

A scenic view of a park with a tall, curved glass skyscraper in the background and a fountain in the foreground. The fountain is spraying water high into the air, creating a rainbow. The park is lush with green grass and trees, some with autumn-colored leaves. The sky is clear and blue.

# Horizon Europe and ERC

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# HORIZON EUROPE IN BRIEF

# Horizon Europe (2021-2027)



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# Horizon Europe Drivers



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A sustainable, fair and **prosperous** future for **people** and **planet** based on European values.

- Tackling **climate change** (35 % budgetary target)
- Helping to achieve the **Sustainable Development Goals**
- Boosting the Union's **competitiveness and growth**

While benefiting from world-class research and strong industries.

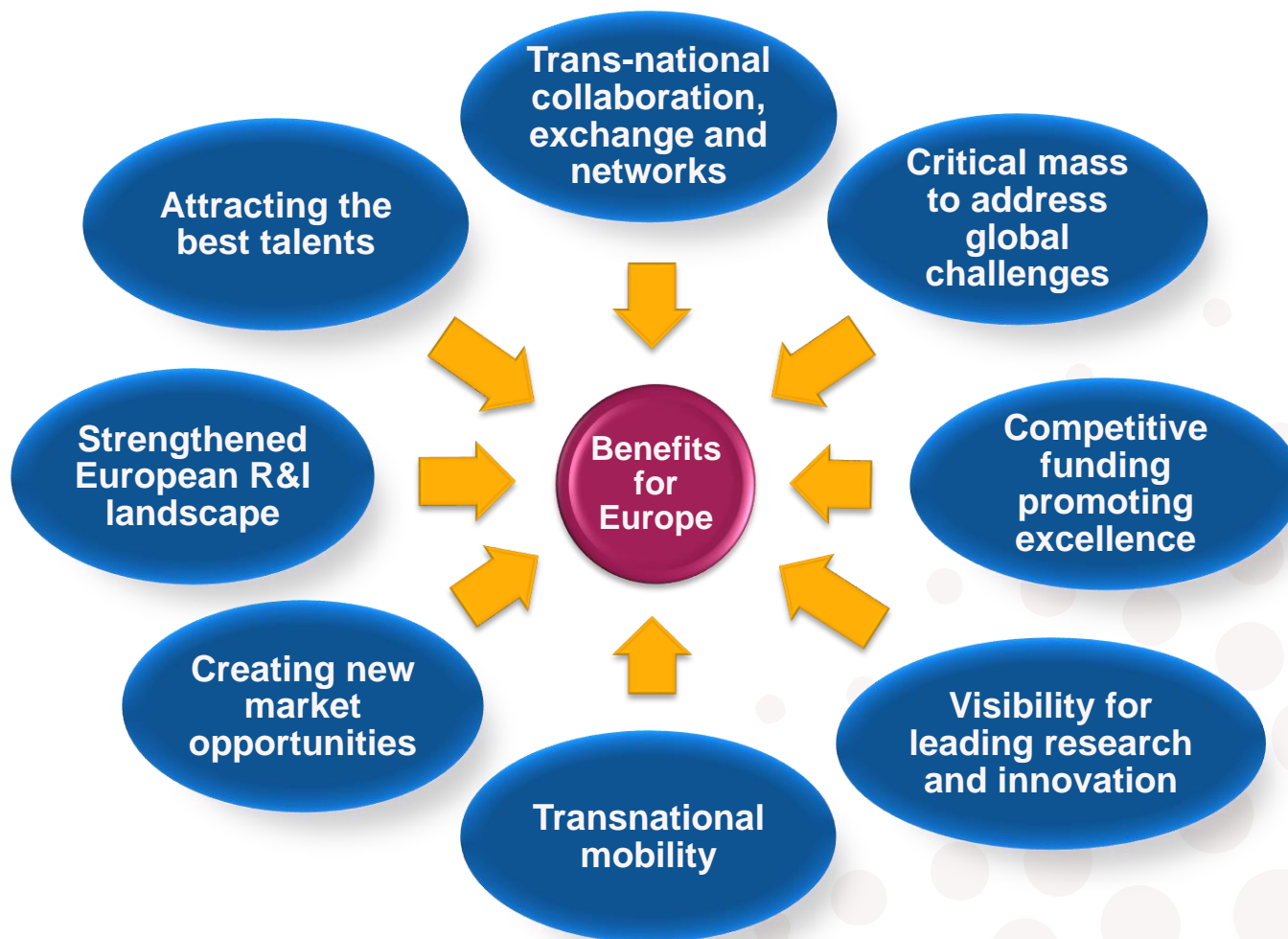
- Europe can do better at transforming skills and knowledge into leadership in innovation and entrepreneurship

# Added value through Horizon Europe



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# State of Play



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European Parliament and Council reached a common understanding on Horizon Europe on 19 March 2019

Budget, synergies and third country association, discussions still ongoing

Commission has started preparations for the implementation of Horizon Europe





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# HORIZON EUROPE AND ERC



## The European Commission

- **Provides financing** through the EU framework programmes
- **Guarantees autonomy of the ERC**
- **Assures the integrity and accountability of the ERC**
- **Adopts annual work programmes** as established by the Scientific Council

## The ERC Scientific Council

- **21 prominent researchers** proposed by an independent identification committee
- **President** appointed following recommendation of an independent committee
- **Appointed by the Commission** (4 years, renewable once)
- **Establishes overall scientific strategy**; annual work programmes (incl. calls for proposals, evaluation criteria); peer review methodology; selection and accreditation of experts
- **Controls quality of operations and management**
- **Ensures communication with the scientific community**

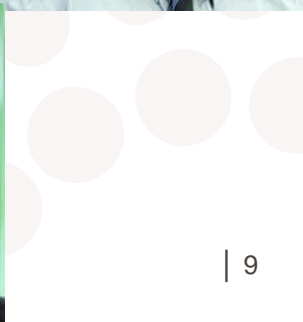


## The ERC Executive Agency

- **Executes annual work programme** as established by the Scientific Council
- **Implements calls for proposals** and provides information and support to applicants
- **Organises peer review evaluation**
- **Establishes and manages grant agreements**
- **Administers scientific and financial aspects** and follow-up of grant agreements
- **Carries out communications activities** and ensures information dissemination to ERC stakeholders



# Governance by the Scientific Council



# Scientific Council Statement on Horizon Europe



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- ✓ Continuity
- ✓ Agility
- ✓ Scale-up

# Funding breakthrough research – the ERC approach



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*"The fundamental activity of the ERC is to provide attractive, long-term funding to support excellent investigators and their research teams to pursue ground-breaking, high-gain / high-risk research."*

## ERC Work Programme 2020

# Principles of ERC funding



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Scientific excellence is the sole criterion

Applications can be made in **any field of research**

Independent researchers of **any age and career stage** and **from anywhere in the world** can apply for **attractive, long-term** funding

Host institutions must provide **independence for the Principal Investigator** to direct the research and manage its funding



# Excellence is the sole evaluation criterion



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## Excellence of the Research Project

- ✓ Ground breaking nature
- ✓ Potential impact
- ✓ Scientific Approach

## Excellence of the Principal Investigator

- ✓ Intellectual capacity
- ✓ Creativity
- ✓ Commitment

# Generous grants



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## Starting Grants

(2-7 years after PhD)  
up to €1.5M  
for 5 years

## Consolidator Grants

(7-12 years after PhD)  
up to €2M  
for 5 years

## Advanced Grants

track-record of  
significant research  
achievements in the  
last 10 years  
up to €2.5M  
for 5 years

## Proof-of-Concept

bridging the gap between  
research and marketable innovation  
lump sum 150k€ for ERC grant holders

## Synergy Grants

2 – 4 Principal Investigators  
up to € 10.0M for 6 years  
1 PI can be based outside EU/AC

# ERC: Changes for Horizon Europe

## Continuity....

Two changes:

1. Interviews for Advanced Grantees
2. Panel Structure

# ERC Panel Structure

Innovative panel structure reflects overriding principles of ERC evaluation policy:

- **Coherence:**
  - ERC covers all fields of sciences
  - Vision of science as transcending domains and disciplines
- **Forward-looking:**
  - Focus on frontier research and excellence only
  - Instigate transformative changes in research landscape
  - Signal openness to changes in paradigm
- **Evolving nature of disciplines, critical role of interdisciplinarity:**
  - Low number of panels  $\Rightarrow$  wide breadth of viewpoints within panels
  - Panels to be interpreted in flexible and inclusive manner



# Rationale for revision

- **Scientific needs:**

- Modernise to reflect scientific reality better
- Integrate parts of science that were so far only implicitly covered
- Encourage applicants who may not have felt “at home” so far
- Ensure coherence of each panel

- **Practical needs:**

- Rebalance panel size for fairness and feasibility of evaluation process

# New Panel Structure



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## Life Sciences

- LS1 Molecules of Life: Biological Mechanisms, Structures and Functions
- LS2 Integrative Biology: From Genes and Genomes to Systems
- LS3 Cellular, Developmental and Regenerative Biology
- LS4 Physiology in Health, Disease and Ageing
- LS5 Neuroscience and Disorders of the Nervous System
- LS6 Immunity, Infection and Immunotherapy
- LS7 Prevention, Diagnosis and Treatment of Human Diseases
- LS8 Environmental Biology, Ecology and Evolution
- LS9 Biotechnology and Biosystems Engineering

## Physical Sciences & Engineering

- PE1 Mathematics
- PE2 Fundamental Constituents of Matter
- PE3 Condensed Matter Physics
- PE4 Physical and Analytical Chemical Sciences
- PE5 Synthetic Chemistry and Materials
- PE6 Computer Science and Informatics
- PE7 Systems and Communication Engineering
- PE8 Products and Process Engineering
- PE9 Universe Sciences
- PE10 Earth System Science
- **PE11 Materials Engineering**

## Social Sciences and Humanities

- SH1 Individuals, Markets and Organisations
- SH2 Institutions, Governance and Legal Systems
- SH3 The Social World and Its Diversity
- SH4 The Human Mind and Its Complexity
- SH5 Cultures and Cultural Production
- SH6 The Study of the Human Past
- **SH7 Human Mobility, Environment, and Space**

# Impact for applicants

- New panel structure applicable as of Starting Grant 2021
- Overriding aim is to tap into full potential of applicants in all areas of science
- Proactive communication effort by ERC Scientific Council and Agency
- Publication of full revised panel structure well ahead of time
- Applicants are advised to familiarise themselves with the changes
- No change in evaluation process linked to this revision



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# ERC ACHIEVEMENTS



# ERC Achievements

*"You are our jewel in the crown. You are one of the best things to happen in Europe in the last 10 years."*


**ERC 10<sup>th</sup> anniversary Speech by Commissioner MOEDAS, 21 March 2017**



# Highest Prizes to ERC Grantees




The **Nobel Prize in Chemistry 2016** was awarded to **Bernard L. FERINGA** *"for the design and synthesis of molecular machines"*, jointly with Jean-Pierre SAUVAGE and Sir J. Fraser STODDART



**Bernard FERINGA**  
Nobel 2016


ERC Grantee AdG 2008  
ERC Grantee AdG 2015



**Jean TIROLE**  
Nobel 2014

ERC Grantee AdG 2009

The **Nobel Prize in Economics 2014** was awarded to **Jean TIROLE** *"for his analysis of market power and regulation"*



**Stanislav SMIRNOV**

ERC Grantee AdG 2008  
ERC Grantee AdG 2013



**Artur AVILA**

ERC Grantee StG 2010



**Martin HAIRER**

ERC Grantee CoG 2014



**Alessio FIGALLI**

ERC Grantee CoG 2016




**Konstantin NOVOSELOV**  
Nobel 2010

ERC Grantee StG 2007  
ERC Grantee SyG 2012



**May-Britt MOSER**  
Nobel 2014

ERC Grantee AdG 2010



**Edvard MOSER**  
Nobel 2014

ERC Grantee AdG 2008  
ERC Grantee AdG 2013

**Fields Medals:** in **2010** Stanislav SMIRNOV for *"the conformal invariance of the percolation model"*; in **2014** Artur AVILA and Martin HAIRER *"for their work in stochastic singularities and dynamical systems and"*, and in **2018** to Alessio FIGALLI *"for his work on Calculus of Variations"*



**Serge HAROCHE**  
Nobel 2012

ERC Grantee AdG 2009

The **Nobel Prize in Physiology or Medicine 2014** awarded to **May-Britt MOSER** and **Edvard MOSER**, together with John O'KEEFE, *"for their discoveries of cells constituting a positioning system in the brain"*.

# Nobel Prize in Physiology or Medicine 2019

Awarded jointly to **William G. Kaelin Jr**, **Sir Peter J. Ratcliffe** and **Gregg L. Semenza** *"for their discoveries of how cells sense and adapt to oxygen availability."*



**Sir Peter J. Ratcliffe** is Co-Principal Investigator of an ERC Advanced grant 2008 project  
Title: *"Project Molecular Mechanism of Oxygen Sensing by Enzymes"*  
Host Institution: University of Oxford

# ERC World Best Major Research Funder



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- ERC had the highest category normalised citation impact, the highest percentage of papers in the world's top 1% and the highest percentage of papers involving international co-authorship of the top 50 funders.
- Of the 100 most frequently acknowledged funders, only three (all large pharmaceutical companies) have a higher citation impact – though not substantially higher.

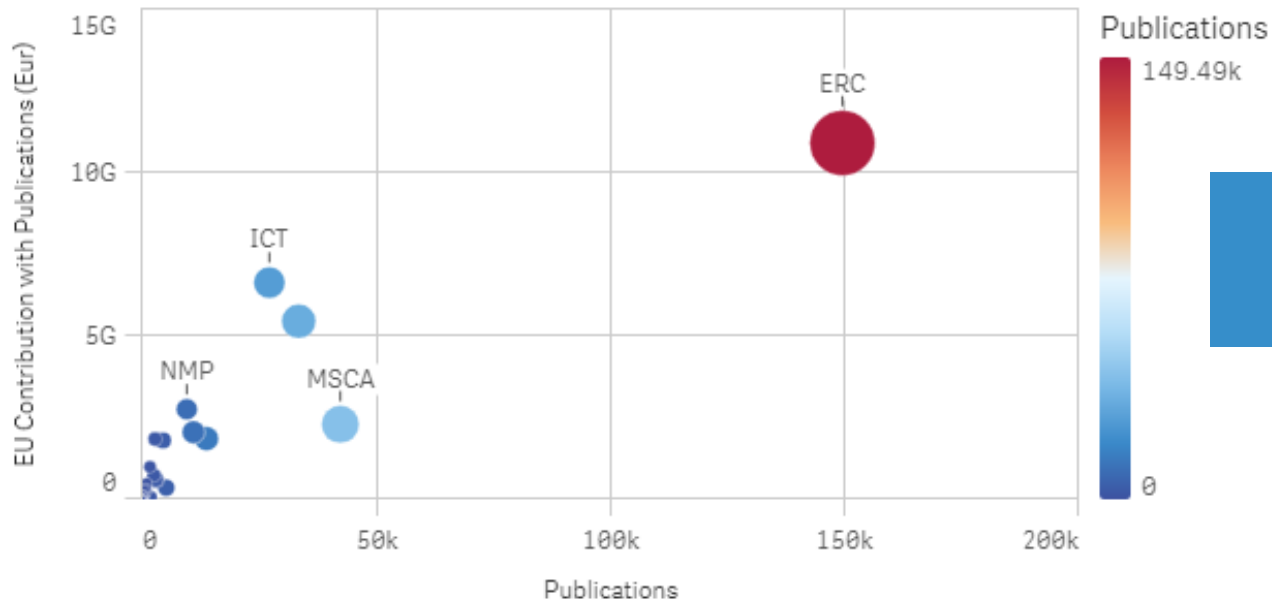


Clarivate Analytics *The European Research Council The first 10 years 2017*



# Highest Impact of Horizon 2020 Programmes

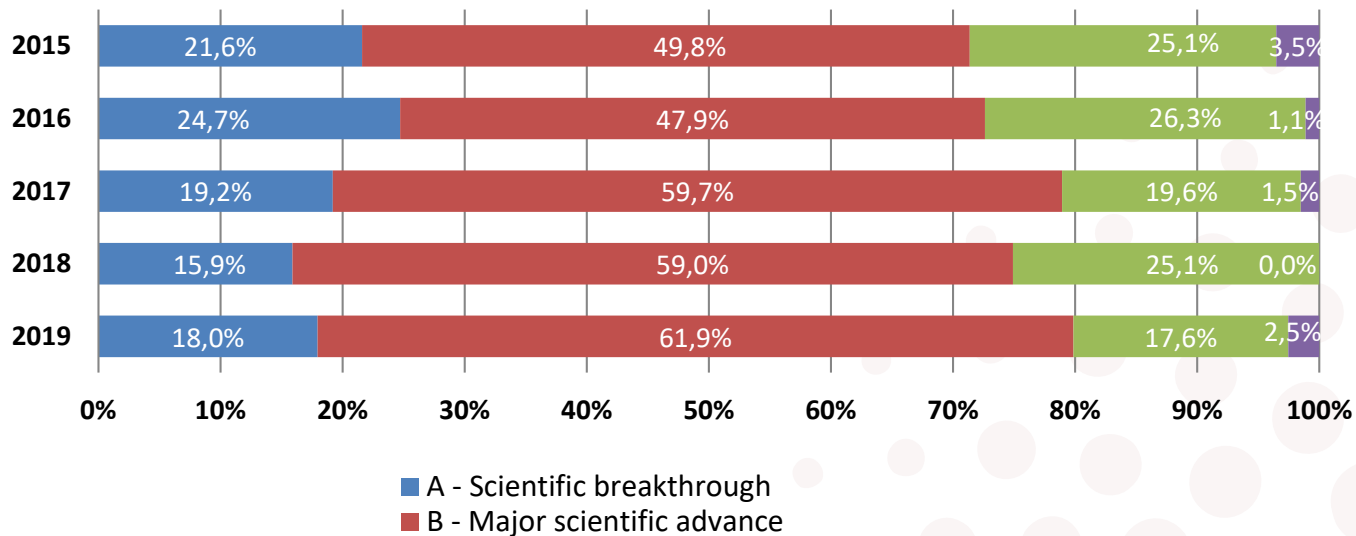
Scientific Publications by Research Thematic Priority



Horizon  
Dashboard

# Ex-post Evaluation of ERC projects

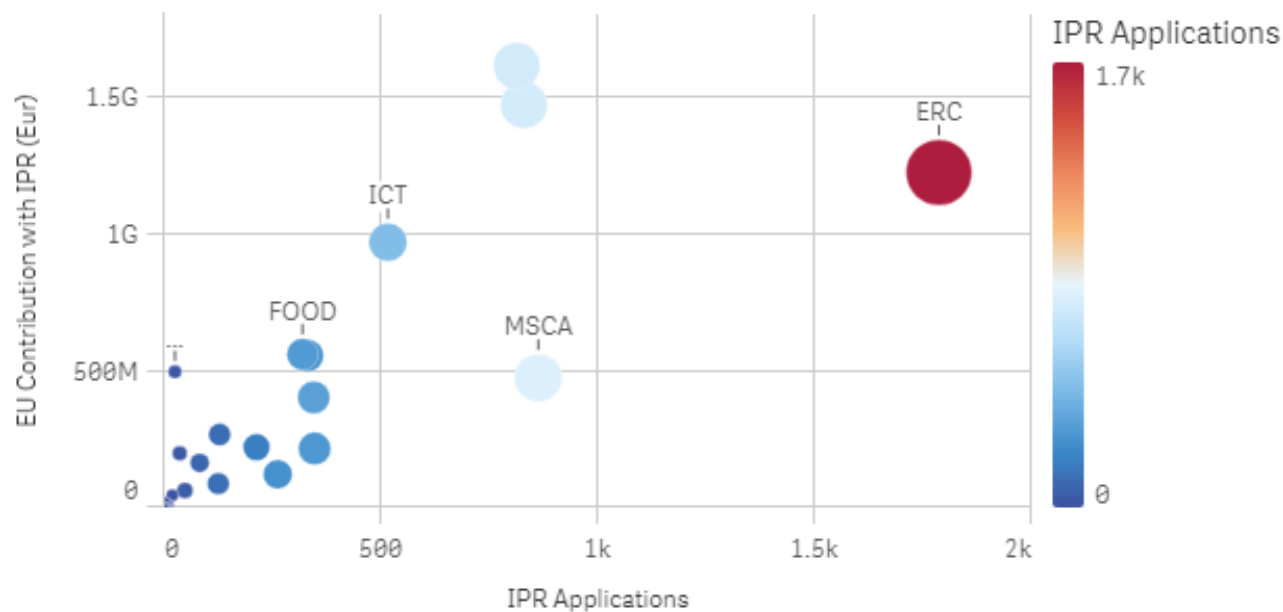
## Qualitative evaluation of completed ERC projects Overall results from 2015 to 2019



# Highest Impact of Horizon 2020 Programmes

IPR Applications by Research research Thematic Priority

Horizon 2020 Dashboard



<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/horizon-dashboard>

# More than 100 Spin-off Companies





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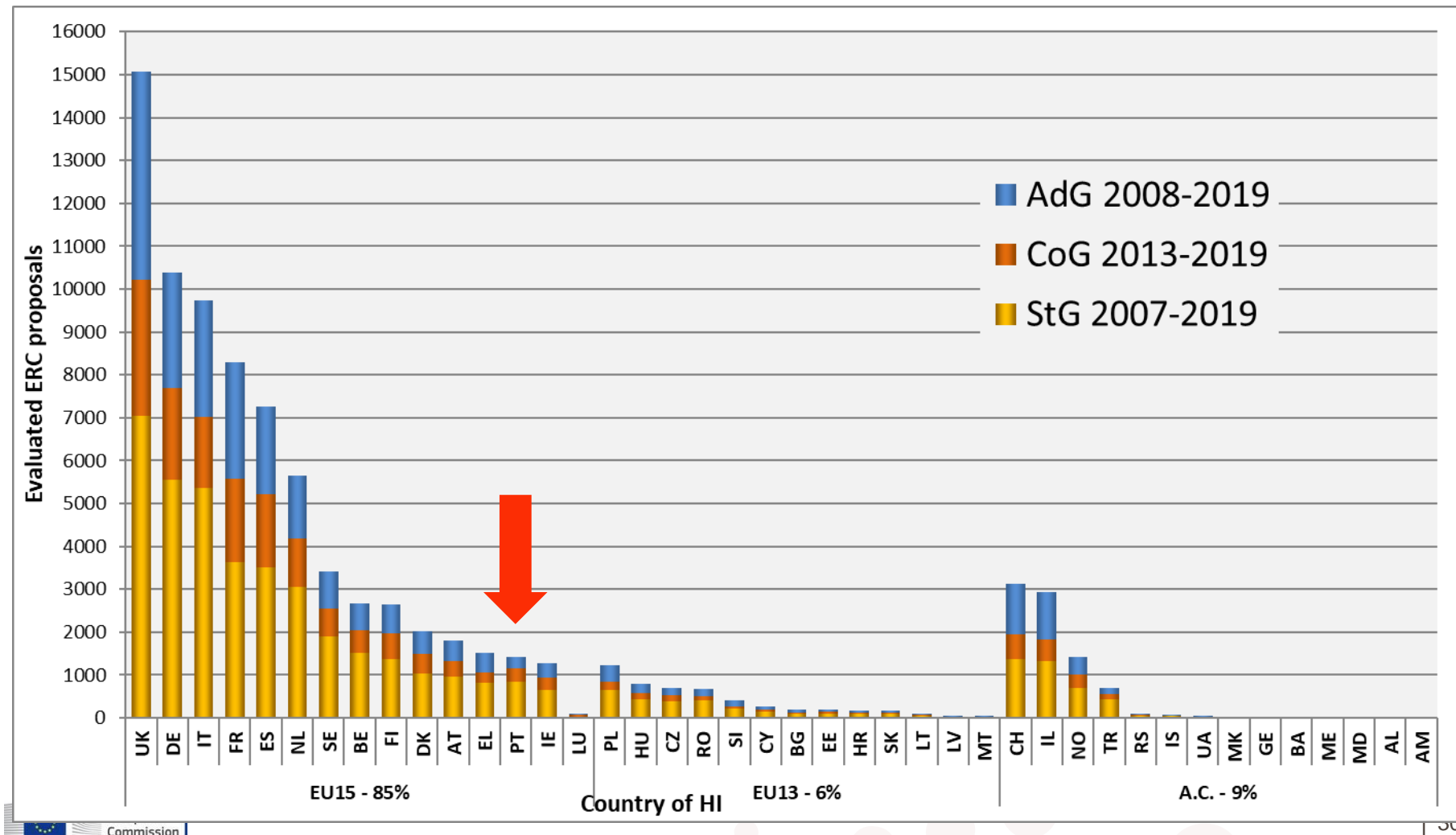
# ERC AND PORTUGAL

# ERC Evaluated Proposals by Country



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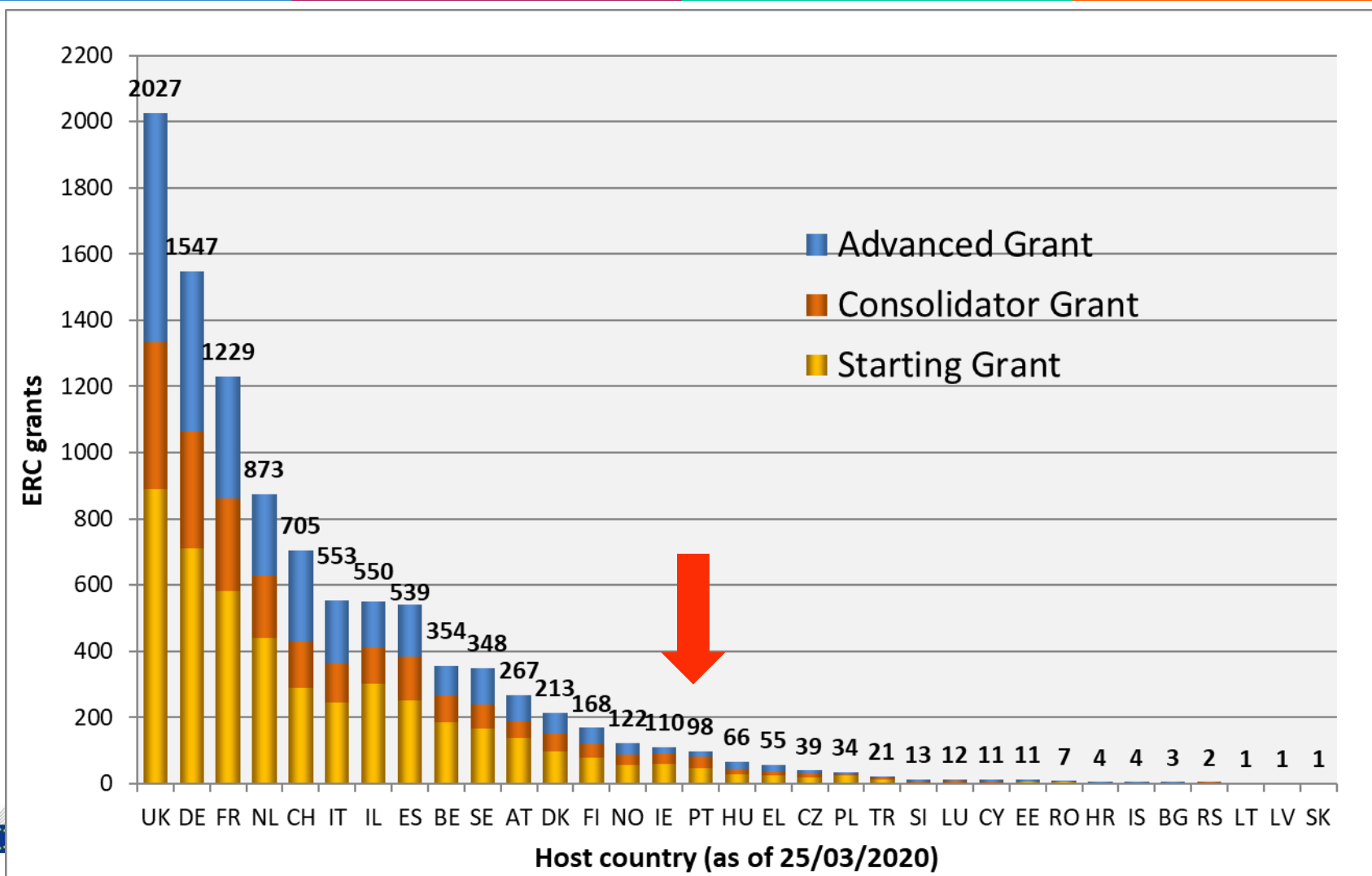


# ERC Funded Projects by Country

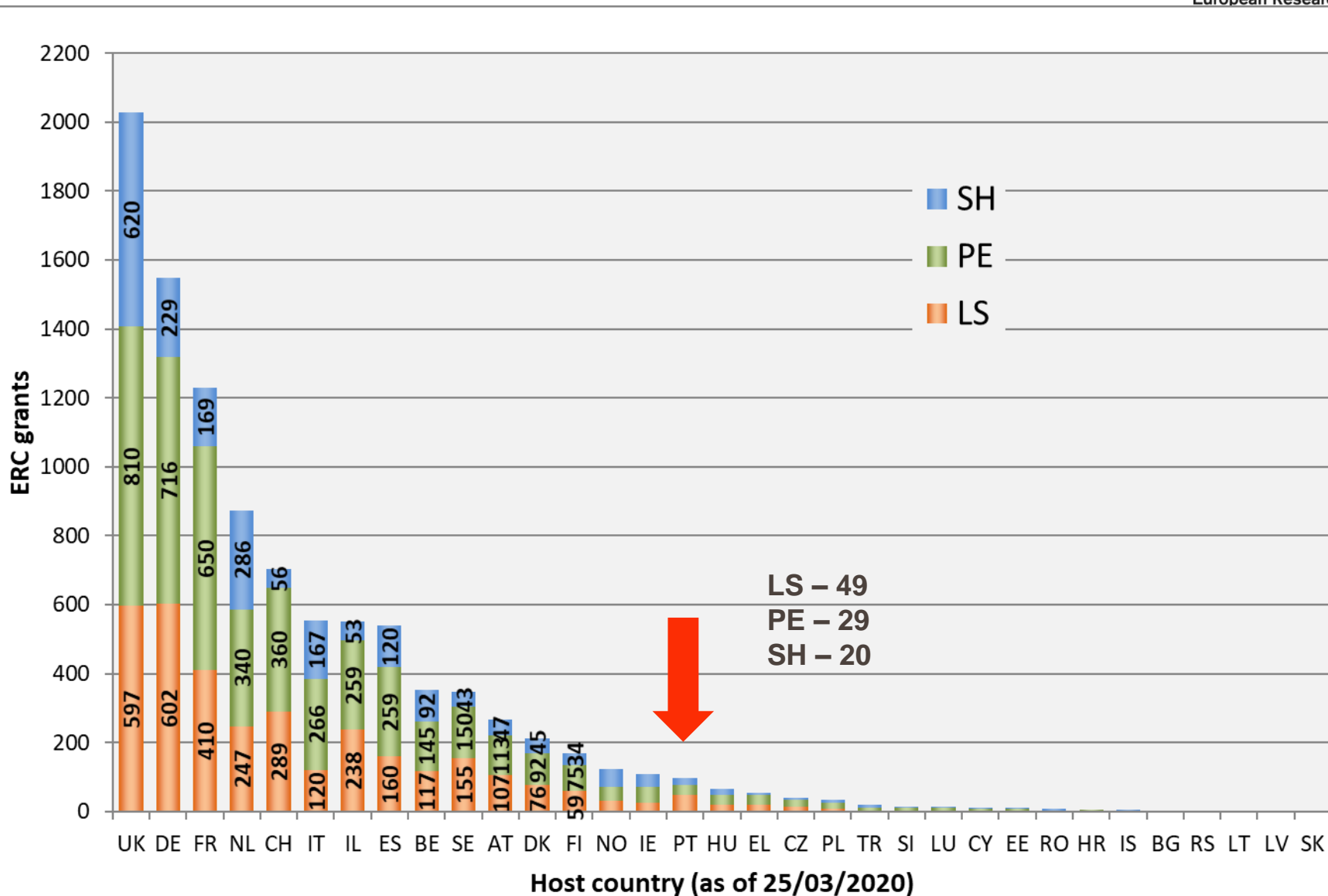


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# ERC Funded Projects by Domain

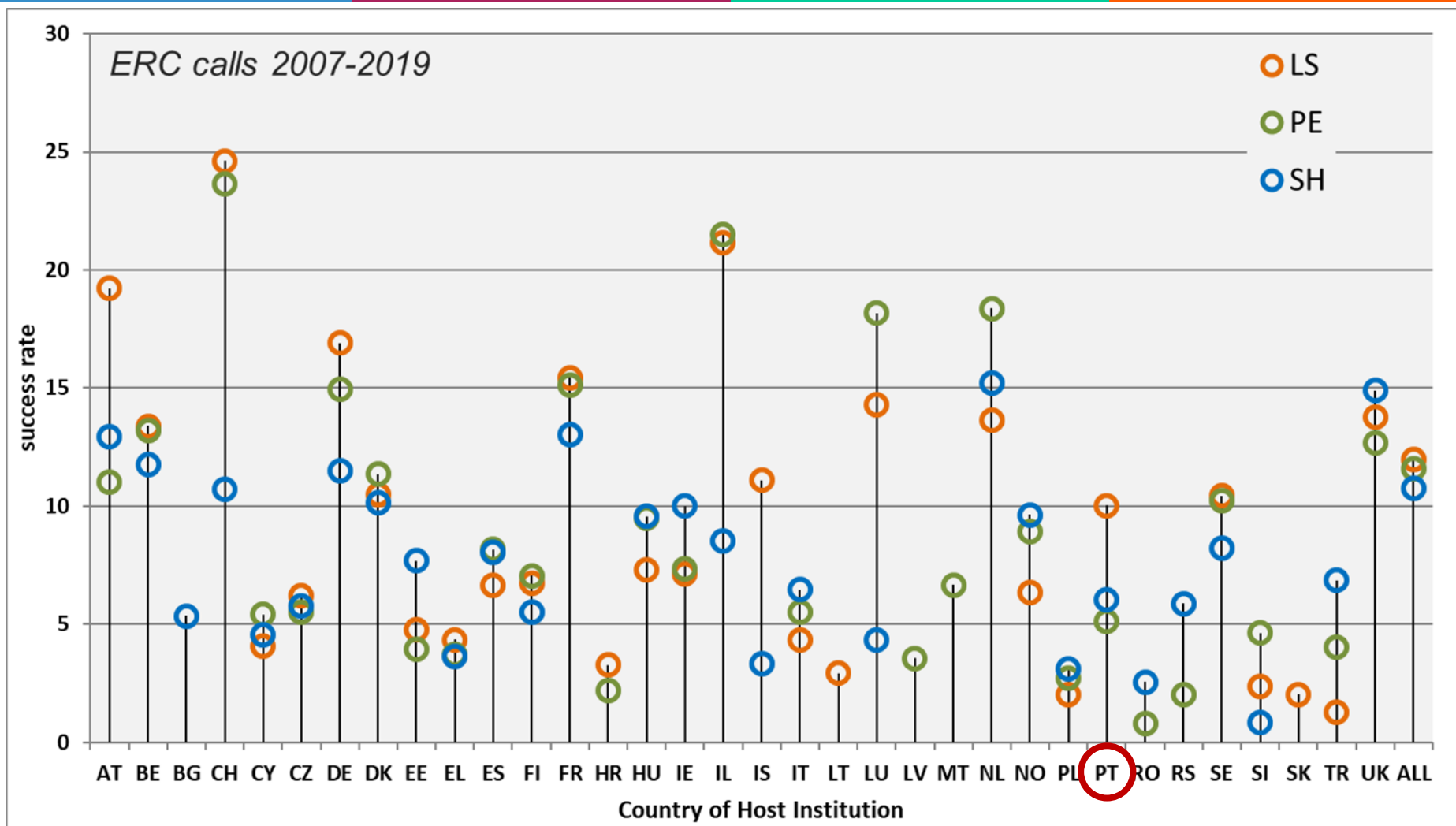


# Success Rates by Domain



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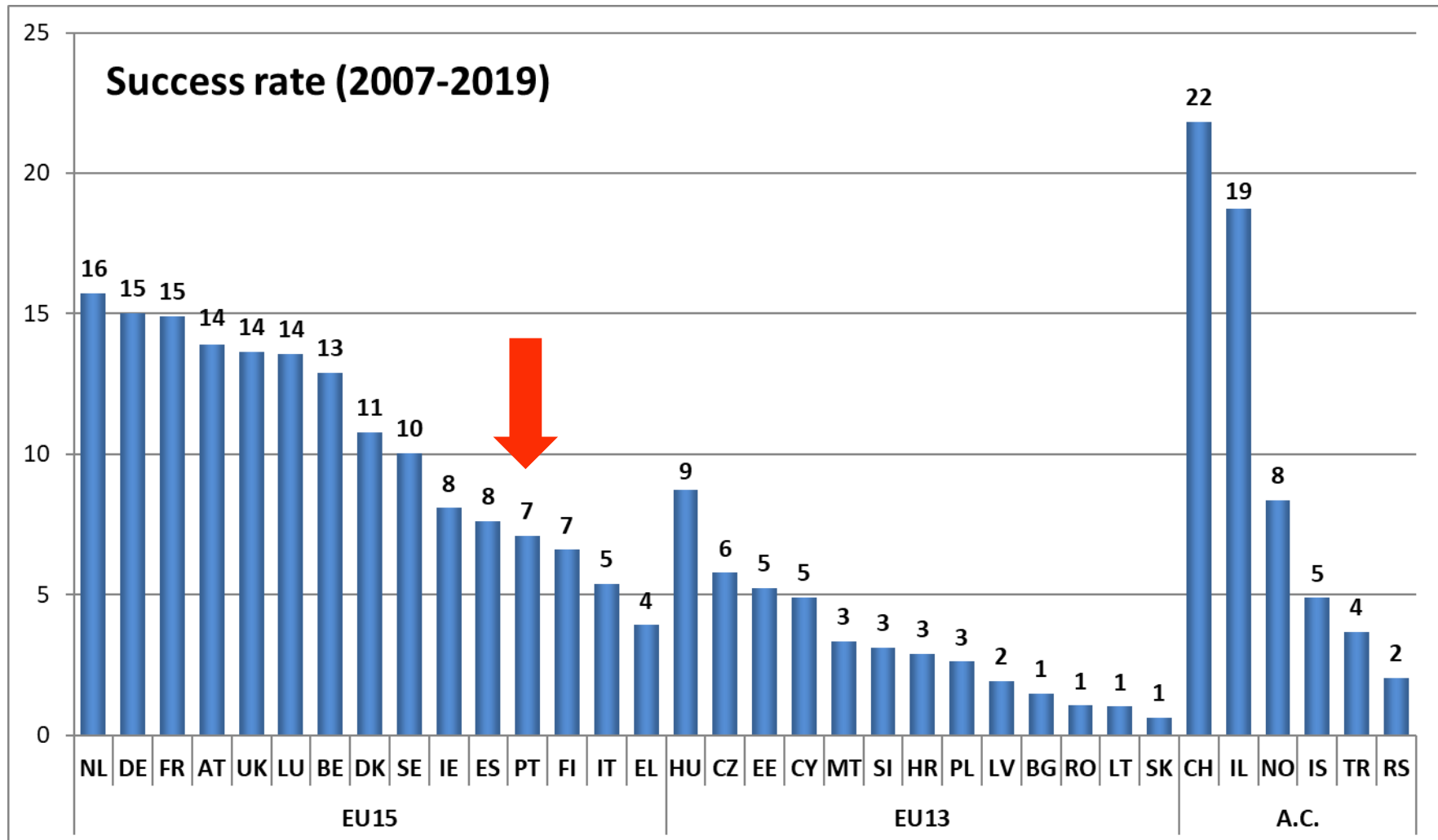


# Success Rate by Country

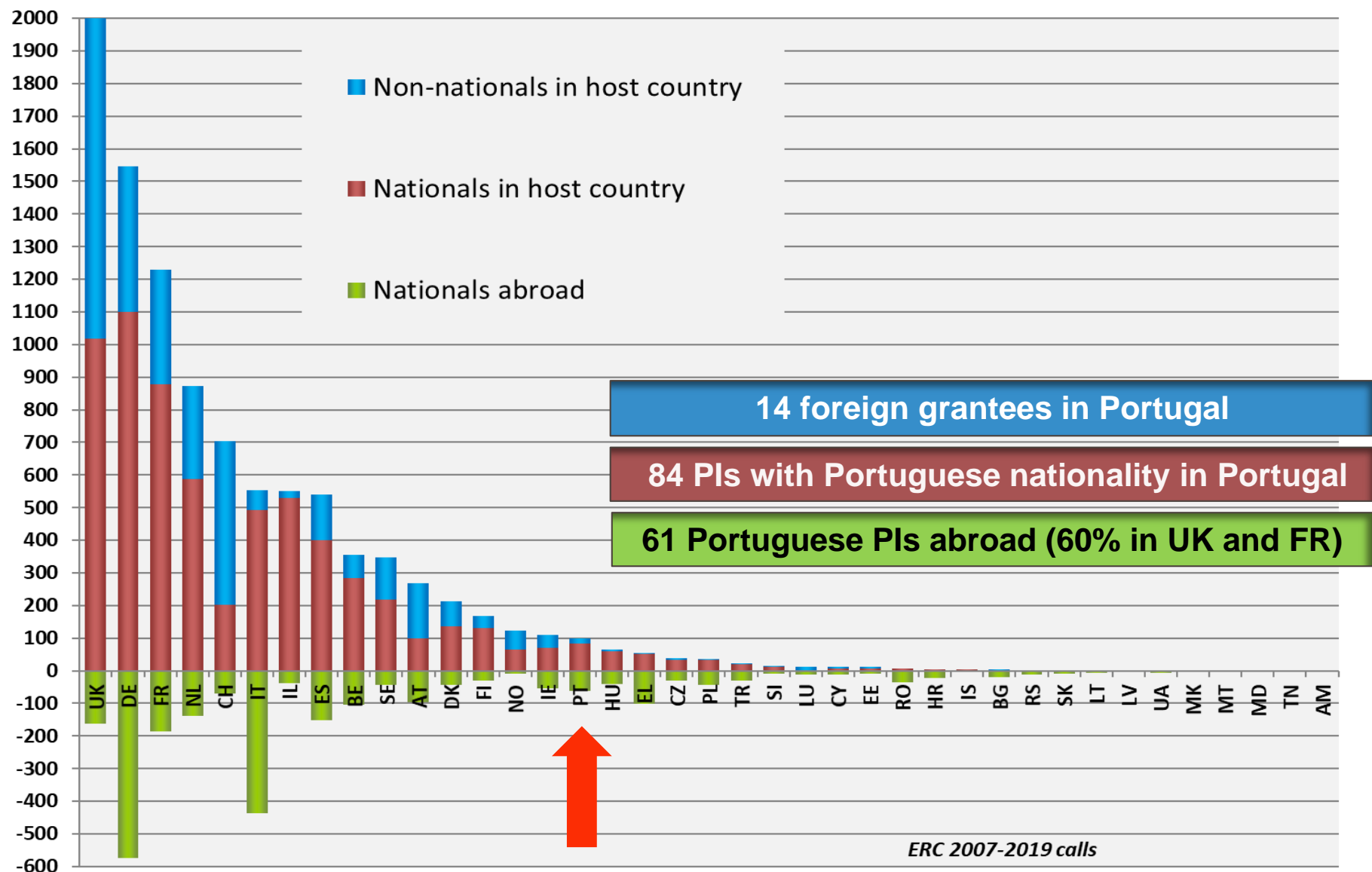


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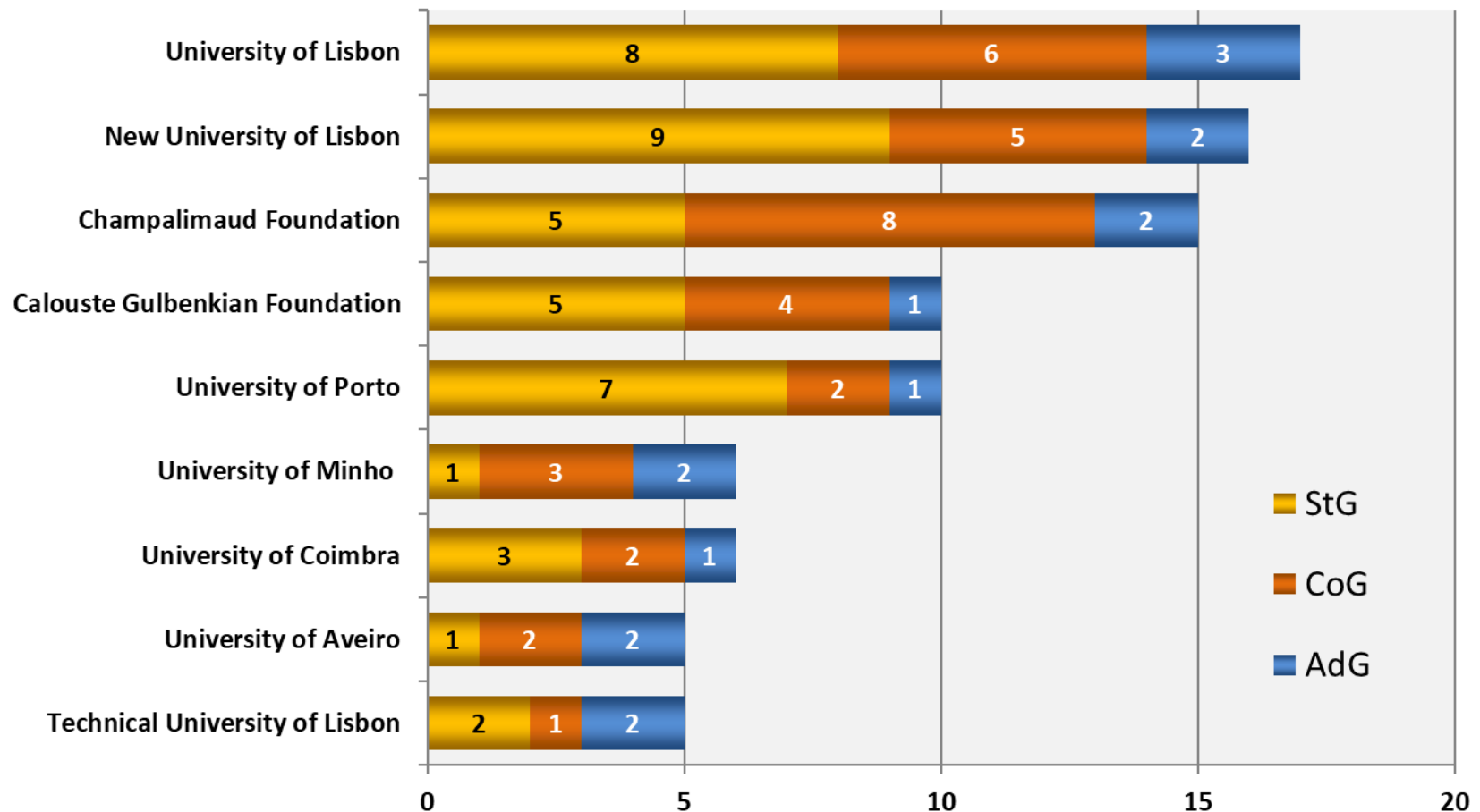
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# ERC Nationals at Home and Abroad



# Top Host Institutions in Portugal



Current Host Institutions (data as of 25/03/2020)





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# ERC AND YOU

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