



ERC and Slovenia

Jean-Pierre BOURGUIGNON
ERC President

25 November 2019

What is the ERC?



European Research Council

Established by the European Commission

The ERC supports excellence in Frontier Research through a bottom-up, individual-based, pan-European competition

Strategy

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

Legislation

- Scientific governance: **independent Scientific Council** with 22 members including the ERC President; **full authority over the funding strategy and evaluation**
- Support by the **ERC Executive Agency** (autonomous)
- **Scientific quality** as the only criterion aiming for excellence

Governance by the Scientific Council



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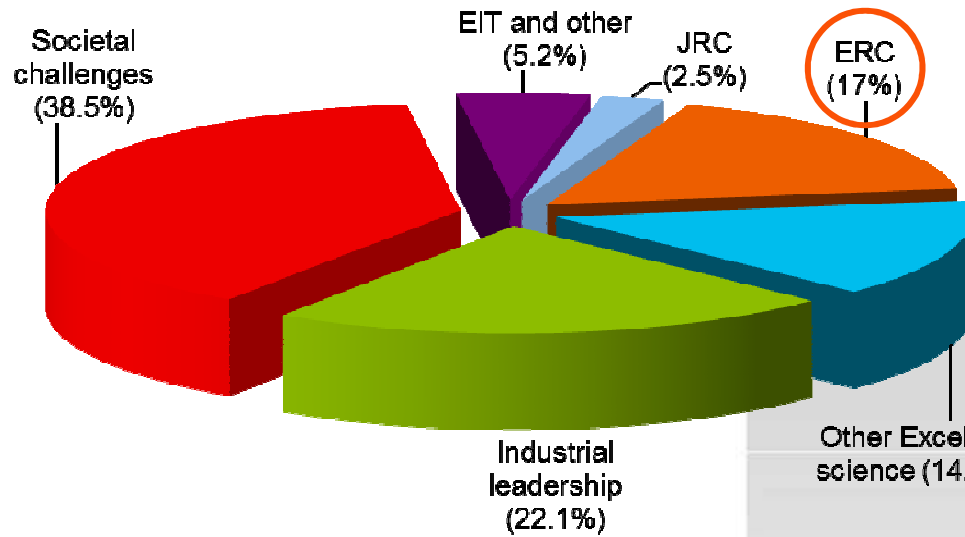
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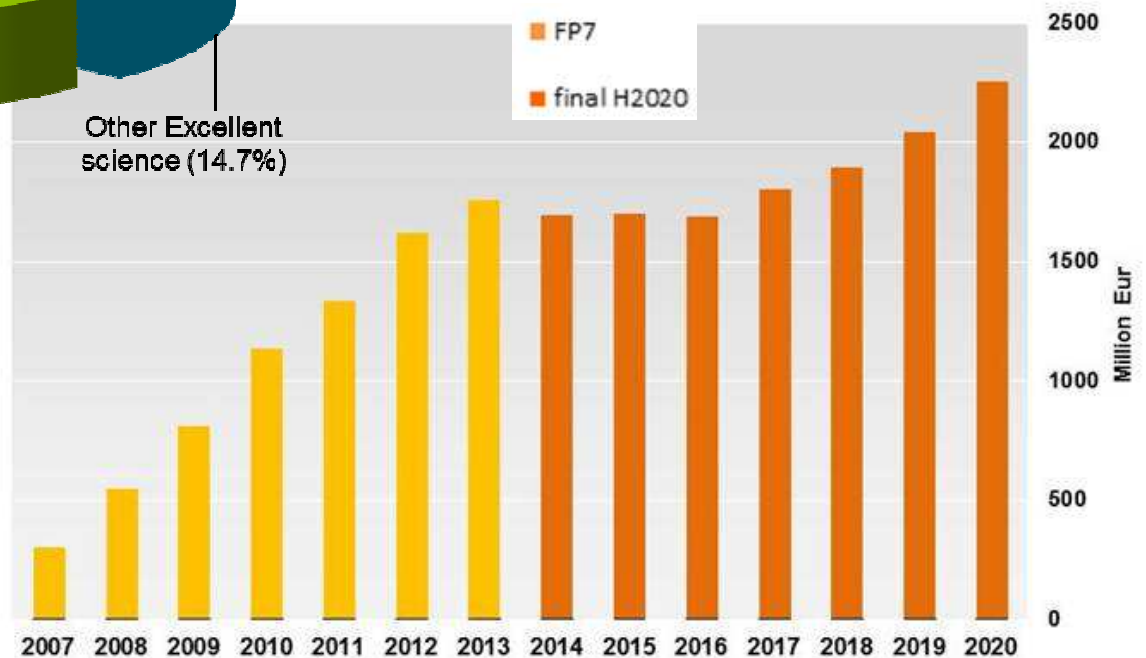
ERC Budget



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ERC Budget
13 billion €



ERC Grants Schemes



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Starting Grants

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

Consolidator Grants

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

Advanced Grants

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

Proof-of-Concept

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

Synergy Grants (re-launched 2018)

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

Creative Freedom to Individual Grantee



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;

ERC Evaluation Panel Structure



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

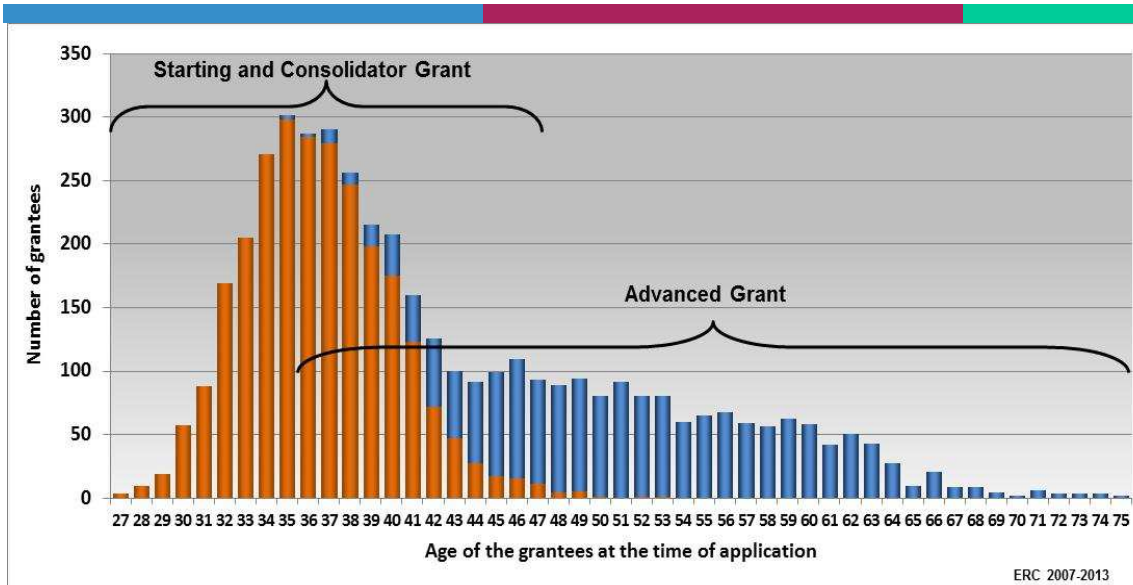
Social Sciences and Humanities

- 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

Priority to Young Scientists

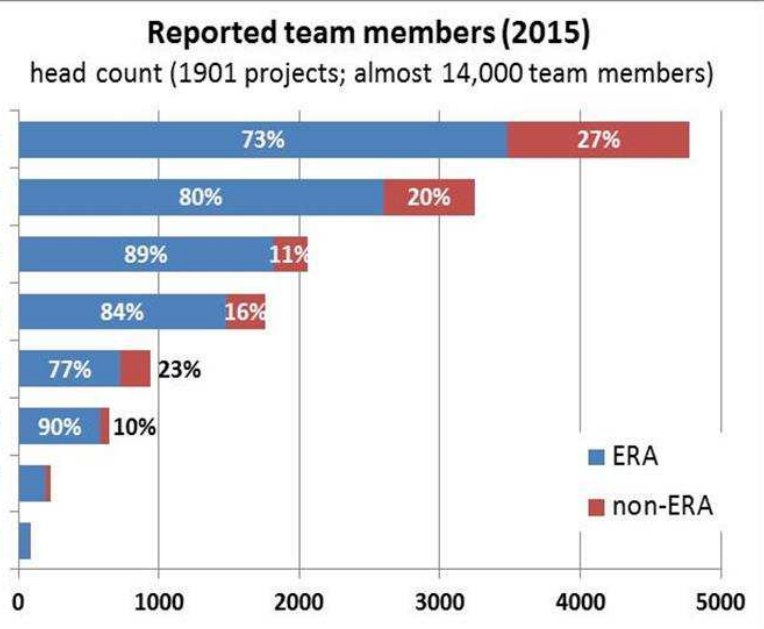


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> 50 000 PhD and post-doc researchers working in ERC teams

Two-thirds of ERC grants to early-stage Principal Investigators



Top European Institutions Hosting ERC Grantees by Funding Schemes

*Basis:
Starting 2007-2019,
Consolidator 2013-2018,
Advanced 2008-2019*

*Current signatories of
the grant agreement
taken into account*

Data as of 16/09/2019

Country	Higher-Education Institution	No	StG	CoG	AdG	Total	LS	PE	SH
UK	University of Cambridge	1	111	49	88	248	86	120	42
UK	University of Oxford	2	95	52	100	247	72	100	75
UK	University College London	3	84	39	58	181	64	49	68
CH	Swiss Federal Institute of Technology Zurich (ETH Zurich)	4	71	23	80	174	45	122	7
IL	Weizmann Institute	5	73	42	43	158	91	65	2
CH	Swiss Federal Institute of Technology Lausanne (EPFL)	6	68	23	58	149	38	108	3
IL	Hebrew University of Jerusalem	7	72	21	43	136	56	55	25
UK	Imperial College	8	60	21	29	110	32	74	4
UK	University of Edinburgh	9	49	19	41	109	36	45	28
DE	University of Munich (LMU)	10	55	9	40	104	40	38	26
NL	University of Amsterdam	11	59	16	26	101	10	29	62
IL	Tel Aviv University	12	58	17	21	96	39	49	8
DK	University of Copenhagen	13	44	25	24	93	39	32	22
BE	University of Leuven	14	43	15	31	89	22	44	23
NL	Delft University of Technology	15	46	17	18	81	11	61	9
CH	University of Zurich	15	34	18	29	81	42	16	23
NL	Radboud University Nijmegen	16	39	17	23	79	25	24	30
NL	Utrecht University	16	37	24	18	79	14	31	34
FI	University of Helsinki	17	36	16	22	74	39	20	15
IL	Technion - Israel Institute of Technology	18	47	10	16	73	23	48	2
UK	University of Bristol	19	30	9	33	72	15	39	18
NL	Leiden University	20	39	13	19	71	1	28	42
SE	Lund University	21	30	16	18	64	30	30	4
DE	Technical University of Munich	21	29	17	18	64	15	48	1
SE	Karolinska Institute	22	26	12	23	61	57	1	3
Country	Research Organisation	No	StG	CoG	AdG	Total	LS	PE	SH
FR	National Centre for Scientific Research (CNRS)	1	260	125	124	509	144	302	63
DE	Max Planck Society	2	116	32	96	244	122	99	23
DE	Helmholtz Association of German Research Centres	3	75	32	32	139	82	56	1
FR	National Institute of Health and Medical Research (INSERM)	4	54	26	31	111	103	4	4
ES	Spanish National Research Council (CSIC)	5	35	20	22	77	22	45	10
FR	French Alternative Energies and Atomic Energy Commission	6	44	9	19	72	10	60	2



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ERC Achievements



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Horizon 2020
European Union funding
for Research & Innovation



Breakthroughs

73%
of completed
projects led to
breakthroughs/major
advances



Scientific impact

> 5,500
articles among 1%
most cited scientific
journals



Key figures

> 9,500
top researchers funded
60,000
researchers & other professionals
hired in ERC teams



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Open to the world

14
international initiatives
for non-EU talent
to join ERC teams



ERC as a model

15
EU countries set up
ERC-like
structures/funding
schemes



Prestigious prizes, e.g.

7 **5** **4**
Nobel Prizes Wolf Prizes Fields Medals



Horizon 2020
European Union funding
for Research & Innovation

Top funder in the World!



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According to the Web of Science, among the 50 funders most frequently acknowledged by authors between 2007 and 2016, the ERC had:

- The highest category normalised citation impact,
- The highest percentage of papers in the world's top 1%,
- The highest percentage of papers involving international co-authorship.

ERC Funded Researchers Deliver



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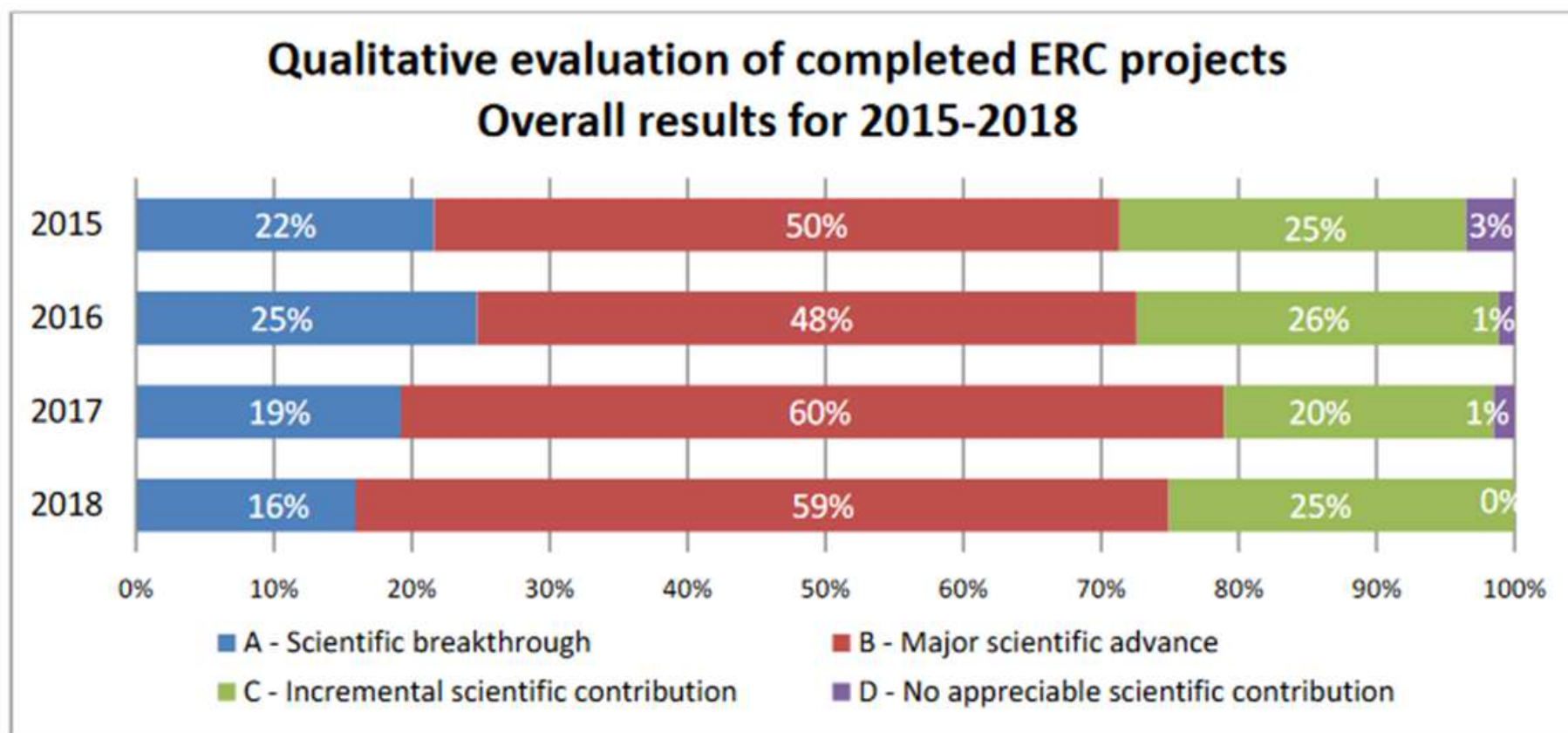


Figure 2. Overall results of the 2015-2018 exercises



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International Prizes to ERC Grantees



ERC grantees who won the Nobel Prize during or after an ERC grant:

<p>ERC Grantee StG 2007</p> <p>Konstantin NOVOSELOV Nobel 2010</p>	<p>ERC Grantee AdG 2009</p> <p>Serge HAROCHE Nobel 2012</p>	<p>ERC Grantee AdG 2009</p> <p>Jean TIROLE Nobel 2014</p>	<p>ERC Grantee AdG 2010</p> <p>May-Britt MOSER Nobel 2014</p>	<p>ERC Grantee AdG 2008</p> <p>ERC Grantee AdG 2013</p> <p>Edvard MOSER Nobel 2014</p>	<p>ERC Grantee AdG 2008</p> <p>ERC Grantee AdG 2015</p> <p>Bernard FERINGA Nobel 2016</p>
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ERC grantees who won the Fields Medal:

<p>ERC Grantee AdG 2008</p> <p>ERC Grantee AdG 2013</p> <p>Stanislav SMIRNOV Fields 2010</p>	<p>ERC Grantee StG 2010</p> <p>Artur AVILA Fields 2014</p>	<p>ERC Grantee CoG 2014</p> <p>Martin HAIRER Fields 2014</p>	<p>ERC Grantee CoG 2016</p> <p>Alessio FIGALLI Fields 2018</p>
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Other ERC grantees won prestigious international Prizes such as the Wolf Prize or Kavli Prizes.

Nobel Prize in Physiology 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

Co-Principal Investigator of an ERC Advanced grant 2008 project

Title: *"Project Molecular Mechanism of Oxygen Sensing by Enzymes"*

Host Institution: University of Oxford



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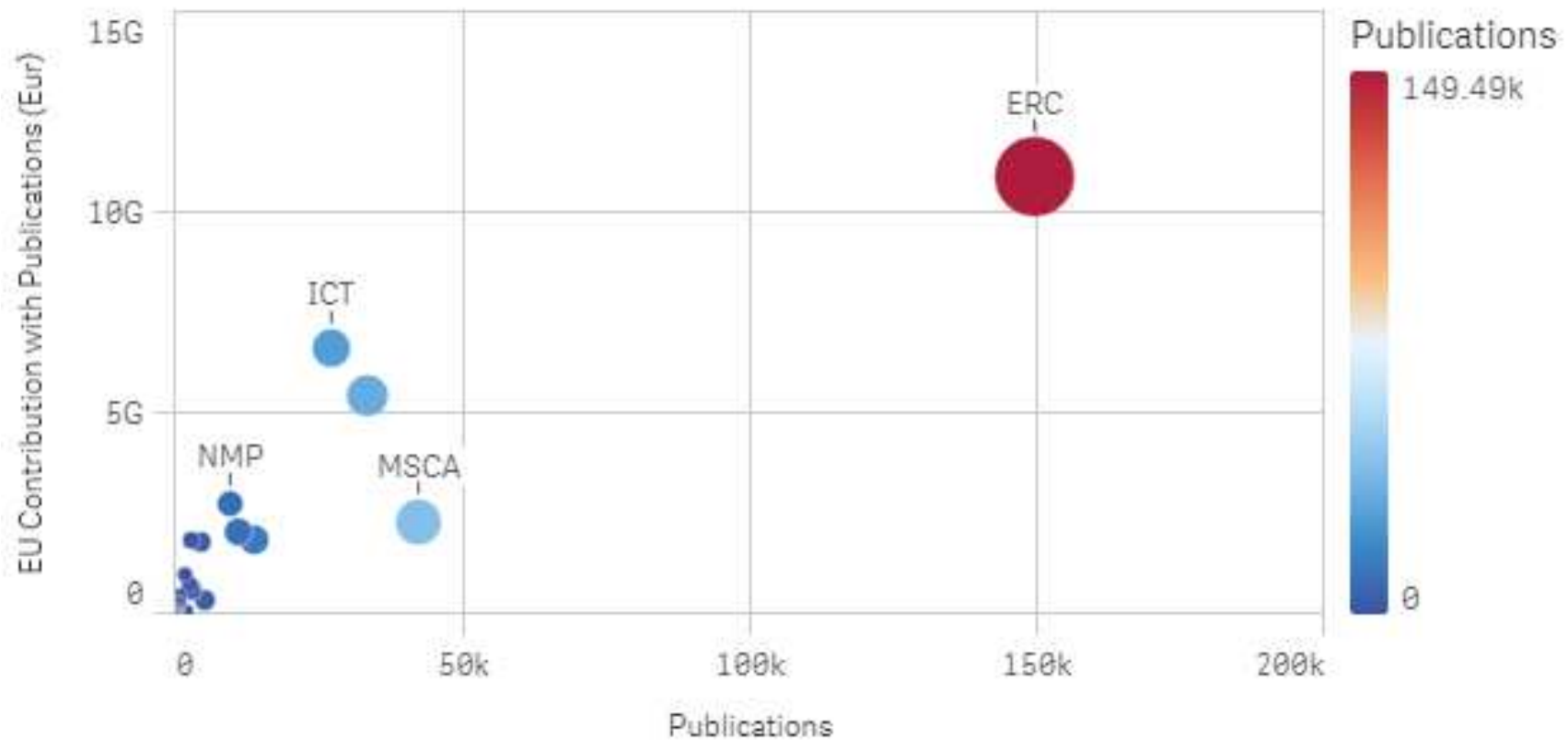


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Highest Impact among Hor. 2020 Programmes

Scientific Publications by Research Thematic Priority

Horizon 2020 Dashboard



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



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European Union funding
for Research & Innovation

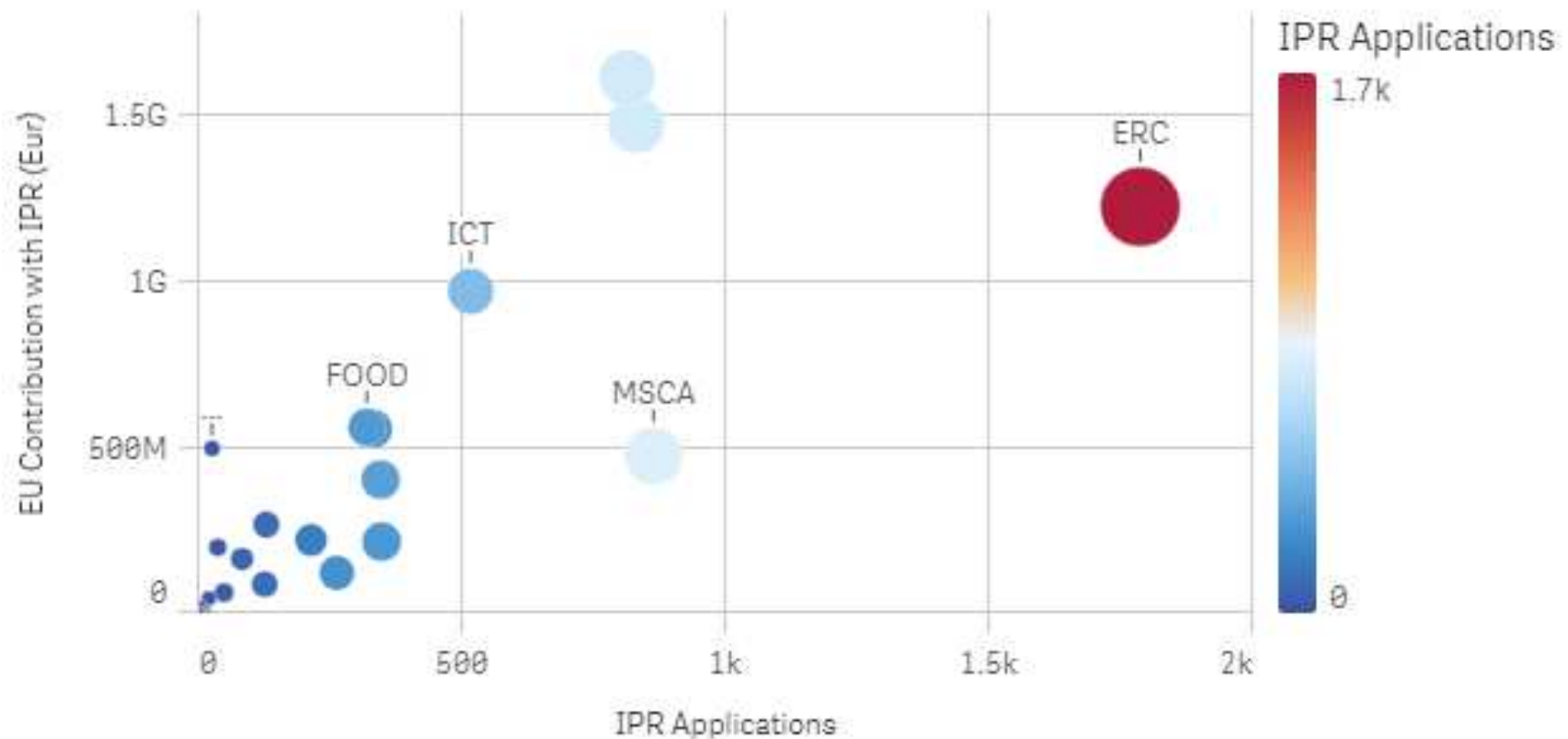


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Highest Impact among Hor. 2020 Programmes

IPR Applications by Research research Thematic Priority

Horizon 2020 Dashboard



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



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The objective of the Proof-of-Concept



- **Maximise the value-creation** of the excellent ERC-funded research

Provide funds to bring ERC-funded ideas to a *pre-demonstration* for:

- *Generation of return for innovators (economic, reputation, prestige, influence, ...)*
- *Generation of new value for users (socio-economic benefits)*



More than 100 Spin-off Companies



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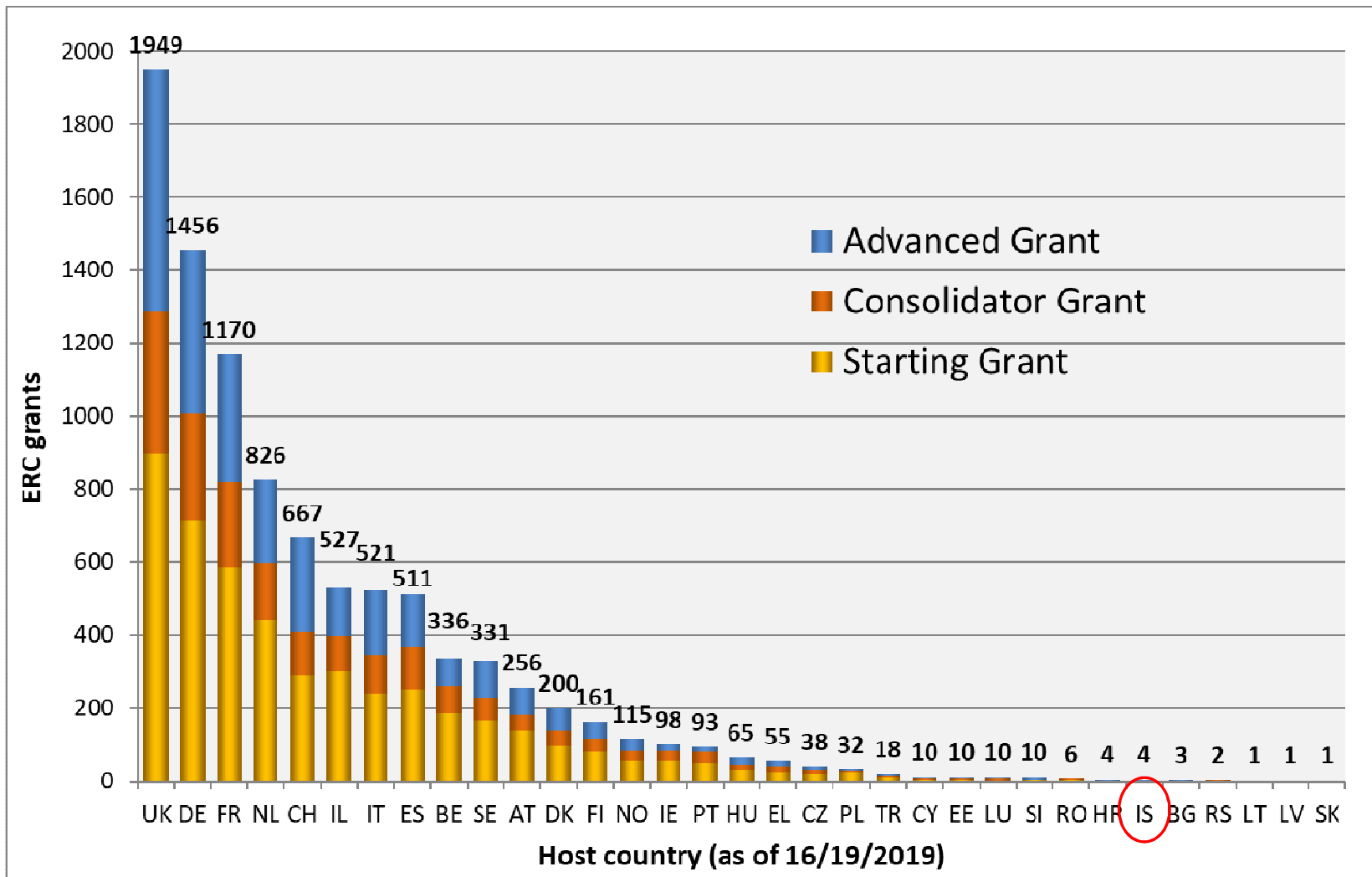
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ERC Grants by Country



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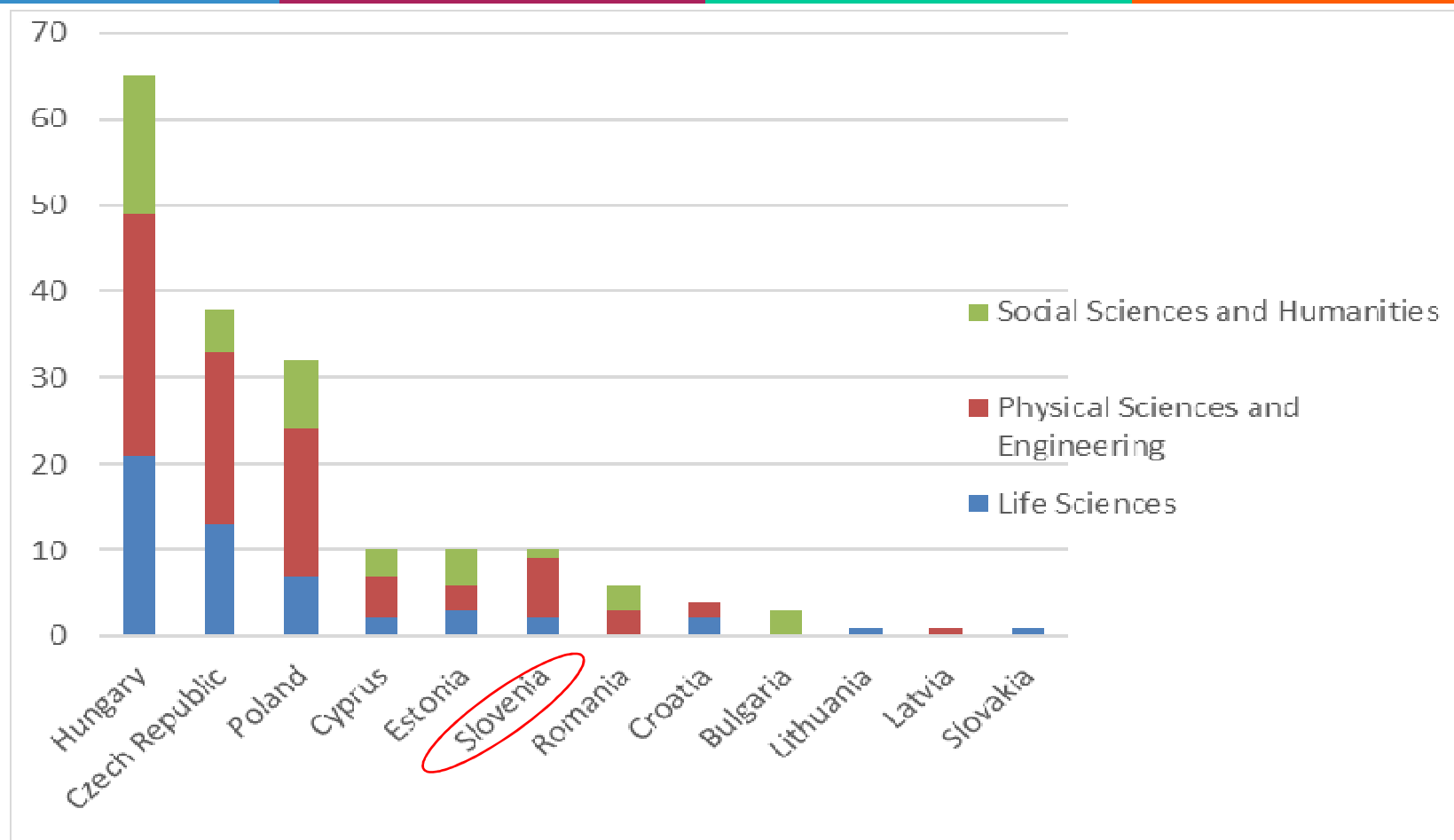




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ERC Grants in EU13



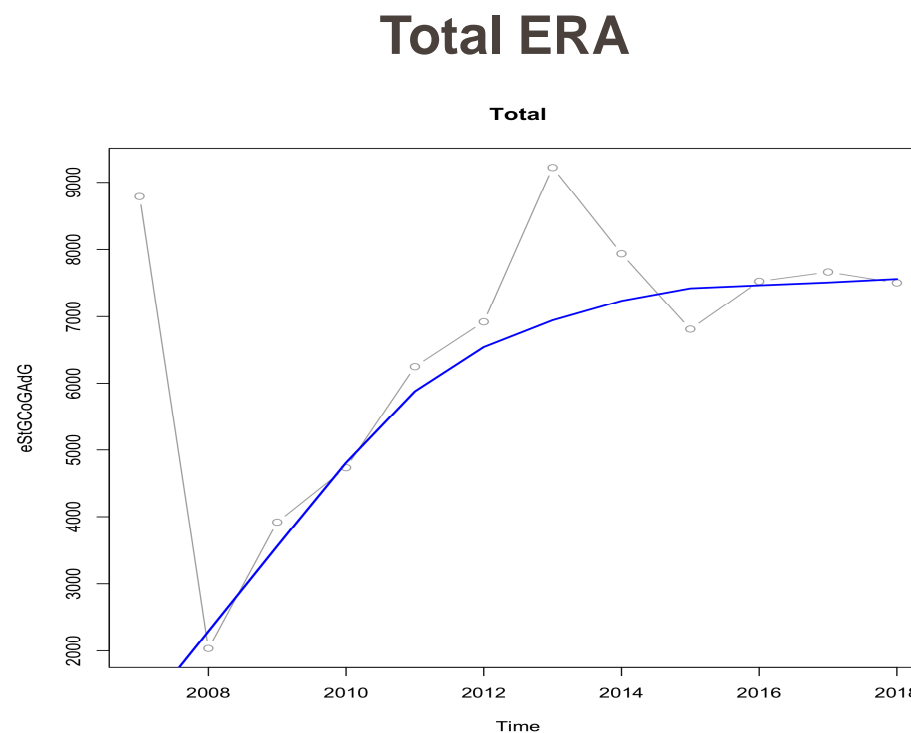
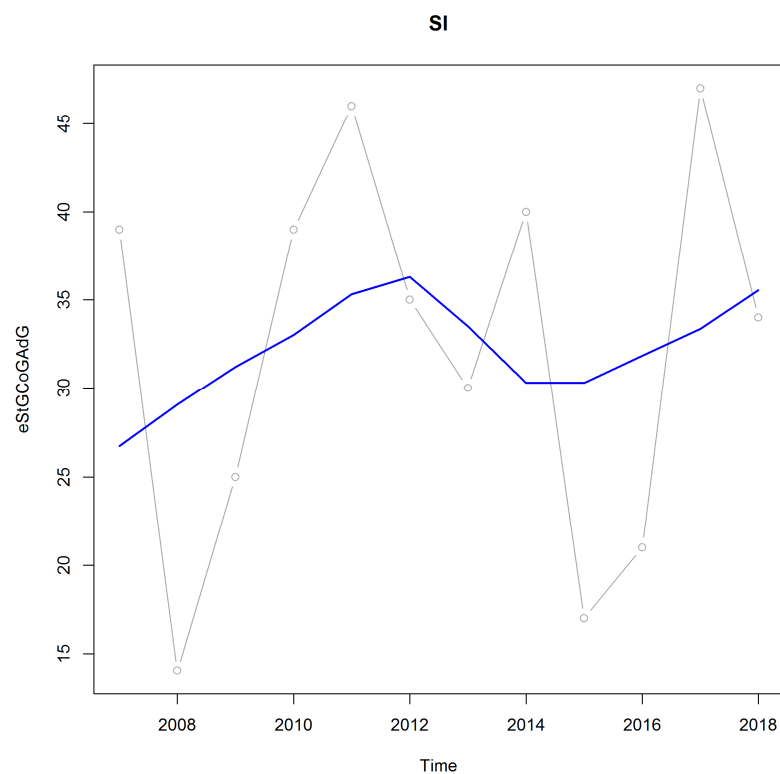
ERC Proposals by Scientists in Slovenia



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Increasing number of applications by Slovenia-based PIs

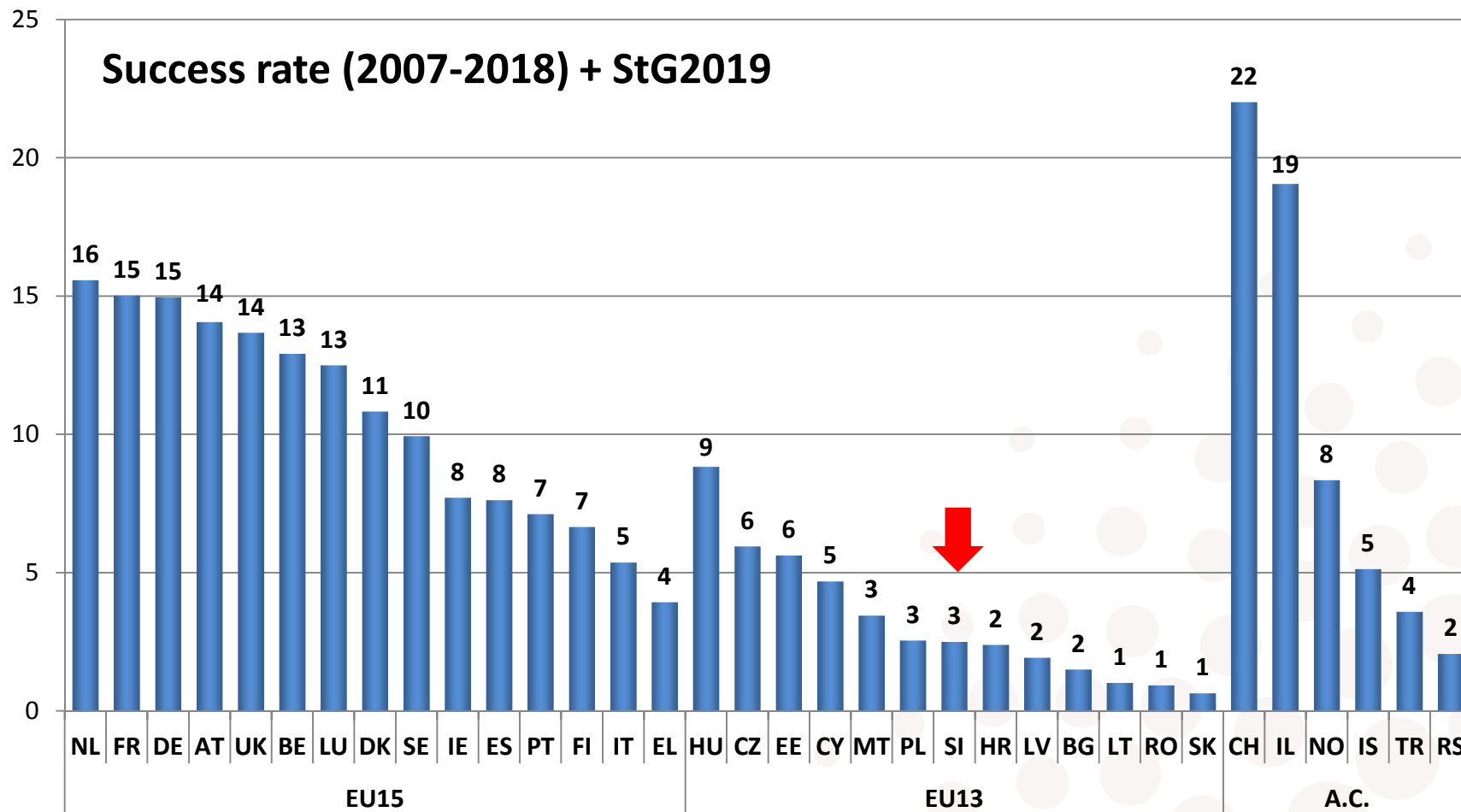


Success Rate by Country



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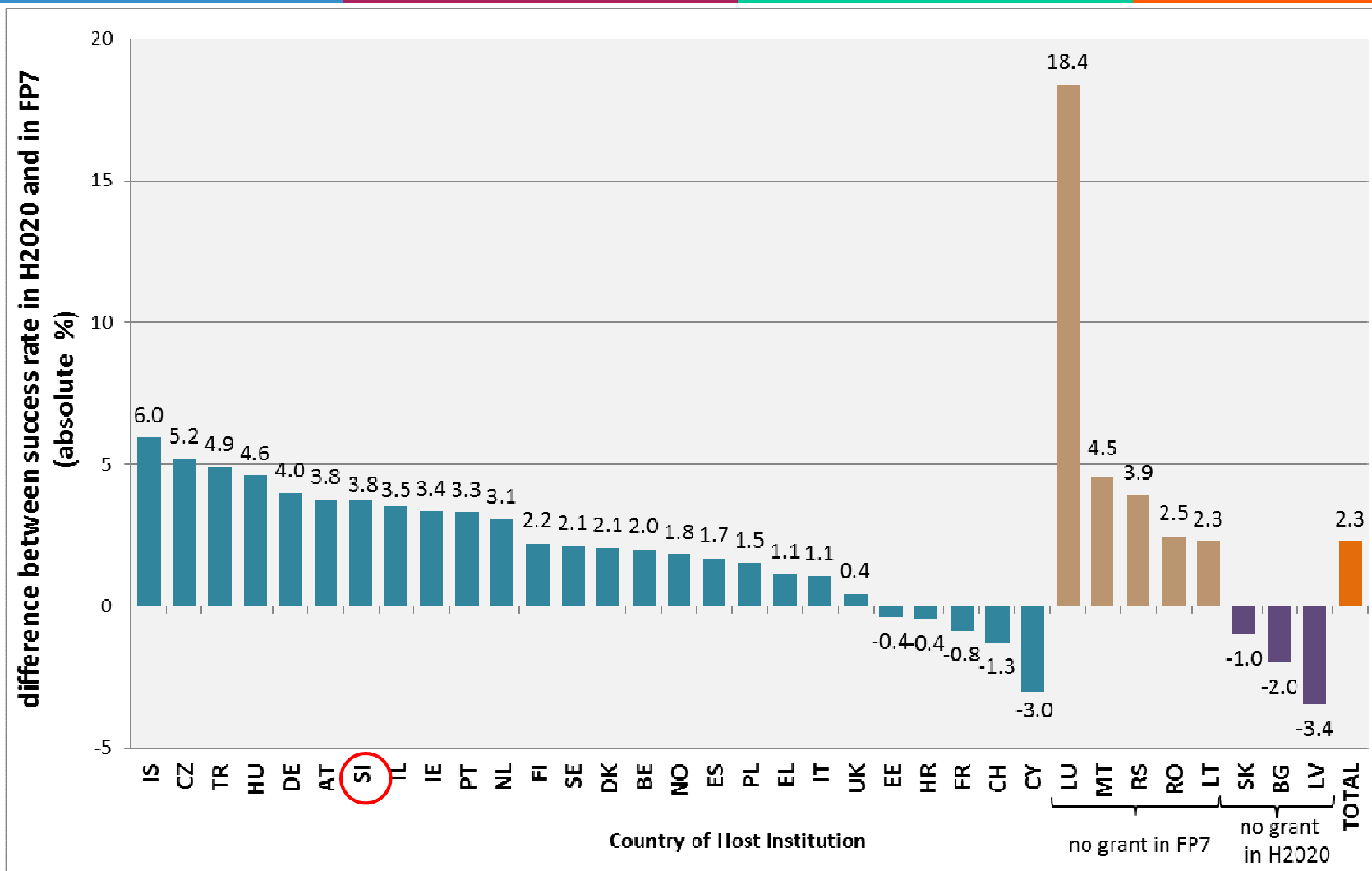


Success Rates Calls in Horizon 2020/FP7



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ERC Host Institutions in Slovenia



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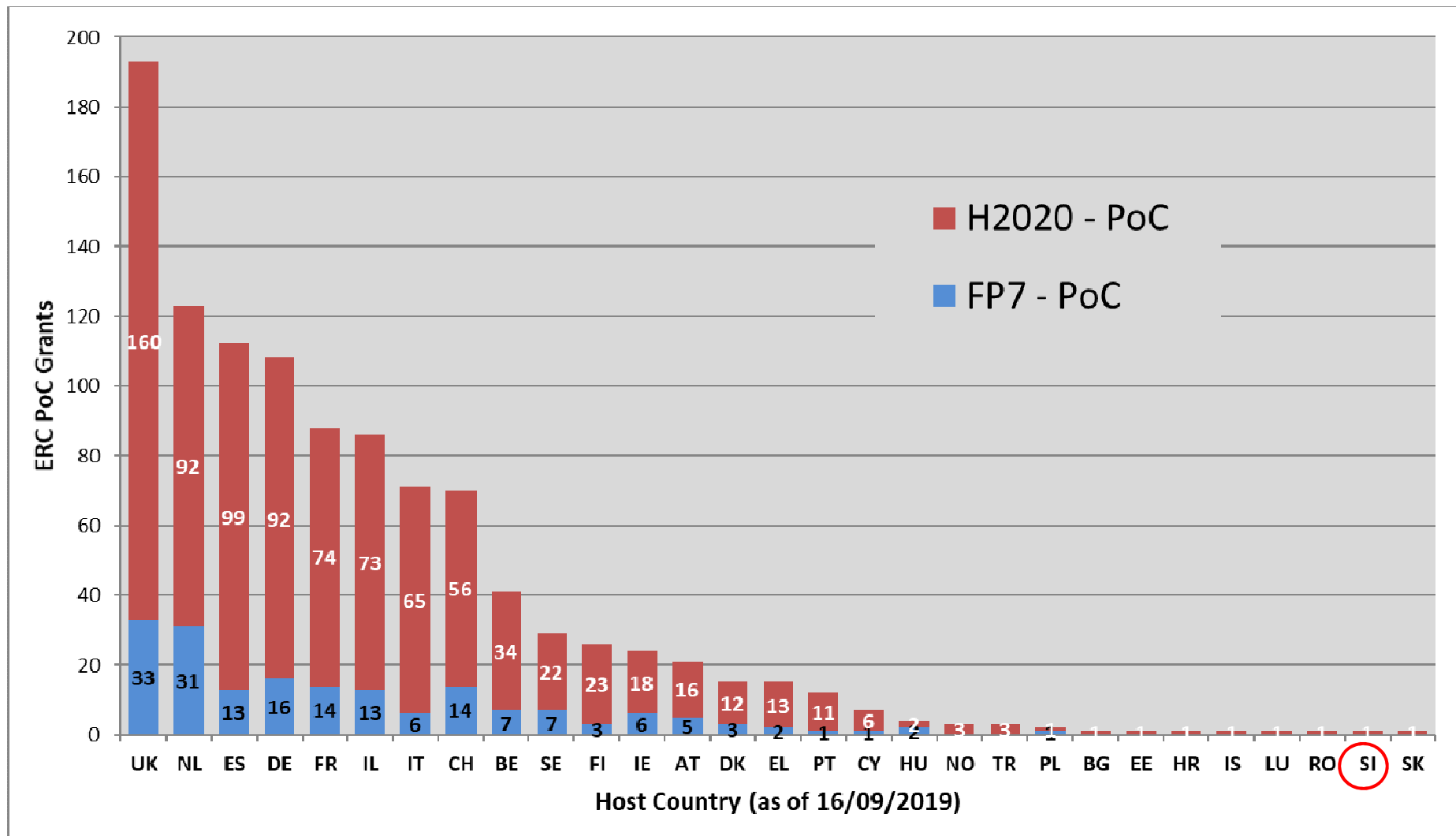
Slovenia Host Institutions	StG	CoG	AdG	PoC	Total
Jozef Stefan Institute	1		1	1	3
2012			1		1
2017				1	1
→ 2019	1				1
National Institute of Chemistry	1		2		3
2017			1		1
2018			1		1
→ 2019	1				1
University of Ljubljana	2	1	2		5
2011	1				1
2015			1		1
2016			1		1
2017		1			1
2018	1				1
Grand Total	4	1	5	1	11

ERC Proof of Concept 2011-2019



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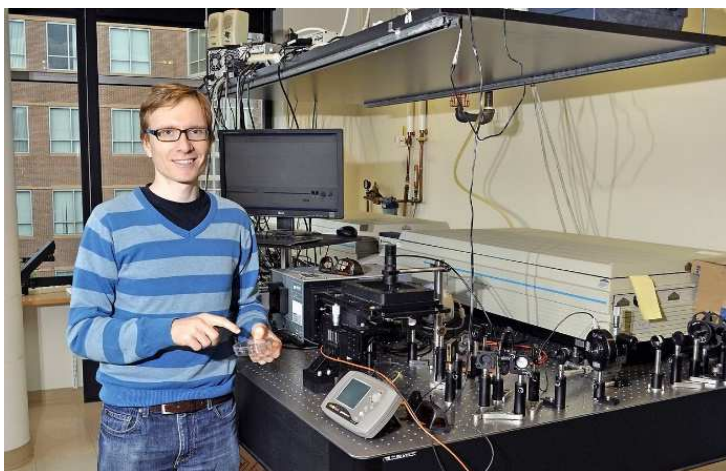
ERC StG 2019 Grantees in Slovenia



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Dr. Matjaž HUMAR,
Josef Stefan Institute, Ljubljana
PE - Physical Sciences and Engineering
Cell-lasers “Intracellular lasers: Coupling of optical resonances with biological processes”



Dr. Nejc HODNIK,
National Institute of Chemistry, Ljubljana
PE - Physical Sciences and Engineering
123STABLE - “Towards Nanostructured Electrocatalysts with Superior Stability”



ERC Policy on Widening European Participation



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To capitalise on the full European potential for frontier research without departing from the ERC's principle of excellence

- ✓ Contribute to a truly inclusive European culture of competitiveness in science
- ✓ Strengthen participation in ERC calls by researchers from the EU's less research-performing regions
- ✓ Facilitate systematic debate and interactions with relevant stakeholders to promote national and local support for promising scientists from EU's less research-performing regions

Ex: ERC Visiting Fellowships Scheme



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- **Scheme:** short term research visit (1 - 6 months) in an ERC team
- **Funding:** by a national research-funding organization in ERA
- **Eligibility:** open to all researchers working in ERA, in public open competitions through evaluation panels composed by researchers of high repute, based on excellence and potential for an ERC grant application
- **Condition:** a letter of support signed by an ERC grantee and his/her Host Institution stating that in case the applicant is selected he/she will be hosted as a member of the research team of the PI (facilitated by the ERC via Call for expression of interest)

Successful applicants must sign a letter of commitment to apply for an ERC grant no later than 1-2 year(s) after the end of the visit

Visiting Fellowship Scheme - Slovenia



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Since 2016, **13 Slovenian researchers** visited ERC project teams based in Switzerland, Belgium, Spain, Italy and Finland, Sweden, Austria and Ireland. One of them, Dr. Nejc Hodnik, has been later **awarded** → **a Starting Grant 2019.**

Preliminary results for ERC **2019 Call for expression** of interest: **721 ERC PIs** with Host Institutions based in **31 countries** expressed interest to host researcher visitors from Slovenia.

Number of EU research visitors by year and by country			
Country	2016	2017	2018
Czech Republic	0	0	0
Hungary	1	10	
Estonia	0	0	0
Poland	7	8	5
Slovenia	7	4	2
Belgium (Flanders region)	0	1	2
Slovak Republic		0	4
Croatia		4	1
Georgia			
Uni POLITEHNICA Bucharest			
Total	15	27	14



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ERC's Perspectives

Horizon Europe : Evolution, not Revolution



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Structure of the programme

Support to the creation and diffusion to quality knowledge

To reinforce Research and Innovation impact in support to European policies

To trigger all forms of innovation et strength market development

To optimise the setting up of the programme's to strengthen the ERA

Pillar 1 Excellent Science

European Research Council

Marie Skłodowska-Curie Actions

Infrastructures

Pillar 2 Global challenges and Industrial Competitiveness

- Health
- Inclusive and Secure Society
- Digital and Industry
- Climate, Energy and Mobility
- Food and natural resources

Joint Research Centre

Pillar 3 Open Innovation

European Innovation Council

European innovation ecosystems

European Institute of Innovation and Technology

To strengthen the "European Research Area"

Share excellence

Reform and stimulate the European Research system

ERC Scientific Council on Horizon Europe



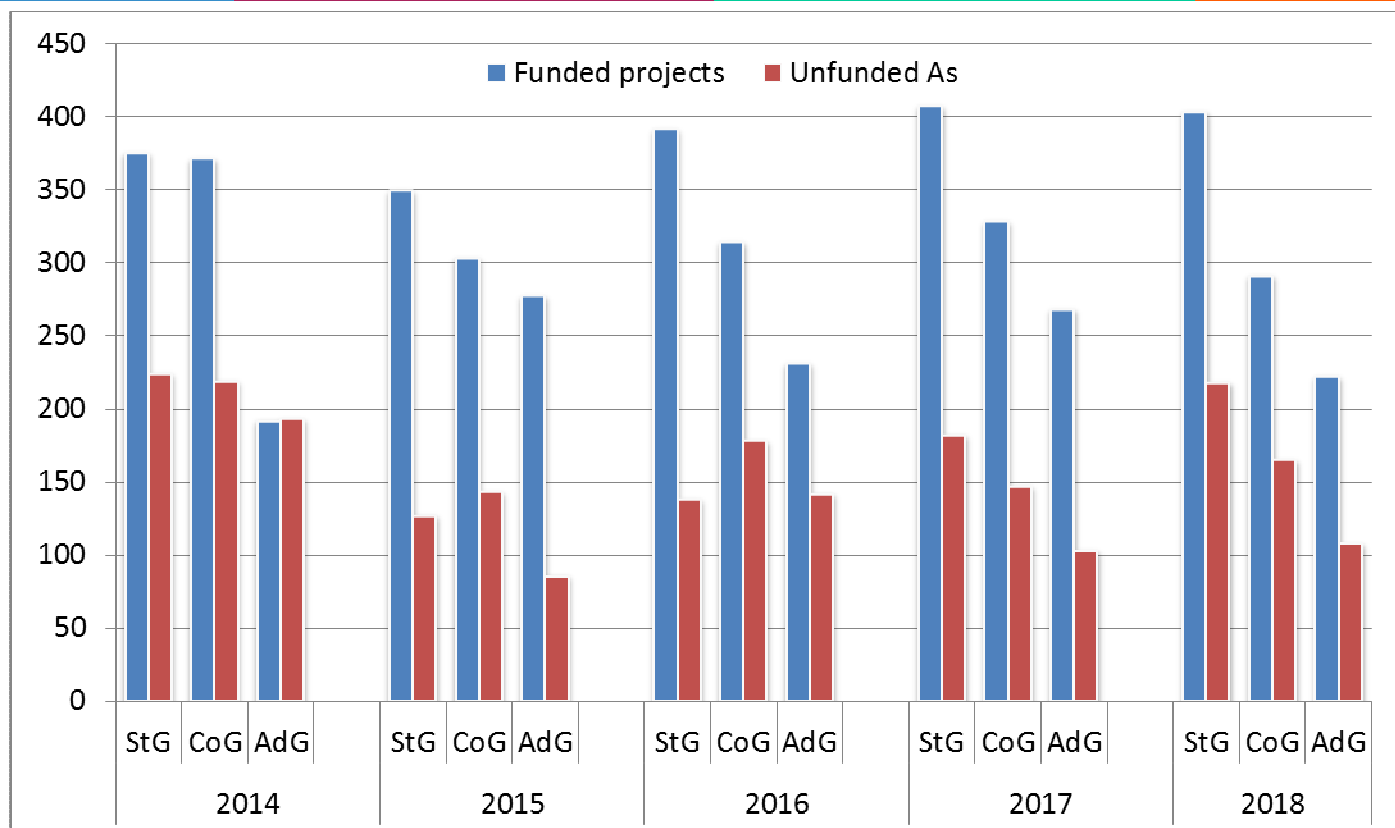
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- ✓ Continuity
- ✓ Agility
- ✓ Scale-up

- 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!



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.

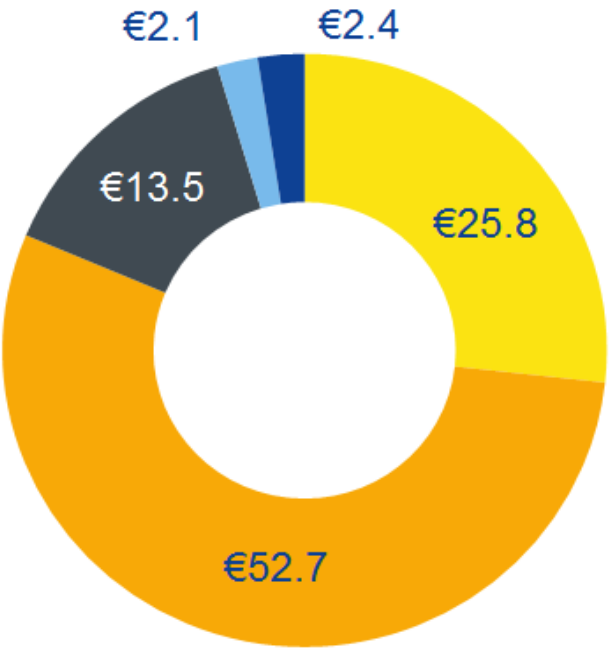
Horizon Europe Budget Distribution



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Proposal by the European Commission



€ billion
In current prices

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

* 3.5 G€ allocated under the InvestEU Fund.

A New European Scenario



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- The **Commission's proposal** for Horizon Europe must now be approved by the **European Council** and the **European Parliament**.
- It contains a **new scheme** for countries to become **"Associated"**.
- **Big transition:** a **new Parliament** and a **new Collège of Commissioners**.
- ERC will keep advocating for **adequate support to Frontier Research** until the very end.
- Scientific communities all over the world are our allies in **obtaining that the right priority be given in the budget for Research and Innovation**.

The European Research Council



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