Financing Science or Innovation?

Recommendations for public policy with a focus on Europe?

Jean-Pierre BOURGUIGNON

Topics

- From the Point of View of a Researcher
- Policies in Europe
- The Question of Employment Policies

From the Point of View of a Researcher

The Diversity of Scientific Research

Organisation of scientific research

- **Many different forms** are in place at the initiative of **scientists**
- Different **time frames,** in particular in relation to **equipments**
- Different **critical masses**, from individual researchers to large interdisciplinary teams
- Different forms of **publication** and **dissemination** of **results**

Trends

A new organisation of scientific research

- In many countries, systematic use of a **dominating model** based on the **life sciences**, considered as the reference **science for the 21st century**
- Along that, in many countries **almost collapse** of **recurrent funding**
- **Major effects** on **personnel policies** to be discussed a bit later
- **Differential impact** depending on the present **level of development**

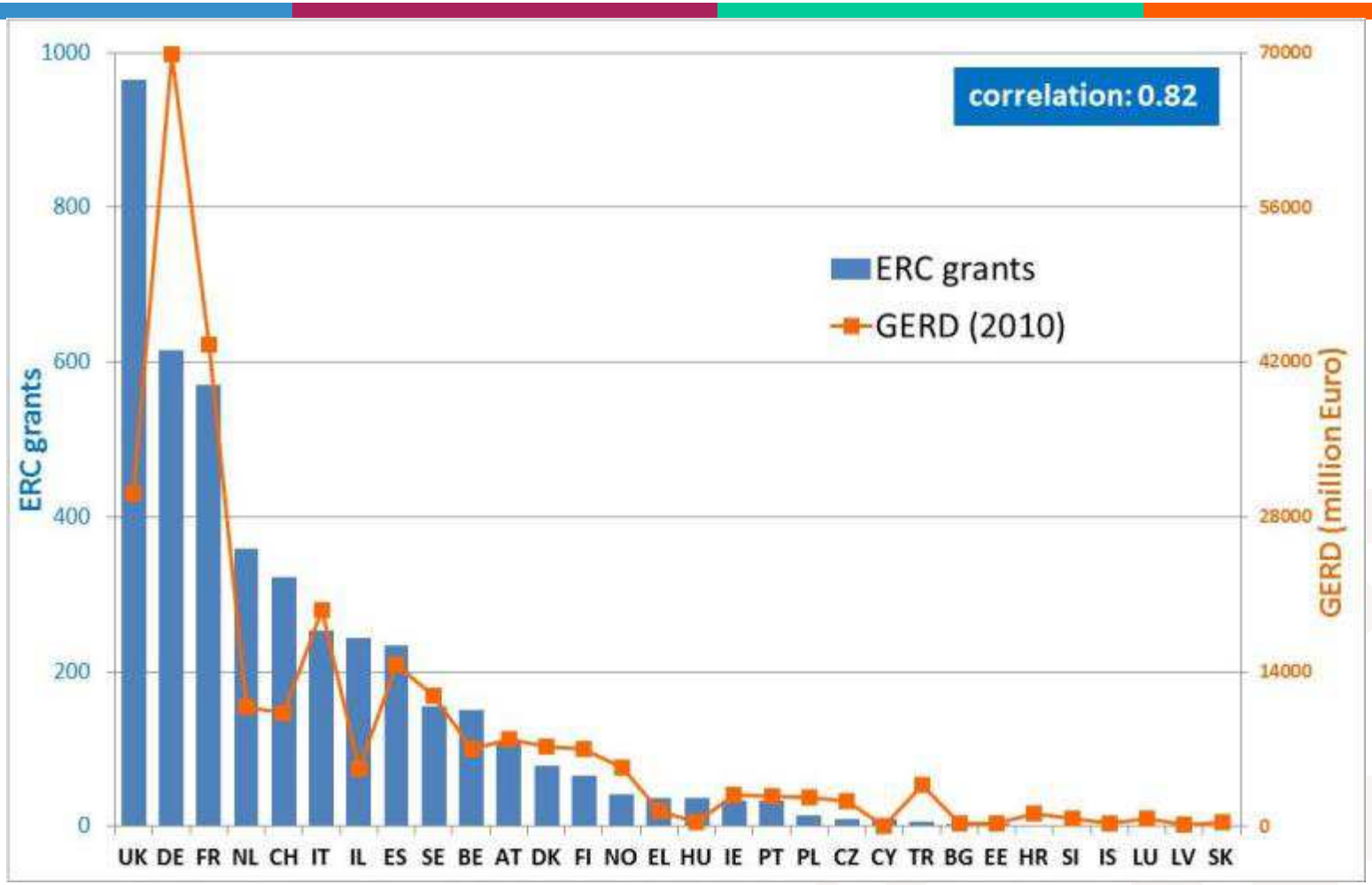
European R&D Policies

The Diversity of Europe

A great structural variety depending on countries

- Who is **in charge** of the **Science policy**?
- Often **policy changes** linked with **political changes**
- **Universities** versus dedicated **research institutions**
- The **European Commission** contributes to **only 8%** of the **overall expenses in R&D.**
- It is only **recently** that the **European Commission** can **contribute** to **basic research.**

ERC Grants to Global Effort in R&D



The Horizon 2020 Programme

- **Three principal components:**
  - Excellent science
  - Industrial leadership
  - Societal challenges

The Excellent Science Pillar

- **European Research Council**

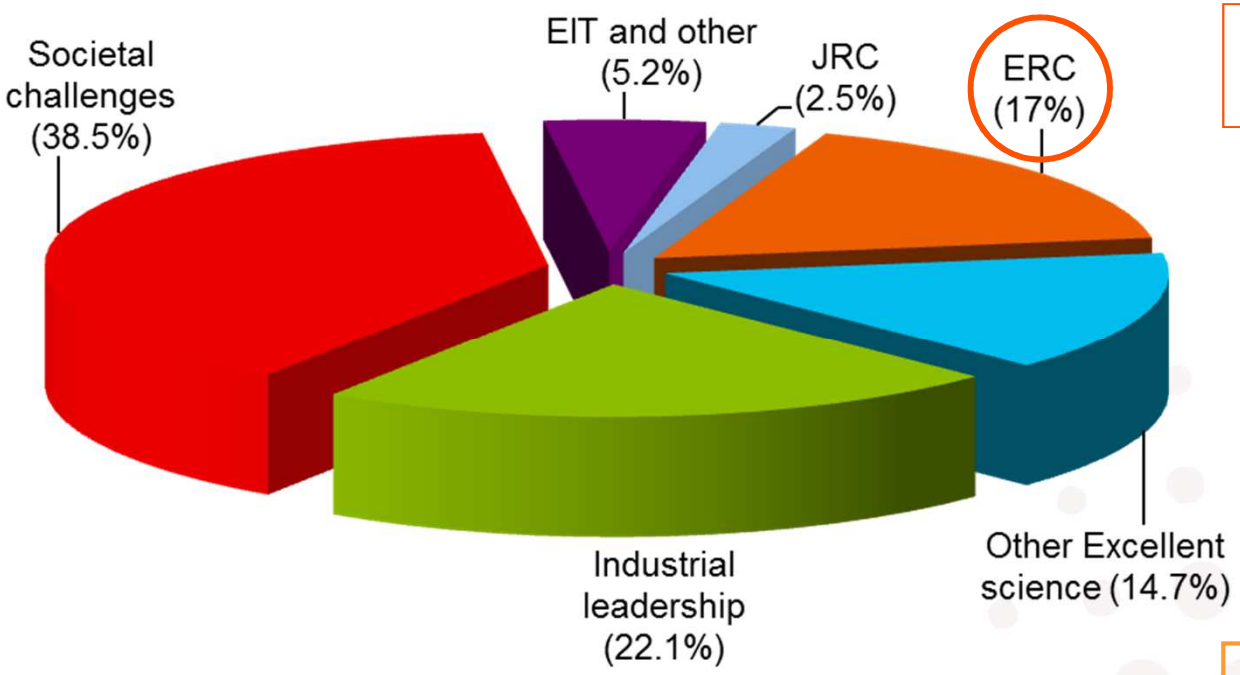
  Frontier research

- **Future and Emerging Technologies**
  Collaborative research to open new fields of research and innovation

- **Marie Sklodoswka Curie Actions**
  Opportunities for training and career development

- **Research Infrastructures** (including e-infrastructures)
  Ensuring access to world-class facilities

Horizon 2020 Budget



H2020 77 Billions Euros
ERC 13.1 Billions Euros

FP7 50.5 Billions Euros
ERC 7.5 Billions Euros

What is the European Research Council?

A **bottom-up, individual-based, pan-European competition** with **host institution** in **EU** or **Associated State.**

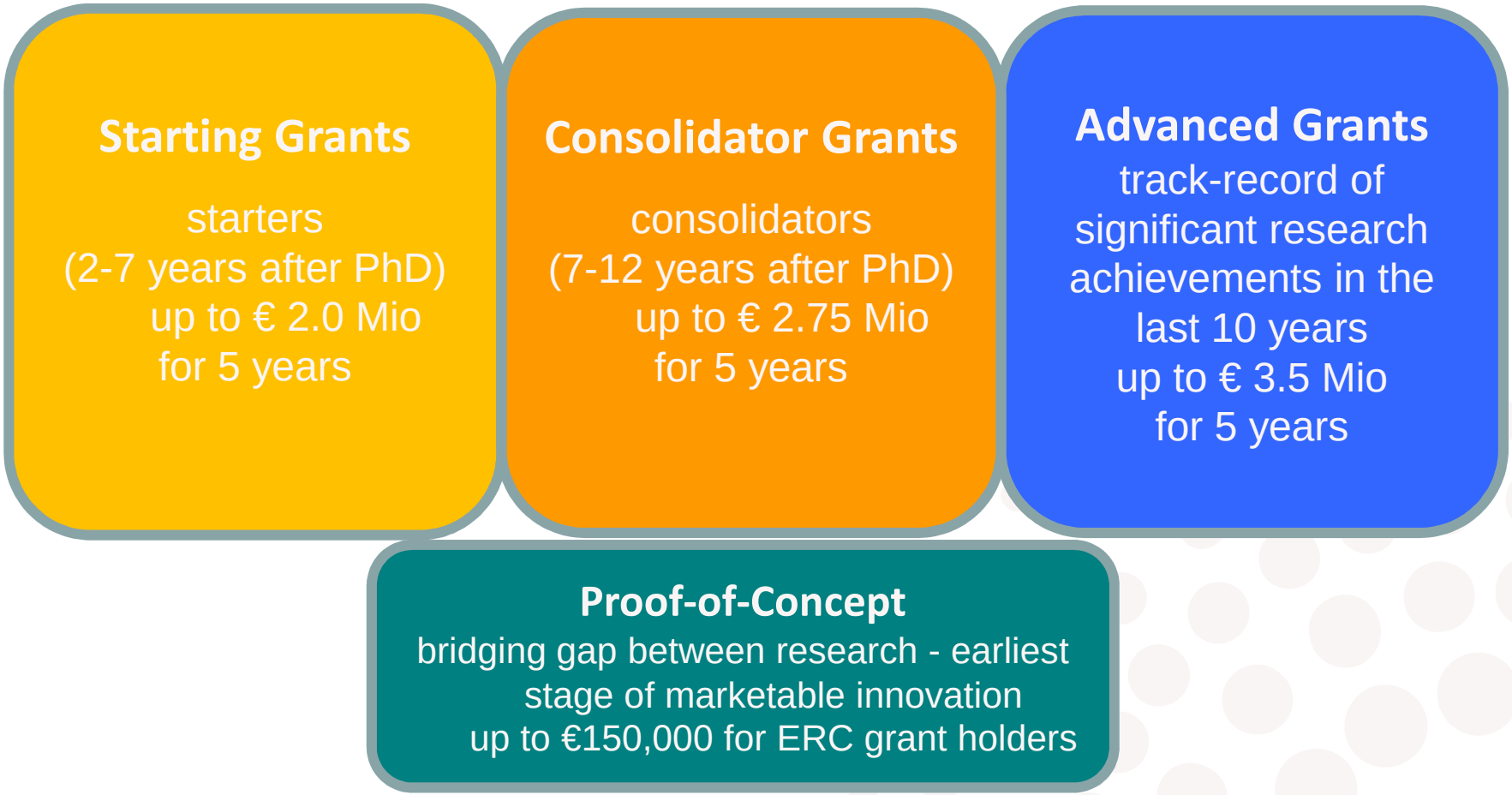
Strategy

- Support for **individual** scientists – no networks!
- **International** peer-review
- **No predetermined subjects** (bottom-up)
- Support of **frontier research** in **all fields of science and humanities**

Legislation

- Scientific governance by an independent 22-member **Scientific Council**, which has **full authority** over **funding** and **evaluation**
- Support by the **ERC Executive Agency** (autonomous)
- Only criterion: **quality of research** aiming for **excellence**

ERC Funding Schemes



The European Research Council in Reality

- **4 300 researchers** funded (65% are at an **early-career** stage);
  64 nationalities represented (EU has **28**!)
- **Highly competitive** (average success rate tending to 10%)
- Grants located in almost **600** different institutions in **29** countries
- **50%** of grantees in **50** institutions
- **Benchmarking** effect: impact on national programmes and agencies;
  national funding for best "runners-up"
- **Efficient** and **fast** grant management
- **Highly recognized** by the research community beyond Europe

ERC Panel Evaluation Structure

Physical Sciences & Engineering

- **PE1 Mathematics**
- PE2 Fundamental constituents of matter
- PE3 Condensed matter physics
- PE4 Physical & Analytical Chemical sciences
- PE5 Materials & Synthesis
- **PE6 Computer science & informatics**
- PE7 Systems & communication engineering
- PE8 Products & process engineering
- PE9 Universe sciences
- PE10 Earth system science

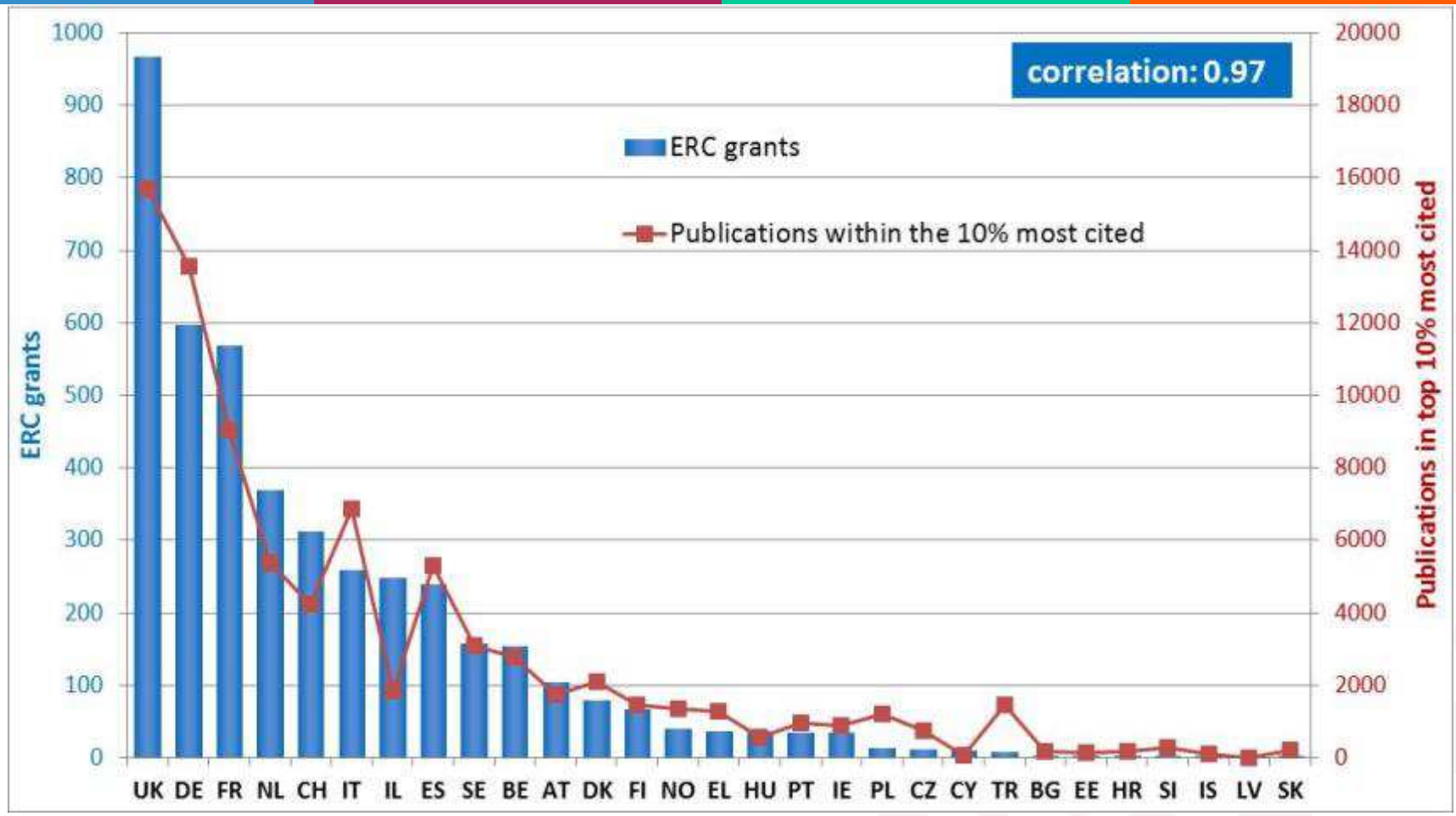
Social Sciences and Humanities

- SH1 Individuals, institutions & markets
- SH2 The social world, diversity and common ground
- SH3 Environment ,space and population
- SH4 The Human Mind and its complexity
- SH5 Cultures & cultural production
- SH6 The study of the human past

Life Sciences

- LS1 Molecular & Structural Biology & Biochemistry
- **LS2 Genetics, Genomics, Bioinformatics & Systems Biology**
- LS3 Cellular and Developmental Biology
- LS4 Physiology, Pathophysiology & Endocrinology
- LS5 Neurosciences & neural disorders
- LS6 Immunity & infection
- LS7 Diagnostic tools, therapies & public health
- LS8 Evolutionary, population & environmental biology
- LS9 Applied life sciences & biotechnology

ERC Grant Distribution by Countries of HI



*) Host institution refers to the organisation with which the first grant agreement was signed

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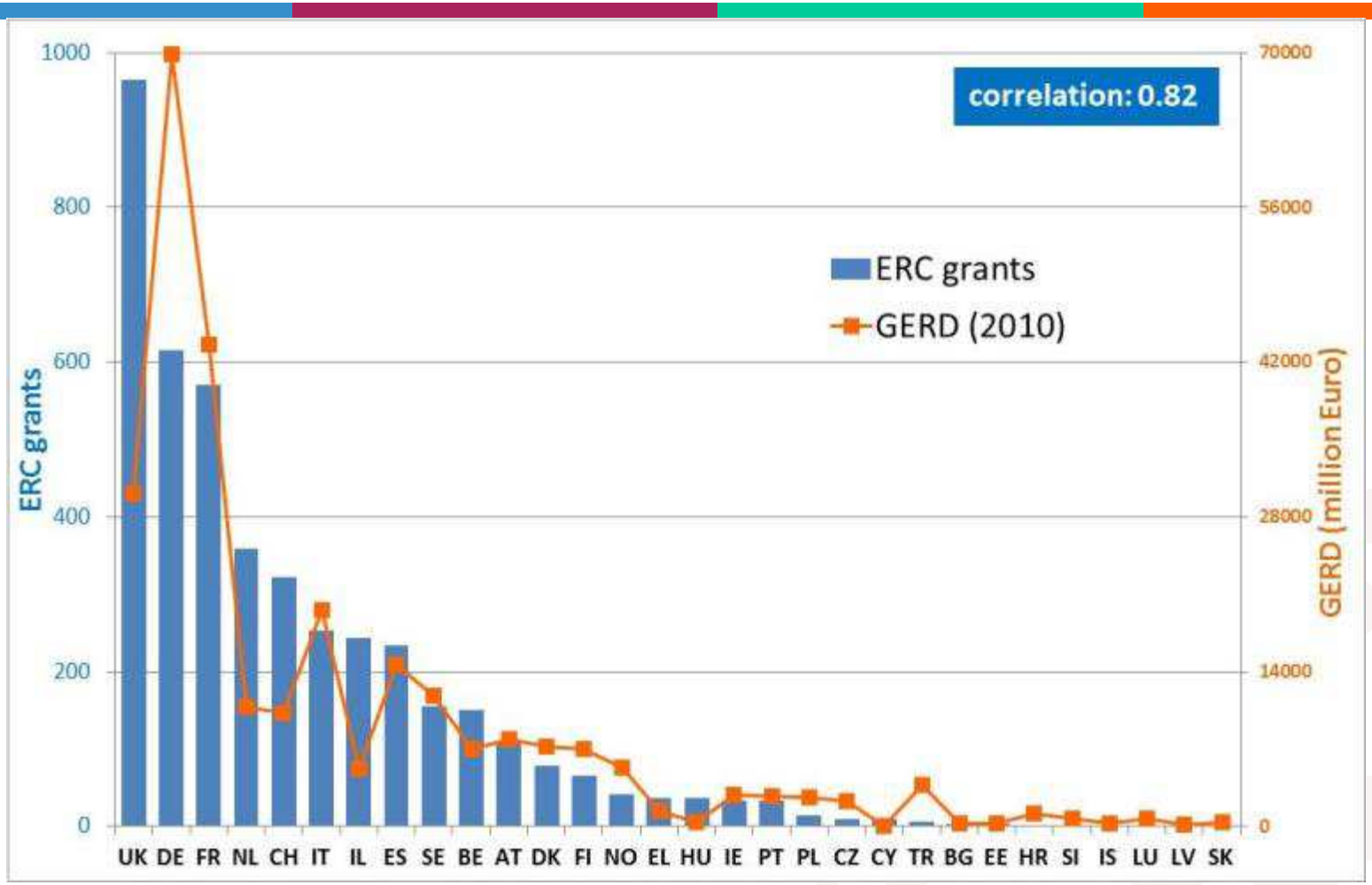
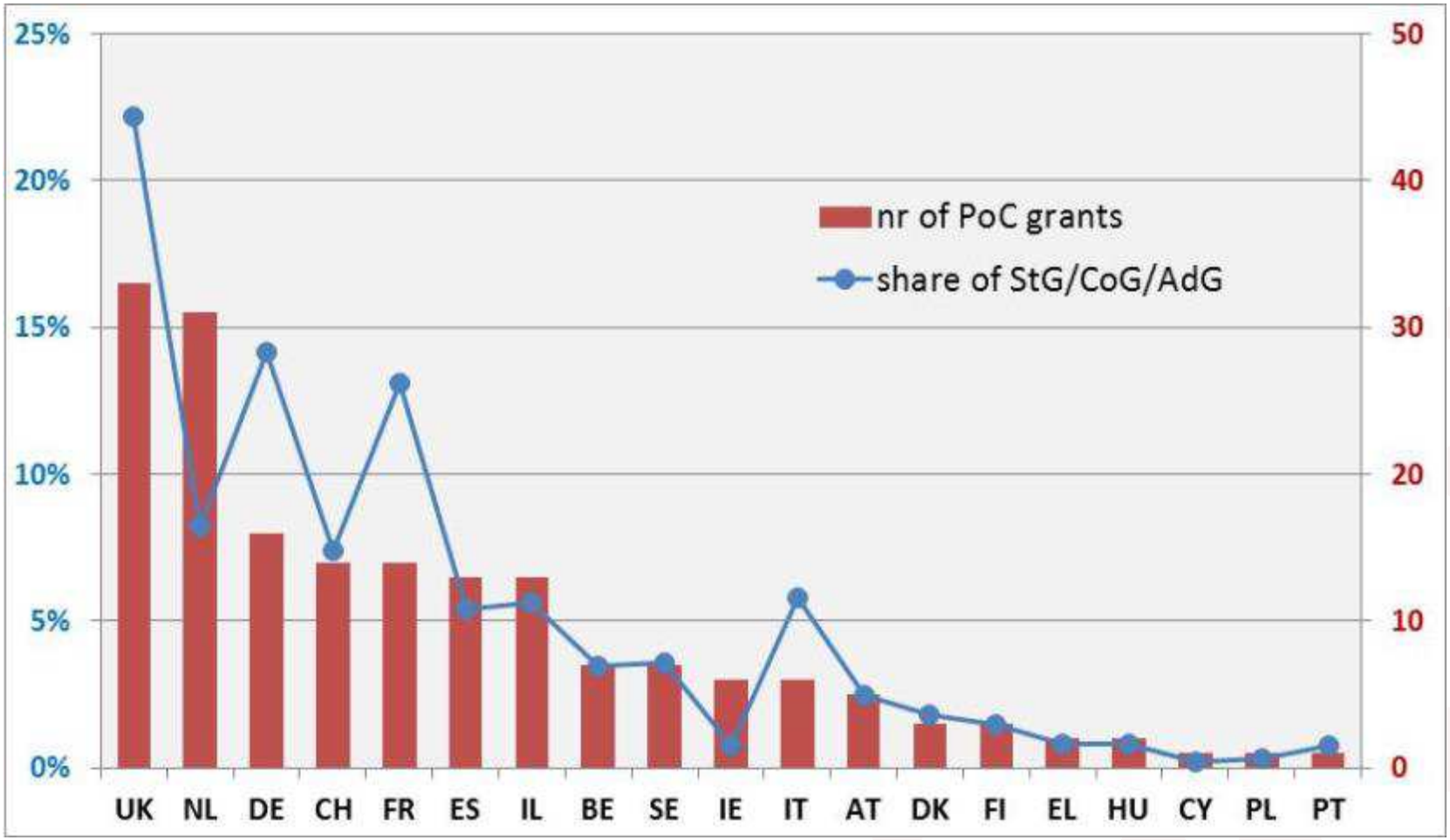


Proof-of-Concept financing per country



The Question of Employment Policies

The Recent Evolution of Employment Policies

Where do we stand in terms of employment?

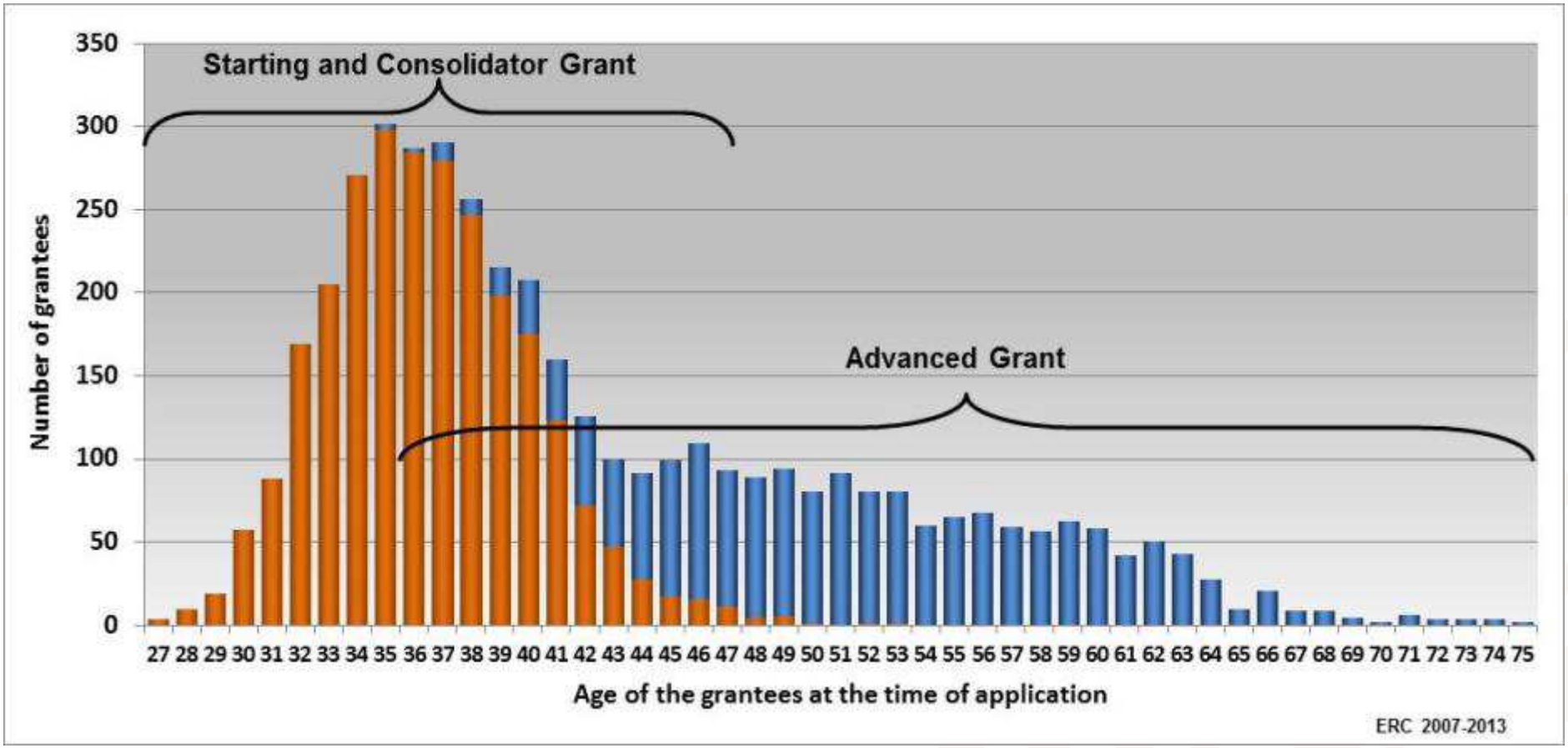
- In **recent** years, explosion of **temporary employment** for **young people**
- Concurrently, **diminution** of the number of **permanent positions**
- Consequences on the possibilities for **young researchers** to become **autonomous** and to develop **ambitious projects**
- **Reliable statistical data** on **employment of researchers** are actually lacking: **negligence** or **deliberate attitude**?

Need for a New Public Policy

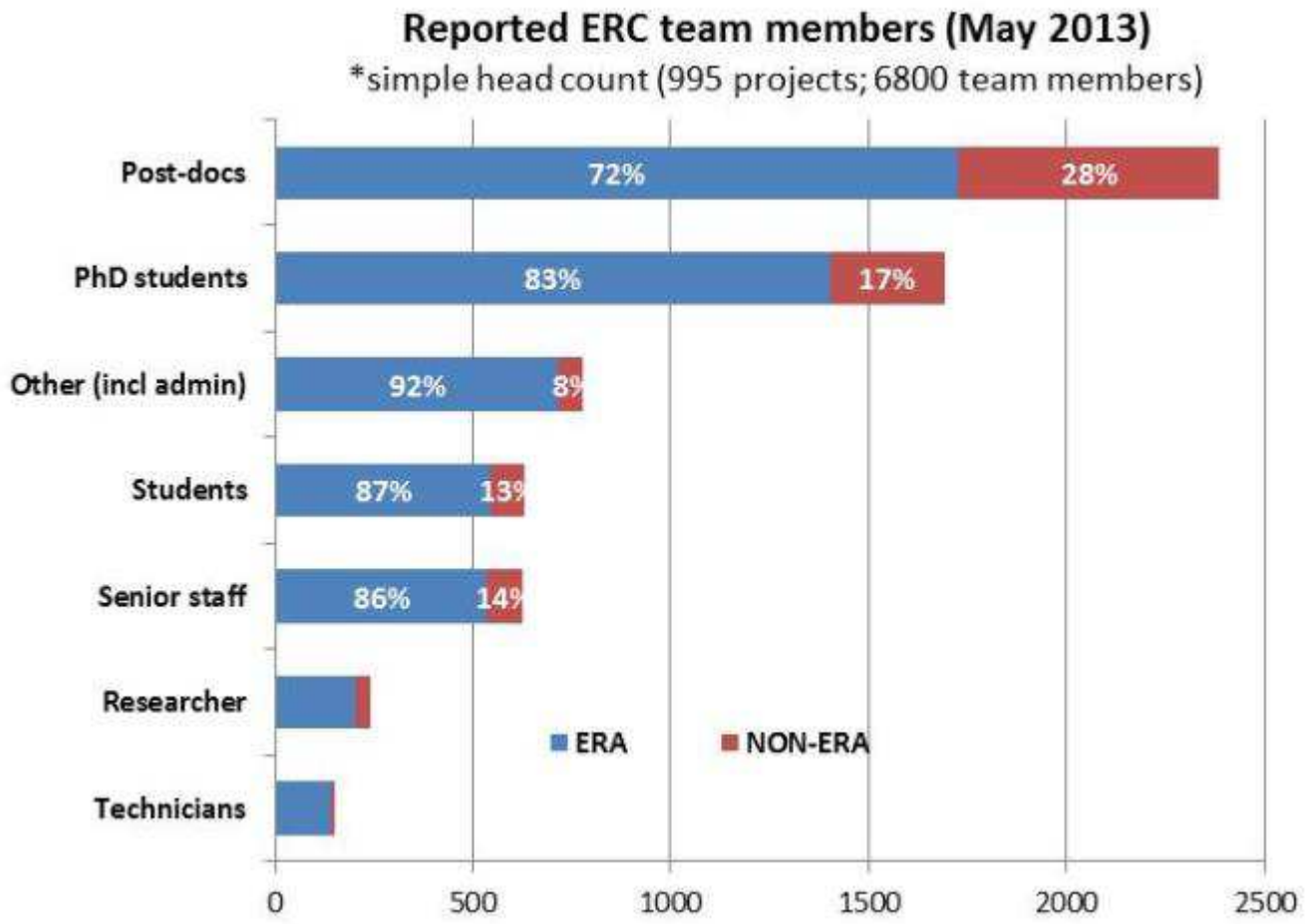
These policies are being challenged:

- The movement **“Marching Scientists”** initiated by **young researchers** from the South of Europe
- Statement by the **Wissenschaftsrat** of the need to create **7500 university professor positions** in Germany
- In many developed countries, the number of **students** preparing themselves for a **science career** has **dropped** significantly.
- An **urgent** need: obtaining **reliable statistical data** on **employment of researchers** in **Europe**

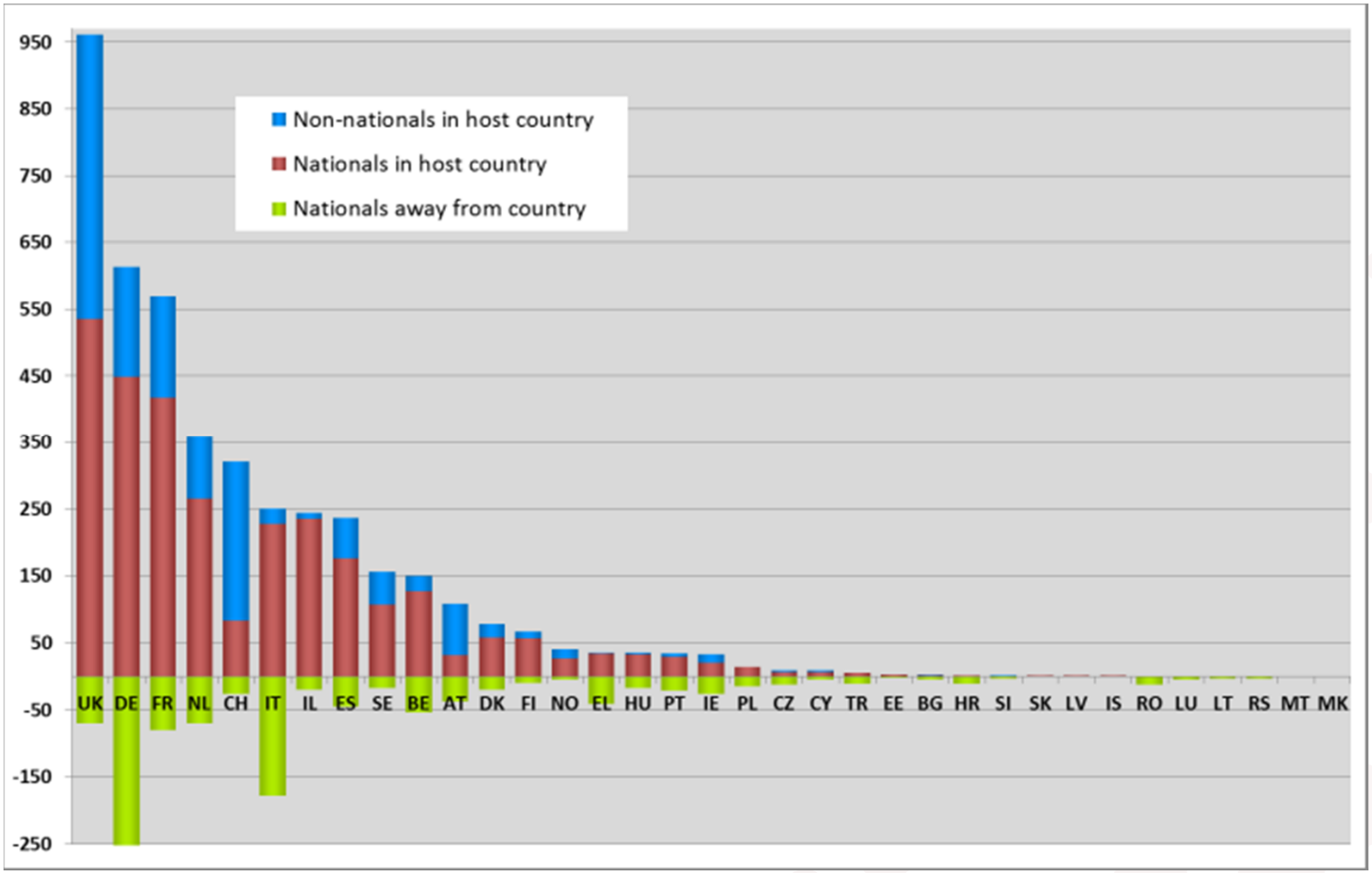
Age Distribution of ERC Grantees



Developing a New Generation



Mobility of Researchers



Thank You for your attention!

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European Research Council

More informations on ERC at:

erc.europa.eu

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