

The European Research Council: Prime funder of Frontier Research in Europe



European Research Council
Established by the European Commission



David Krása

Head of Sector Physical Sciences & Mathematics
ERC Scientific Management Department

58th Plenary Meeting of the European Space Sciences Committee, Brussels, 1-3 October 2019

© Art & Build Architect / Montois Partners /
credits: S. Brison

ERC has a unique mission



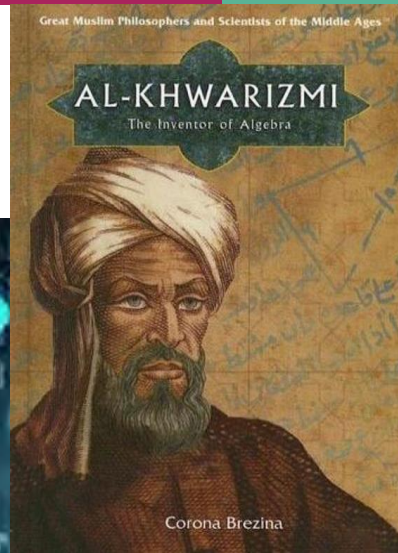
European Research Council
Established by the European Commission

"The ERC's mission is to encourage the highest quality research in Europe through competitive funding and to support investigator-driven frontier research across all fields, on the basis of scientific excellence."

"Let scientists follow their dreams"



European Research Council
Established by the European Commission



"You never know if and how a discovery will be used in the future... When al-Khwarizmi invented the algorithms, he did not know they would be used to create IT encryption systems. So let scientists follow their dreams, without boundaries"

**ERC Grantee, Israel,
PoC 2014**

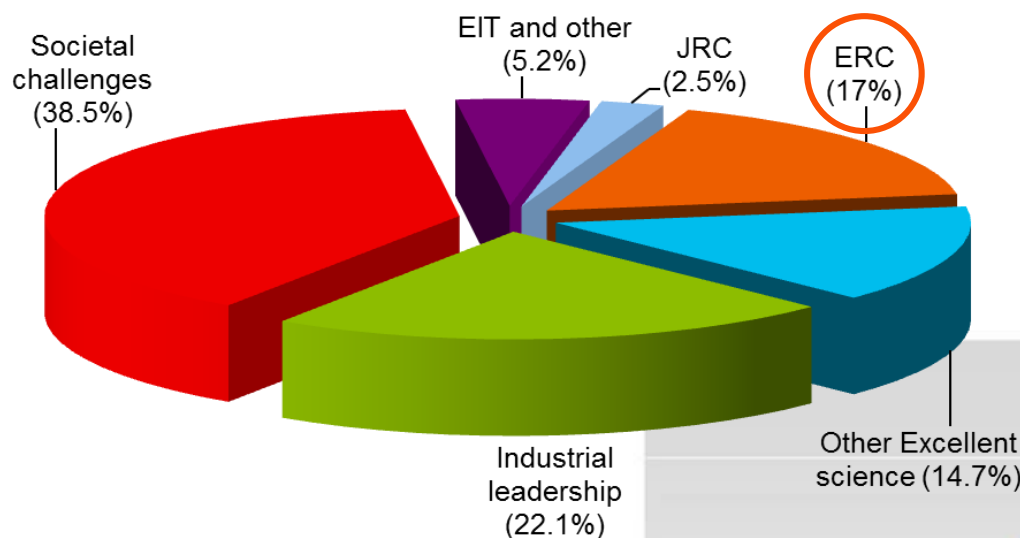
ERC is....

1. funding: it is part of H2020



European Research Council

Established by the European Commission



ERC Budget € 13 billion

For 2020, the budget is more than 2.25 billion euros, the highest ever since the beginning of the ERC.



ERC Structure



European Research Council
Established by the European Commission



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**



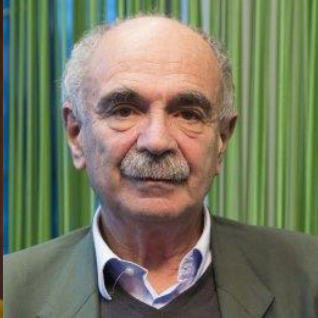
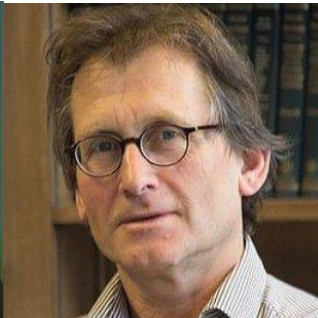
The ERC Executive Agency

- **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

Scientific Governance by the Scientific Council



European Research Council
Established by the European Commission



ERC Scientific Council Members



European Research Council

Established by the European Commission

- Prof. Geneviève ALMOUZNI (Biology)
- Prof. Manuel ARELLANO (Economics)
- **Prof. Jean-Pierre BOURGUIGNON (Mathematics), ERC President**
- Prof. Paola BOVOLENTA (Neurobiology)
- Prof. Margaret BUCKINGHAM (Biology)
- Prof. Eveline CRONE (Psychology)
- Prof. Ben L. FERINGA (Organic Chemistry)
- Prof. Mercedes GARCIA-ARENAL (History)
- Prof. Andrzej JAJSZCZYK (Electronics and Communication Engineering)
- Prof. Eystein JANSEN (Earth Science)
- Prof. Tomas JUNGWIRTH (Condensed Matter Physics)
- Prof. Michael KRAMER (Astrophysics)
- Prof. Kurt MEHLHORN (Computer Science)
- Prof. Barbara ROMANOWICZ (Geophysics)
- Prof. Martin STOKHOF (Philosophy), **ERC Vice-President**
- Prof. Giulio SUPERTI-FURGA (Medical Systems Biology)
- Prof. Jesper SVEJSTRUP (Biology)
- Prof. Nektarios TAVERNARAKIS (Molecular Systems Biology)
- Prof. Janet THORNTON (Bioinformatics and Structural Biology), **ERC Vice-President**
- Prof. Lene VESTERGAARD HAU (Physics)
- Prof. Michel WIEVIORKA (Sociology)
- Prof. Fabio ZWIRNER (Theoretical and High-Energy Physics), **ERC Vice-President**

ERC Basics



European Research Council
Established by the European Commission

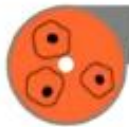


European Research Council
Established by the European Commission

INDIVIDUAL RESEARCHERS
FROM ALL OVER THE WORLD

LONG TERM GRANTS

TO HIGH-RISK/HIGH-GAIN PIONEERING PROJECTS
IN ANY FIELD OF FRONTIER RESEARCH



Life Sciences



Physical Sciences and Engineering



Social Sciences and Humanities

Creative Freedom to Individual Grantee



European Research Council
Established by the European Commission

ERC offers independence, recognition & visibility

- to work on a research topic of **own choice**, with a team of **own choice**
- to gain true **financial autonomy** for 5 years
- to negotiate with the host institution the **best conditions** of work
- to attract **top team members** (EU and non-EU) **and collaborators**
- to move with the grant to any place in Europe if necessary (**portability of grants**)
- **to attract additional funding and gain recognition**; ERC is a quality label

What does ERC offer?

ERC Grant Schemes



European
Commission

Starting Grants

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

Consolidator Grants

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

Advanced Grants

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

Synergy Grants

2 – 4 Principal Investigators
up to € 10 Mio for 6 years.

NEW: One PI can be located outside the EU or Associated Countries

Proof-of-Concept

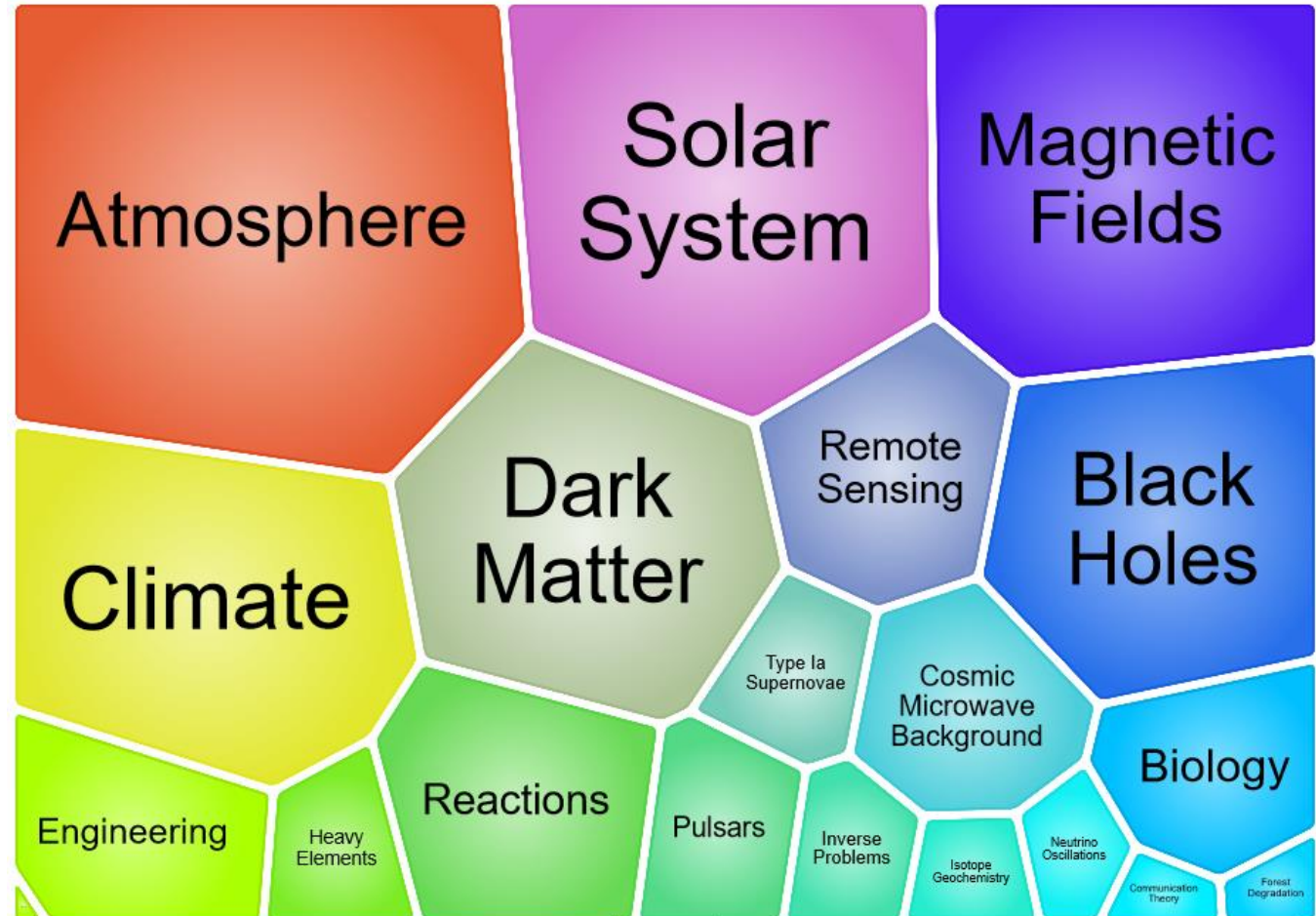
bridging gap between research - earliest stage
of marketable innovation
up to €150,000 for ERC grant holders

Space Science research funded by ERC



European Research Council
Established by the European Commission

Approximately 450 funded projects in areas related to Space Science, worth some 900 Million EUR.

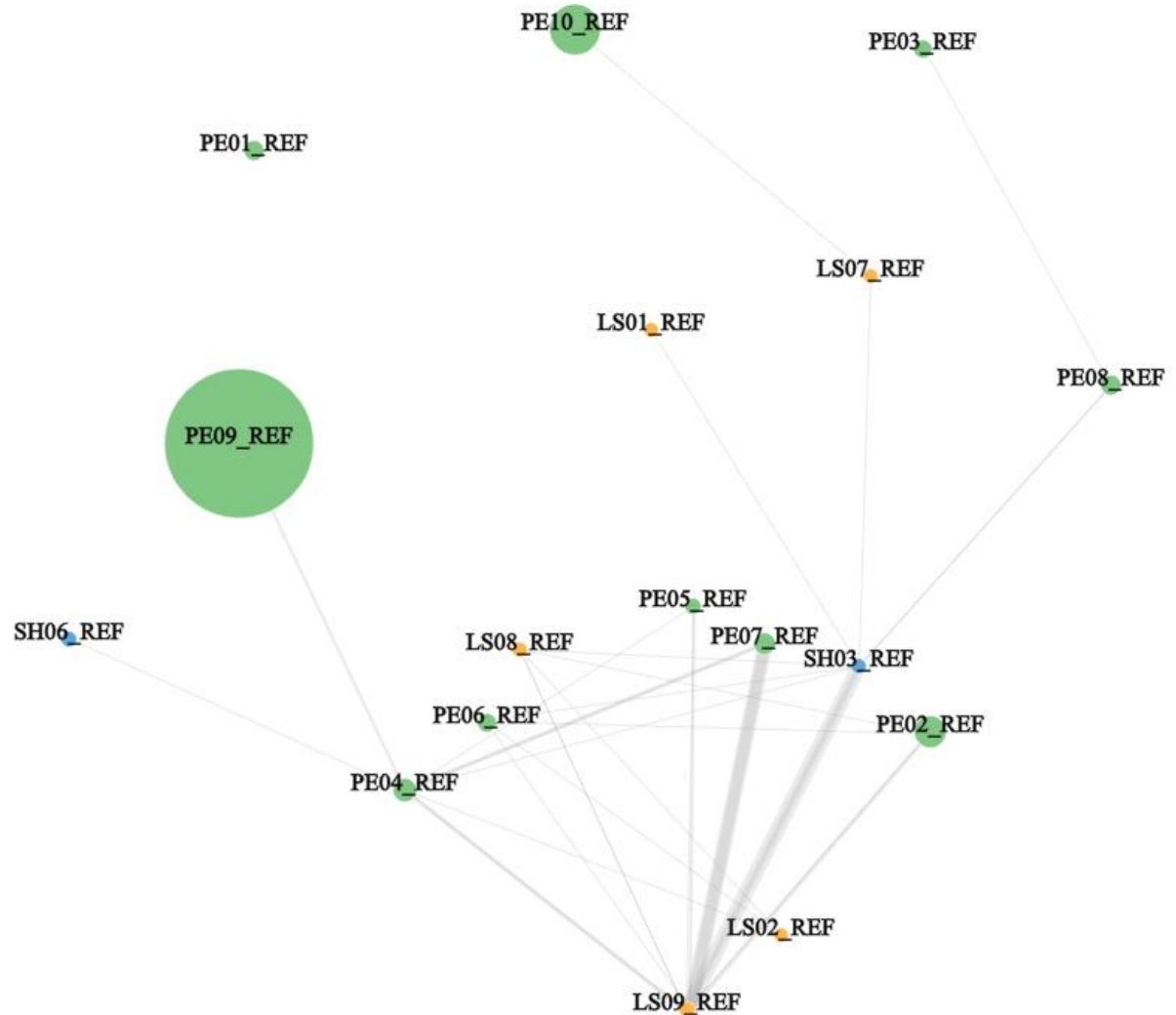


Space Science research funded by ERC



European Research Council
Established by the European Commission

Space science projects funded in 17 out of the 25 panels of the ERC!



Evaluation Panel Structure (WP2019)



European Research Council
Established by the European Commission

Life Sciences

- LS1 Molecular Biology, Biochemistry, Structural Biology and Molecular Biophysics
- LS2 Genetics, 'Omics', Bioinformatics and Systems Biology
- LS3 Cellular and Developmental Biology
- LS4 Physiology, Pathophysiology and Endocrinology
- LS5 Neurosciences and Neural Disorders
- LS6 Immunity and Infection
- LS7 Applied Medical Technologies, Diagnostics, Therapies and Public Health
- LS8 Ecology, Evolution and Environmental Biology
- LS9 Applied Life Sciences, Biotechnology and Molecular 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

Social Sciences and Humanities

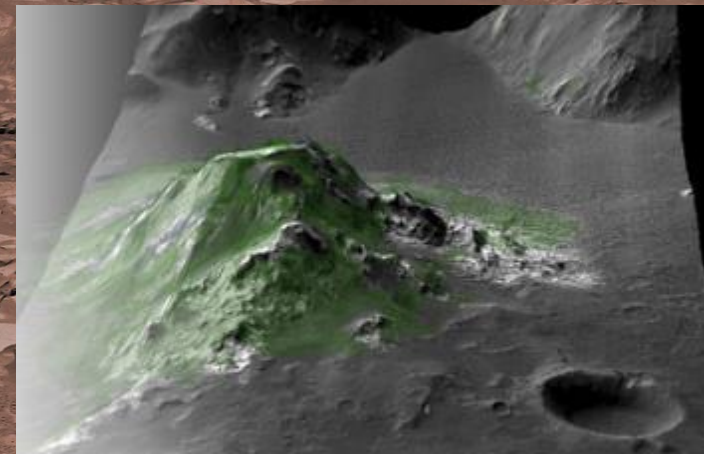
- SH1 Individuals, Markets and Organisations
- SH2 Institutions, Values, Environment and Space
- SH3 The Social World, Diversity, Population
- SH4 The Human Mind and Its Complexity
- SH5 Cultures and Cultural Production
- SH6 The Study of the Human Past



Prof. Cathy Quantin
Université Claude Bernard
Lyon1
Laboratoire de Géologie de
Lyon

**Project instrumental in
proposing
landing sites**

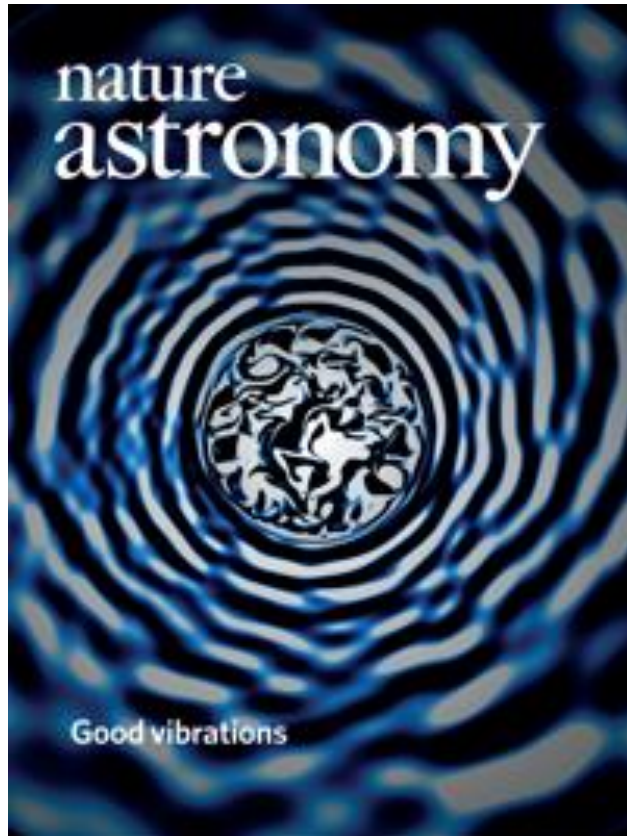
ESA ExoMars Mission 2020



Space Science research funded by ERC



European Research Council
Established by the European Commission



ARTICLES

<https://doi.org/10.1038/s41550-019-0768-1>

nature
astronomy

Low-frequency gravity waves in blue supergiants revealed by high-precision space photometry

Dominic M. Bowman^{1*}, Siemen Burssens¹, May G. Pedersen¹, Cole Johnston¹, Conny Aerts^{1,2}, Bram Buysschaert^{1,3}, Mathias Michielsen¹, Andrew Tkachenko¹, Tamara M. Rogers^{4,5}, Philipp V. F. Edelmann⁴, Rathish P. Ratnasingam⁴, Sergio Simón-Díaz^{6,7}, Norberto Castro⁸, Ehsan Moravveii¹, Benjamin J. S. Pope⁹, Timothy R. White¹⁰ and Peter De Cat¹¹

Project MAMSIE: Mixing and Angular Momentum transport of massive stars
PI Prof. Conny Aerts
KU Leuven

Contacts with the community: ERC – ESA workshop in 2015



European Research Council
Established by the European Commission

- ❑ joint ESA-ERC networking event on frontiers of space science and technology of November 2015 in Noordwijk (NL).
- ❑ The event was co-chaired by Prof Chris Rapley (Chair of the ESA's High-level Science Policy Advisory Committee - HISPAC) and Prof Sierd Cloetingh (Vice-President of the ERC and Vice-Chair of the ERC Scientific Council).
- ❑ The main scope of the event was to build engagement between the two research communities (ESA scientists and ERC grantees) given the complementarity of their research interests and activities that would foster future collaborations between research groups and individuals from the two communities.
- ❑ 21 ERC grantees and 26 ESA scientists participated in the event, joined by about 10 specialists from ESTEC and 3 ERC executive staff



European Research Council

Established by the European Commission

ERC ACHIEVEMENTS

A European Success Story



European Research Council

Established by the European Commission



"Today's event is one of the most important in my tenure as Commissioner for one simple reason: You are our jewel in the crown. You are one of the best things to happen in Europe in the last 10 years."

ERC 10th anniversary – Speech by
Commissioner MOEDAS, 21.3.17

"Horizon 2020 is one of Europe's biggest success stories. The new Horizon Europe programme aims even higher. As part of this, we want to increase funding for the European Research Council to strengthen the EU's global scientific leadership, and reengage citizens by setting ambitious new missions for EU research."

**Carlos MOEDAS, European Commissioner for
Research, Science and Innovation**



European Research Council

Established by the European Commission

After More than 10 Years, a Success Story



Over **9,400**
top researchers funded since
the ERC's creation in 2007



Over **100,000**
articles from ERC projects published
in prestigious scientific journals



Over **60,000**
researchers and other professionals
employed in ERC research teams



> 780 research institutions
hosting ERC grantees – universities,
public or private research centres in
the EU or associated countries



€ 13 billion
ERC budget for 2014-2020 under
Horizon 2020



82
nationalities of
grant holders

ERC Delivers



European Research Council
Established by the European Commission

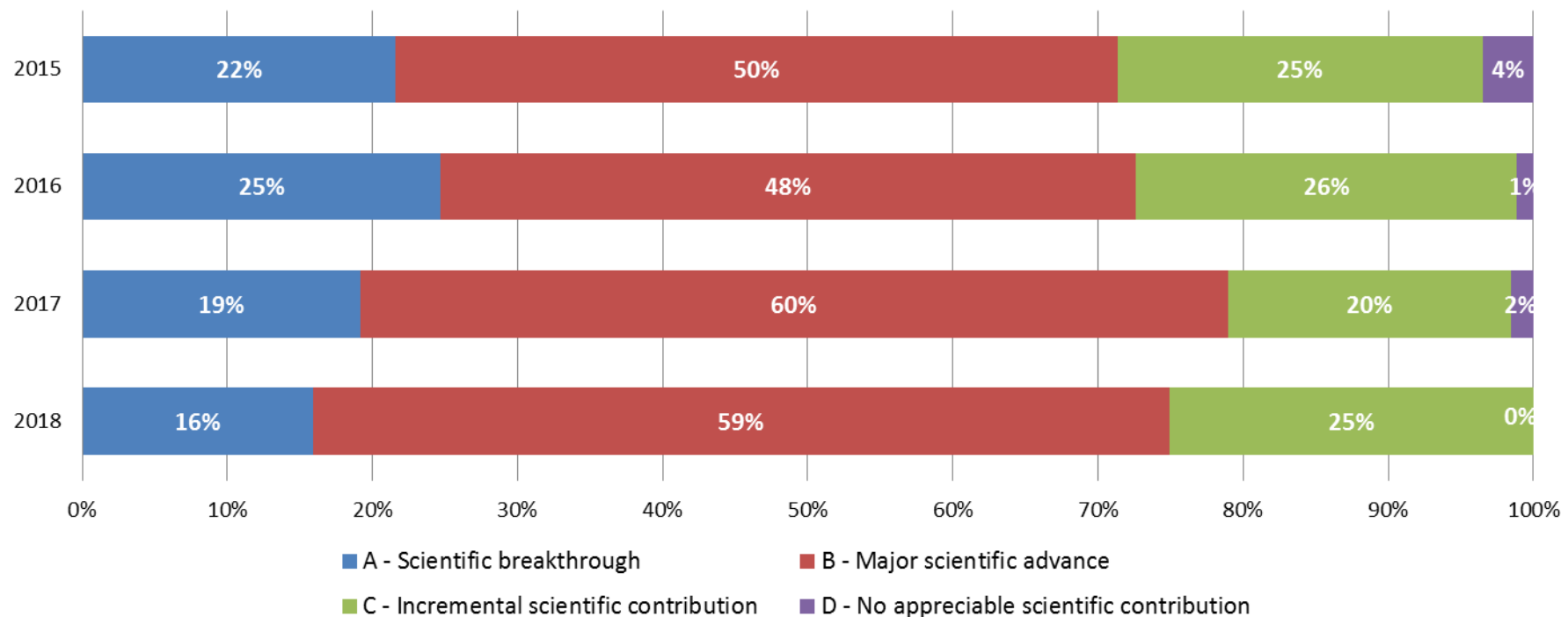
- **74%** of the completed ERC-funded projects made **scientific breakthroughs or major advances in science**
- **7%** of the ERC-acknowledging publications were among the **top 1%** most cited in their scientific field and publication year
- **20%** of completed LS and PE projects reported at least one patent (on average **2** patents reported per project)

20% of the ERC-funded Projects Deliver Scientific Breakthroughs



European Research Council
Established by the European Commission

Qualitative evaluation of completed ERC projects Overall results for 2015, 2016, 2017 and 2018





European Research Council

Established by the European Commission

ERC Perspectives

ERC Scientific Council on Horizon Europe



European Research Council

Established by the European Commission

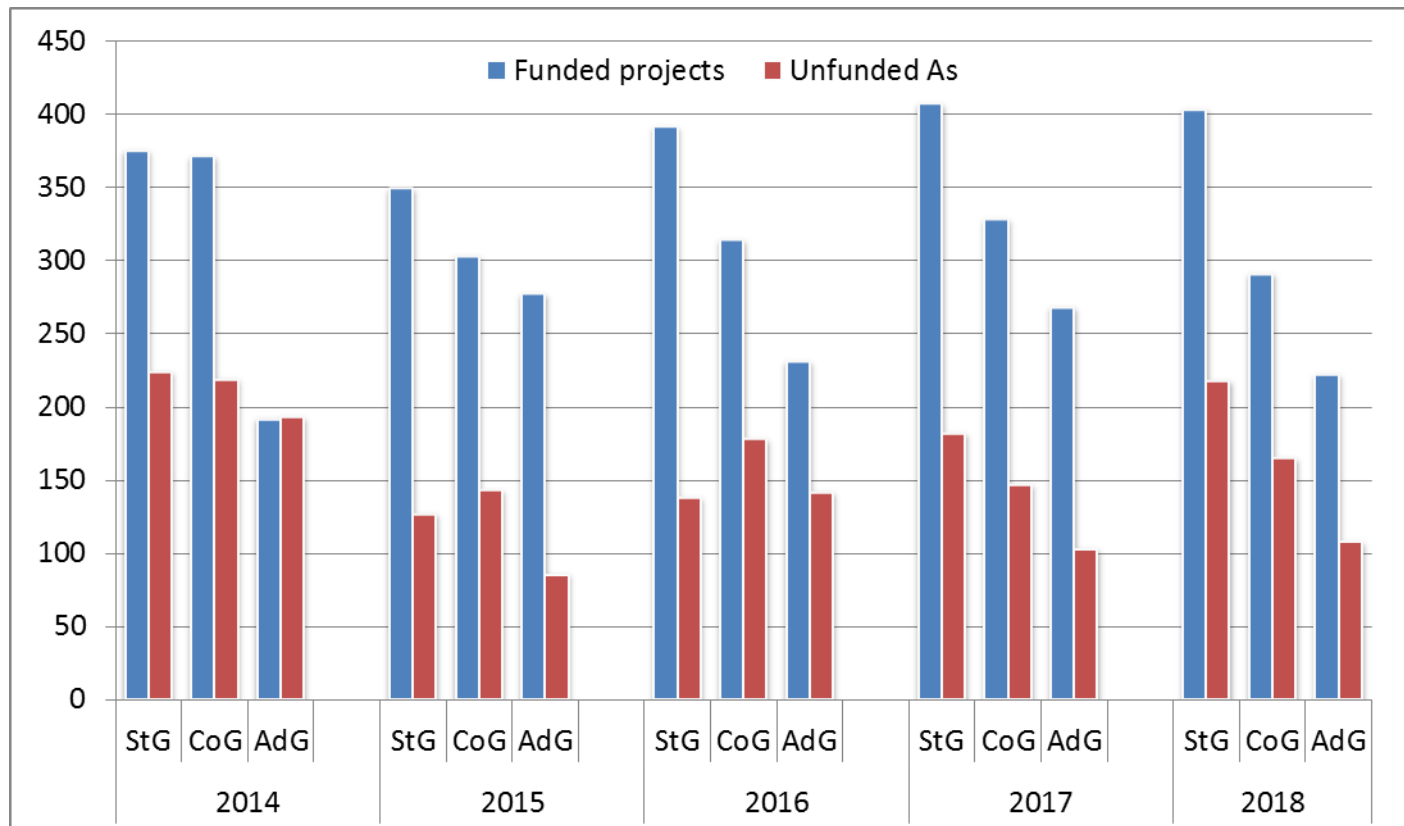
- ✓ Continuity
- ✓ Agility
- ✓ Scale-up

- Continuity:
 - ✓ Of structure from the current legal framework
 - ✓ Of governance arrangements: independence of Scientific Council and operational autonomy
- Agility:
 - ✓ To innovate and adapt its scientific strategy
 - ✓ To manage its resources flexibly
 - ✓ To use tailor made tools and procedures when necessary
- Scale-up:
 - ✓ To turn ERC into one of Europe's main funders
 - ✓ To ensure appropriate success rates
 - ✓ To support more Europe's top-performing researchers

More Top Talent to Fund!



European Research Council
Established by the European Commission



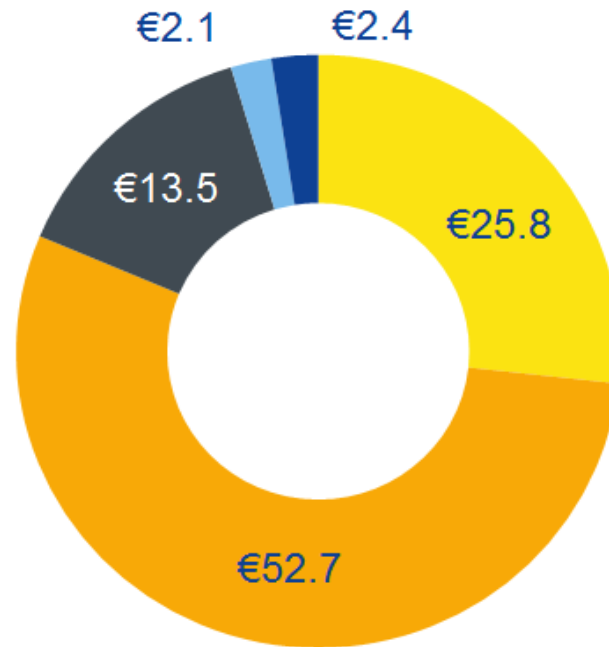
With a higher budget, ERC could fund much more excellence across Europe.
In recent years, there has been an average of >400 unfunded top projects each year.
This talent may leave/have left Europe.

Horizon Europe Budget Distribution



European Research Council
Established by the European Commission

Proposal by the European Commission



€ billion
In current prices

- Open Science
- Global Challenges & Ind. Competitiveness
- Open Innovation
- Strengthening ERA
- Euratom

* EUR 3.5 billion allocated under the InvestEU Fund.

A New European Scenario



European Research Council
Established by the European Commission

- The **Commission's proposal** for Horizon Europe must now be approved by the **European Council** and the **European Parliament**.
- **Big transition:** The EU has a **new Parliament** and soon a **new College of Commissioners**.
- ERC will keep advocating for **adequate support to Frontier Research**.
- Scientific communities all over the world are our allies in **obtaining the right priority for Research and Innovation**.

The European Research Council



European Research Council
Established by the European Commission

- More information: erc.europa.eu
- National Contact Point: erc.europa.eu/national-contact-points
- Sign up for news alerts: erc.europa.eu/keep-updated-erc
- Follow us on



www.facebook.com/EuropeanResearchCouncil



twitter.com/ERC_Research



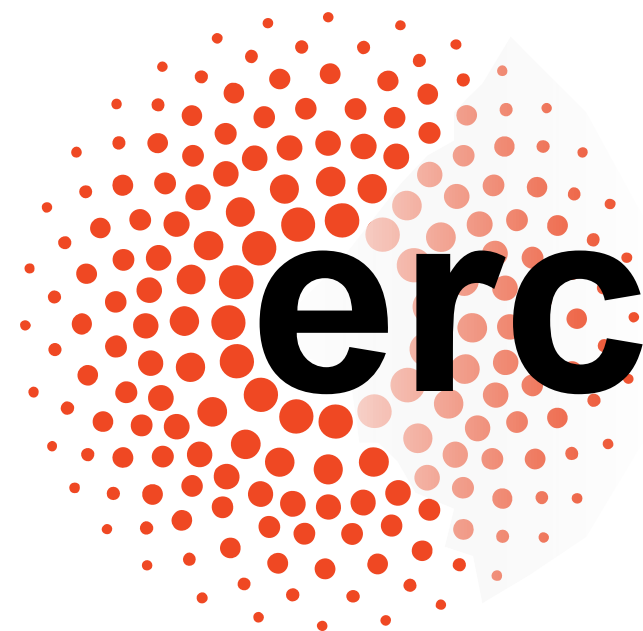
www.linkedin.com/company/european-research-council



European Research Council

Established by the European Commission

Thank you!



david.krasa@ec.europa.eu