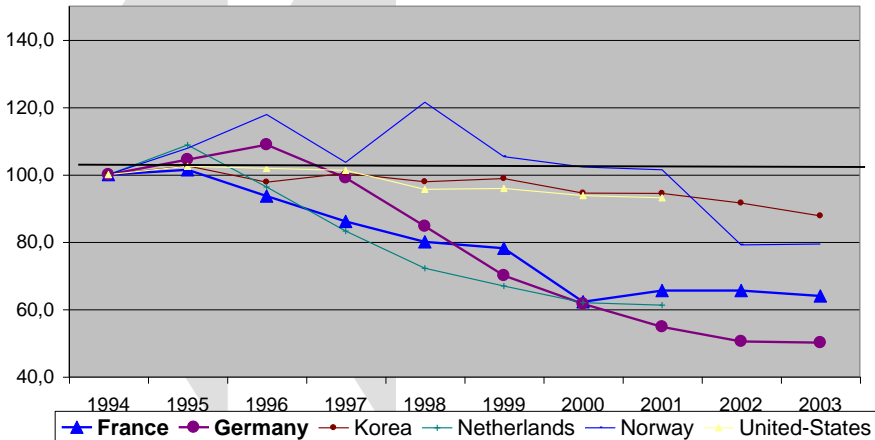
But,
Relative numbers of new entrants in tertiary education,
 graduates and new doctorates in S&T disciplines **are**
mostly decreasing



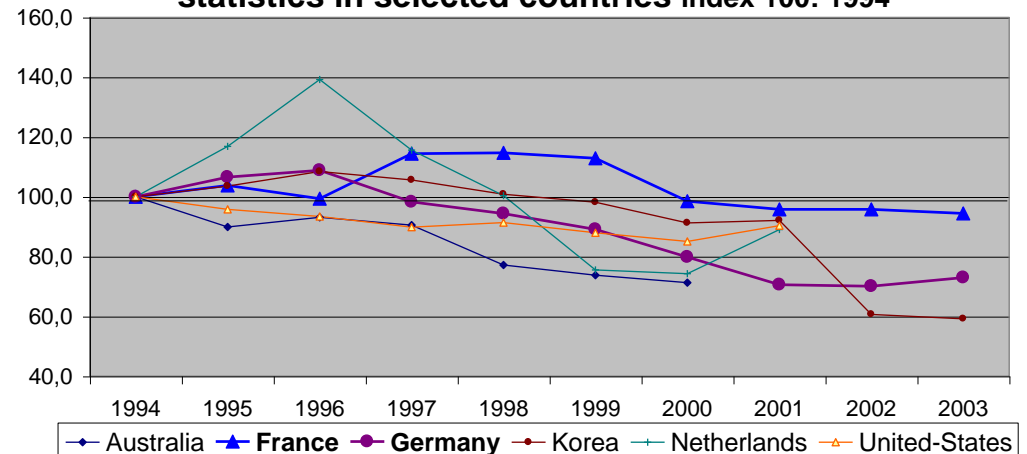
Percentage of S&T students 1993-2003; average annual change

**And,
Some disciplines are particularly affected**

Total number of physical science graduates in selected countries index 100: 1994



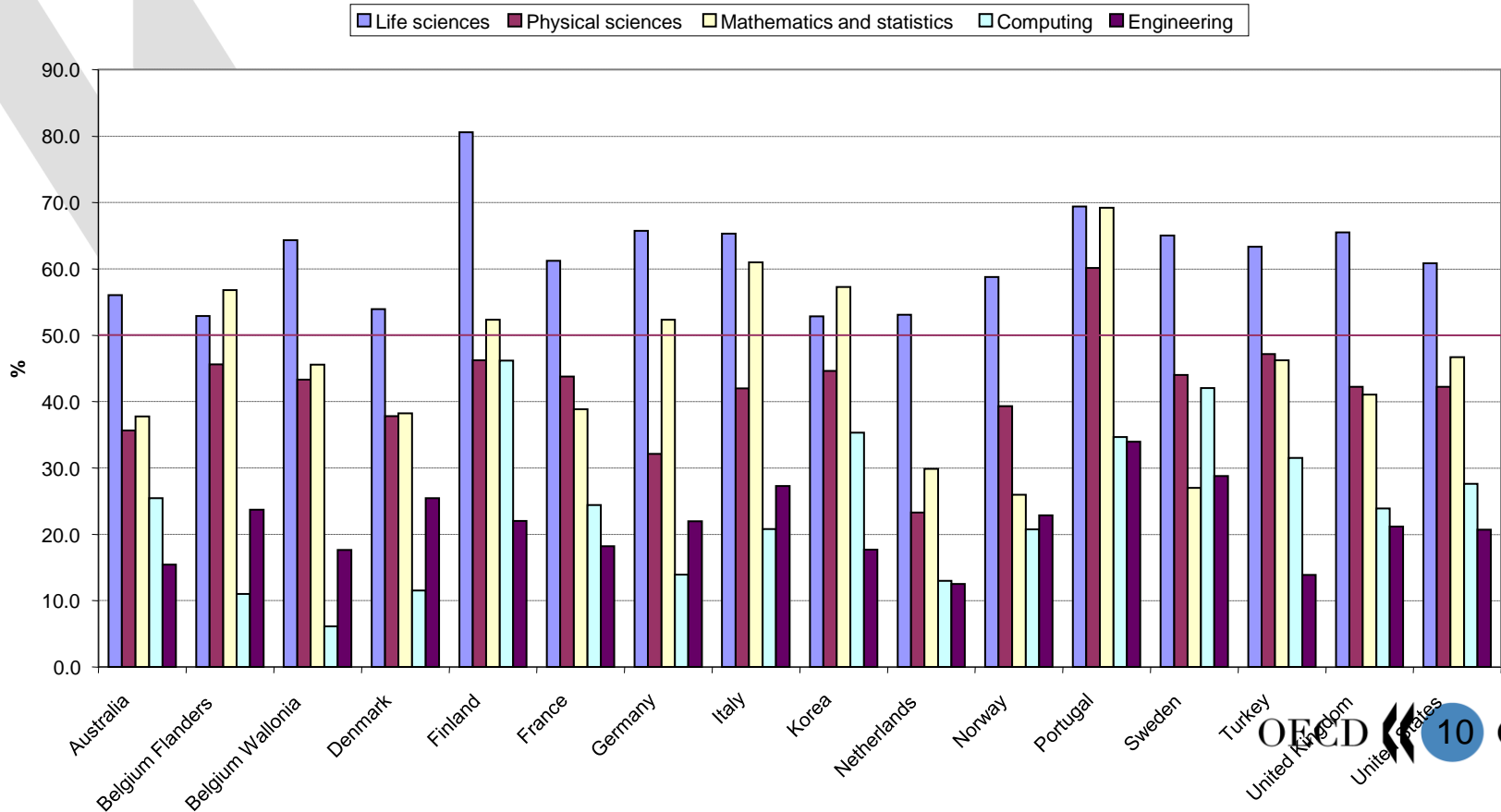
Total number of graduates in mathematics and statistics in selected countries index 100: 1994



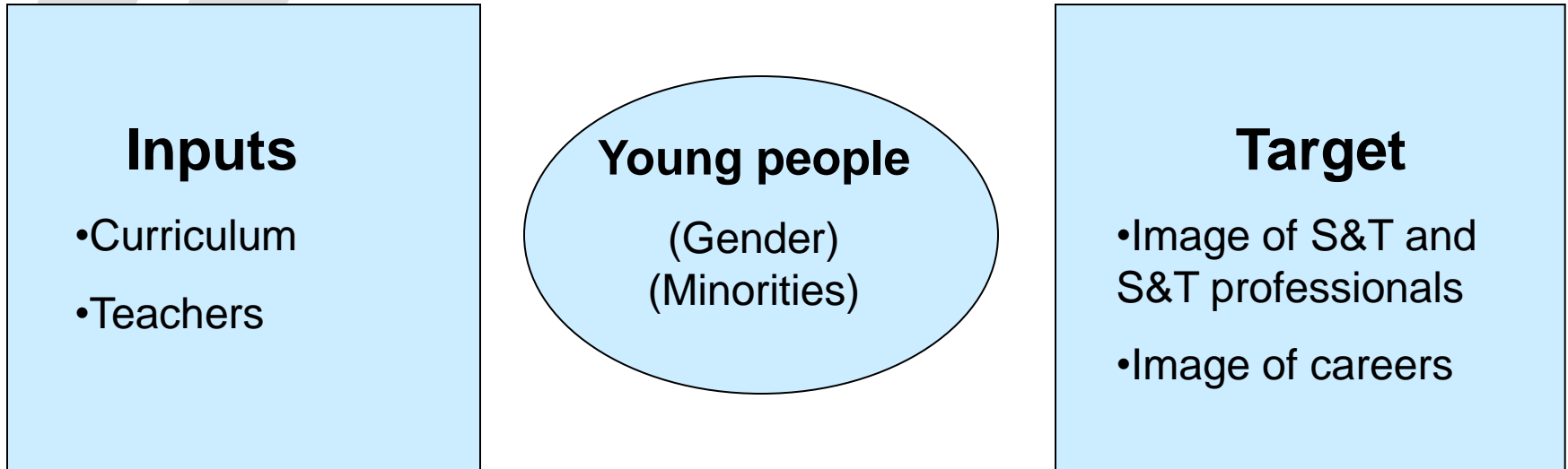
Female students:

- Their share in S&T studies is increasing but has not caught up yet that of men
- The choice of disciplines is highly gender-dependent

Percentage of female graduates by S&T discipline -- 2003 or latest year available



Contributing factors



The identified key factors

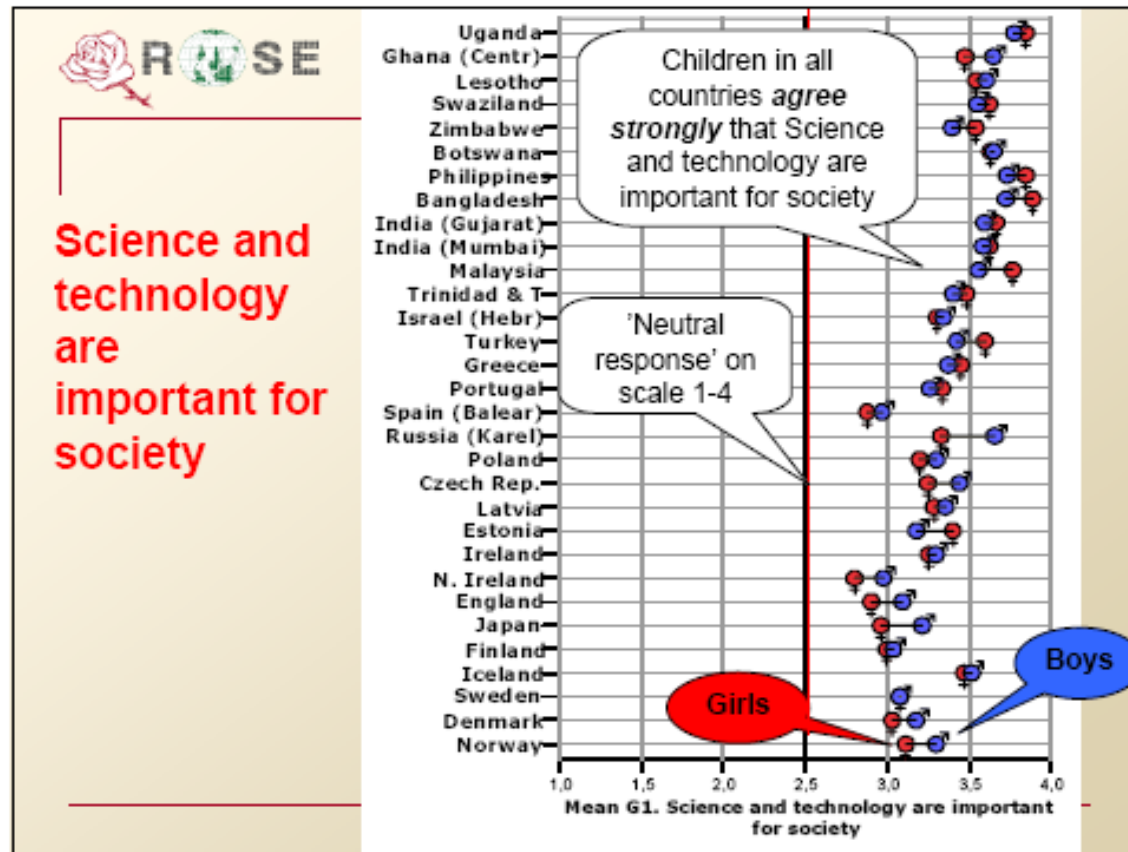


To study S&T

To become a scientist / engr

Relevance to subjects of interest Teaching methods	Career prospects Work conditions Lifestyle
Attainments Confidence	Role models External expectations

Perception of science and technology remains positive among young people



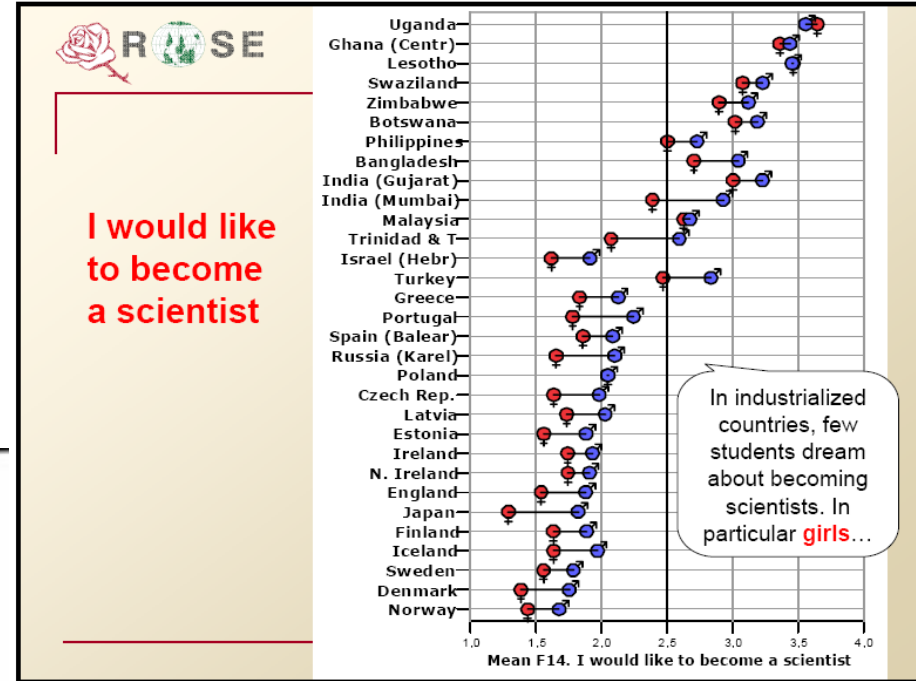
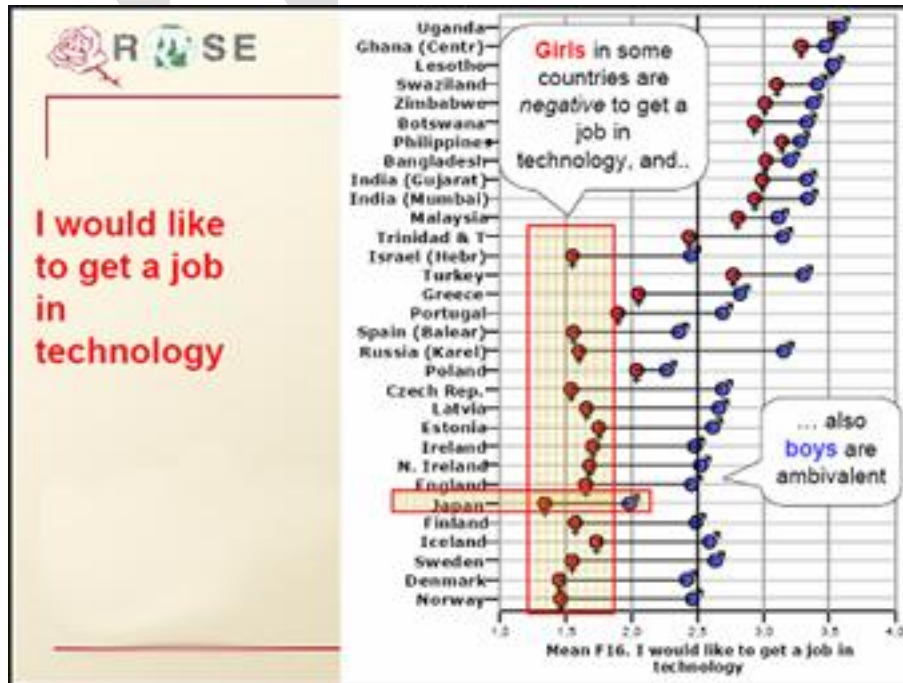
motivation to learn science

average percentage of students in OECD countries agreeing or strongly agreeing with the following:

But... S&T careers are not for them !

**Motivation to learn science
Strong/Top performers (%)
15y old**

I would like to work in a career involving science.	45.4 /60.8
I would like to study science after secondary school.	38.9 /56.0
I would like to spend my life doing advanced science.	24.4 /38.6
I would like to work on science projects as an adult.	31.4 /46.6



How and where to act ?

Actions on attitude towards S&T and basic knowledge for all



- Improve attainments & confidence
- Support and develop children's interest

Actions on those who choose to study science

(Future scientists & Careers not in S&T but with high S&T background (architecture, finance...))



- Adapt education to the future requirements of professions
 - Enlarged scientific culture
 - Transversal approach, pluridisciplinary approach
 - Soft skills

- Adapt education to the evolution of the context
 - Broaden the subject
 - Importance of personal development

- Incentives

Primary education

Lower secondary education

(decision process)

Upper secondary education

Tertiary education

Remedies: limits and further needs

- Many initiatives are never evaluated
- Many initiatives are on small scales, difficult to extrapolate
- Current initiatives are often too recent to be analysed
- Multifactorial initiatives make evaluation more complex (what is effectively working...)

There is a need for common evaluation tools to assess the impact of initiatives (on student's enrolment, student's interest for S&T etc...)



Key action areas:

Women are still under-represented in S&T studies:

Reforms in teacher training, curricula, role model development need to be fostered to fight stereotypes

S&T professions have become less attractive:

Students must have accurate information about S&T careers

S&T courses are often perceived as uninteresting or difficult:

Positive contact with S&T at an early stage is essential, curricula must be flexible (second chance), be more relevant to modern S&T and society, include professional skills

Teachers play a key role in student's choice:

Incentives and resources should be provided to teachers who need training, pedagogic skills or updated information

**Encouraging Student Interest in
Science and Technology Studies**
A REPORT BY
THE GLOBAL SCIENCE FORUM

- *For more information:*
 - *Policy report:*
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