

A Manifesto for Early Career Researchers

In these times of uncertainty and upheaval, vigorous support for early career researchers, for their research work, for a stimulating research environment and best working conditions, is essential.

Recent crises, as the Covid epidemic and the war in Ukraine, have compounded the problems facing the emerging generation of researchers. More than ever, we need to motivate and support them, to continue to build and consolidate our continent's future, rise up to the challenges facing our societies, work for peace in a healthy world.

The present Manifesto is seeking to collect from key stakeholders **broad and robust support to early career investigators and scholars.**

It is an outcome of the [4th Gago Conference on European Science Policy](#), on June 13, 2022, which brought together in Brussels research institutions, policy makers and representatives of early career researchers' associations. It was organised by the Centre national de la recherche scientifique (France), Ciencia Viva (Portugal and ISE, with the support of the French Presidency of Council of the European Union. The Conference was initiated following the former ERC president Jean-Pierre Bourguignon's appeal to the Commission, in the fall of 2021, to organise a conference on the dramatic impact of the Covid pandemic on early career researchers, appeal [which ISE supported.](#)

A Manifesto for Early Career Researchers

There is a wide consensus throughout Europe about the need to further attract and retain the best talent for research.

Indeed, research is the basis upon which present and future generations will be able to conduct the major transitions our societies are embarked on.

This **requires increasing the recognition of the research activity and fostering diversified research careers at a European level, across the public and the private sectors, including NGOs and the third sector.**

By “career” environment we mean the way researchers are recruited, their work assessed, rewarded and eventually disseminated, which employment conditions they are offered and how they, as well as society, can profit from mobility across sectors and countries.

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A Manifesto for Early Career Researchers

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Manifesto seeks to support young researchers in Europe

By Rachel Magee

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Manifesto to save 'lost generation' of researchers

14 Jun 2022 | News

The pandemic saw many young scientists give up on careers in research. A Europe-wide call to action is urging funding agencies and policymakers to reverse the trend

By Goda Naujokaitytė



A Manifesto for Early Career Researchers

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Manifesto seeks to support young researchers in Europe **nature**

By Rachel Magee



Manifesto to save 'lost generation' of researchers

14 Jun 2022 | News

-wide call

[nature](#) > [career news](#) > article

CAREER NEWS | 18 October 2022 | Correction [21 October 2022](#)

A road map aims to improve the lives of junior scientists in Europe

University associations, legislators, students and other stakeholders release a declaration on ways to recruit and retain early-career researchers in academia.



Michael GRANDAGE Company

NICOLE KIDMAN

returns to the London stage

in

PHOTOGRAPH 51

a new play by Anna Ziegler

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...the story of Rosalind Franklin (1921-1958) and her contribution to the discovery of DNA...

...But also a tribute to everyone who works in science without receiving their due laurels!



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[...] a kind of collective action ...



Governing **doctoral training** and *research careers* ,
By addressing persistent and *emerging challenges*
affecting **young researchers and future generations**

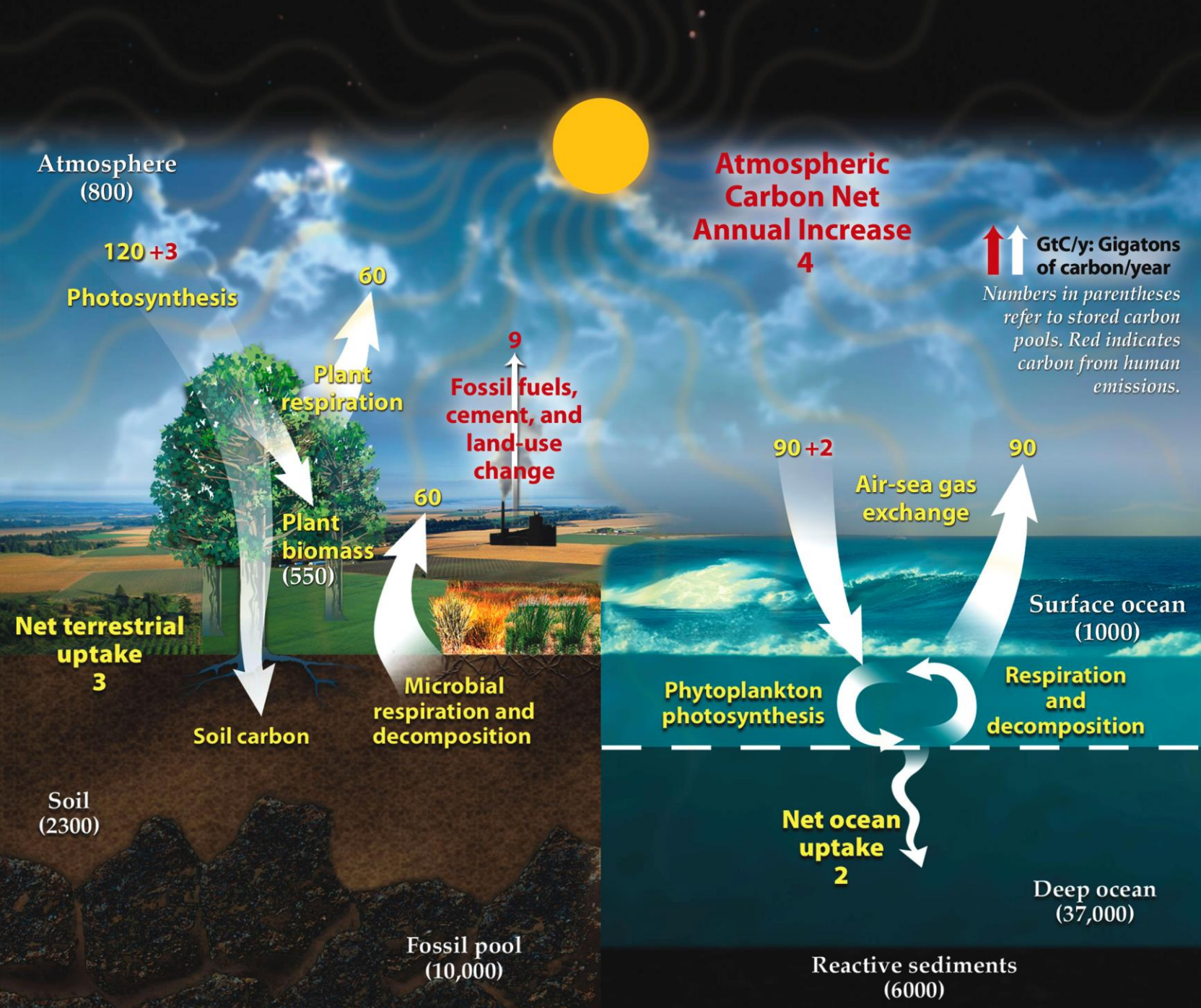
Towards a new dialogue for the coming years...

5 September - 21 November 2015 | NOEL COWARD THEATRE

EC (2021) Meeting the pandemic challenges: Contribution of EU R&I funding to COVID-19 related research

- The EU contributed a third of the funding for the development of ***Chadox technology on which the Oxford-AstraZeneca vaccine*** is based (ranking first among listed funders),
- The EU research funding programmes significantly supported the ***early stages of the mRNA vaccine research of Professor Ugur Sahin***. The report identified 10 grants from FP6, FP7 and Horizon 2020 totalling about €10.7 Million. They include a 600k grant from the EUs programme FP6, a €4.5 Million grant to the ***startup BioNTech (that brought the Pfizer vaccine to market)***, from the Health Programme and an ERC Advanced Grant of 2.5 Mio € from H2020.





How James Webb is able to see back in time



Source: NASA



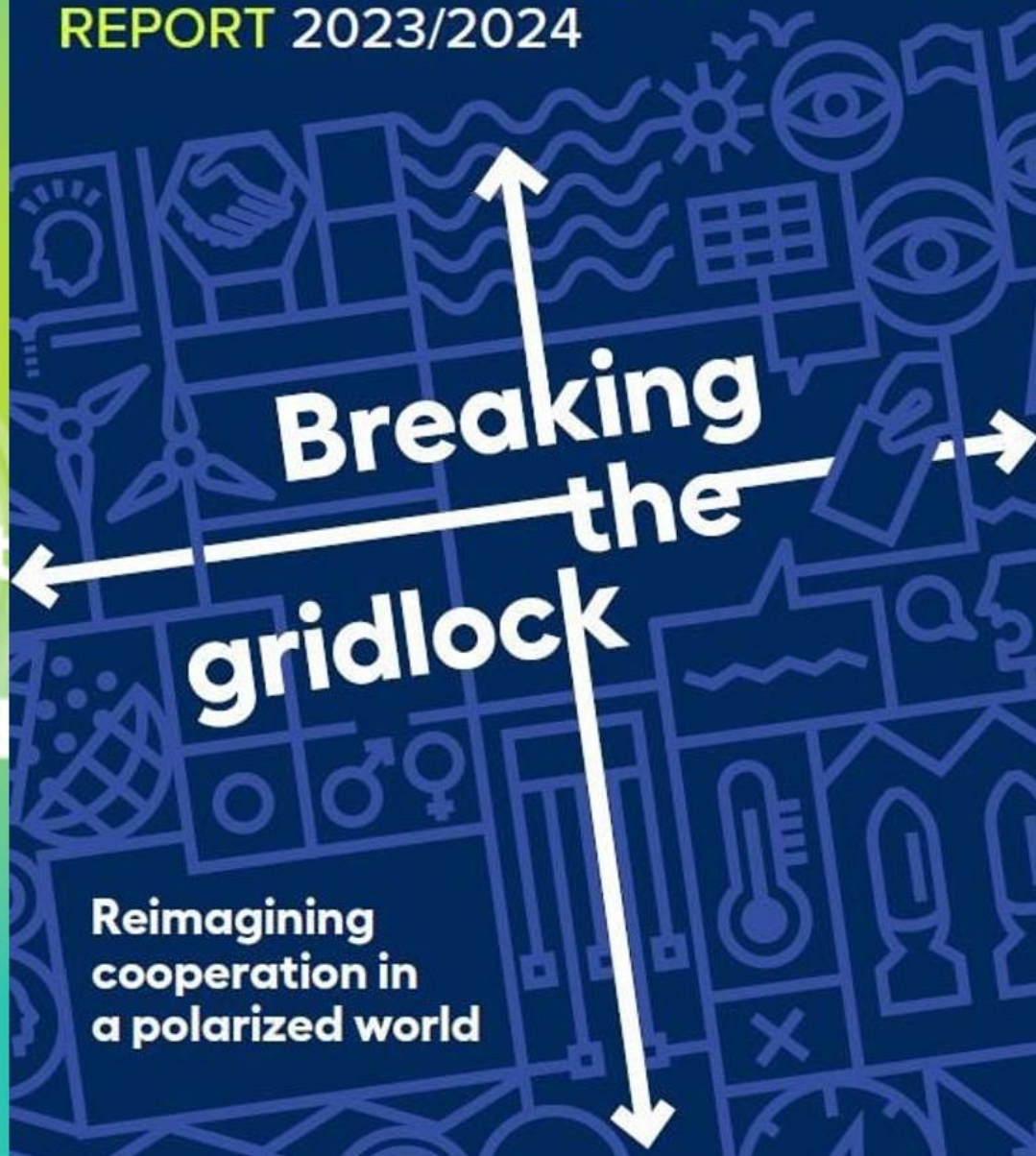
HUMAN DEVELOPMENT REPORT 2021/2022

REPORT 2021/2022

Uncertain Times,
Unsettled Lives:
Shaping our Future
in a
Transforming World

HUMAN DEVELOPMENT REPORT 2023/2024

REPORT 2023/2024



Reimagining
cooperation in
a polarized world

HUMAN DEVELOPMENT REPORT 2021/2022

Uncertain Times,
Unsettled Lives:
Shaping our Future
in a

HUMAN DEVELOPMENT REPORT 2023/2024



Breaking
the
gridlock

- ...a new “**uncertainty complex**” is emerging, never seen before in human history, including **uneven development progress, intensifying inequality, and escalating political polarization**. Three main volatile and interactive strands have been identified:
1. the **destabilizing planetary pressures and inequalities** of the Anthropocene;
 2. the pursuit of **comprehensive social transformations** to alleviate these pressures;
 3. A widespread and **intensified social and political polarization**.



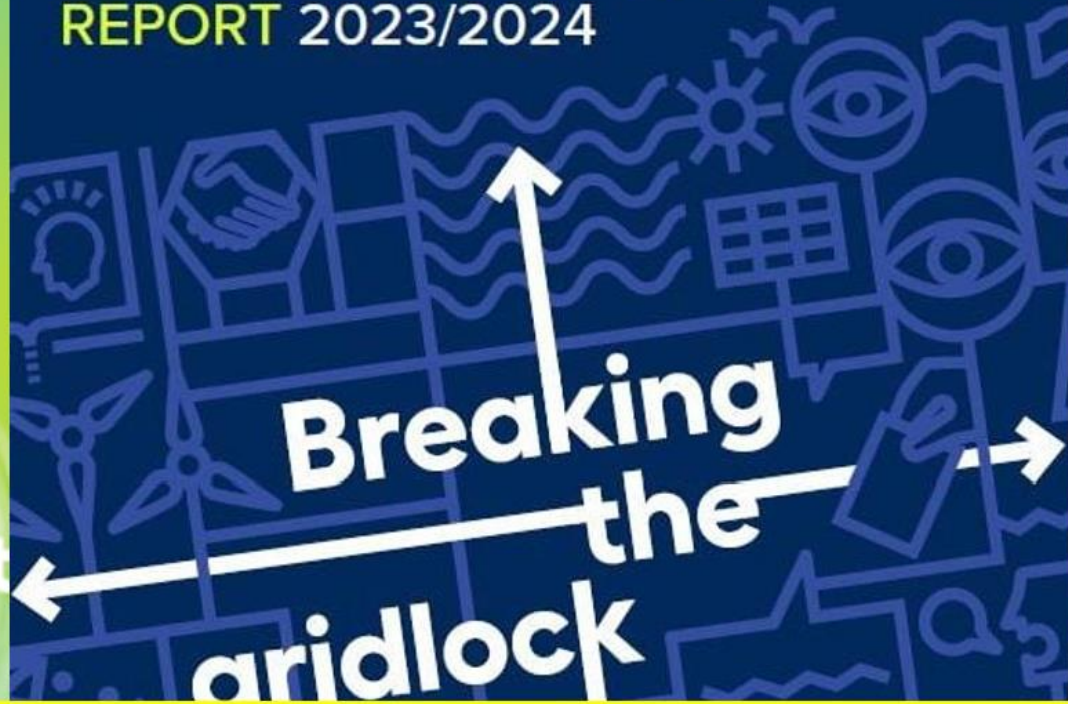
Transformation in the poly-crisis age

ESIR
Policy Brief No. 5

Independent
Expert
Report

Research and
Innovation

HUMAN DEVELOPMENT REPORT 2023/2024



emerging, never seen before in human history, **pressures and inequalities** of the Anthropocene; **social transformations** to alleviate these pressures; **social and political polarization**.



HUMAN DEVELOPMENT REPORT 2023/2024



Transformation
in the poly-
crisis age

...a **human-centred green transition based on enhanced skills**, and global cooperation in establishing open but fair trade for the **green transition**, will **crucially depend on the way horizontal coherence is achieved through R&I policy**, both at European and national/regional level.

"High Level Group on Human Resources for Science and Technology in Europe, 2003-2004", was set up by Commissioner **Philippe Busquin** as part of the European Commission's broad strategy to address the Lisbon and Barcelona goals:

- **Jose Mariano Gago, LIP/IST**; Former Science Minister in Portugal (Chair), PT;
- **John Ziman**, emeritus professor of physics of the University of Bristol, UK;
- **Paul Caro**, former Director of Research at the CNRS, FR;
- **Constantinos Constantinou**, University of Cyprus, CY;
- **Graham Davies**, University of Birmingham, UK;
- **Ilka Parchmann**, Leibniz-Institute for Science Education in Kiel, Germany;
- **Miia Rannikmäe**, Centre for Science Education in the University of Tartu, Estonia,
- **Svein Sjøberg**, Oslo University; Fin.



Report by the High Level Group
on Increasing Human Resources for
Science and Technology in Europe
2004

...to increase the share of European GDP invested in research from 1.9% to 3%, Europe needs a further 700,000 researchers or 1.2 million research-related personnel by 2010.

The changing nature of the "high-tech" industries means that governments must step in to play a more active role in ensuring and promoting better resources and skills development.

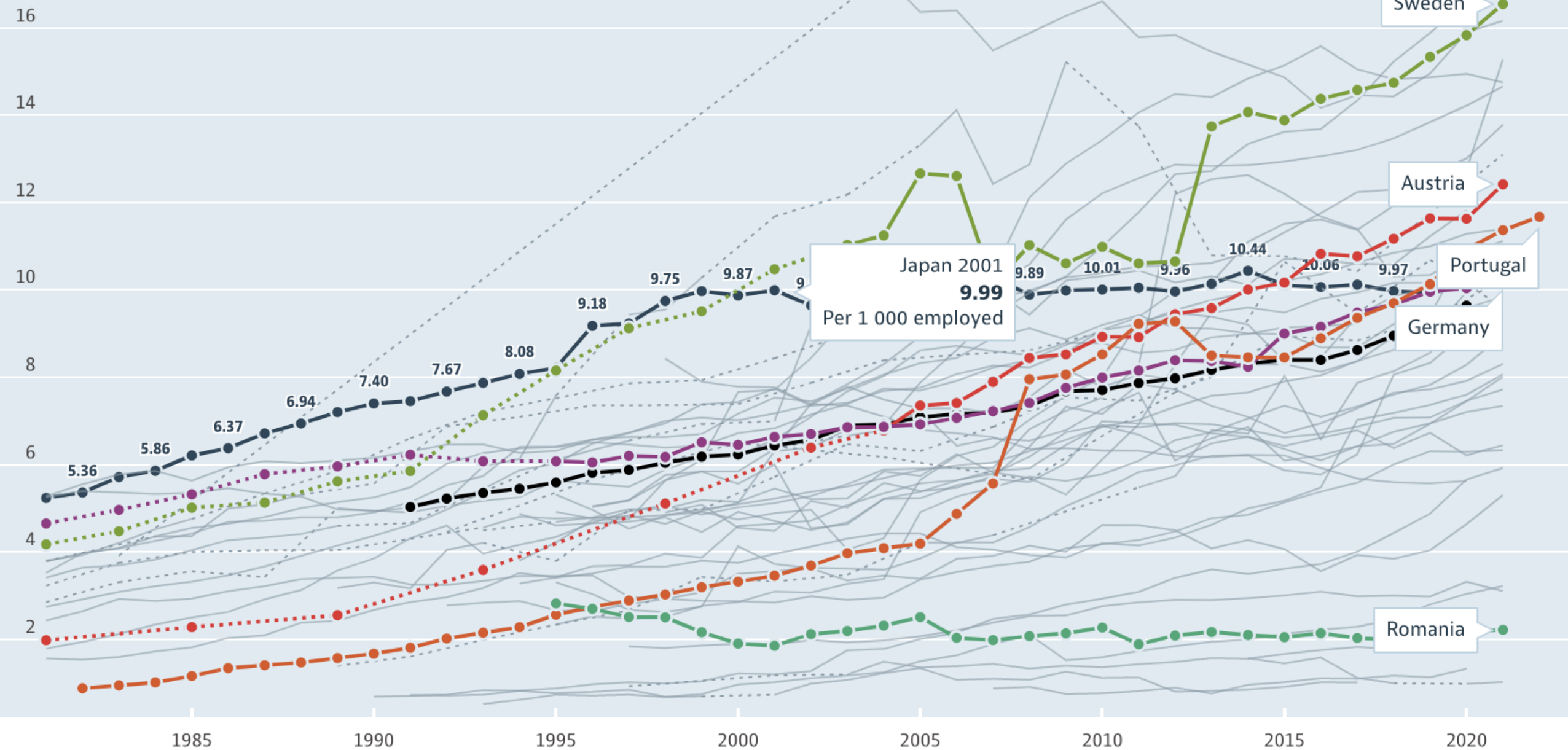
The public sector is under-funded and universities, in particular, should be preparing their science graduates for a more diverse range of careers.

But it is not just a question of under-funding: **universities must provide a wide range of skills required by a large diversity of science careers** instead of focussing on preparations for academic careers only.

Europe needs to promote scientific careers better: ...calls for a *new partnership between universities and industry* to promote careers and a better mutual understanding.

Number of Researchers (FTE)/Thousands active inhabitants in EU member States, 1980-2020

(Source, OECD; on 05 April 2024; <https://data.oecd.org/rd/researchers.htm>)



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Shaping science policy in Europe

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Well-Being Societal Challenge

Scientific Panel for Health

ABSTRACT

The Lisbon Strategy was adopted by the Heads of State and Government of the European Union (EU) in 2000. By moving science into a central position for the development of a European knowledge-based economy and society, its adoption at political level seems to have been a powerful catalyst for the increased involvement of scientists in science policy in the EU. Recognising the need for scientists to act collectively in order to contribute to shape the future of science policy in Europe, a pioneering group of European science organisations leaders and representatives, as well as other scientists, initiated a European, interdisciplinary, inclusive movement leading to the creation of the European Research Council (ERC) to support basic research of the highest quality. Having scientists' campaign for the funding of bottom-up research by the EU Framework Programmes exclusively on scientific grounds, and for an ERC, was a unique event in the recent history of European science policy. For the first time, the scientific community acted collectively and across disciplinary or national boundaries as a political actor for the sake of a better science policy for Europe. As is often the case when first-hand experience is gained through the creation of a new organization, novel forms of collaboration arise. The European biomedical community has recently proposed the creation of a strategic action plan for health research (the European Council of Health Research; EuCHR), provisionally translated at present into a Scientific Panel for Health (SPH) research in Horizon 2020, the EU's research-funding programme for the period 2014–2020. The creation of such Scientific Panel should be viewed as an important contribution by the biomedical community as a major political agreement has been reached on the need for a comprehensive and long-term scientific strategy to accelerate research and facilitate innovation at EU level.

It is our belief that describing and analyzing the process leading to the creation of the ERC and SPH (2002–2014) should be widely shared with the research community in general, as this may contribute to the understanding of the evolving relations between scientists and science-policy making.

- A long policy and advocacy process, **with scientific activism**, starting in the **Lisbon strategy (2000)**, followed by a meeting at the **Royal Academy of Sweden (2001)**, giving rise to the **European Life Sciences Forum, ELSF**, and in 2004, to the **“Initiative for Science in Europe”**.

- ERC was **created in 2007 to fund “curiosity-based research”** on the basis of the project's scientific quality.

- Today ERC grants are divided into **“Starting”** (2–7 years after PhD), **“Consolidator”** (7–12 years after PhD) and **“Advanced”** (10 years of experience requested) grants. These are **up to 5-year grants** covering all research domains and can cover salaries.

- The number of applications varies from year to year (around 1000 each year).

- Over **6700 research projects** were funded between 2014 and 2021, worth €13.3 billion.

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Shaping science policy in Europe

Following **Ben Feringa**, ERC Scientific Council Member and Nobel Prize winner in Chemistry (**EIC Impact Report, 2022**):

“the collaboration between the ERC and the EIC are a beautiful demonstration of the strong complementarity between basic science and science applied to innovative solutions. It is crucial for Europe to maintain and further develop an excellent basis in science and knowledge to make our future possible. Our young people today dream of a society respectful of the environment, with clean energy and a sustainable planet for future generations. And our industry wants new opportunities for growth and energy security. This should be our aim. And to make these dreams come true, **we need excellent science, because that means excellent innovation**. We need the ERC and we need the EIC and they need to work together with a common aim.”

It is our belief that describing and analyzing the process leading to the creation of the ERC and SPH (2002–2014) should be widely shared with the research community in general, as this may contribute to the understanding of the evolving relations between scientists and science-policy making.

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Results of MSCA end of fellowship evaluation questionnaires (H2020) 2023 Update

*Date of release:
January 2023*

Number of responses by type of actions	Evaluation Questionnaire (within three months after end of fellowship)	Follow-up Questionnaire (two years after end of fellowship)
TOTAL SAMPLE	17 794	2 206
MSCA Innovative Training Network (ITN)	5 822	519
MSCA Individual Fellowships (IF)	1 381	145
MSCA Research and Innovation Staff Exchanges (RISE)	8 956	1 343
<i>Doctoral researchers</i>	3 098	439
<i>Experienced researchers (postdocs and above)</i>	4 383	658
<i>Non-research staff</i>	719	113
MSCA COFUND	1 635	199
<i>COFUND-DP (Doctoral researchers)</i>	570	50
<i>COFUND-FP (Experienced researchers)</i>	972	141



Number of responses by type of actions

TOTAL SAMPLE

MSCA Innovative Training Network (ITN)

MSCA Individual Fellowships (IF)

MSCA Research and Innovation Staff Exchanges (RISE)

Doctoral researchers

Experienced researchers (postdocs and above)

Non-research staff

MSCA COFUND

COFUND-DP (Doctoral researchers)

COFUND-FP (Experienced researchers)

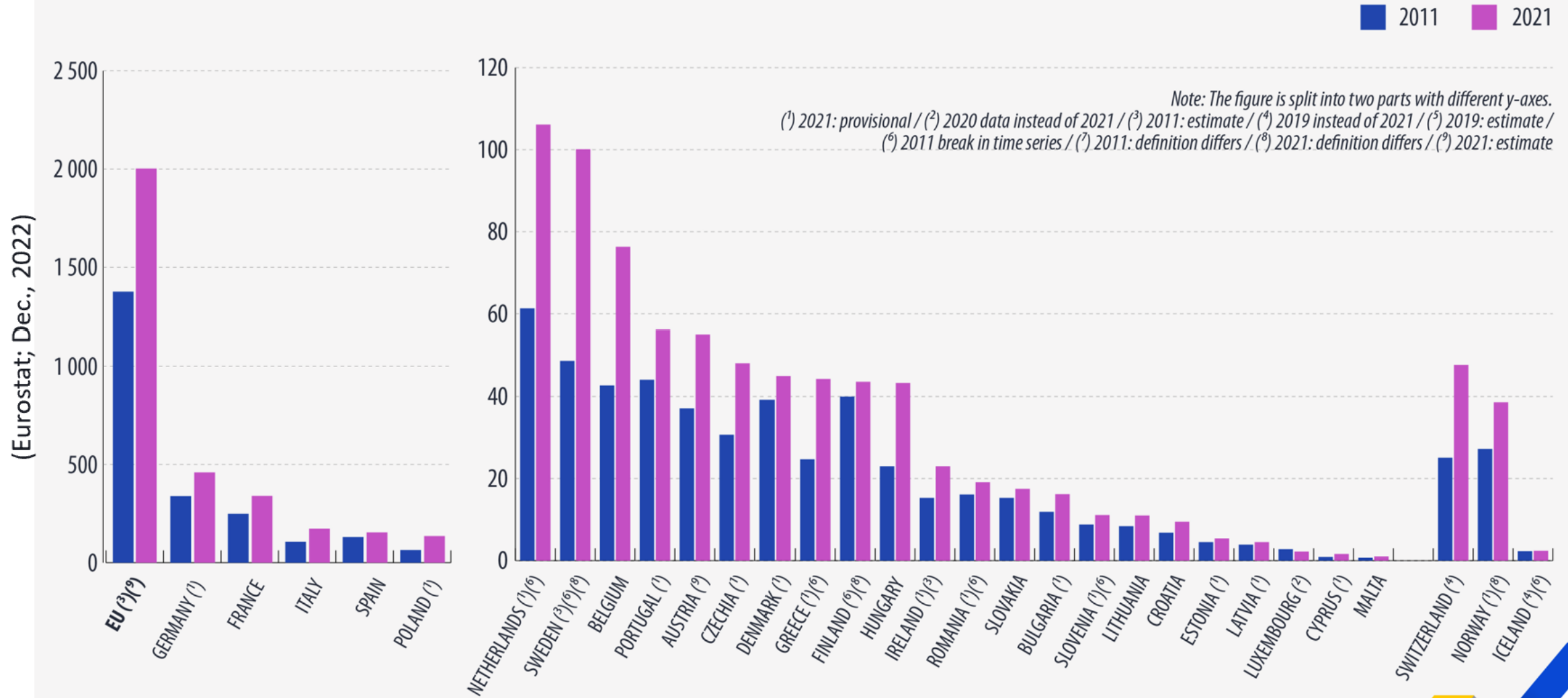
While the programme has been **very successful in fostering mobility** and collaboration with non-academic sectors, **gaps remain in specific actions**, fields of research and/or sectors to be addressed under Horizon Europe to further strengthen the MSCA intersectoral reach.

The MSCA have a **strong impact on the career trajectories of fellows afterwards and their employability**. Under Horizon Europe, the **programme continues to promote sustainable and intersectoral research careers**, by providing them with necessary skills and experience, as well as adequate career guidance.

EU reached 2 million researchers in 2021

Number of researchers, 2011 and 2021

(thousand full-time equivalents)



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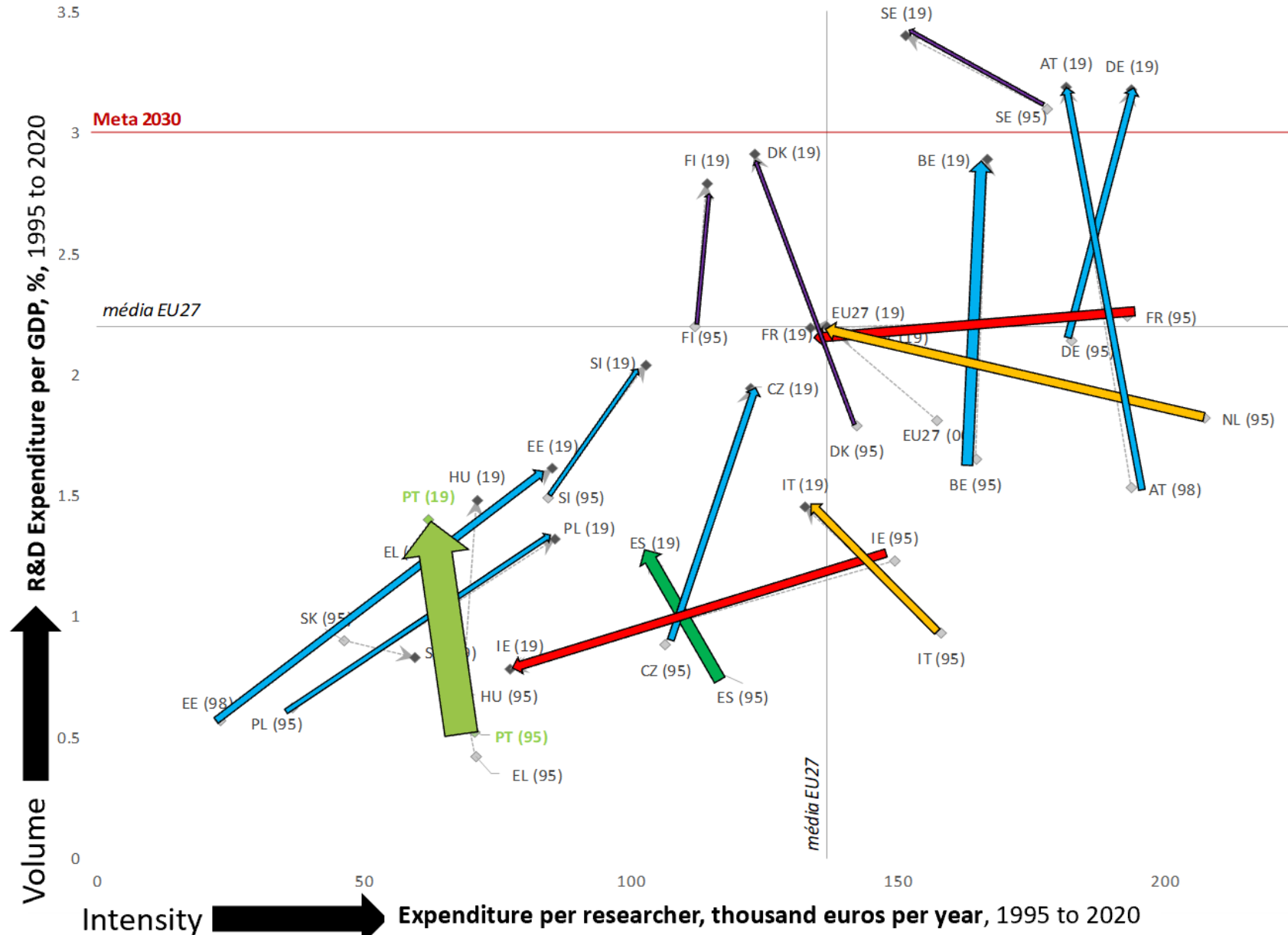
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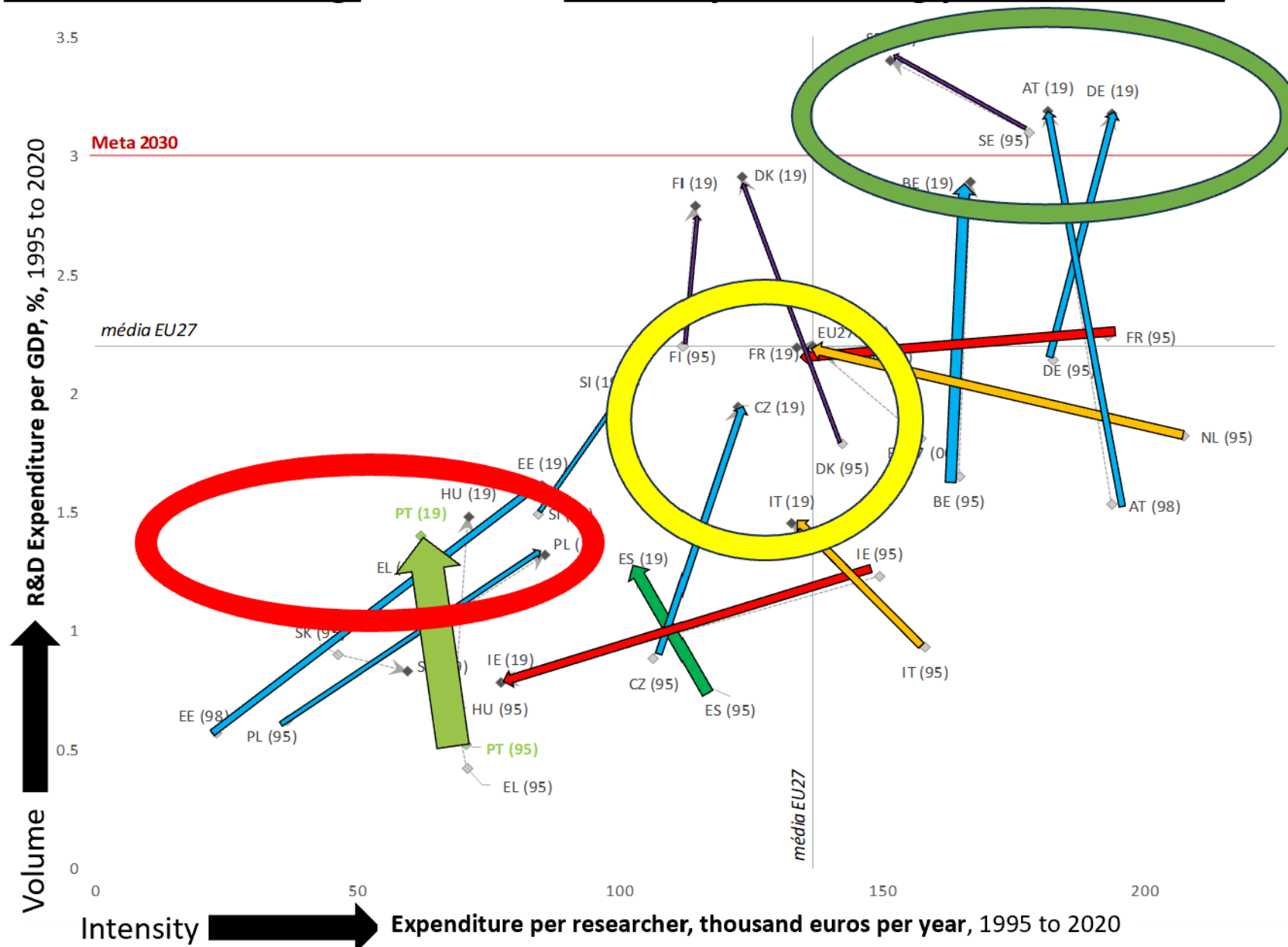


- From 1.38 million researchers (in FTE) working in the Member States in 2011 to 2 million in 2021 (+626 800 in 10 years). Compared with 2020, an additional 115 000 people joined the EU researcher ranks; Poland and Sweden more than doubled the total number;
- At EU level, researchers represented **1% of the total labour force**. **Most researchers worked in the business enterprise sector (56%) and the higher education sector (32%), followed by the government sector (11%).**

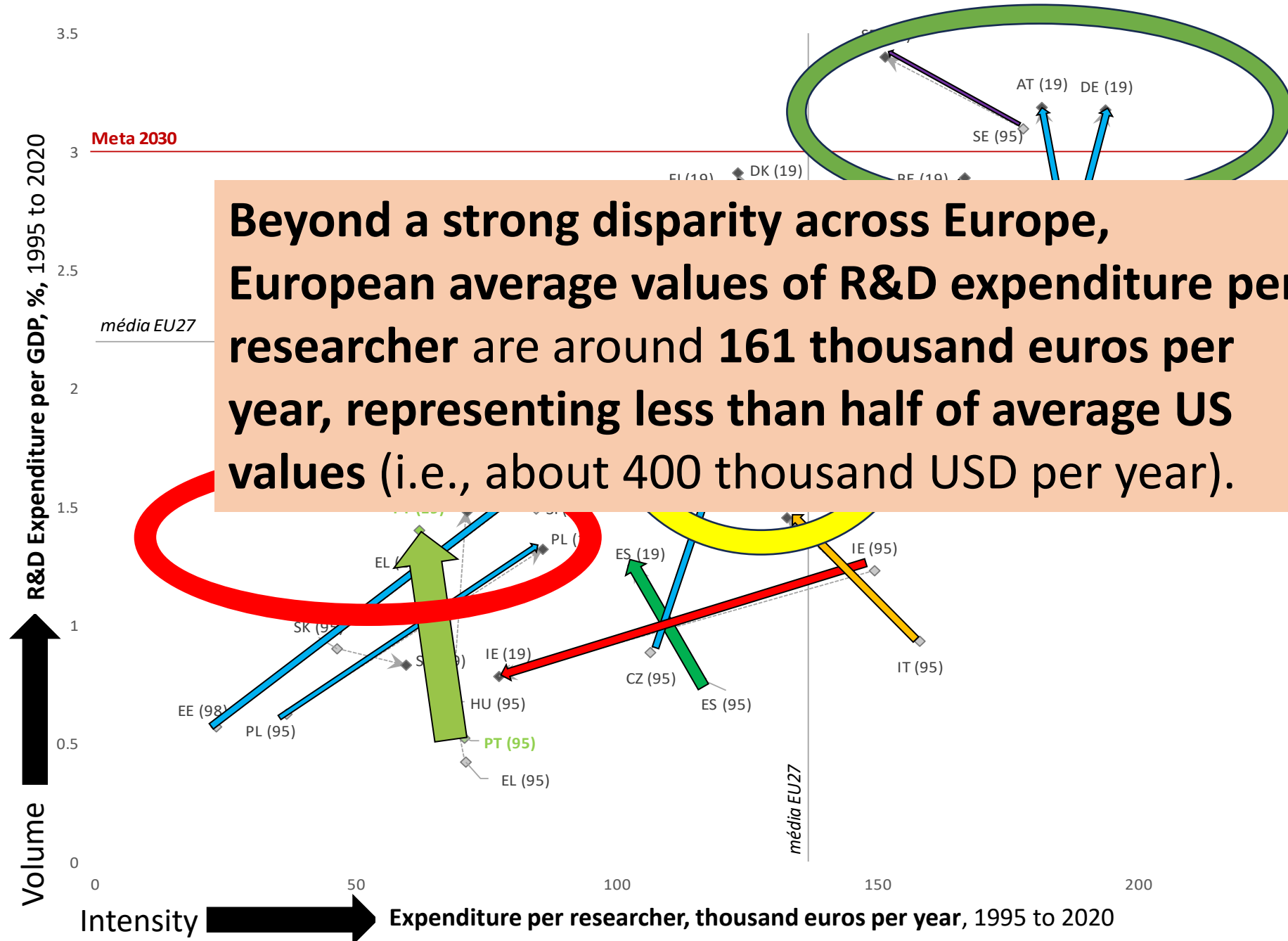
Volume of funding versus the intensity of funding per researcher in EU: 1995-2019



Volume of funding versus the intensity of funding per researcher in EU: 1995-2019



Volume of funding versus the intensity of funding per researcher in EU: 1995-2019



A few clarifying remarks.....

The volume of funding results from a complex political, financial, economic and social context...

1. It has been **driven mostly by financial schemes** and **obstacles imposed** by national treasuries (OECD, 2016);
2. but it is ultimately driven by the **political will** and the **industry capacity** to invest in R&D, **together with the public commitment to invest** on R&D and in the advanced training of people...

The intensity of funding per researcher depends upon:

1. The **structure of salaries** in the country/region, with **wide diversity across EU**:
 - It depends on overall **salary structure at national levels**, but also on institutional capacity and autonomy to raise salaries;
2. The **career development structure and the relative dimension of “tenure track” positions**:
 - It depends, above all, on **institutional capacity and autonomy**;
 - Still, only a few university departments and scientific institutions with **“Inverted Pyramids”**
3. The technical **support structure for researchers**, in terms of **technicians and management, communication and administrative support**:
 - It depends above all on the **“social context” for support and technical careers**, as well as on institutional capacity and autonomy;
 - **Wide diversity in EU**, from “1 technician to 1 research” in a few regions/institutions, to “1 technician for 4 researchers” in Southern Europe and other EU peripheries.

The issue:

Europe supporting early research careers and stimulating research workplaces

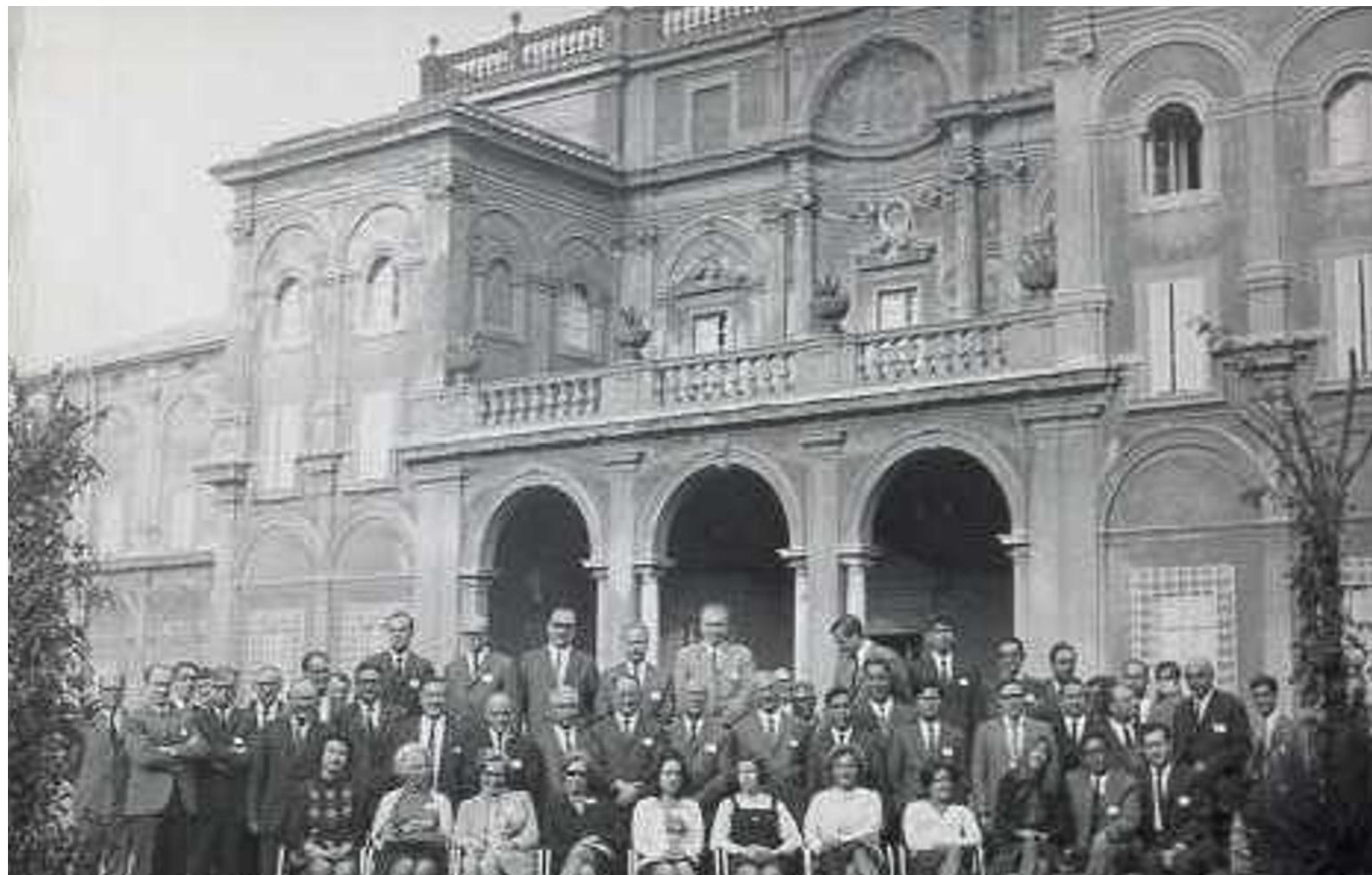
Why?...What else do we need to know?

How?

Which Careers?

Which Path for policy action?

Background: By “career” environment we mean the way **researchers** are recruited, their work **assessed, rewarded** and eventually **disseminated**, which **employment conditions** they are offered and how they, as well as **society**, can profit from mobility across sectors and countries.



The “founding fathers”....

Freeman C., *Proposed Standard Practice for Surveys of Research and Development: The Measurement of Scientific and Technical Activities*, Paris, OECD, 1962

Freeman C., *The Measurement of Scientific and Technological Activities*, UNESCO, 1969



Freeman C., *Proposed Standard Practice for Surveys of Research and Development: The Measurement of Scientific and Technical Activities*, Paris, OECD, 1962

Freeman C., *The Frascati Manual*, UNESCO, 1969

The Frascati Manual: evolution...

1963 - *The quantum leap*

1970 - *Streamlining with international classifications (SNA, ISIC)*

1976 - *Inclusion of SSH; "objectives" classification*

1981 - *Innovation, higher education supplement*

1993 - *Inclusion of software, environment*

2001 - *Questionnaire, services, HRST*



Freeman C., *Proposed Standard Practice for Surveys of Research and Development: The Measurement of Scientific and Technical Activities*, Paris, OECD, 1962

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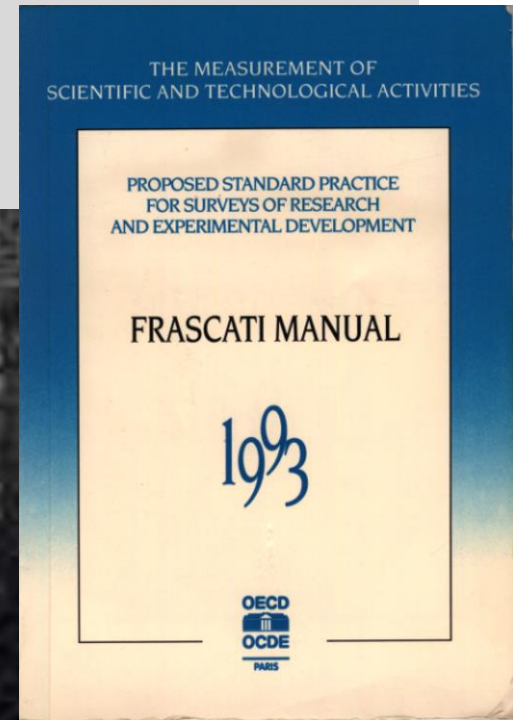
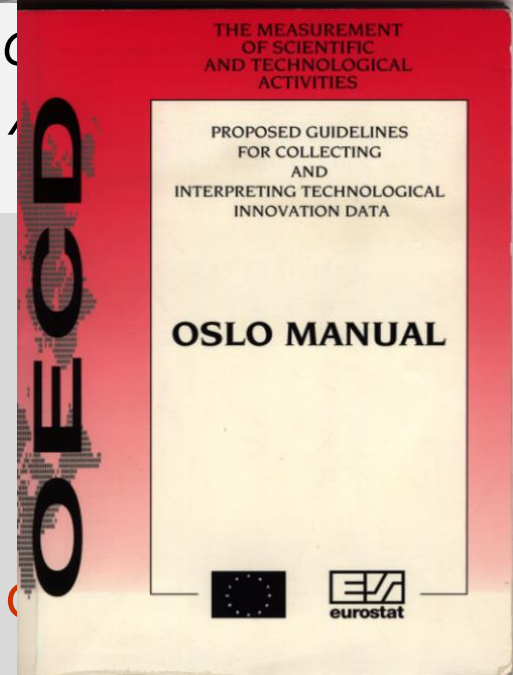
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1993 - *Inclusion of software, environment*

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Postdoctoral Funding Schemes in Europe

SURVEY REPORT



- mapping reflects a very **diversified academic landscape** and funding structure in Europe;
- As **career structures vary**, so do **time and content** of an postdoc phase and status;
- It covers about **109 funding and contractual schemes** for young doctoral researchers and postdoctoral positions;

The **volume of funding varies widely**, for 3 to 5 years:

- 30% of the schemes up to €200 thousand;
- 28% of the schemes up to €500 thousands;
- 10% of schemes above €1.000 thousands, for 5 years;

The **duration of the schemes** varies widely, but always below 5 years:

- 50% of the schemes offer 3 to 4 years;
- 30% of the schemes offer 2 years, or less;
- **Only 20% of the schemes offer 5 years or more;**
- Short term funding is prevalent in mobility schemes;

In general, it shows an **unacceptable coupling between “project funding” and “institutional employment” or “contractual schemes”**, leading to **temporary and precarity jobs** and **lack of responsibility**, at individual and institutional levels.

A long time-frame *policy* and *advocacy* process....

- **May 2021:** [Council Conclusions](#) on Research Careers, under the Portuguese Presidency of the Council of the EU
- **June 2022:** [Gago Conference on Research Careers](#) in Brussels
- **September 2022:** Publication of [A Manifesto for Early Career Researchers](#)
- **January 2023:** [Handover](#) of the Manifesto to Commissioner Mariya Gabriel also as covered in [ScienceBusiness article](#)
- **March 2023:** Workshop [Delivering a package supporting early-career researchers](#) organised by the European Commission
- **June 2023:** [Fourth meeting Task Force Human Resources 2022-2023;](#)
- **July 2023:**
 - **Council Recommendation that establishes a new European framework for research careers;**
 - **A new Charter for Researchers**, replacing the 2005 Charter and Code for Researchers with new and revised principles;
 - **The European Competence Framework for Researchers (ResearchComp)**, to support inter-sectoral mobility of researchers.

November 2023: EU Conference on Research Careers 2023, EC, Brussels

A long time-frame *policy* and *advocacy* process....

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The ultimate goals:

1. The implementation of revised assessment procedures, emphasizing the quality of research jobs in Europe, in parallel with the quality and impact of research results...

2. A new program at EU level to co-fund institutions towards strengthening research careers, by 2028...

A call for action - 2: **Five dimensions** for a potential strategy, for 2030:

1. Strengthen evidence based, by implementing a '**Research & Innovation Careers Observatory**': it requires *adequate granularity* over time and at EU, national and regional levels, to enable comparisons over time and between geographical areas;
2. **Modernise outdated legal and employment frameworks**: requires going beyond RESAVER and must consider critical aspects, among others: i) Researchers at risk; ii) Academic freedom; and iii) Research careers under collaborative arrangements.
3. Unlock stability in researcher careers through **sustainable institutional funding**: requires the Public and Private commitment for the target of **GERD= 3% GDP, 2030**;
4. **Pursue balanced funding** to achieve **balance between temporary and non-temporary** contracts and **promoting clear career paths at every institution** (as proposed in the Council Recommendation on '**European Framework for Research Careers**'), with the institutional commitment for adequate paths of: i) Recruitment; ii) Career development (3 levels: assistant/associate/full); and iii) Tenure;
5. Launch a **European Initiative to foster institutional support of (early-career) researchers** through: i) a new institutional co-funding program at EU level; ii) new assessment procedures.

A new initiative: the “CESAER Researchers Careers Survey 2024”

Goal: the need to introduce in Europe, in a gradual and stepwise way, two potential major breakthroughs that require a lot of experimentation and a stepwise approach:

1. The design of future **research assessment methodologies** to consider the “**quality of research jobs**” in parallel with the **quality and impact of research results**, taking into account the efforts already ongoing in the context of [COARA](#).
2. The adjustment of current funding instruments, and **potential design of future new institutional funding instrument, to support institutions in advancing modern and stable research careers**. This includes to better balance temporary and non-temporary contracts for researchers. Emphasis will be on **young researchers and early-career researchers**.

Calendar: spring to summer 2024, with information from institutional level to prepare a research careers report (to be published in early 2025)

Main novelty: to consider an “**institutional approach**“, looking and deepening the analysis of the “quality of research jobs” in a sample group of voluntary institutions.

How to Launch a **European Initiative to support *Research Careers?***

Background: the proposal from the European Commission to **amend the 2024 Horizon Europe work programme** for ‘Widening participation and strengthening the European Research Area’ to launch a **pilot action of around € 10-15 million** to ‘promote excellence in supporting research careers’

A proposal:

- 1. Experimentation, with gradual implementation,** towards: i) a new potential funding line for the **10th EU Framework Program (2028-2035)**, based on **co-funding schemes** to promote careers; and ii) experiment **new assessment methods** to consider the quality of research jobs in parallel with the quality and impact of research results...
- 2. It should complement ERC and could be implemented to expand MSCA** as an additional key instrument for reinforcing scientific leadership and excellence in Europe;
- 3. It should be oriented to fund institutions (i.e., employers), based on competitive assessment of their career tracks and pathways;**
- 4. It should provide funding with the explicit aim to ‘boost excellence in institutional support of (early-career) researchers’, based on peer review of proposals for (transformational) institutional approaches** that support and foster modern research careers.



Industry 5.0: A Transformative Vision for Europe

ESIR
Policy Brief No.3

Independent
Expert
Report



**Industry 5.0 and
the Future of
Work:**
making Europe the
centre of gravity for
future good-quality
jobs

ESIR Focus paper

Independent
Expert
Report

Physical environment

Posture-related (ergonomic)
Ambient (vibration, noise
temperature)
Biological and chemical

Social environment

Adverse social behaviour
Social support
Management quality

Work intensity

Quantitative demands
Pace determinants and
interdependency
Emotional demands

Skills and discretion

Cognitive dimension
Decision latitude
Organisational participation
Training

Working time quality

Duration
Atypical working time
Working time arrangements
Flexibility

Prospects

Employment status
Career prospects
Job security
Downsizing

Earnings

European
Commission

Industry 5.0 and
the Future of
Work:
making Europe the
centre of gravity for
future good-quality
jobs

ESIR Focus paper

Independent
Expert
Report

Independent
Expert
Report

Research and
Innovation

Research and
Innovation

Following Rodrik and Stancheva (2019),

“good jobs” are meant as “jobs that provide a middle-class living standard, a sufficiently high wage, good benefits, reasonable levels of personal autonomy, adequate economic security, and career ladders”.

**Industry 5.0 and
the Future of
Work:**
making Europe the
centre of gravity for
future good-quality
jobs

ESIR Focus paper

Independent
Expert
Report

An Industrial Policy for Good Jobs

Dani Rodrik



- Industrial policy is as **old** as the state itself.
- But the debate has traditionally revolved around the question of **whether governments should engage** in industrial policy at all, **instead of the more relevant (and useful) question of how they should do so.**
- **The present** economic and technological context for industrial policy is **very different**—not just from Alexander Hamilton’s day, but also during the 1960s and 1970s.
- It is **typically assumed** that increased investments in **physical capital or innovation** will produce improved labor market outcomes.

Instead, Rodrik (2022) provides evidence that **good jobs must play an explicit and much more significant role in the design of policy (industrial and others...).**

In the absence of **programs targeted specifically on the supply of good jobs and on technologies that are friendly to workers**, labor market problems will continue, with significant costs to the social and political fabric of the nation

Rodrik proposes a **competitive allocation of funds** for the operation of **local good-jobs** programs.

...Instead of open-ended tax incentives or subsidies, the conduct of industrial policy must then rely on the provision of customized public inputs through **collaborative, iterative dialog with firms and public org., and with soft conditionality on employment quantity and quality**. This approach helps **public and private employers** to internalize **good-jobs externalities** in their employment, training, investment, and technological choices.

- Industrial policy is as **old** as the state itself.
- But the debate has traditionally revolved around the question of **whether governments should engage** in industrial policy at all, **instead of the more relevant (and useful) question of how they should do so**.
- **The present** economic and technological context for industrial policy is **very different**—not just from Alexander Hamilton’s day, but also during the 1960s and 1970s.
- It is **typically assumed** that increased investments in **physical capital or innovation** will produce improved labor market outcomes.

Instead, Rodrik (2022) provides evidence that **good jobs must play an explicit and much more significant role in the design of policy (industrial and others...)**.

In the absence of **programs targeted specifically on the supply of good jobs and on technologies that are friendly to workers**, labor market problems will continue, with significant costs to the social and political fabric of the nation

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“climate change is the biggest threat to our ecological environment, **labour market shocks are the biggest threat to our social and political environment.**”

Following the analysis of Dan Rodrik (2022) for the US, the recent report of Renda, Balland and Bosoer (2023) outlines the importance, for Europe, of “**securing the creation of good jobs in sectors and occupations that contribute to Europe’s vision of a future resilient, sustainable and competitive economy.**”

The proliferation of initiatives such as the *Pact for Skills*, the *Alliance for Apprenticeships*, the *Deep Tech talent initiative*, the *Net Zero Academies* and many others show that EU institutions have embraced a vision of industrial policy that incorporates both the consideration of the **quality of jobs** per se, as well as a degree of directionality as to which sectors (or industrial ecosystems) should see the most significant growth of good jobs.”

Allora & Calzadilla (2008), "Stop, Repair, Prepare: Variations on Ode to Joy for prepared Piano"
at Serralves Museum of Contemporary Art, Porto, PT, 2023

Pianist in a modified Berchestein piano, playing the "Ode of Joy" (Beethoven's 9th Symphony; EU's Anthem), and tracing a path through the exhibition area.

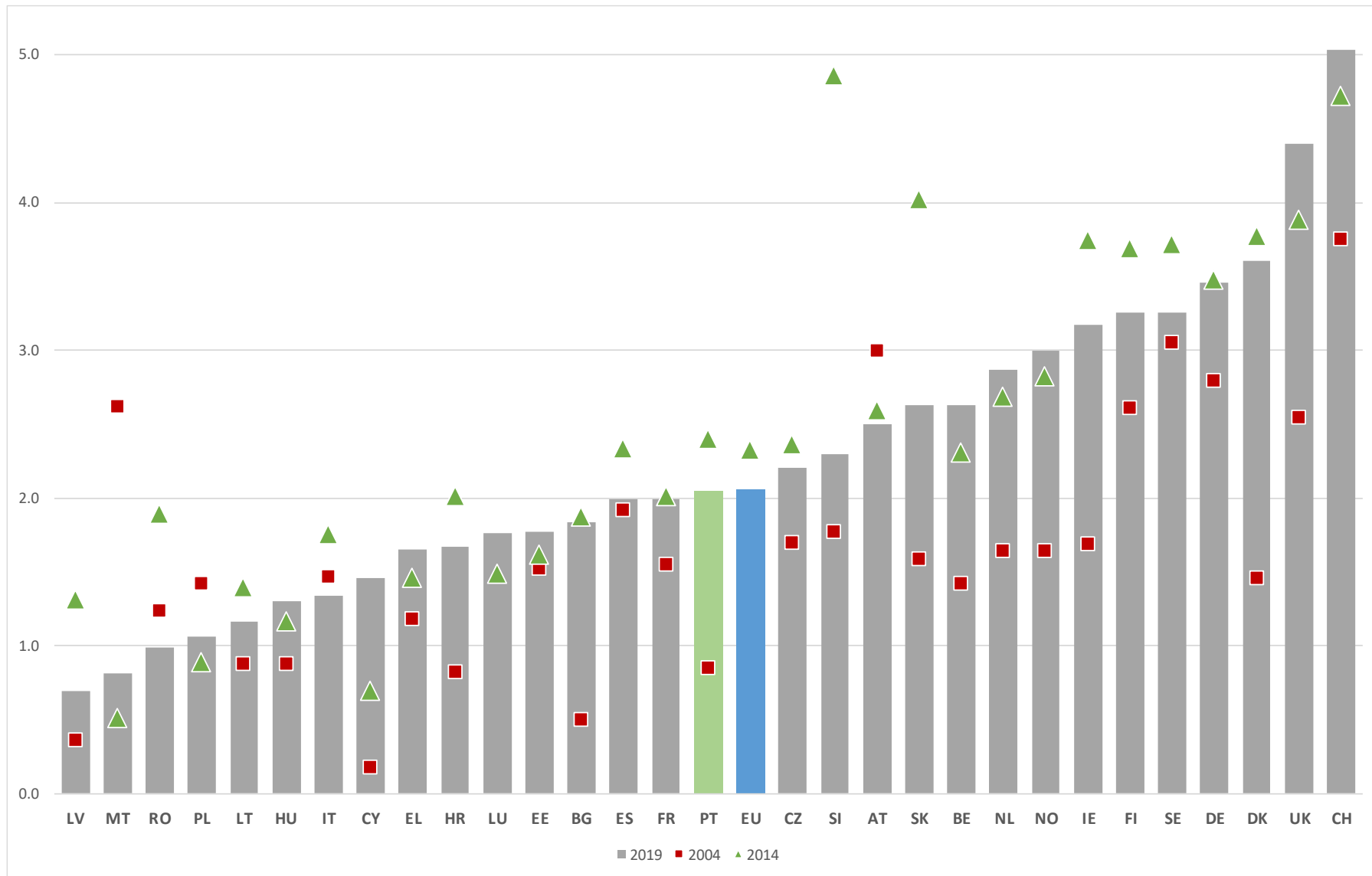
[...] **the attainable perfection of an idea...**



DEBATE

FLUX OF DOCTORATES IN EU:

NEW DOCTORATES PER YEAR & PER 10 THOUSAND INHABITANTS



Fonte: Eurostat | Nota: valor inicial de MT diz respeito a 2005; valor inicial de FR diz respeito a 2006

GERD/GDP: General Research Expenditure as a fraction of GDP in EU

