Which critical questions for any doctoral student (*anywhere, anytime*)?

1. Why *your problem* is **interesting, original and relevant**?

2. How far *your proposed solution* is **the best you can do**?

3. In *which theme you will become* a ***world leader*** by the end of your PhD?

…Results in 4 critical issues for any doctoral student (*anywhere, anytime*):

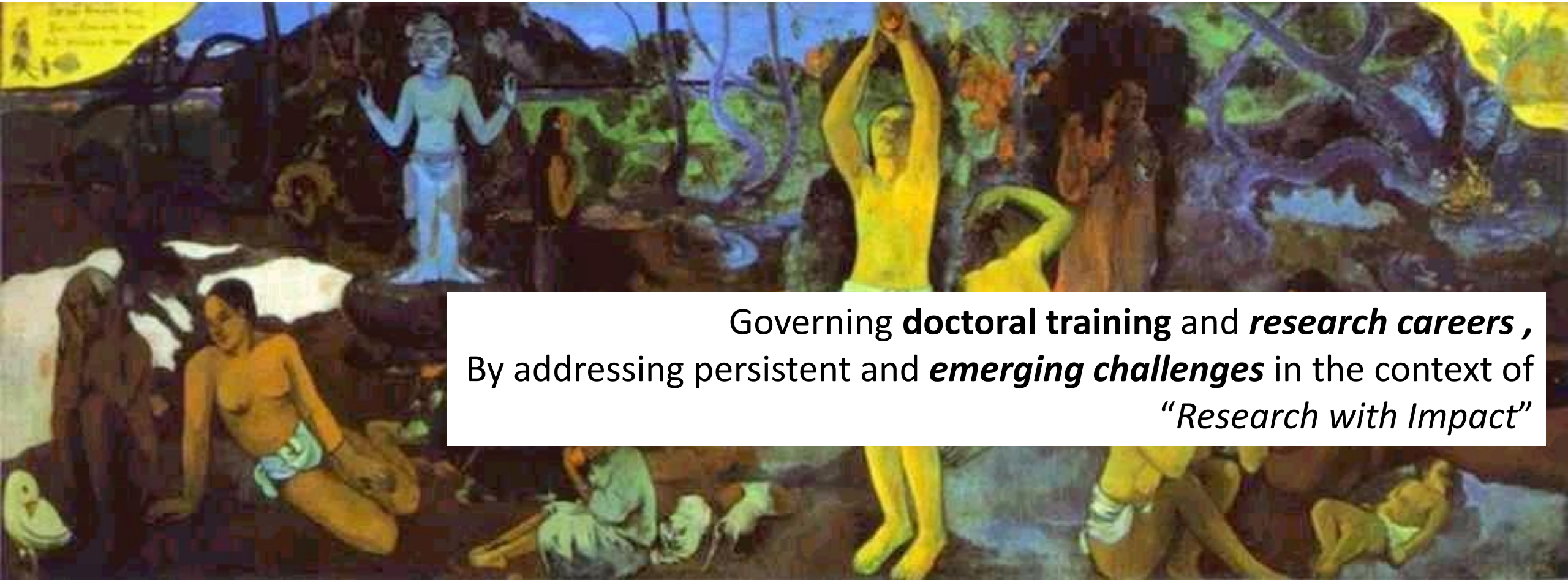
a) **YOU**: *your choices, your autonomy…*

b) **THE OTHERS**: *your peers, your collaborators (researchers; experts; institutions…)*

c) **THE PROCESS**: where to do *field work? Academia/Science/Industry/Public Adm.*

d) **THE DAY AFTER**: ***What? How to be prepared?***

Where do we come from? Who we are? Where are we going?



Governing **doctoral training** and ***research careers ,***
By addressing persistent and ***emerging challenges*** in the context of
"Research with Impact"

Paul Gauguin, *1897* : ***D'où Venons Nous / Que Sommes Nous / Où Allons Nous***.
Museum of Fine Arts, Boston, Massachusetts, USA


neuraspace

The Guardian

Portugal runs for four days straight on renewable energy alone
Zero emission milestone reached as country is powered by just wind, solar and hydro-generated electricity for 107 hours

May 18, 2016

National Geographic: ENERGY

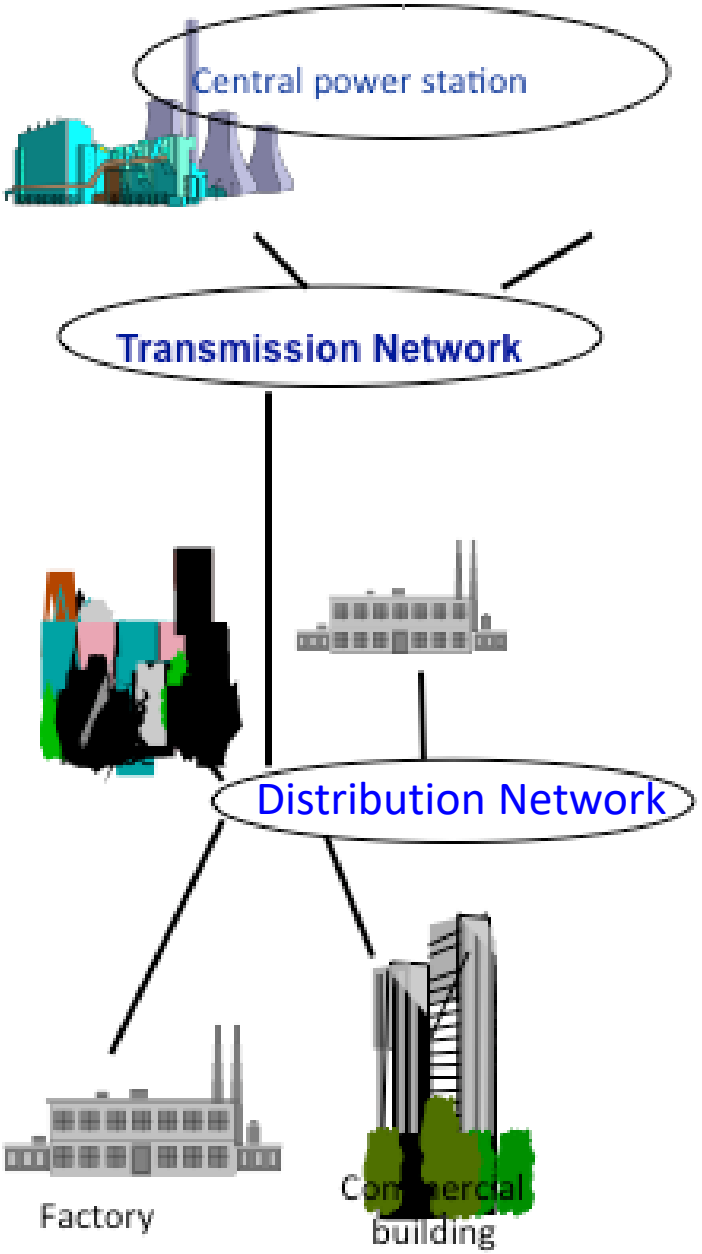
Portugal Ditched Fossil Fuel Power for 4 Days. Can We Go Longer?
Achieving a big scale-up of renewable energy will take more than building wind and solar power plants.

May 27, 2016

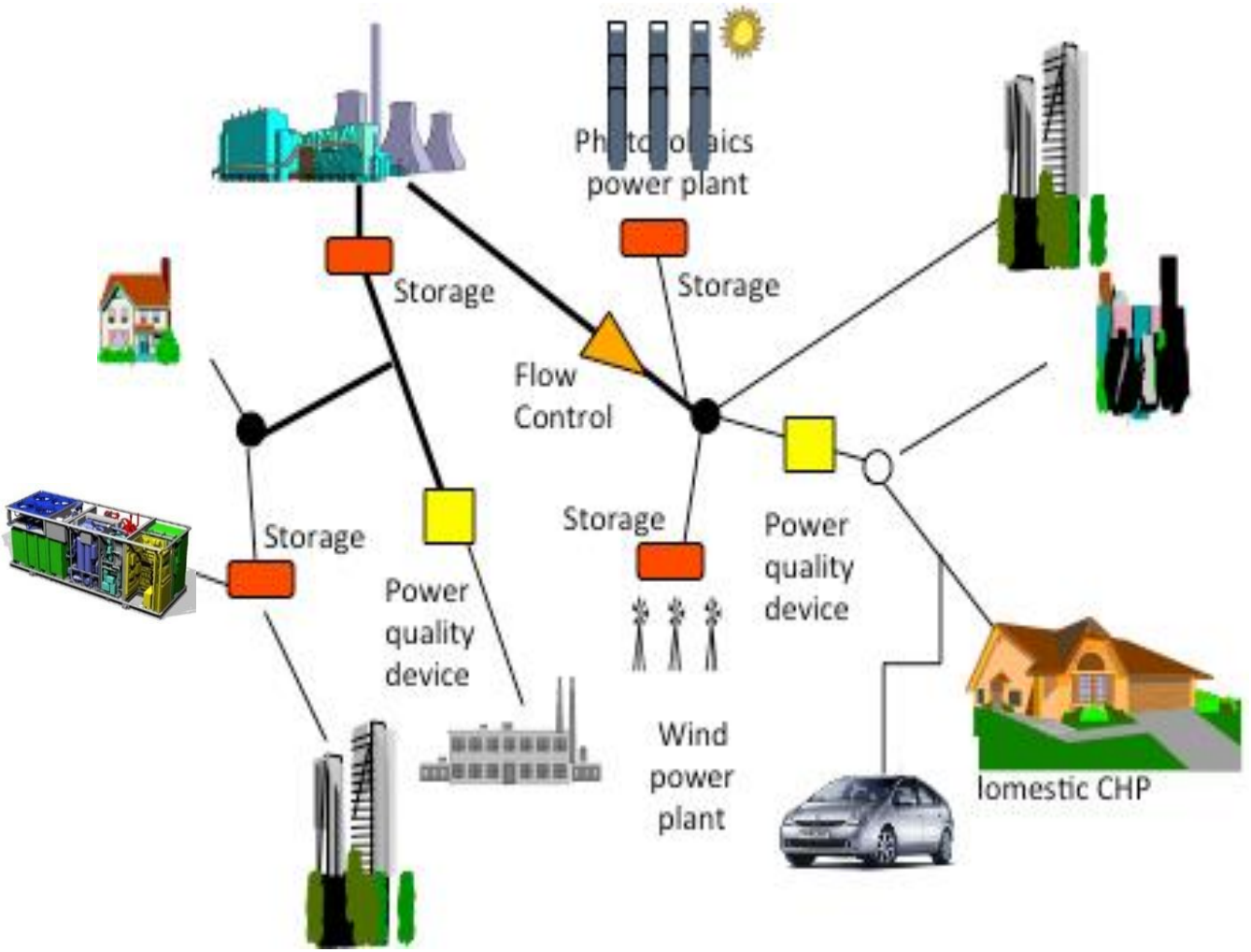
Since 2016: world year record

Portugal: ***4 consecutive days fully powered by renewable energies***

Which expected changing paths in electric energy networks?



Change towards distributed / on-site generation with fully integrated network management



DRIVING FORCES LEADING TO CHANGE

Driving forces for future electric energy systems:

1) Environmental issues: (reduce emissions by replacing fossil generation by zero emission generation, reduce network losses), minimize visual impacts and land use. → Large Increase in Electricity Consumption

2) Replacement of old infrastructures (generation and grid)

3) Security of Supply

4) Increase quality of service (more automation and remote control)

5) Electricity market liberalization (energy and services)

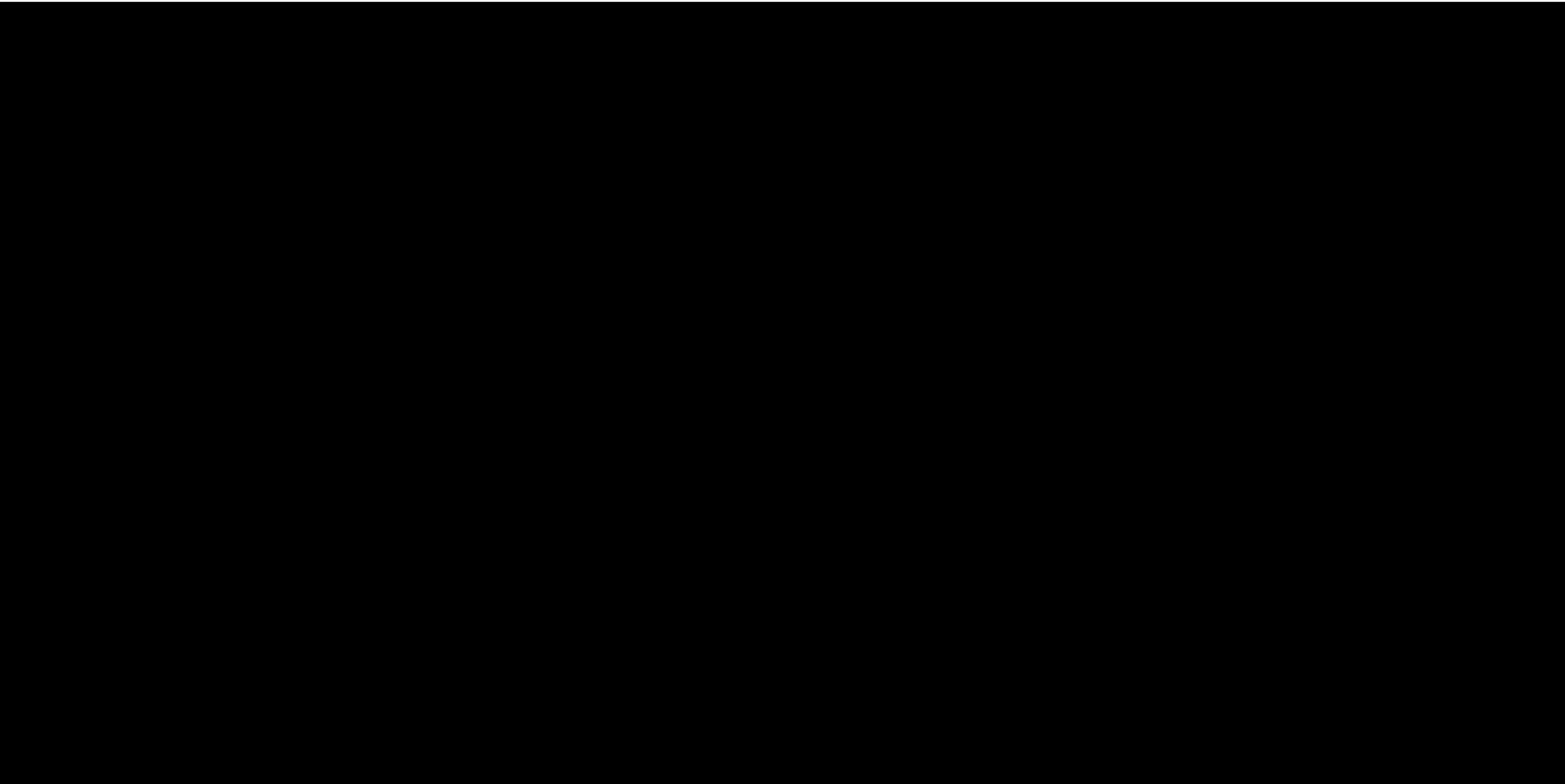
- **Expected changing paths:**
  1) Increase renewable generation, exploit clean coal technologies, CCGT and others
  2) Increase Distributed Generation
  3) Exploit flexibility from the side of the consumption (including EV)

ADOPTION OF A SMART GRID PARADIGM,

which requires a better understanding of changing paths…

…it depends on the “body of knowledge” and well trained teams of experts

PROJET C-TECH: CLIMATE DRIVEN TECHNOLOGIES FOR LOW CARBON CITIES



Message 1: Keep learning, by being ambitious and **innovative**. **Be international** and work with leaders. Change the world, making use of your knowledge, **but guaranteeing that all others are also ambitious and innovative…**

- Guarantee that "**Your parents and the parents of your friends really don't understand what you are doing!**"…
- **It means each generation explores new things, and has the collective opportunities to do so**. That is a healthy sign. It is a **generational changing movement in a dynamic and continuously learning environment**.
- **Start with and work on your own ideas, invest on them, do and insist on research**, exchanging views with others and test and validate them, until you have a greater idea, scientifically sound and socially adequate…

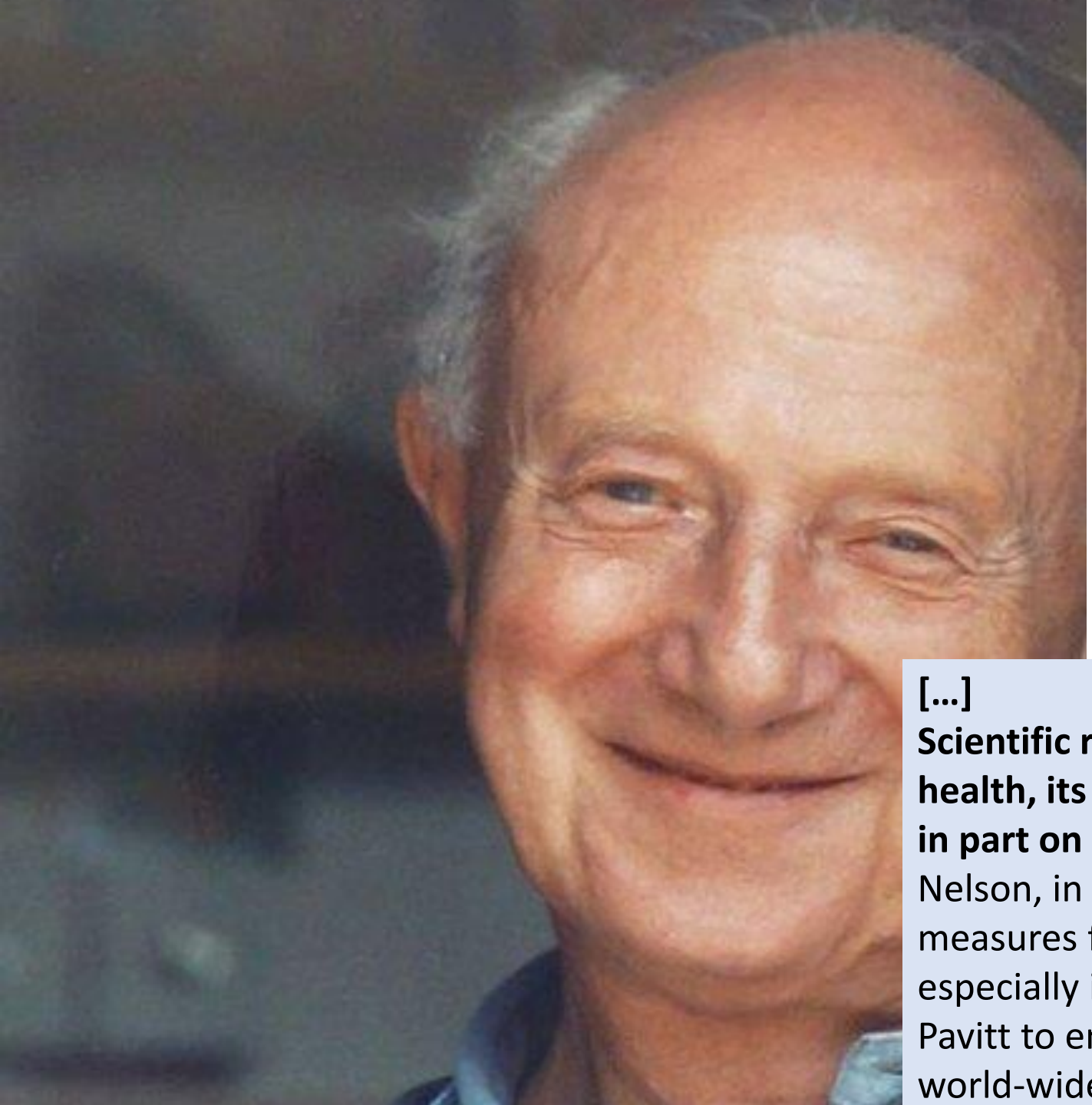
Message 2: Keep learning, by being responsible, green and inclusive across all disciplines

- Understand emerging **collective behaviors and our common responsibility to secure the life of future generations** in times of **emerging decentralized digital networks** and **AI enabled innovations.**
- Adopt and pursue a **transdisciplinary** approach **to collective behaviors**, so that you and all other citizens are better ***responsible*** in an emerging **decentralized digital age**.
- **Concentrate your efforts on the need to guarantee carbon neutrality**, addressing the impending climate disaster, as well as our global safety, this being the central endeavour that should drive technology governance in the digital age.

Message 3: Keep learning, by being human and fostering solidarity: your choice, your body, your mind with your knowledge and our common scientific understanding, guaranteeing that all others have the same opportunities to their own choices and their own bodies

- Making your **own decisions about your body is a basic human right**.
- **Acknowledge your privilege**, fight oppression with ambition, knowledge and solidarity, empower the younger and less privileged.

https://rebellion.earth/https://rebellion.earth/



Science and Public Policy, volume 28, number 6, December 2001, pages 477–479, Beech Tree Publishing, 10 Watford Close, Guildford, Surrey GU1 2EP, England

Viewpoint

If I ruled the world

Christopher Freeman

I asked Christopher Freeman, shortly before his 80th birthday (on 11 September 2001), what he would do if he ruled the world. He was reluctant to take the question seriously. Finally, he produced this answer.

A friend and colleague of Chris Freeman

I SHALL ASSUME a (slightly) more realistic scenario. I shall assume I have become the first woman President of the United States in the election of 2004, after defeating Bush by a wide margin (includ-

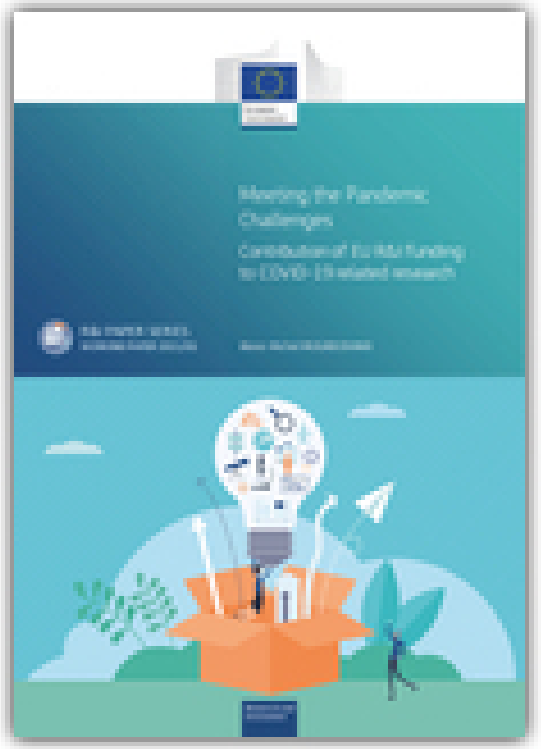
their drawing rights in the IMF (International Monetary Fund), and others have exhausted other private international credits and have defaulted. The UN is nearly bankrupt because of the failure of the previous US Government to pay its subscriptions and the high cost of 'peace-keeping'.

I would therefore propose an emergency programme to ensure world-wide renewal of economic growth based on the following measures:

∑ The Tobin Tax on foreign exchange transactions. I would urge Professor Tobin[1] himself, in consul-

[…]

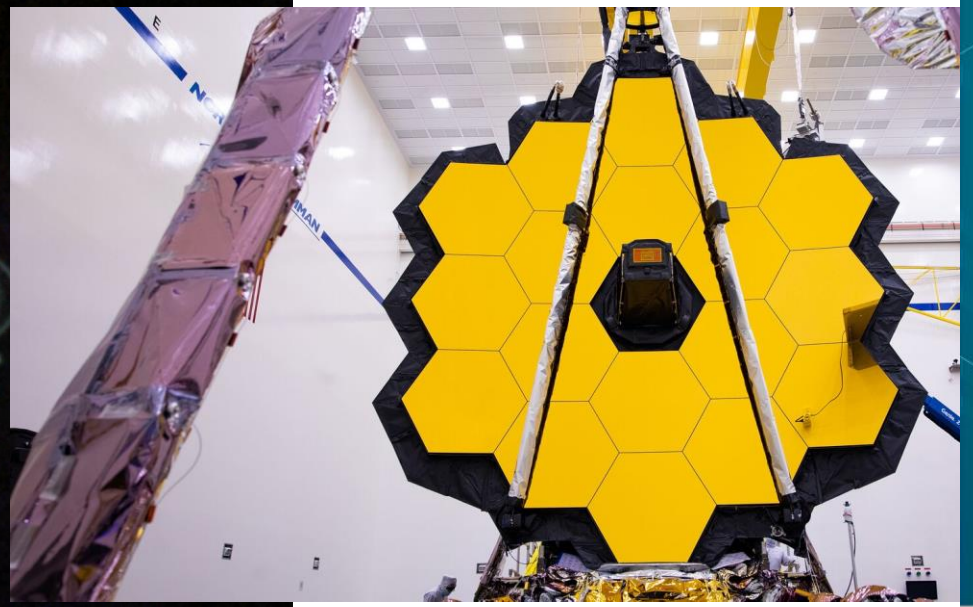
Scientific research. The long-term **future of the world, its health, its prosperity and its quality of civilisation depend in part on the results of research.** I would invite Professor Nelson, in association with the NSF and UNESCO to prepare measures for strengthening basic research worldwide and especially in the poor countries. I would invite Professor Pavitt to enlarge his proposals for European research onto a world-wide scale.



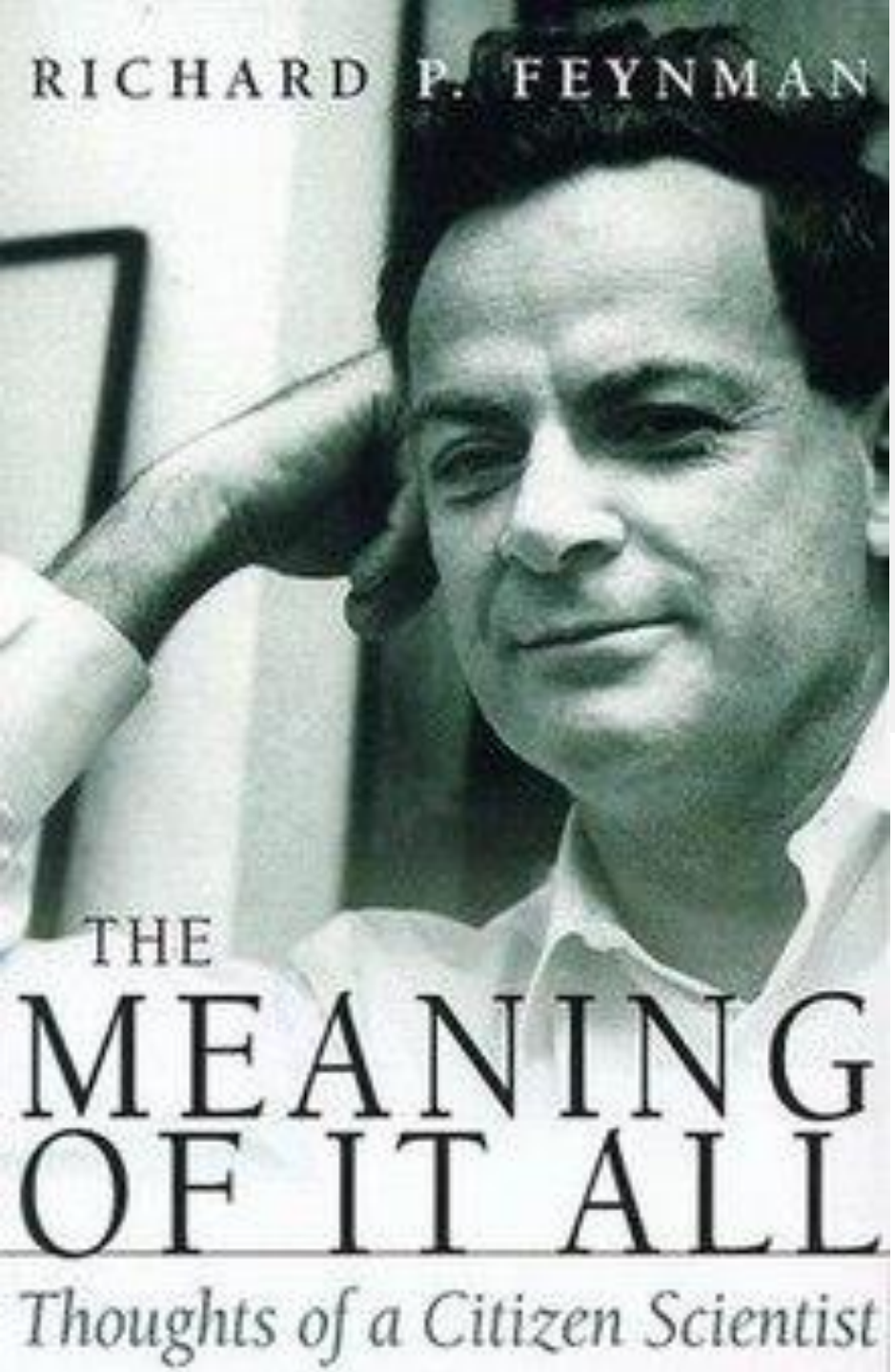
EC (2021) Meeting the pandemic challenges:
Contribution of EU R&I funding to COVID-19 relate

•The EU contributed a third of the funding for the de
which the Oxford-AstraZeneca vaccine is based (ran

•The EU research funding programmes significantly s
mRNA vaccine research of Professor Ugur Sahin. The
FP7 and Horizon 2020 totalling about €10.7 Million. T
programme FP6, a €4.5 Million grant to the ***startup B***
vaccine to market), from the Health Programme an
from H2020.




PORTUGAL
SPACE



Feynman (1998) discusses science as a "**method to discover things**", and that depends mainly on methods of **rigorous observation**, stressing that:

- ***uncertainty and doubt in science are good***, because they always stimulate new research activities and the deepening of knowledge.
- But they raise other critical questions about ***public understanding of science***, which require realizing the distinction between **questions that science can answer** (i.e., "what will happen"), and **questions that science cannot answer** (i.e., "what do I want it to happen").

Feynman addressed the need to **understand three ways** of describing scientific activity, namely in terms of:

- the **method of "doing" science**;
- the **body of scientific knowledge** that results from doing science; and
- the **application of science, generally associated with technology**, including for ***medical treatments*** and the cure of diseases, as well as for **war purposes** or even ***mass destruction*** (namely in terms of nuclear sciences).

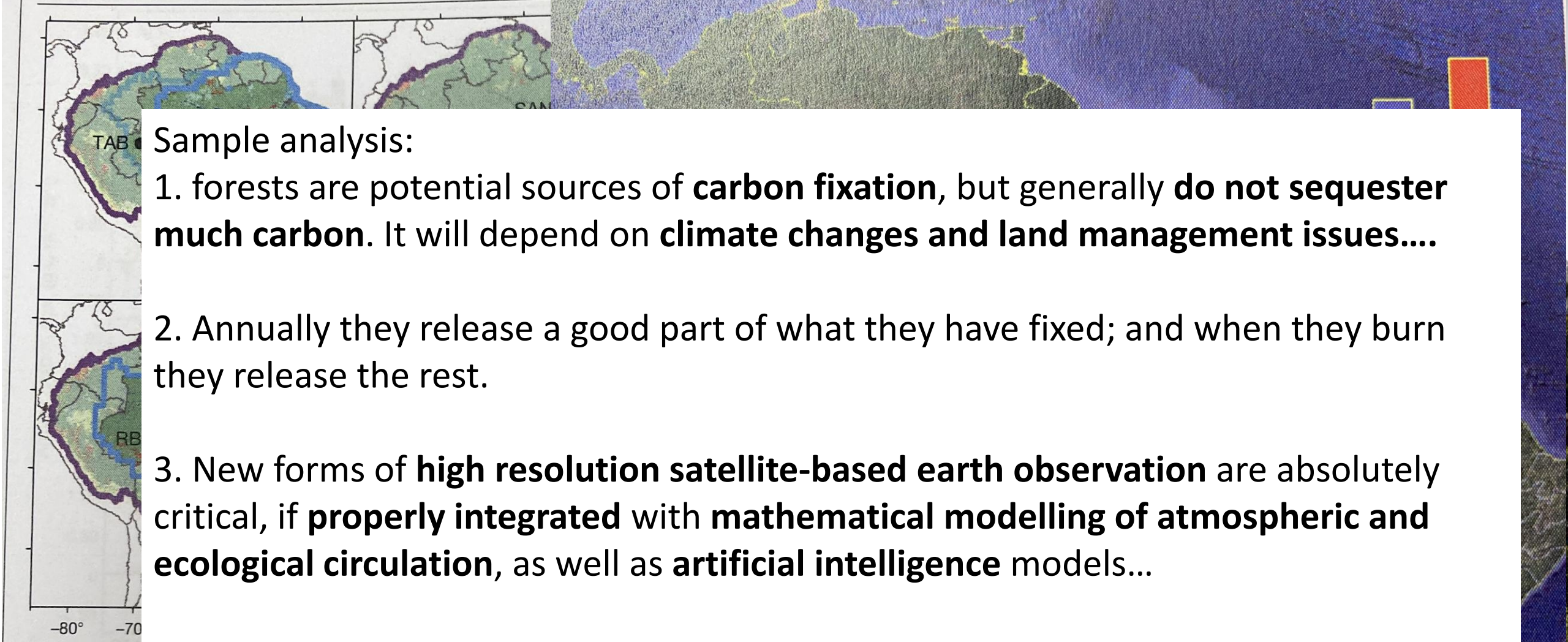


Fig. 1 | Region
delimited by li
back-trajector
the Amazon m
(northwest; TA
(southeast) an
circles. Cumul
for the Brazilia

Sample analysis:

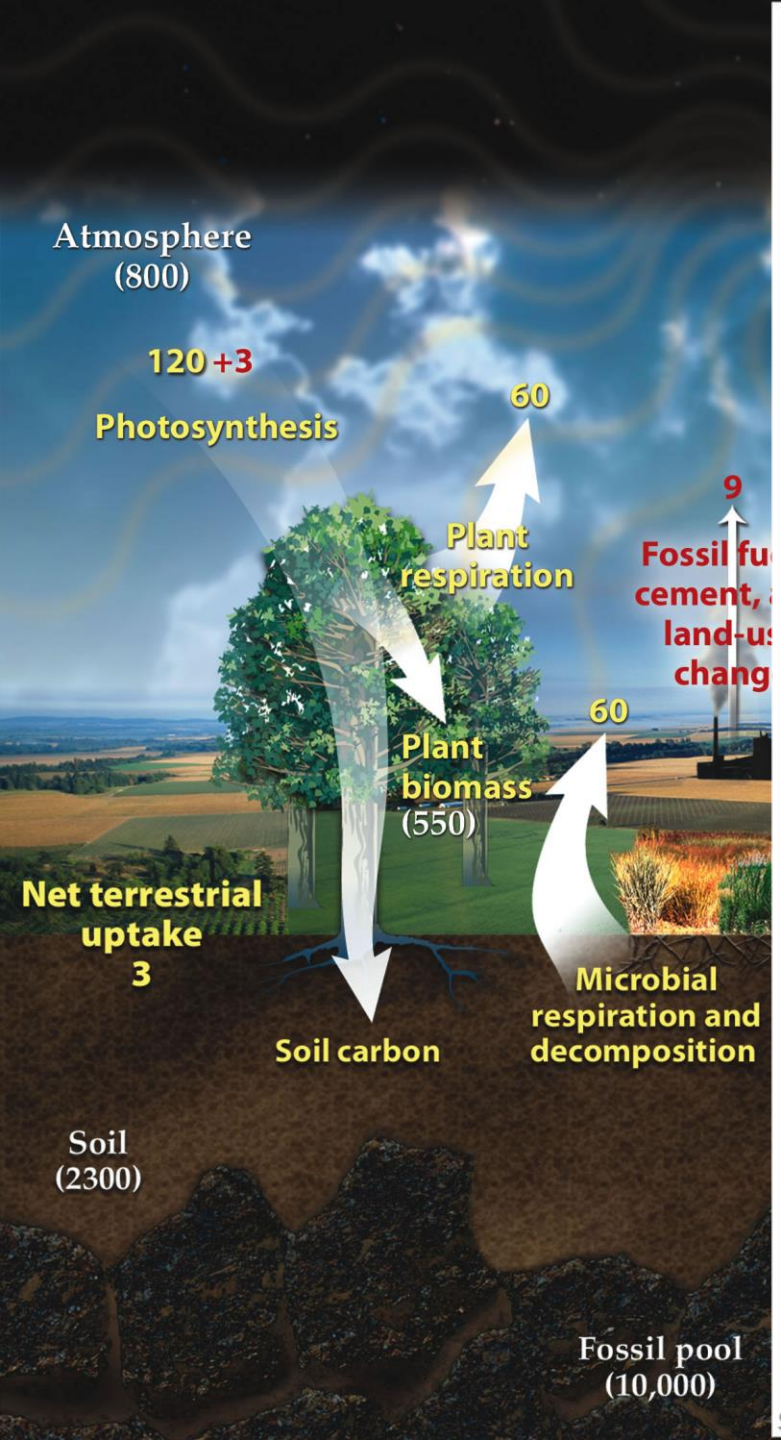
1. forests are potential sources of **carbon fixation**, but generally **do not sequester much carbon**. It will depend on **climate changes and land management issues….**

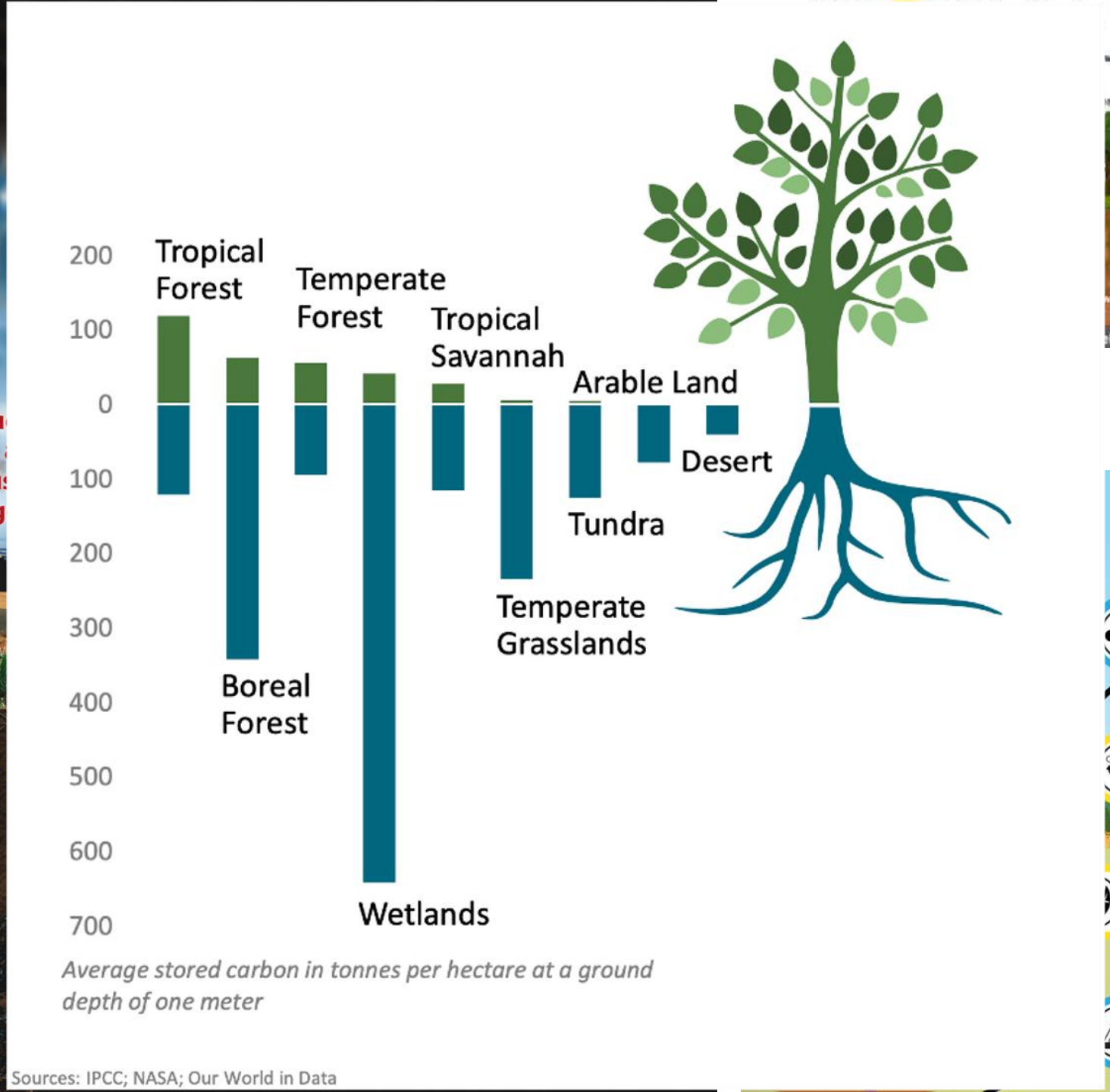
2. Annually they release a good part of what they have fixed; and when they burn they release the rest.

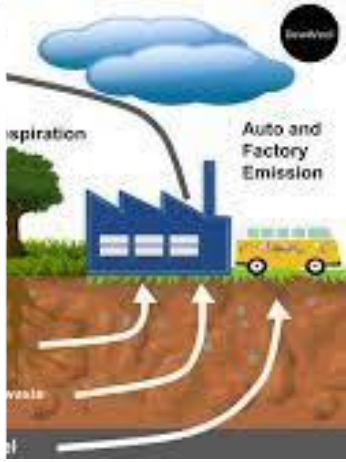
3. New forms of **high resolution satellite-based earth observation** are absolutely critical, if **properly integrated** with **mathematical modelling of atmospheric and ecological circulation**, as well as **artificial intelligence** models…

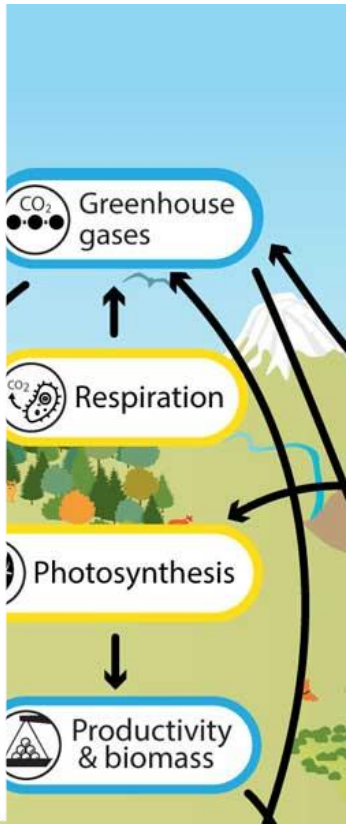
A potential vision:

a space-based approach for carbon mapping and sustainable land management, *considering "Human Agency" and the need to guarantee responsible, climate-aware systems in complex landscapes in a decentralized and AI-supported digital age.*


Atmosphere
(800)
120 +3
Photosynthesis
60
Plant
respiration
9
Fossil fu
cement,
land-us
chang
60
Plant
biomass
(550)
Net terrestrial
uptake
3
Microbial
respiration and
decomposition
Soil carbon
Soil
(2300)
Fossil pool
(10,000)

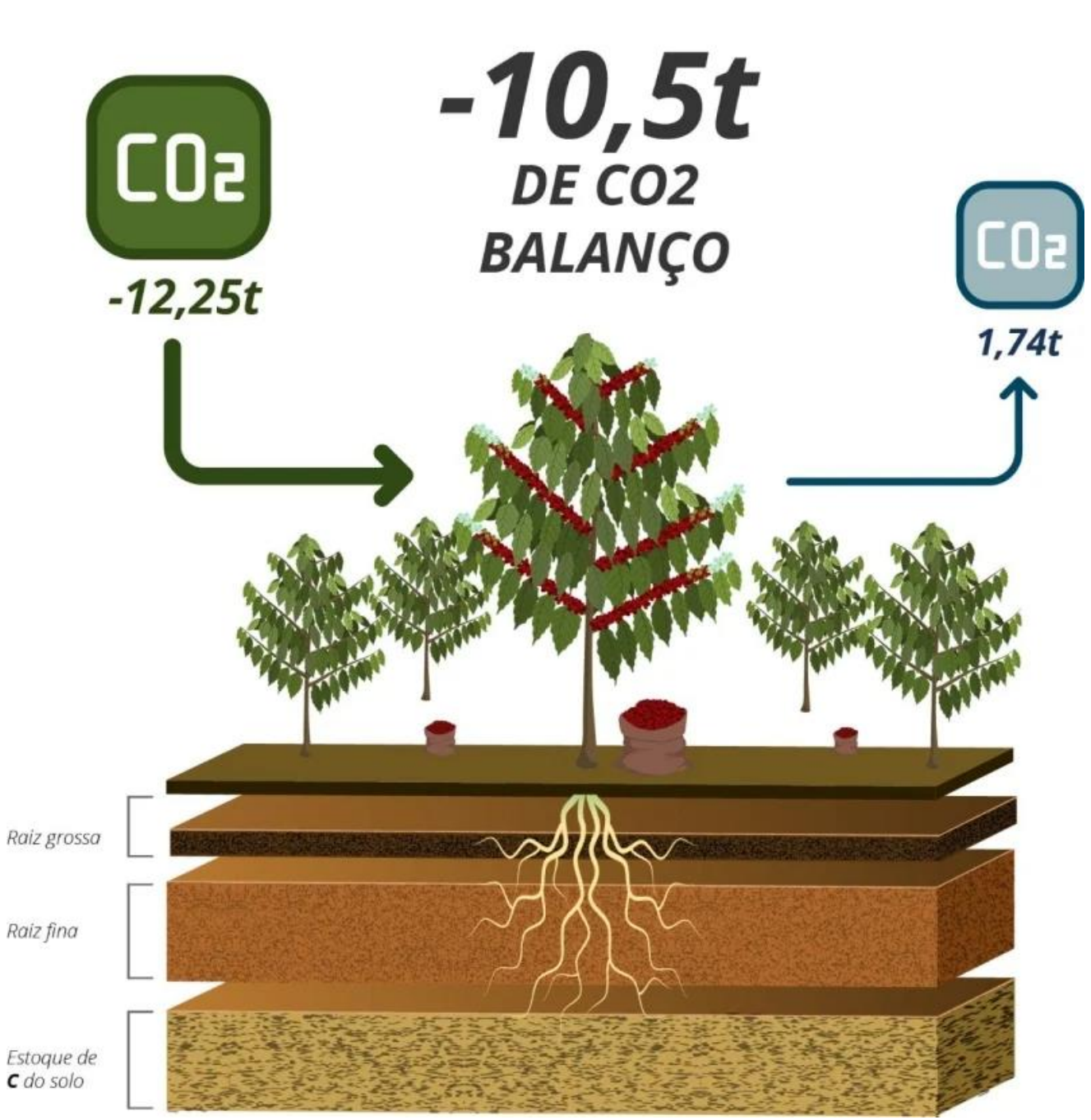

200
100
0
100
200
300
400
500
600
700
Tropical
Forest
Temperate
Forest
Tropical
Savannah
Arable Land
Desert
Tundra
Temperate
Grasslands
Boreal
Forest
Wetlands
Average stored carbon in tonnes per hectare at a ground depth of one meter
Sources: IPCC; NASA; Our World in Data


Auto and
Factory
Emission


CO2
Greenhouse
gases
Respiration
Photosynthesis
Productivity
& biomass

Cecafé Carbon Project:
negative carbon balance of 1.63 CO2eq/ha/year:

- calculation of the 3.40 tons sequestered in the plant biomass;
- against 1.77 tons from emissions from production in the field;
- implying that conventional coffee farming is also "**carbon negative**".



Fonte: EMBRAPA, 2019

Nama Bú (We exist)…

“Net Zero” means ***Changing:***

….**changing** our daily routines and work habits, as well as **our cities, transport, agriculture and industry** in order **to achieve a balance between the carbon emitted into the atmosphere and the carbon removed from the atmosphere**, together with **the balance of our ecosystems.**

Karen Paulina Biswell
(b. 1983, Bógota, Colombia)
***“Nama Bú”*, 2013;** Instituto de Visión

In the native *Emberá* language (also known as Chocó), “**Nama Bú” means ‘we exist’.** It is conscious of identity, human displacement and a ***sense of belonging***.

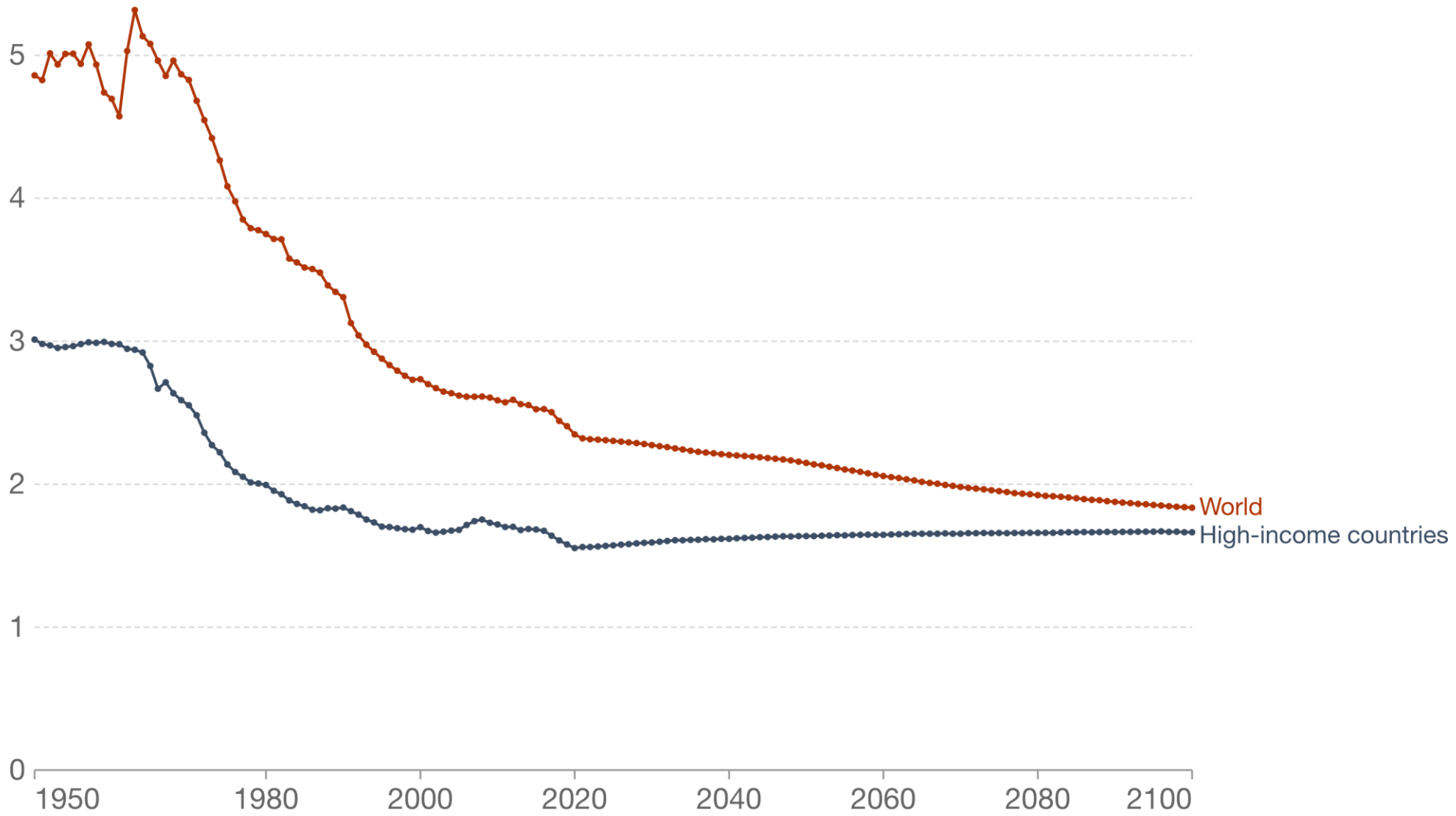
Population grow

The growth rate is the popul

Fertility rate: children per woman, 1950 to 2100

Projections from 2022 onwards are based on the UN's medium-fertility scenario.

Our World in Data



No data

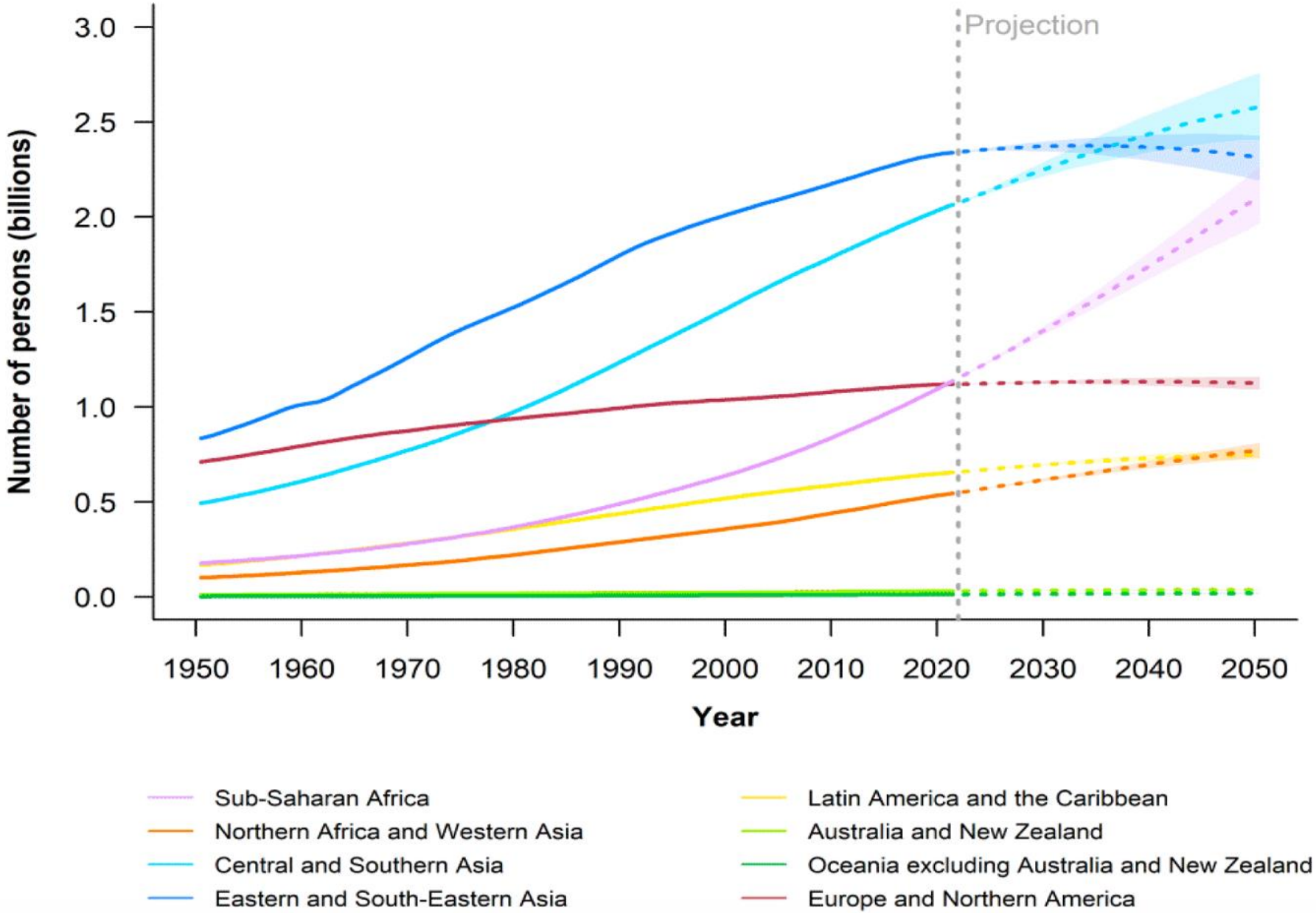
Source: United Nations World Population Prospects (2022)

CC BY

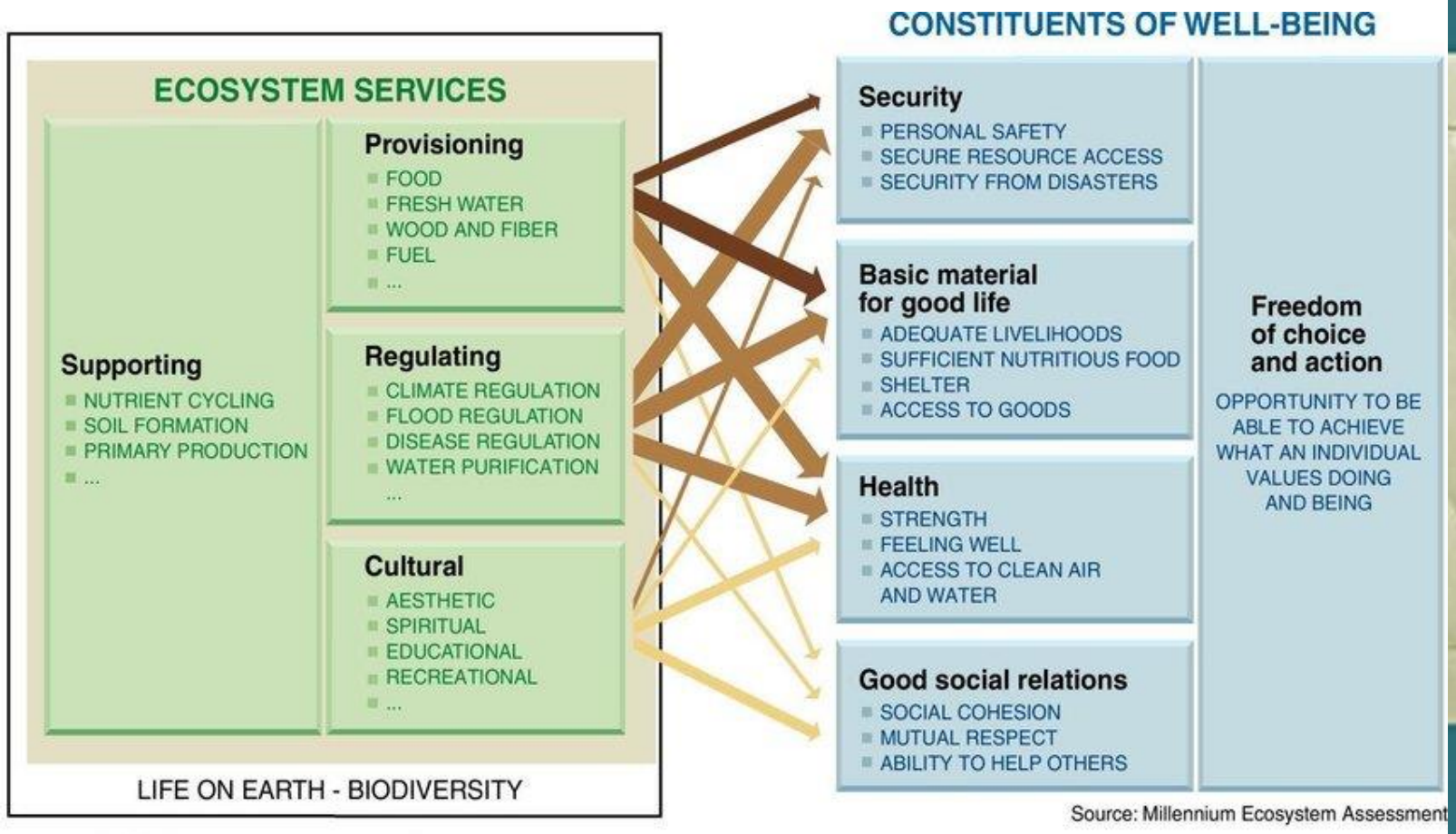
Note: The total fertility rate is the number of children that would be born to a woman if she were to live to the end of her child-bearing years and give birth to children at the current age-specific fertility rates.

Source: United Nations World P

Population estimates, 1950-2022, and projections with 95 per cent prediction intervals, 2022-2050, by region



TOWARDS AN "ENGINEERING SYSTEMS APPROACH" TO FOSTER LINKAGES BETWEEN ECOSYSTEM SERVICES AND HUMAN WELL-BEING ?



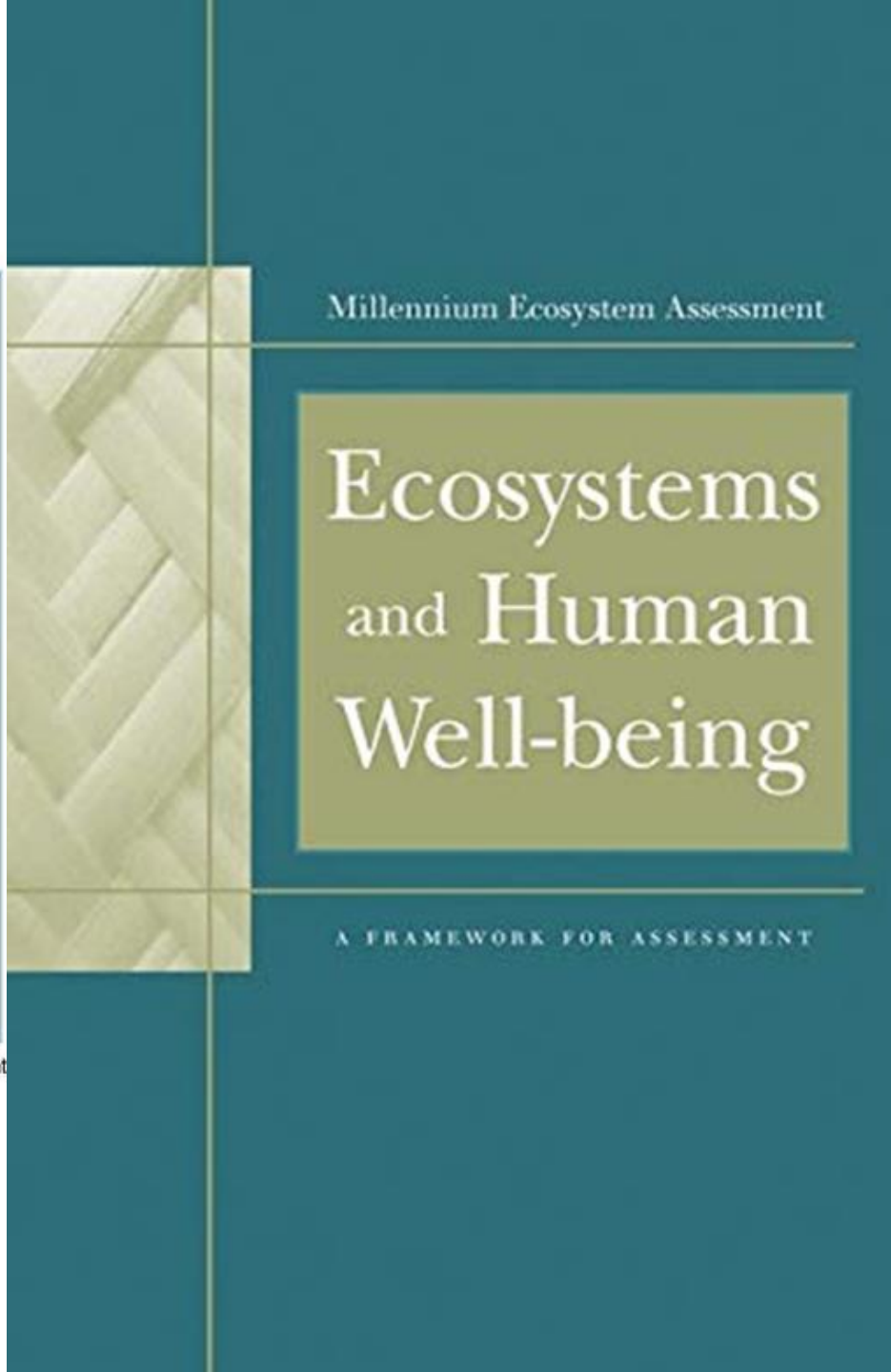
Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong



…a new "**uncertainty complex**" is emerging, <u>never seen before</u> in human history, including three volatile and interactive strands:

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**;


Graça Morais, 2012

"Estamos ***num tempo entre dois tempos***: o tempo da **surpresa** – o medo do horror e o tempo da sua **aceitação** – normalização. Neste tempo entre esses dois tempos, a nossa responsabilidade é evitar a aceitação do inaceitável e a profanação do sagrado.
[…]

Estas obras de Graça Morais são o sinal de uma responsabilidade e de um dever. São feitas de alerta e de alarme. Mas, nesse alerta e nesse alarme, acende-se a possibiliadde de que Kafka não tenha inteiramente razão quando afirma: "Existe esperança, esperança infinita, mas não para nós". Porque, como diz Walter Benjamim, "**é àqueles que não têm esperança que a esperança deve ser dada**"."

Jose Manuel dos Santos
Em "Os Desastres da Guerra"; Fundação Arpad Szenes – Vieira da Silva
Janeiro –Abril 2013

…the story of Rosalind Frankiln (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!

OVER 20,000 TICKETS AT £10

5 September - 21 November 2015 | NOËL COWARD THEATRE

ise:

ABOUT ACTION TEAM MEMBERS CONTACT

A Manifesto for Early Career Researchers

ResearchProfessional News

UK Europe USA Australia & NZ Africa World Opinion Funding Insight Highlighted

< Go back

UNIVERSITIES 14 JUN 2022 |

Manifesto seeks to support young researchers in Europe

By Rachel Magee

USINESS® Bringing together industry, research and policy

ocus Areas Events Reports Communications Services Advertising

Manifesto to save 'lost generation' of researchers

14 Jun 2022 | News

·wide call

nature

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.

d press

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?

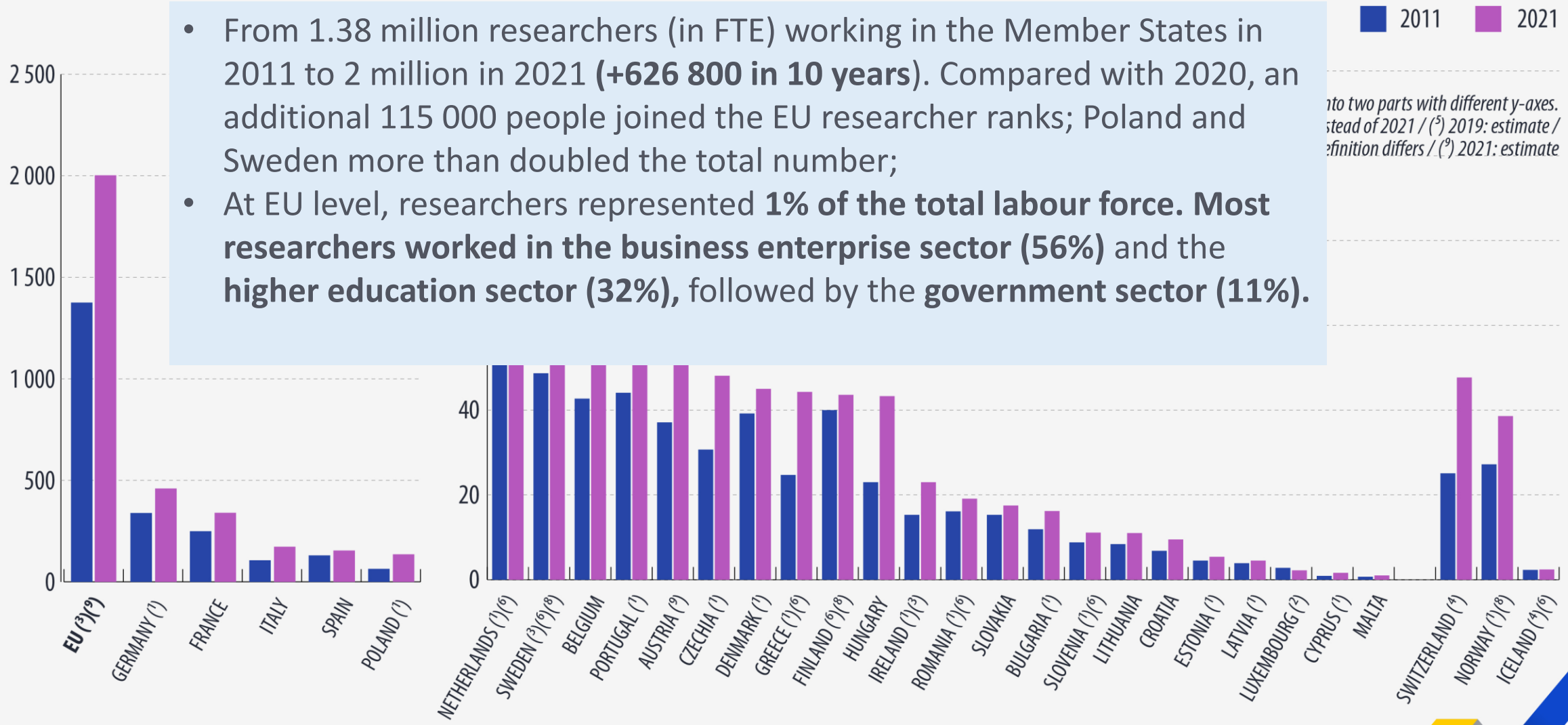
Background: By “career” environment we mean the way ***researchers*** are **recruited,** their work **assessed, rewarded** and eventually **disseminated**, which **employment conditions** they are offered and how they, as well as ***society*****, can profit from mobility across sectors and countries**.

EU reached 2 million researchers in 2021

Number of researchers, 2011 and 2021

(thousand full-time equivalents)

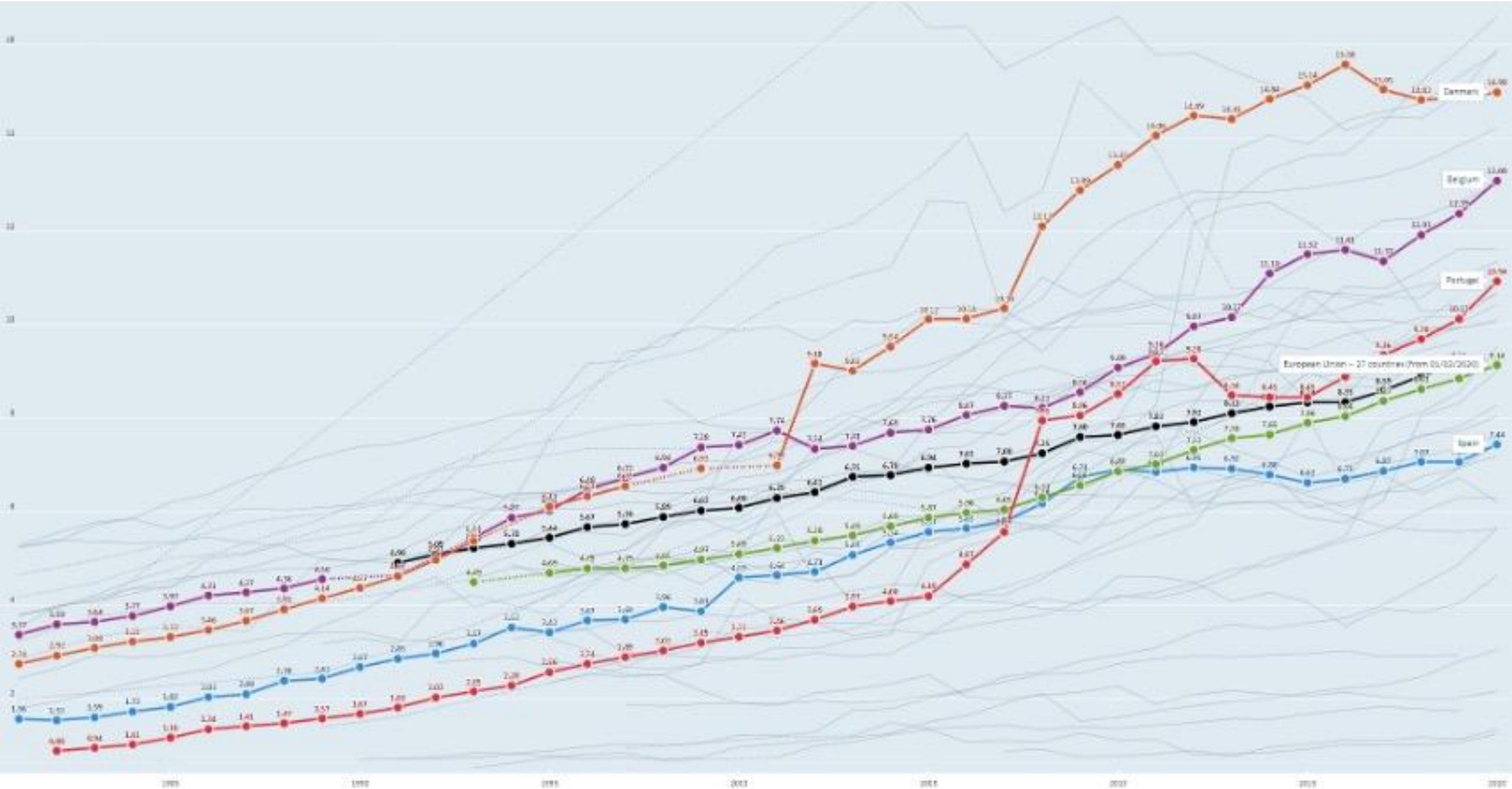
- From 1.38 million researchers (in FTE) working in the Member States in 2011 to 2 million in 2021 **(+626 800 in 10 years**). Compared with 2020, an additional 115 000 people joined the EU researcher ranks; Poland and Sweden more than doubled the total number;
- At EU level, researchers represented **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%).**



(Eurostat; Dec., 2022)

eurostat

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



- 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 postdoctiral positions;

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

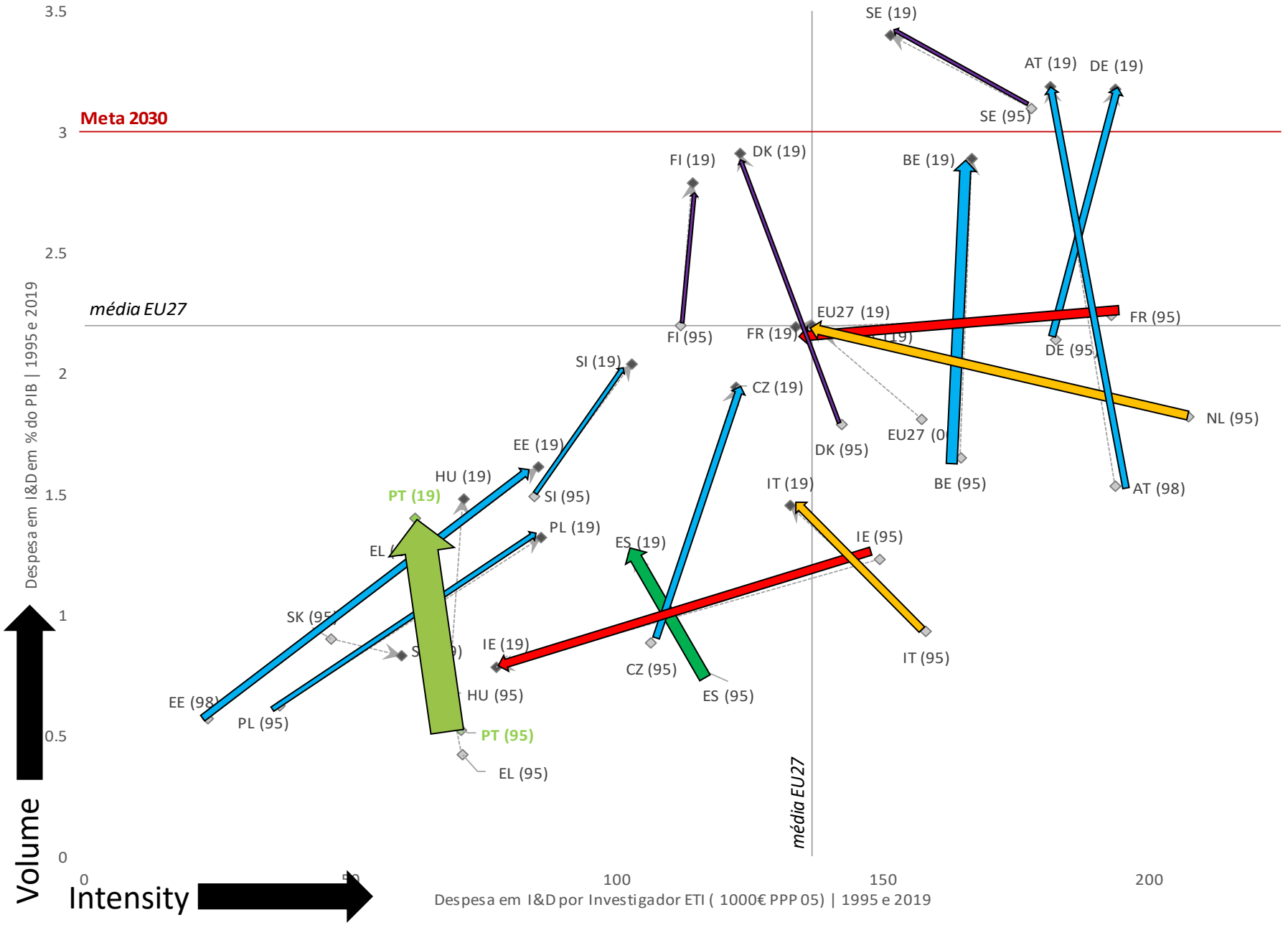
- 30% of the schemes up to €200 thousand;
- 28% of the schemes up to €500 thousands;
- 10% of schemes above €1.000 thousands, for 5 years;

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 **unaceptable 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.**

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



Data source: Eurostat | Initial Year for R&D Intensity: LT: 1996; EE, CY & AT: 1998; EU27 & LU: 2000; HR & MT: 2002; FI: 2004

A few clarifying remarks…..

The volume of funding results from a complex political, finantial, 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:

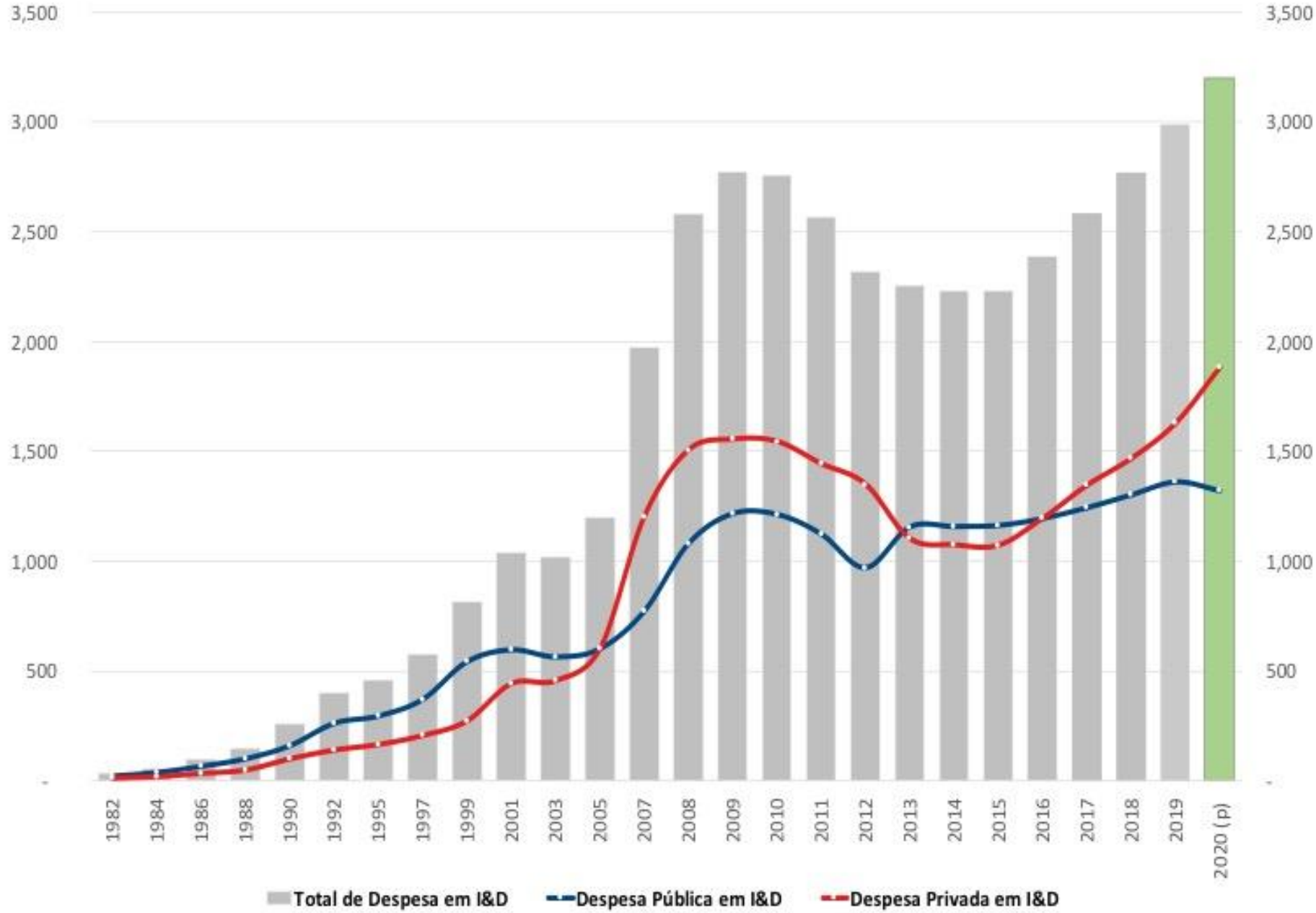
1. The **strutucture of salaries** in the country/region, with **wide diversity across EU**:
   - It depends on overall **salary strutucture at national levels**, but also on institutional capacity and autonomy to raise salaries;

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 univeristy departments and scientific institutions with "**Inverted Pyramids**"

3. The technical **support structure for reseachers**, in terms of **technicians and managment, 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 technichian to 1 research" in a few regions/institutions, to "1 technichian for 4 researchers" in Southern Europe and other EU peripheries.

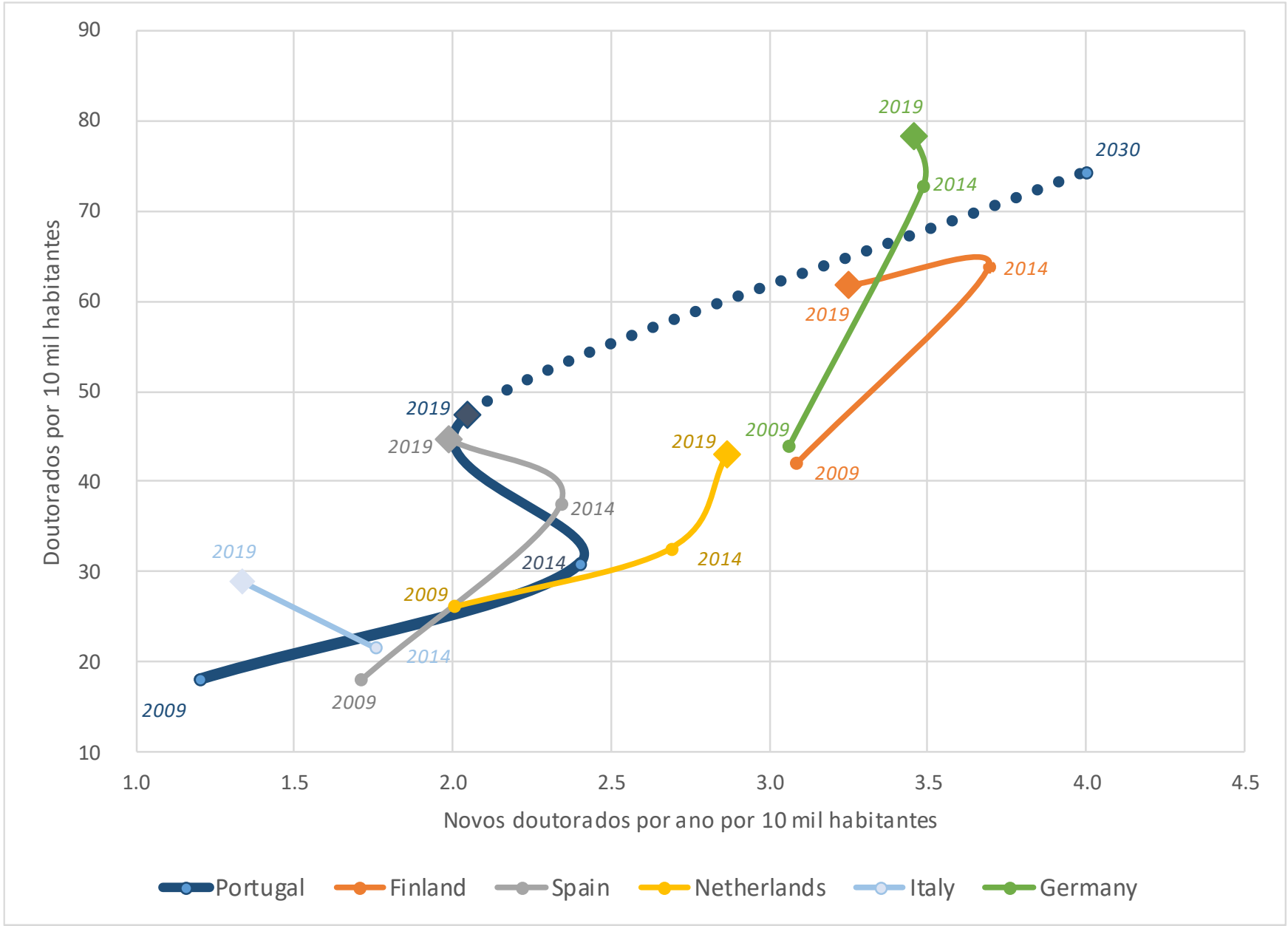
Evolução da despesa global em I&D de 1982 até 2020

(em milhões de euros)



“STOCK” VS “FLUX” OF DOCTORATES, EU:

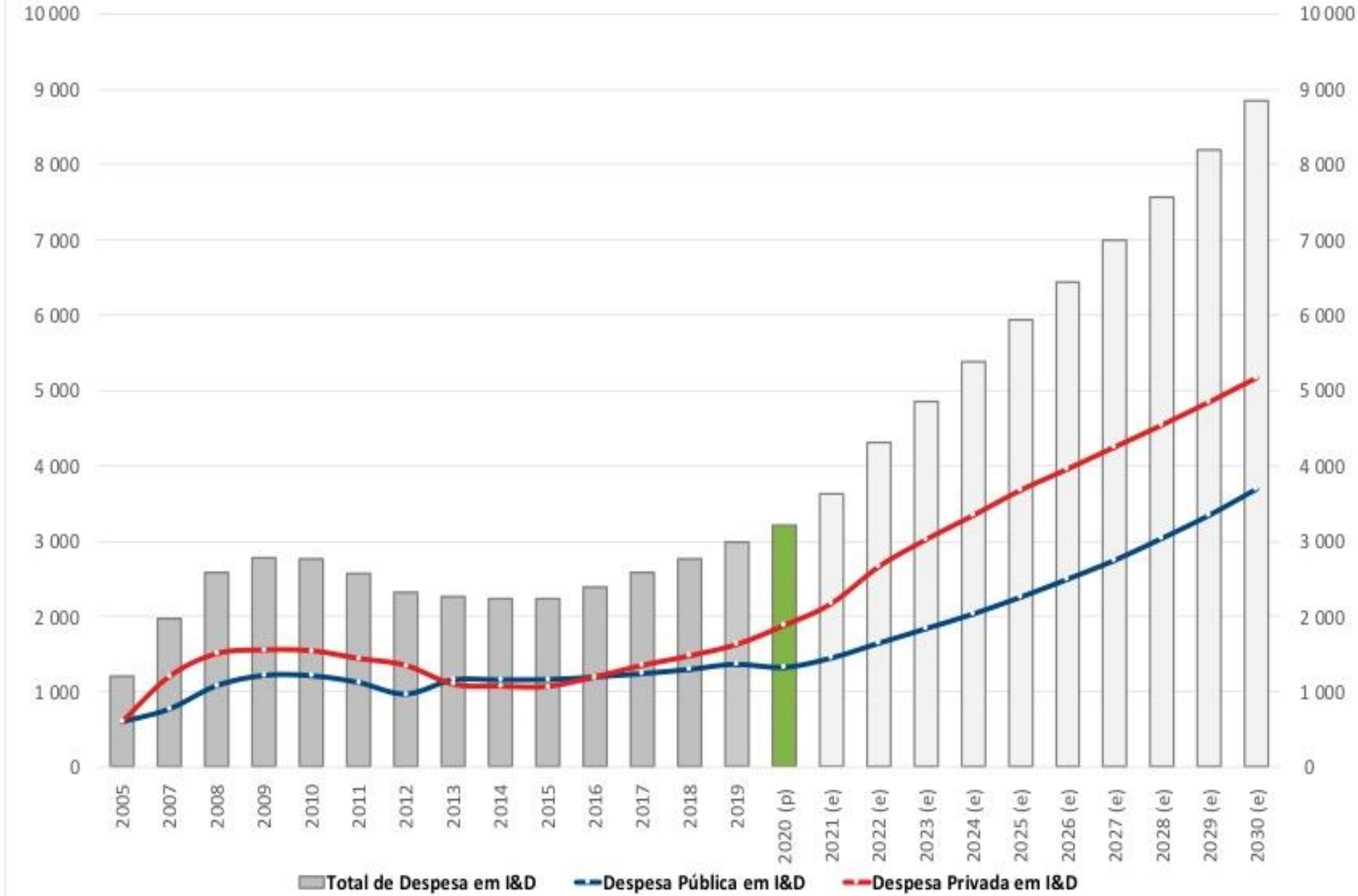
EXISTING DOCTORATES VS NEW DOCTORATES PER YEAR (PER 10 THOUSAND INHABITANTS



Fonte: OECD e Eurostat

Evolução da despesa global em I&D em função do PIB de 2005 até 2030

(em milhões de euros)



A call for action - 2: **Five dimensions** for a potential strategy, 2023-2030:

1. Unlock stability in researcher careers through **sustainable institutional funding**: requires the Public and Private commitment for the target of **GERD= 3% GDP, 2030**;

2. **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;

3. 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;

4. **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.

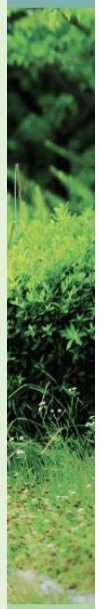
5. Launch a **European Initiative to foster institutional support of (early-career) researchers** through a new institutional funding program at EU level.

THE HAMILTON PROJECT

POLICY PROPOSAL | SEPTEMBER 2022

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.

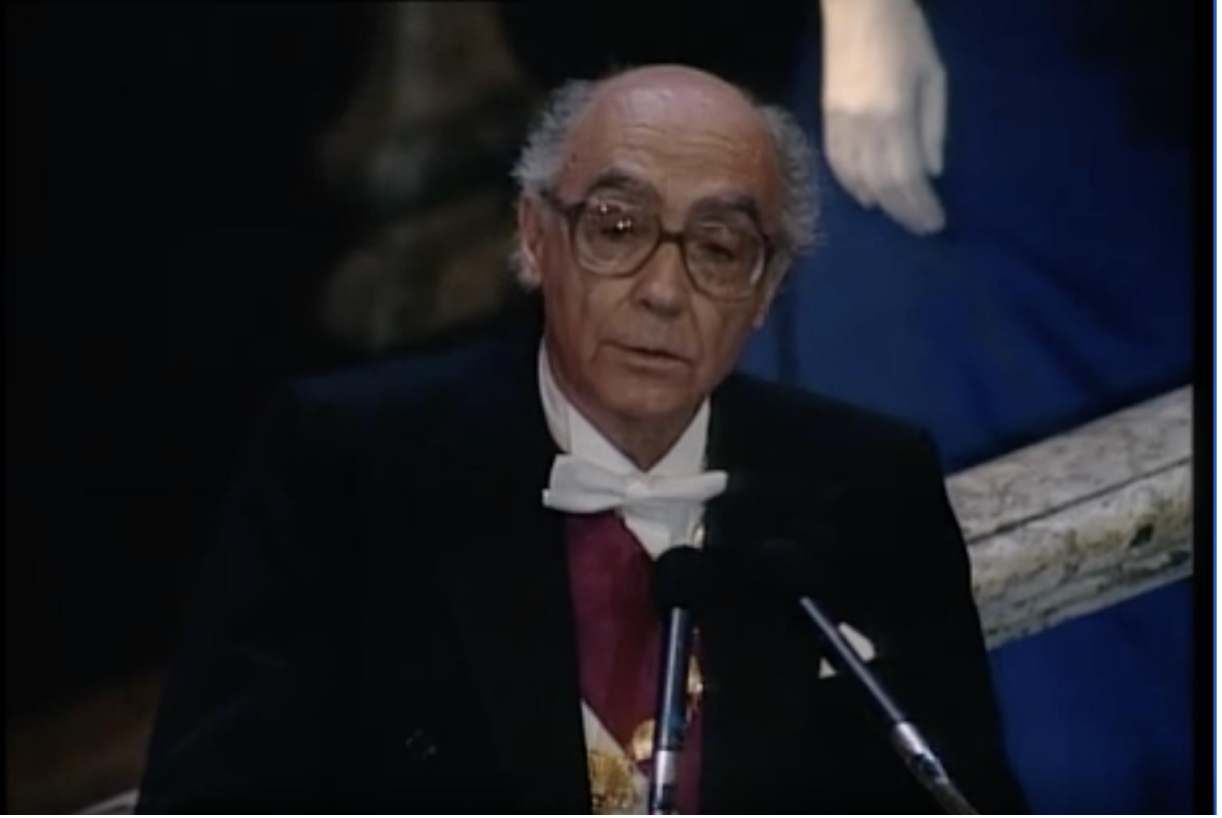
Instead, Rodrik (2022) provides evidence that **good jobs must play an explicit and much more significant role in the design of policy (industrial and others…)**.

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

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

Pianist in a modifed Berchestein piano, playing the “Ode of Joy” (Beethoven´s 9th Symphony; EU´s Anthem), and tracing a path though the exhibition area.

[…] **the attainabale perfection of an idea…**



Following José Saramago,

"[...] Let us common citizens therefore speak up. **With the same vehemence as when we demanded our rights, let us demand responsibility over our duties.** Perhaps the world could turn a little better. [...]"

…acknowledge **your privilege** and **learn from past generation's mistakes to do better**.

Be bolder, be kinder, be more responsible!
Move forward!

DEBATE

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

Freeman C., *The M*

The Frascati Manual: evolution…

1963 - The quantum leap

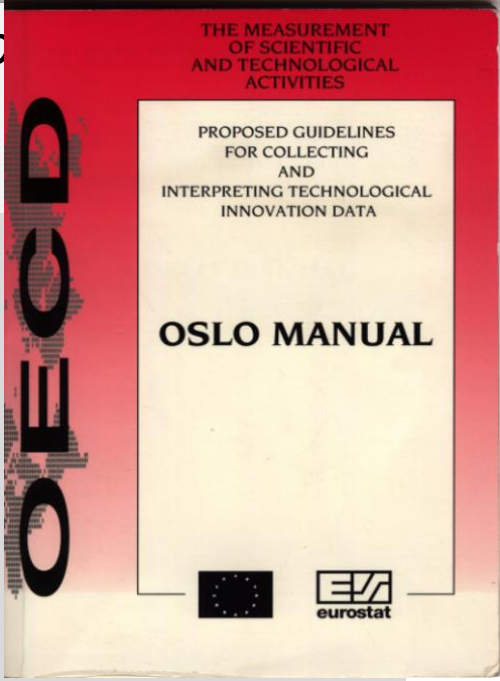
1970 - Streamlining with international classifications (SNA, ISIC)

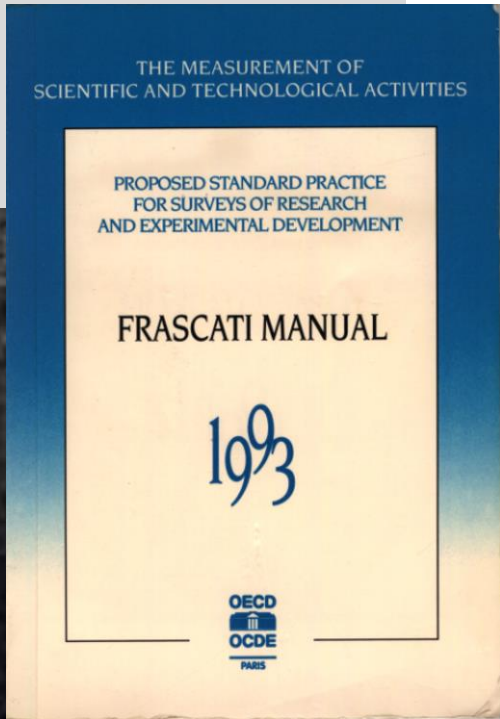
1976 - Inclusion of SSH; “objectives” classification

1981 - Innovation, higher education supplement

1993 - Inclusion of software, environment

2001 - Questionnaire, services, HRST





EUROPEAN COMMISSION

"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 Minster 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

SCIENCE AND SOCIETY

…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.

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;
- …

The ultimate goal: an new program at EU level to fund institutions towards stenghthning research careers, by 2028…

Background:

- "a European research area in which researchers, scientific knowledge and technology **circulate freely**" (The EU Treaty (Article 179);
- **EU institutions** should have **interest, but also an obligation and a mandate to actively lead efforts and ensure progress in this area…(?)**

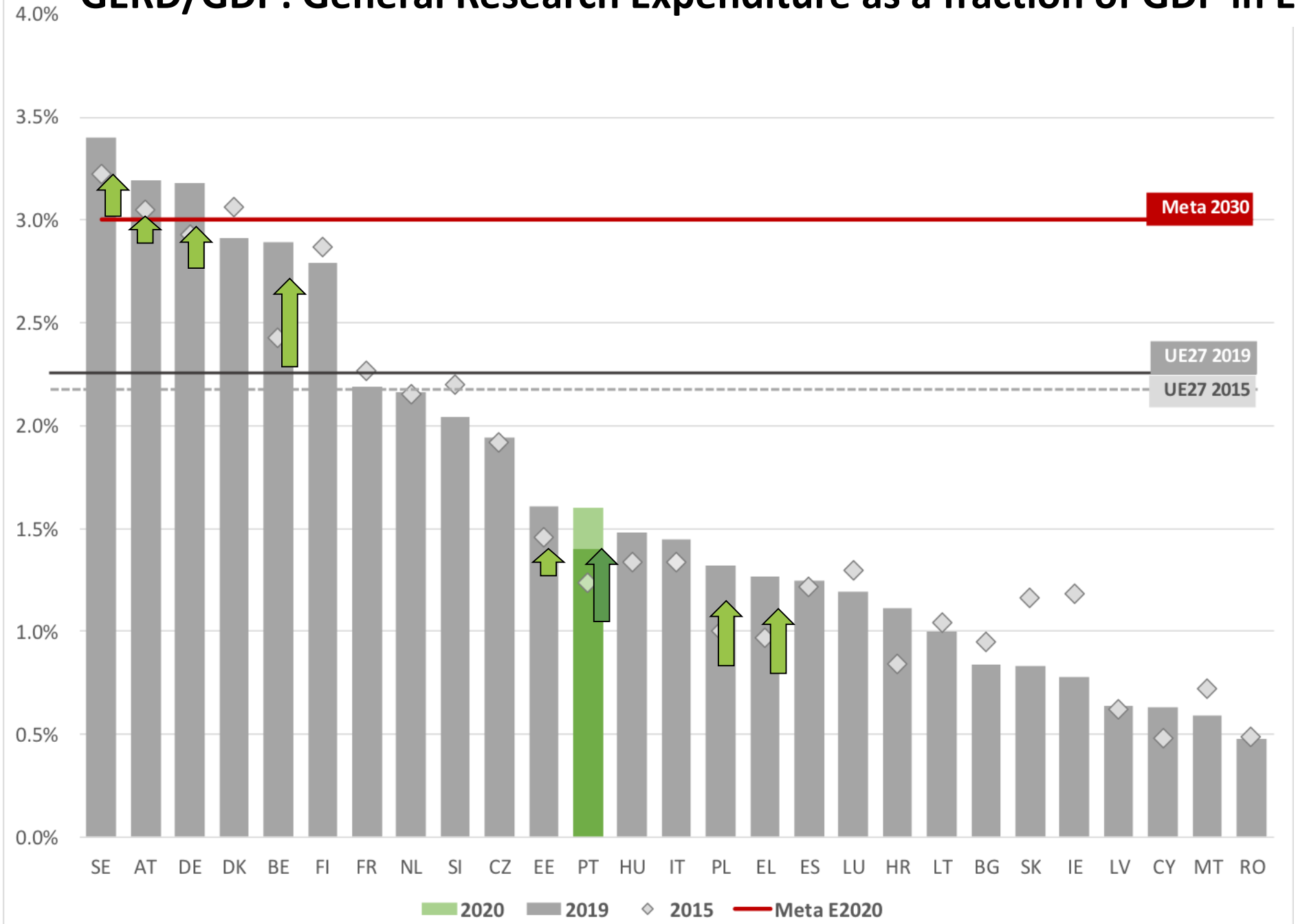
How to Launch a **European Initiative to support *Research Careers*?**

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:

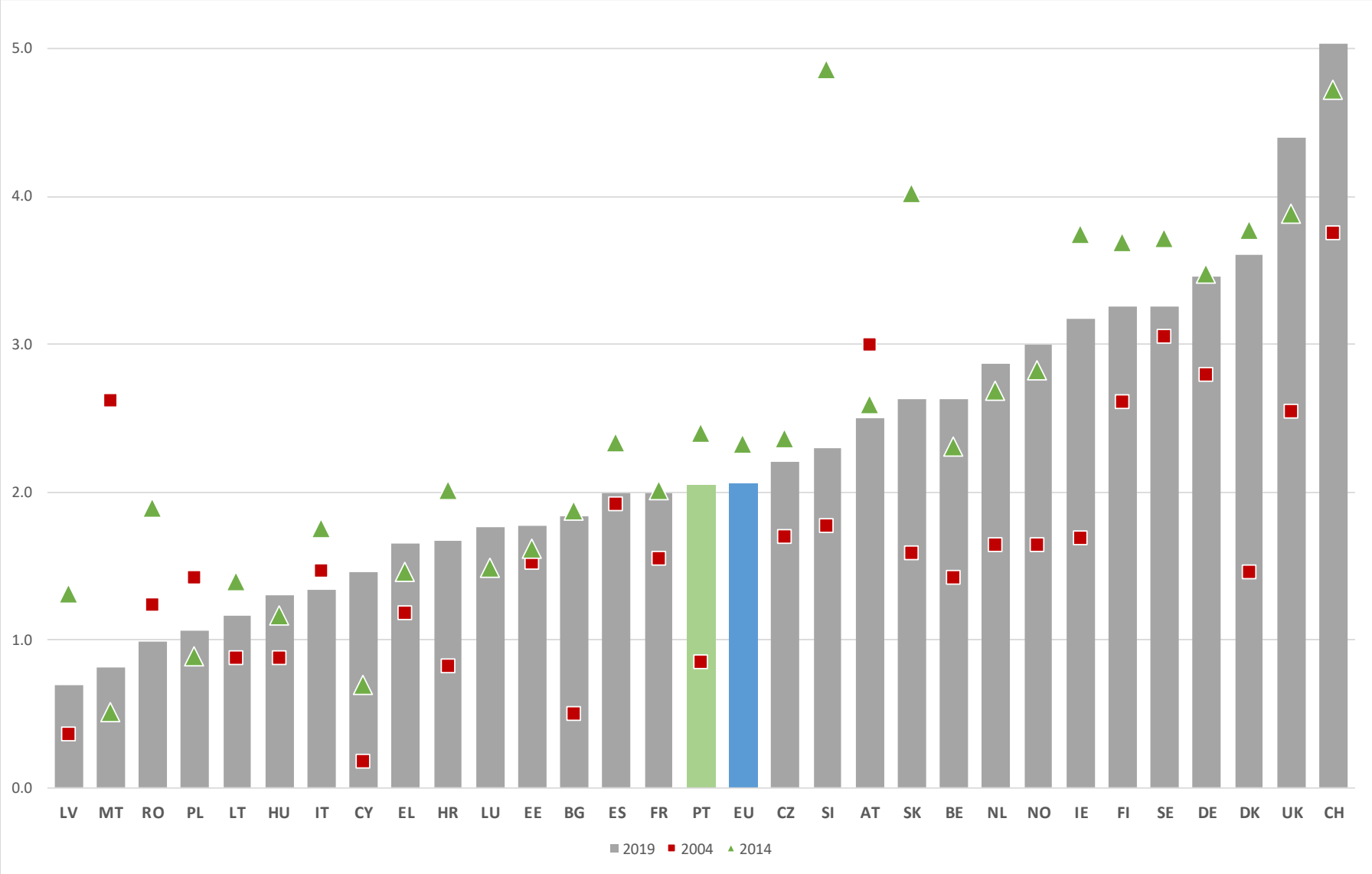
1. **Experimentation, with gradual implementation**, towards a new potential funding line for the **10th EU Framework Program (2028-2035)**, based on a **collaborative arrangements between academia/science and industry** to promote careers and a better mutual understanding …
2. It **should complement ERC and MSCA** as an additional key instrument for reinforcing scientific leadership and excellence in Europe;
3. It should be **oriented to fund institutions**, 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 **evaluation and peer review of proposals for (transformational) institutional approaches** that support and foster modern research career paths.

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



FLUX OF DOCTORATES IN EU:

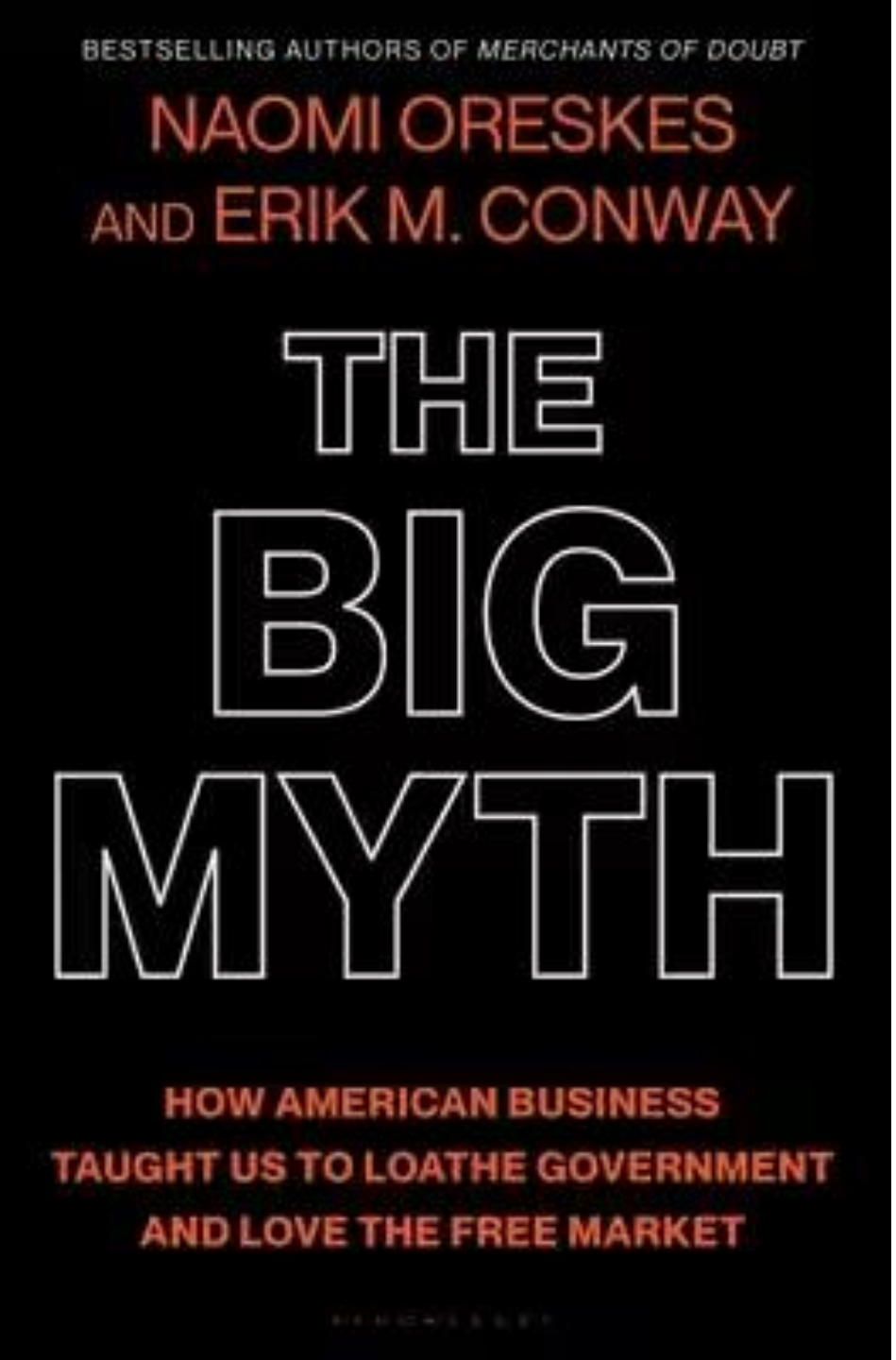
NEW DOCTORATES PER YEAR & PER 10 THOUSAND INHABITANTS



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

Some fifty-five years after **John Ziman** launched the discussion on ***Public Knowledge*** and forty-five years after his work on ***Reliable Knowledge,*** to appreciate the significance of scientific knowledge one must understand the nature of **science as a complex whole**. In ***Real Science***, we are reminded that "**science is social**", referring to "**the whole network of social and epistemic practices where scientific beliefs actually emerge and are sustained**".

J. Ziman (1968), *Public Knowledge: The Social Dimension of Science*, Cambridge University Press
J. Ziman (1978), *Reliable Knowledge: an exploration of the grounds for belief in science*, Cambridge University Press
J. Ziman (2000), *Real Science: What it is, and what it means*, Cambridge University Press

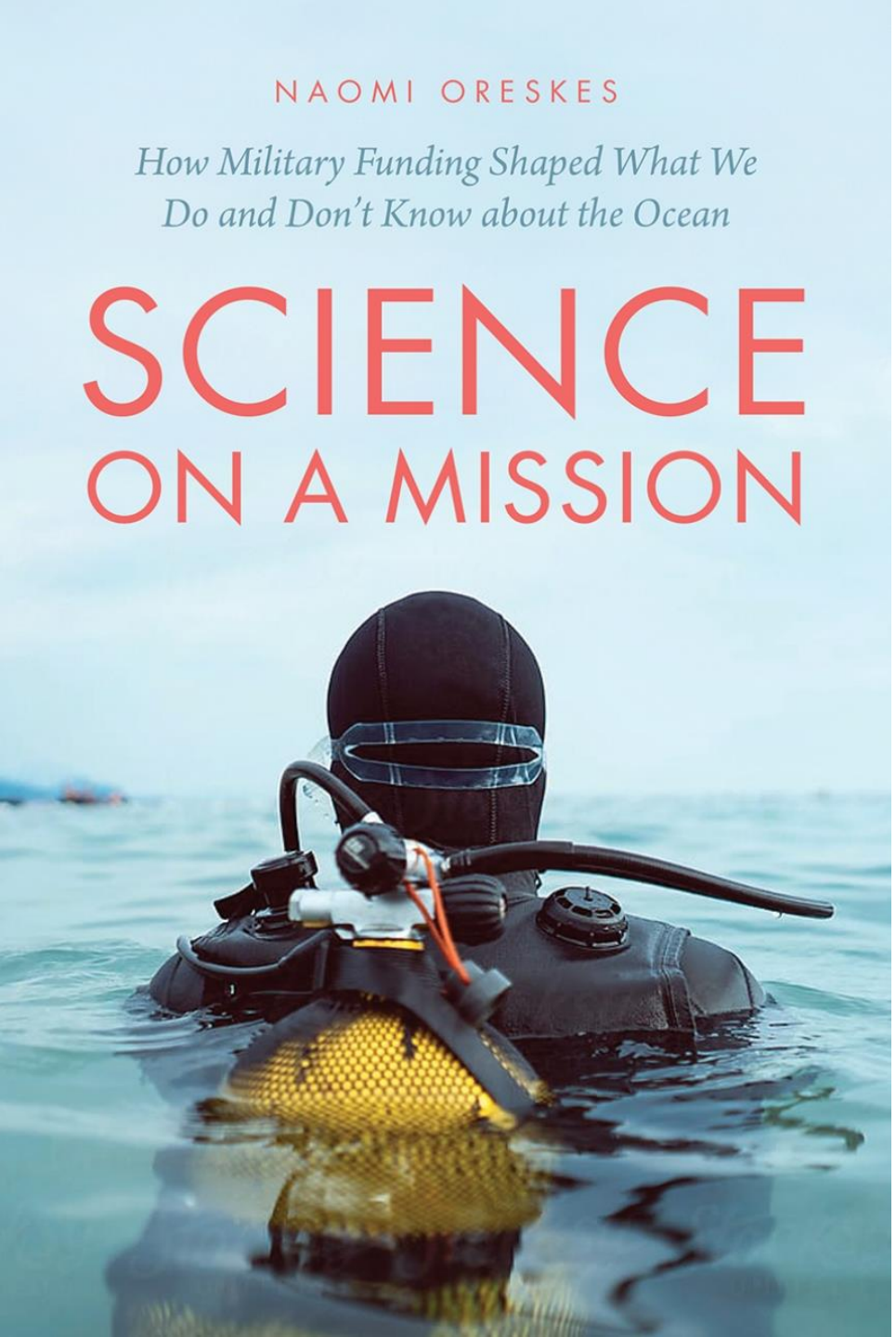


"**We bought the myth that the invisible hand could do things even Adam Smith didn't think it could do**,"…

- The campaign to change this to "**market fundamentalism**," a belief that only markets have all the answers for everything, was both subterranean and sophisticated, so much so that modern business lobbying looks positively basic in comparison. Business interests worked to rewrite textbooks for high school and college students, to summarize Smith and Hayek for broader audiences in ways that eliminated their nuances, to pay academics to promote business-friendly ideas, and to infiltrate popular culture.
- There's also an absurdity at the heart of the argument that rules are inherently destructive. As the authors write, to claim that any reforms are "**a step toward unfreedom is like claiming that road signs, stop lights and speed limits are steps toward the elimination of driving**."

Their argument is not that capitalism is bad but rather that we should acknowledge its limits. "We need a more realistic vision of what markets are and are not good at, of where they succeed and where they fail,"

"Our most consequential problems have arisen not because of too much government, but because of too little," they write in the last two sentences of the book. "Government is not the solution to all our problems, but it is the solution to many of our biggest ones."



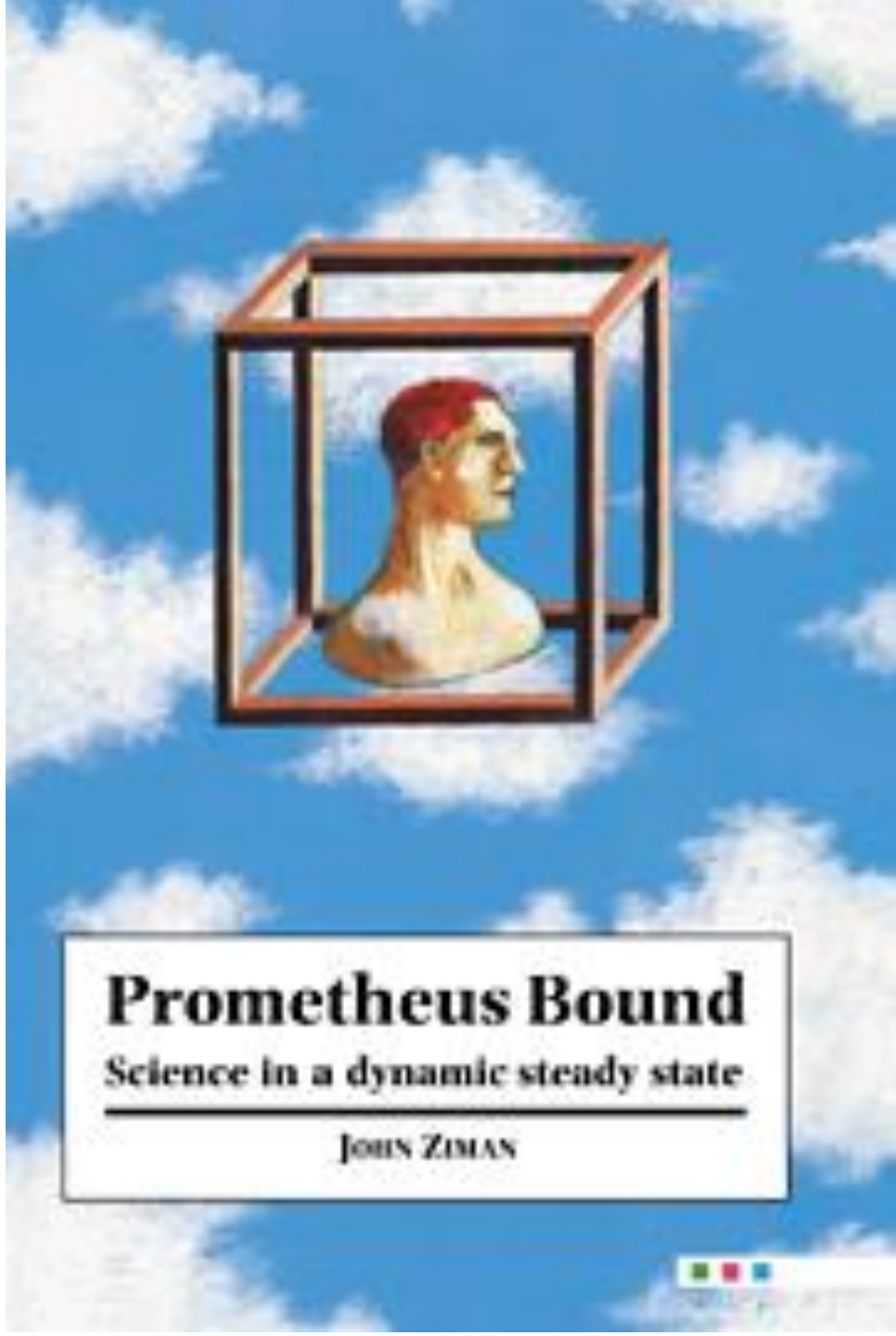
Science on a Mission brings to light how this influx of military funding was both enabling and constricting: it resulted in the creation of **important domains of knowledge** but also significant, lasting, and consequential **domains of ignorance**.

…a detailed, sweeping history that illuminates the ways funding shapes the subject, scope, and tenor of scientific work, and it raises profound questions about the purpose and **character of research with impact**, as well as of the **nature of scientific careers.**

What difference does it make who pays?

The short answer is: *a lot.*

John Ziman (1994) takes **government funding of science as a given**, because the market cannot be trusted to allocate resources wisely and, anyway, research now costs so much that only government can pay the bill.



MOLECULAR ONCOLOGY 8 (2014) 447–457

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Shaping science policy in Europe

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ARTICLE INFO

Article history:
Received 11 March 2014
Accepted 11 March 2014
Available online 21 March 2014

Keywords:
ERA
European science policy
Role of scientific organisations
European Research Council
H2020
Health, Demographic Change and 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.

Salcedo addresses the question of ***forgetting and memory***, which is apparent in her installation of 1550 chairs.
[…] she takes a stack of chairs and transforms them into memorials, particularly for the history of migration and displacement in the city of Istanbul. She expresses the **silenced lives of the isolated and marginalized.**

Salcedo is particularly keen on the **gap between the powerful and the powerless.** She is also interested in the victims of violence and forceful migration.

Doris Salcedo (B. 1958, Bogota, Colombia)

Untitled, 2003, 1,550 wooden chairs, approx. 10.1 × 6.1 × 6.1 m (33 × 20 × 20 ft.), 8th International Istanbul Biennial, Istanbul, 2003