

HORIZON 2020

The European Research Council

The output in FP7, the "big picture" in H2020, the Greek participation and more.....



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Objective

".....to reinforce excellence, dynamism and creativity in European research and improve the attractiveness of Europe for the best researchers from both European and third countries, as well as for industrial research investment.....by providing a Europe-wide competitive funding structure, in addition to and not replacing national funding, for "frontier research" executed by individual teams".

Why?

The very best cutting-edge science in new and rapidly emerging fields is closely associated with world-leading innovation:

USA: 46% of the most influential scientific articles (top 1% by citation count)

EU: 30% despite producing more scientific articles overall.

In computer sciences, the figures are **44%** and **22%** and for biological sciences **56%** and **27%** (NSF Science and Engineering Indicators, 2014 - based on 2008 – 2010 articles cited in 2012).

At the same time the research output of emerging economies, particularly China, is expanding massively both in terms of quantity (and steadily quality).

What is ERC?



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

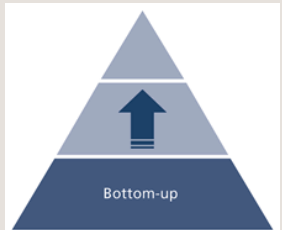
Budget: € 13 billion (2014-2020) - 1.9 billion €/year
€ 7.5 billion (2007-2013) - 1.1 billion €/year

Legislation

- Scientific governance: independent Scientific Council with 22 members including the ERC President; full authority over funding strategy
- Support by the ERC Executive Agency (autonomous)
- Excellence as the only criterion

Strategy

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



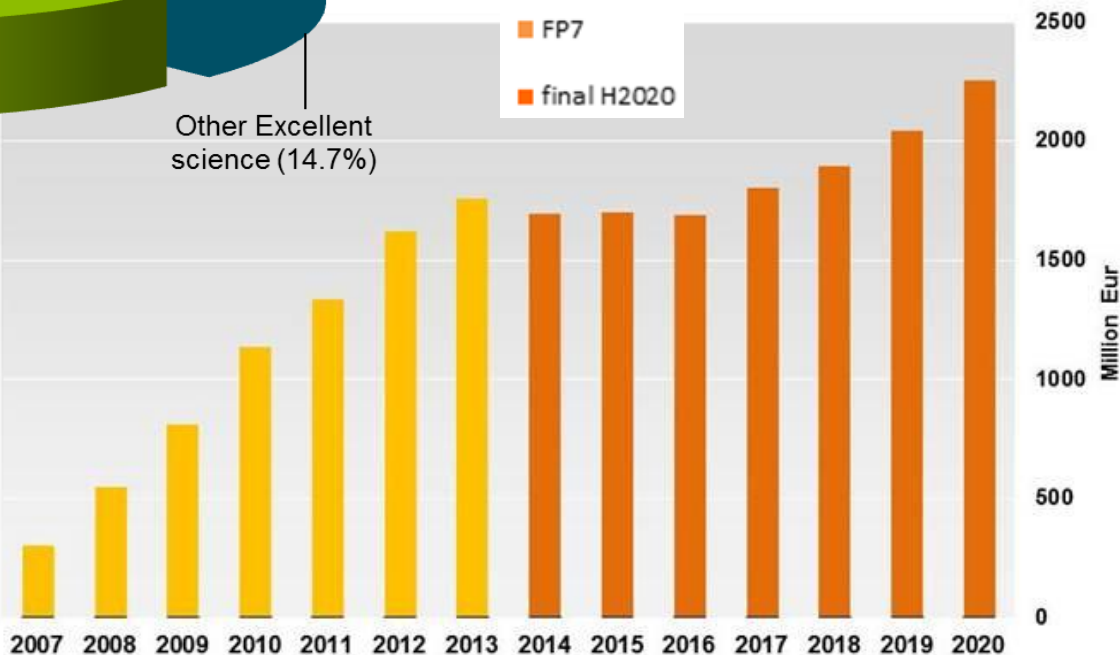
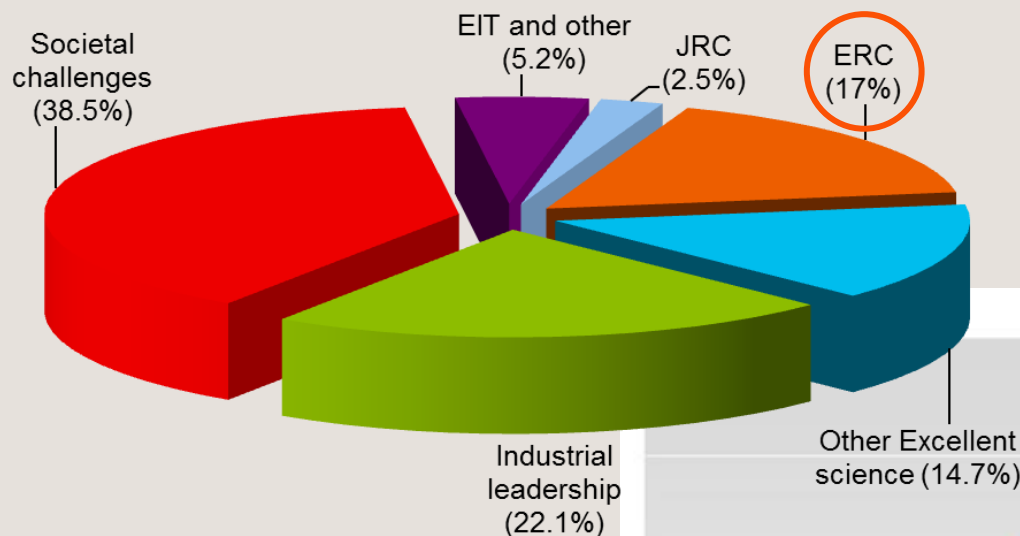
Horizon 2020 Budget € 77 billion

ERC budget € 13 billion



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The ERC according to the H2020 SP

Article 6: *The ERC shall be composed of the independent Scientific Council provided for in Article 7 and the dedicated implementation structure provided for in Article 8.*



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The European Commission (art. 6)

The Commission shall establish a European Research Council ("ERC"), which shall be the means of implementing the actions under Part I 'Excellent science' which relate to the specific objective "The European Research Council (ERC)", referred to in point (a) of Article 3(1) of this Decision. The ERC shall succeed the ERC set up by Decision 2007/134/EC.



The ERC Scientific Council (art. 7)

The Scientific Council shall be composed of scientists, engineers and scholars of the highest repute and appropriate expertise, of both women and men in different age groups, ensuring a diversity of research areas and acting in their personal capacity, independent of extraneous interests.



The ERC Dedicated Implementation Structure (art. 8)

The dedicated implementation structure shall be responsible for the administrative implementation and programme execution, as described in section 1.2 of Part I of Annex I. It shall support the Scientific Council in the conduct of all of its tasks.



ERC Scientific Council Members

2 Vice-Presidents and up to 7 more members for renewal at the end of 2014



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- Prof. Klaus BOCK (Chemistry)
- **Prof. Jean-Pierre BOURGUIGNON (Mathematics), ERC President**
- Prof. Nicholas CANNY (History)
- Prof. Sierd A.P.L. CLOETINGH (Earth Sciences)
- Prof. Tomasz DIETL (Physics)
- Prof. Daniel DOLEV (Computer Sciences)
- Prof. Athene DONALD (Biological Physics)
- Dr. Barbara ENSOLI (Medicine)
- **Prof. Pavel EXNER (Applied Mathematics & Mathematical Physics), ERC Vice-President**
- Prof. Reinhard GENZEL (Astrophysics)
- **Prof. Carl-Henrik HELDIN (Molecular Cell Biology), ERC Vice-President**
- Prof. Timothy HUNT (Biology)
- Prof. Matthias KLEINER (Engineering)
- Prof. Eva KONDOROSI (Biology)
- Prof. Mart SAARMA (Biology)
- **Prof. Nuria SEBASTIAN GALLES (Psychology), ERC Vice-President**
- Prof. Nils Christian STENSETH (Ecology & Evolution)
- Prof. Martin STOKHOF (Philosophy)
- Prof. Anna TRAMONTANO (Biochemistry)
- Prof. Isabelle VERNOS (Molecular and Cell Biology)
- Prof. Reinhilde VEUGELERS (Economics)
- Prof. Michel WIEVIORKA (Sociology)

ERC Funding Schemes



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Starting Grants

starters
(2-7 years after PhD)
up to € 2.0 Mio
for 5 years

Consolidator Grants

consolidators
(7-12 years after PhD)
up to € 2.75 Mio
for 5 years

Advanced Grants

track-record of
significant research
achievements in the
last 10 years
up to € 3.5 Mio
for 5 years

Proof-of-Concept

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

"Excellence" is the sole evaluation criterion

Evaluation of *excellence* at two levels:

- **Excellence of the Research Project**
 - ✓ Ground breaking nature
 - ✓ Potential impact
 - ✓ Scientific Approach
 - ✓ Added-value of the Group (only SyG)
- **Excellence of the Principal Investigator**
 - ✓ Intellectual capacity
 - ✓ Creativity
 - ✓ Commitment

Referees and panels **evaluate and score** each criterion, which results in a **ranking** of the proposals.



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25 Panels for All Areas of Science

<p>Physical Sciences & Engineering</p> <p>10 panels</p>	<p>Mathematics</p> <p>Fundamental Constituents of Matter</p> <p>Condensed Matter Physics</p> <p>Physical and Analytical Chemical Sciences</p> <p>Synthetic Chemistry and Materials</p> <p>Computer Science and Informatics</p> <p>Systems and Communication Engineering</p> <p>Products and Processes Engineering</p> <p>Universe Sciences</p> <p>Earth System Science</p>	<p>Social Sciences & Humanities</p> <p>6 panels</p> <p>Markets, Individuals and Institutions</p> <p>The Social World, Diversity, Institutions and Values</p> <p>Environment, Space and Population</p> <p>The Human Mind and Its Complexity</p> <p>Cultures and Cultural Production</p> <p>The Study of the Human Past</p>
<p>Life Sciences</p> <p>9 panels</p>	<p>Molecular and Structural Biology and Biochemistry</p> <p>Genetics, Genomics, Bioinformatics and Systems Biology</p> <p>Cellular and Developmental Biology</p> <p>Physiology, Pathophysiology and Endocrinology</p> <p>Neurosciences and Neural Disorders</p> <p>Immunity and Infection</p> <p>Diagnostic Tools, Therapies and Public Health</p> <p>Evolutionary, Population and Environmental Biology</p> <p>Applied Life Sciences and Non-Medical Biotechnology</p>	

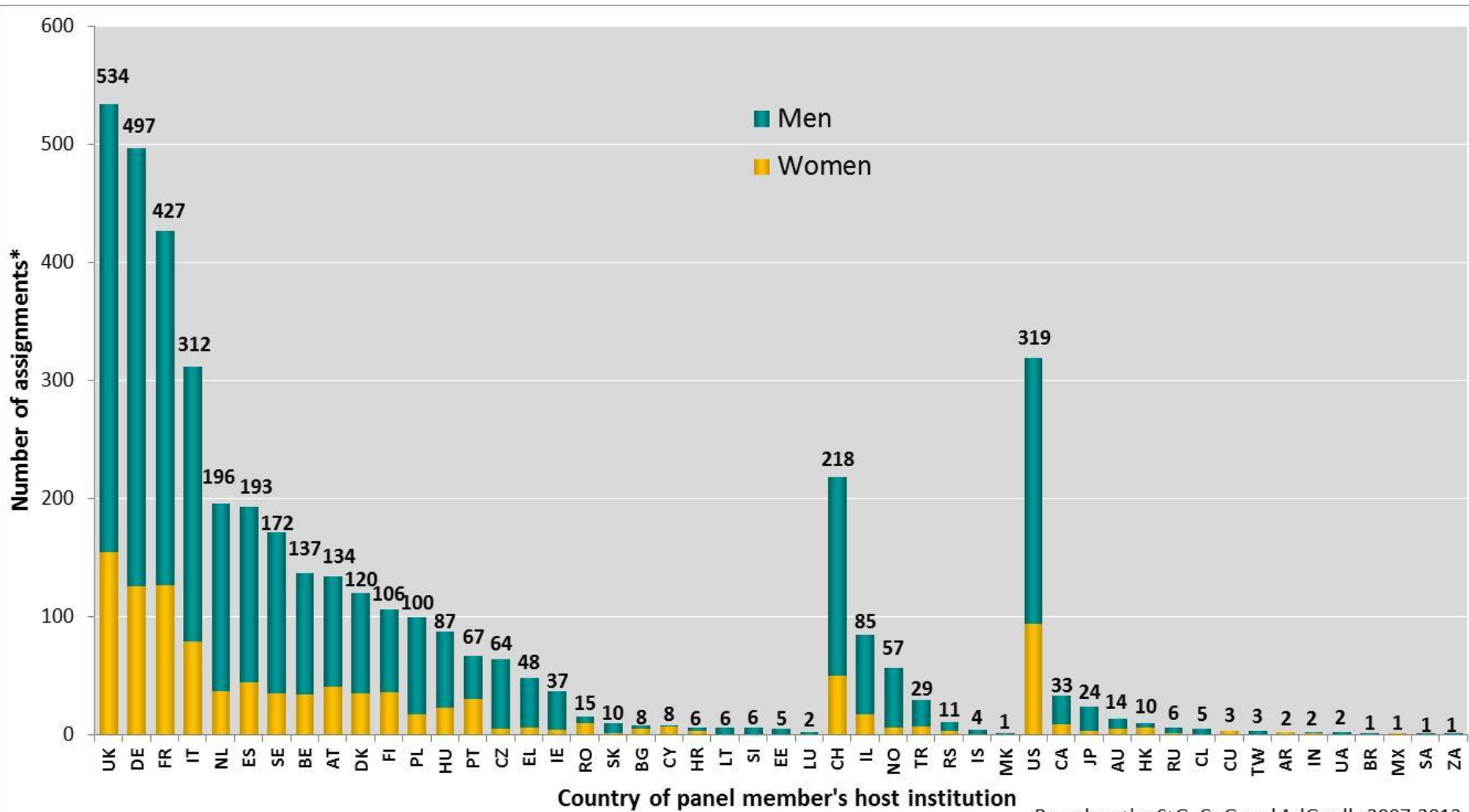
ERC Panel Members by Country of HI and Gender

ERC Starting and Advanced Grant calls 2007 - 2013



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Based on the StG, CoG and AdG calls 2007-2013

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 Competitions (I)

	Total number of applications	of which		
		Evaluated*	Funded	success rates**
Starting Grant 2007	9,167	8,787	299	3.4
Starting Grant 2009	2,503	2,392	245	10.2
Starting Grant 2010	2,873	2,767	436	15.8
Starting Grant 2011	4,080	4,005	486	12.1
Starting Grant 2012	4,741	4,652	566	12.2
Starting Grant 2013	3,329	3,255	300	9.2
Consolidator Grant 2013	3,673	3,604	313	8.7
Starting and Consolidator Grant	30,366	29,462	2,645	10.2
Advanced Grant 2008	2,167	2,034	282	13.9
Advanced Grant 2009	1,584	1,526	245	16.1
Advanced Grant 2010	2,009	1,967	271	13.8
Advanced Grant 2011	2,284	2,245	301	13.4
Advanced Grant 2012	2,304	2,269	319	14.1
Advanced Grant 2013	2,408	2,363	291	12.3
Advanced Grant	12,756	12,404	1,709	13.9
Proof of Concept 2011 - 1&2	151	139	51	36.7
Proof of Concept 2012 - 1&2	143	120	60	50.0
Proof of Concept 2013 - 1&2	292	279	67	24.0
Proof of Concept	586	538	178	36.9
Synergy Grant 2012	710	697	11	1.6
Synergy Grant 2013	449	427	13	3.0

* withdrawn and ineligible proposals not taken into account

** percentage of funded proposals in relation to evaluated proposals

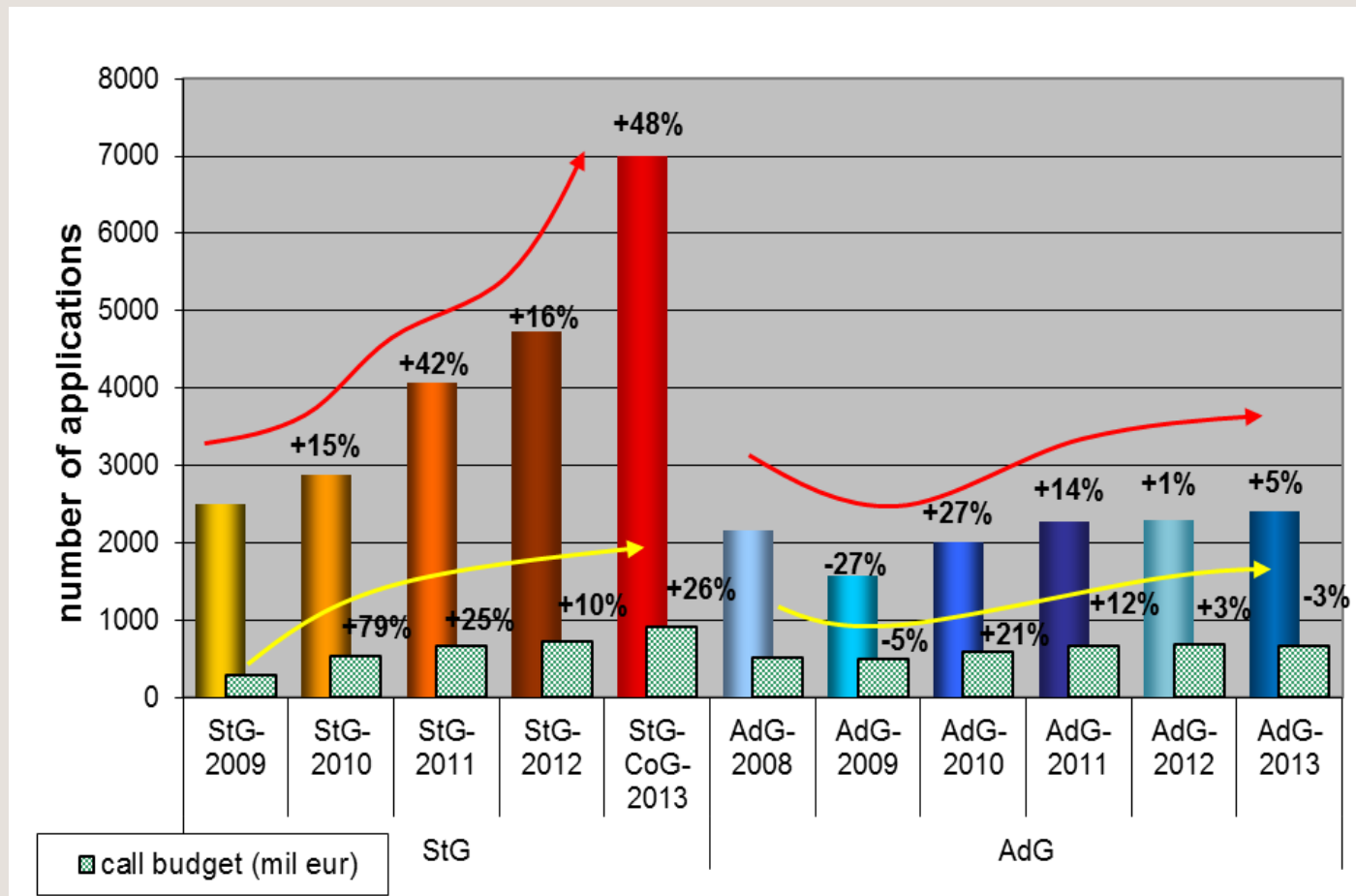
Data as of 21/08/2014

ERC Competitions (II)



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Budgetary Distribution in FP7

Over the course of FP7 the vast majority of the budget has gone to the **Advanced** (48.2% or €3700 million) and **Starting and Consolidator** Grants (47.9% or €3673 million).

The pilot **Synergy Grants** (3.5% or €274) and the **Proof-of-Concept** Grants (0.34% or €26 million) have received much less.



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After 7 Years of Existence...

- Highly (but not entirely) recognised by the research community
- Over 4 300 top researchers funded (over 60% are at an early-career stage); over 60 nationalities represented
- **Highly competitive** (average success rate 12%)
- Working in almost 600 different institutions in 29 countries
- ~40% of grants in top 31 institutions (including the big national centres such as CNRS) but also 60% of grants in over 550 (excellence is recognised wherever is found)
- **Benchmarking** effect: impact on national programmes and agencies; national funding for best "runners-up"
- Efficient and fast grant management
- Over 29 000 publications acknowledging ERC funding (see next slide)

Scientific Output (I)

- **29 000** publications acknowledging ERC support (WoS)
- Number of publications acknowledging ERC funding in Nature and Science (count until October 2013)

	2008	2009	2010	2011	2012	2013	Total
NATURE	2	13	30	50	66	68	229
SCIENCE	3	11	26	46	68	63	217
Total	5	24	56	96	134	131	446
ALL PUB	40	573	1783	3928	6821	7080	20225

- 314 completed ERC projects (187 StG-2008, 127 AdG-2008) have reported 10,796 publications with 7003 indexed in Scopus

Entity	Outputs in Top 10% of the World (%)	Field-Weighted Citation Impact \bar{x}	Outputs in Top 1% of the World (%)
■ ERC_Completed_LS	67.6	3.42	20.6
■ ERC_Completed_SH	34.2	3.11	9.2
■ ERC_Completed_PE	41.0	2.98	7.9
■ United States	18.0	1.47	2.2
■ EU28 - European Union	14.6	1.26	1.4

Scientific Output (II)

- Citation percentiles of publications acknowledging ERC funding (Web of Science)

nsf_citation_field	ERC pub in Top 1%*	All**	% in Top 1%	cit threshold Top 1% (2012)***
Agricultural sciences	0	1	0	11
Astronomy	6	115	5	31
Biological sciences	84	553	15	29
Chemistry	17	310	5	26
Computer sciences	4	29	14	10
Engineering	14	92	15	17
Geosciences	3	69	4	16
Mathematics	8	85	9	7
Medical sciences	22	155	14	20
Other life sciences	0	1	0	9
Physics	47	562	8	18
Psychology	0	11	0	16
Social sciences	1	11	9	10
All	240	1996	12	21

*) ERC articles, notes and reviews published in NSF-classified journals in 2008-2010 cited by 2012 publications

**) all ERC articles, notes and reviews published in NSF-classified journals in 2008-2010

***) 1% thresholds considering articles, notes and reviews published in NSF-classified journals in 2008-2010 cited by 2012 publications

Scientific Output (III)

- *ERC projects are not only producing and disseminating a very substantial number of research findings*
- *ERC projects are producing a substantial number of the most significant and high impact research findings worldwide*

Technological Output

- *Number of ERC projects reporting at least one patent (263 projects in PE and LS, out of the 314 concluded grants. Patents reported by the PI and verified in the EPO database)*

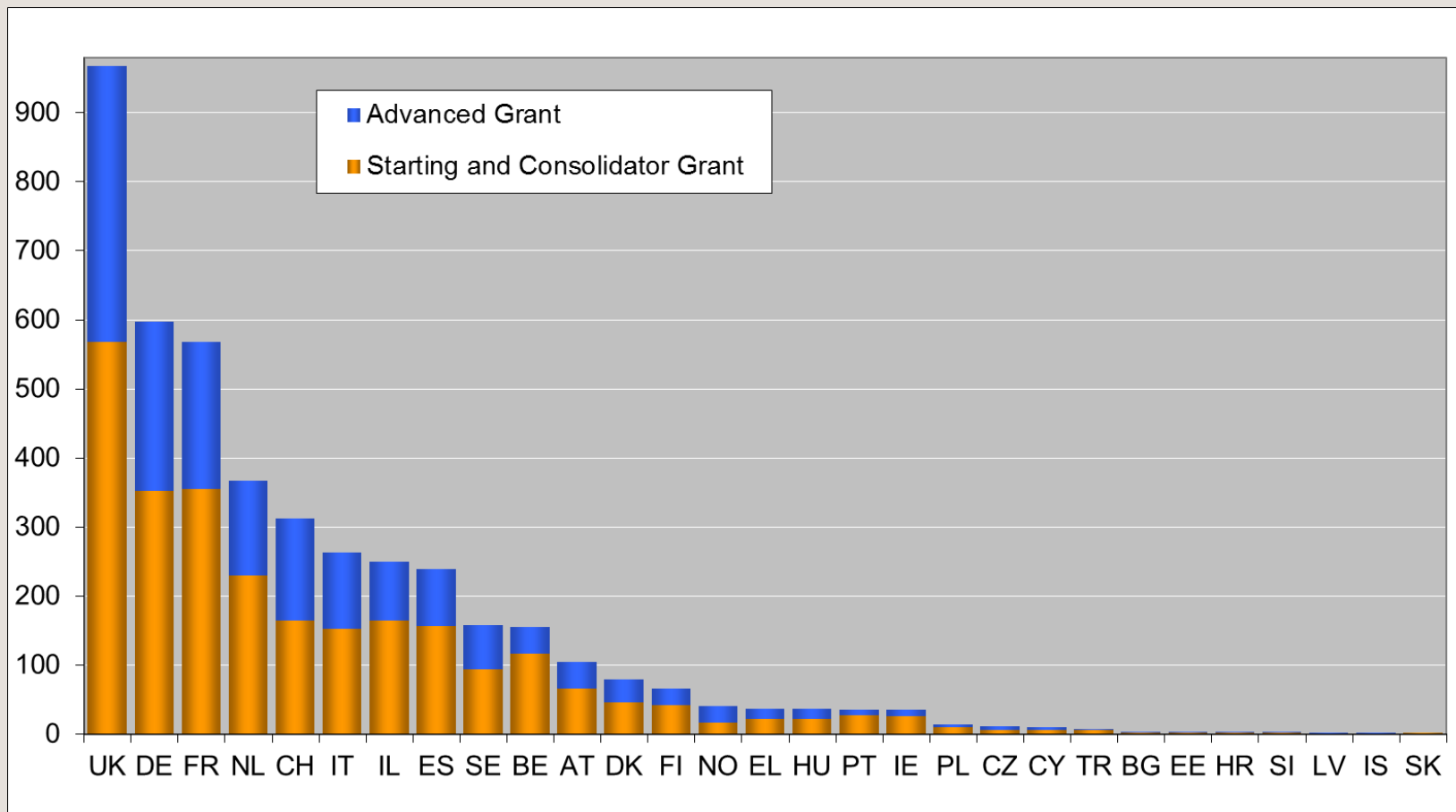
	LS			PE		
	Projects completed	Projects with at least one patent	Total patents	Projects completed	Projects with at least one patent	Total patents
StG2007	68	12		88	21	
AdG2008	39	7		68	13	
Total	107	19	30	156	34	68

Distribution of grants by country of host institution



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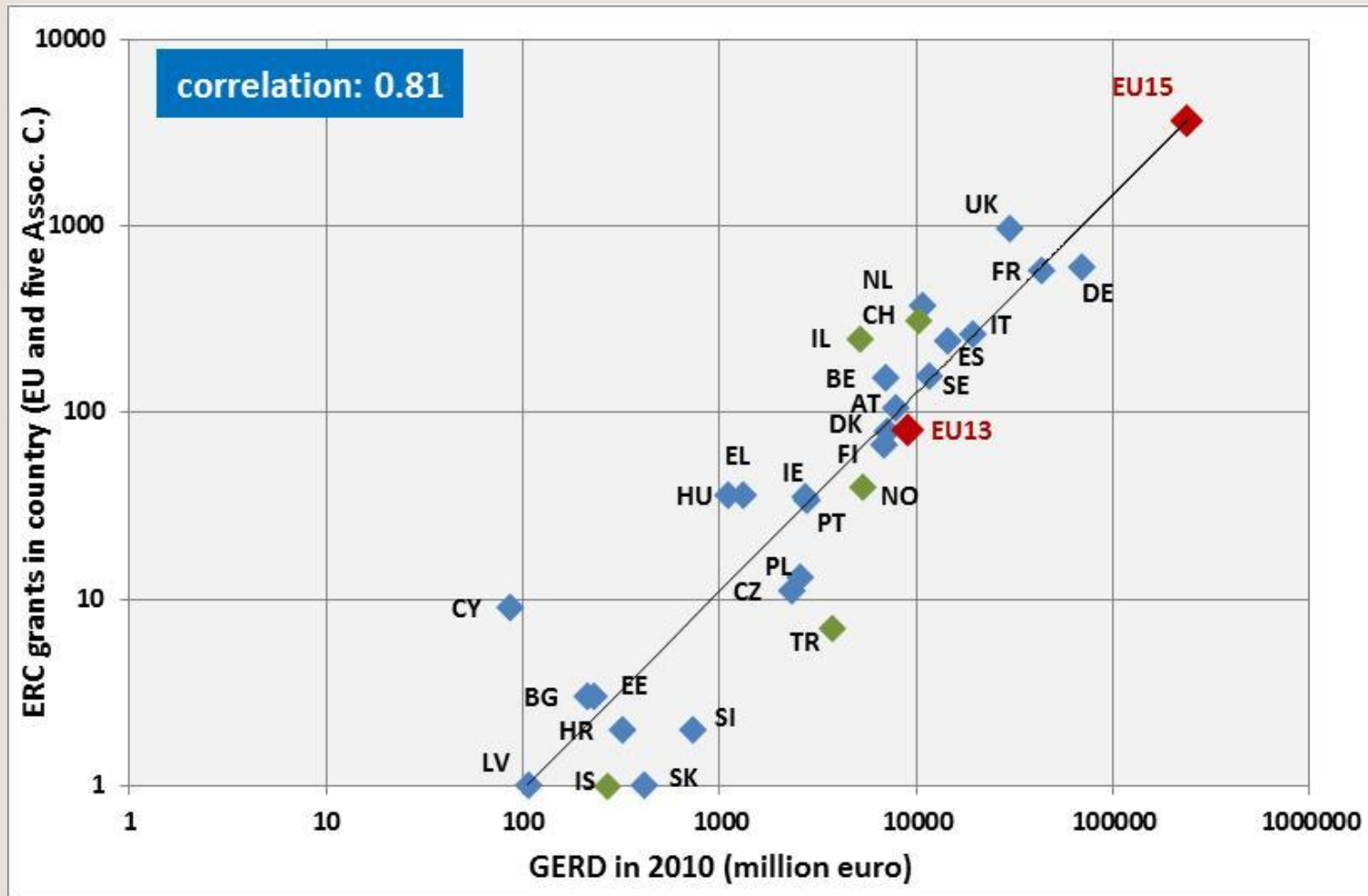


ERC grants vs. R&D expenditure



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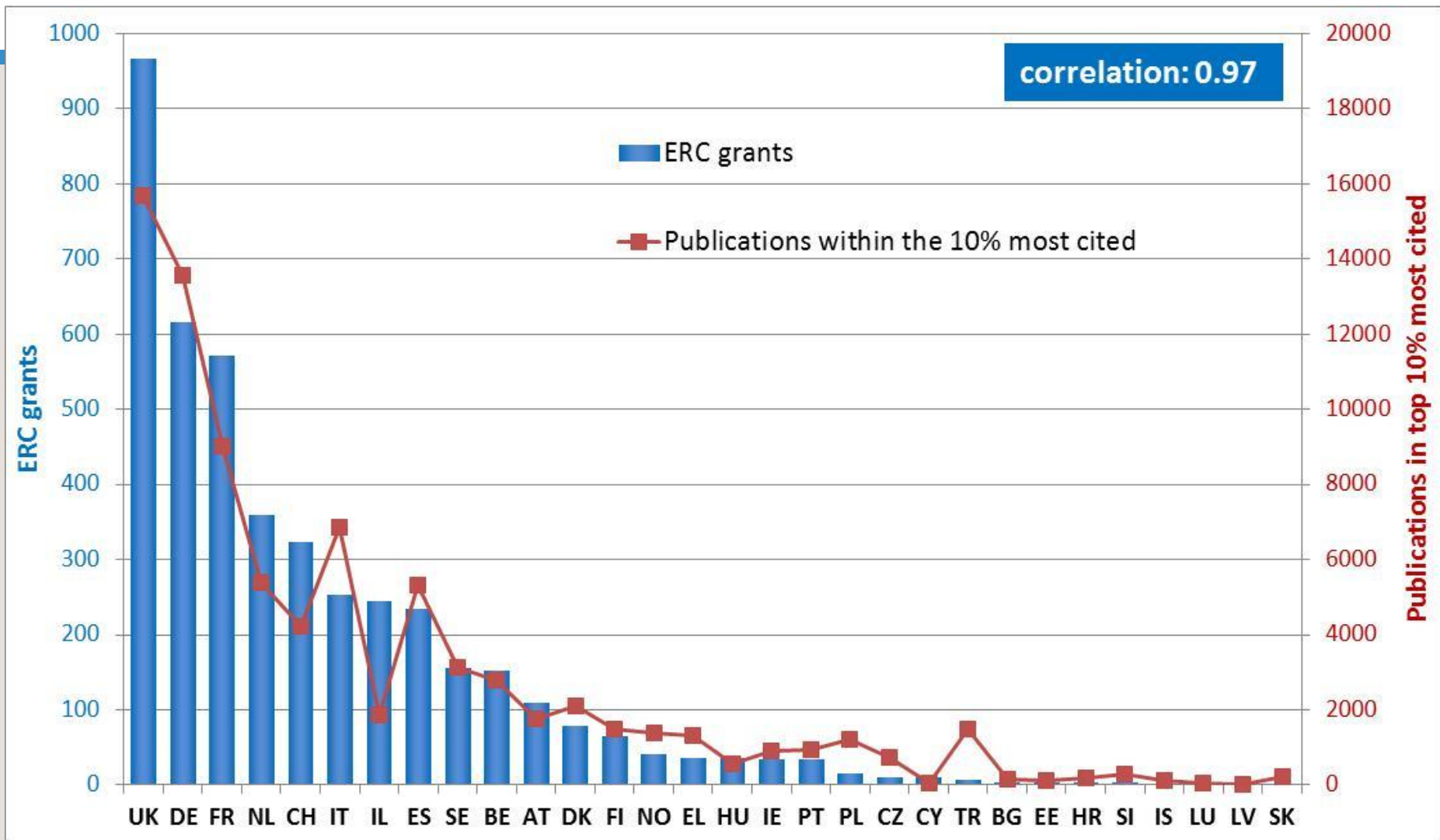
ERC Grant Distribution to Countries of HI

ERC Starting and Consolidator Grant calls 2007-2013

ERC Advanced Grant calls 2008 -2013



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Success Rates per Country of Host Institution

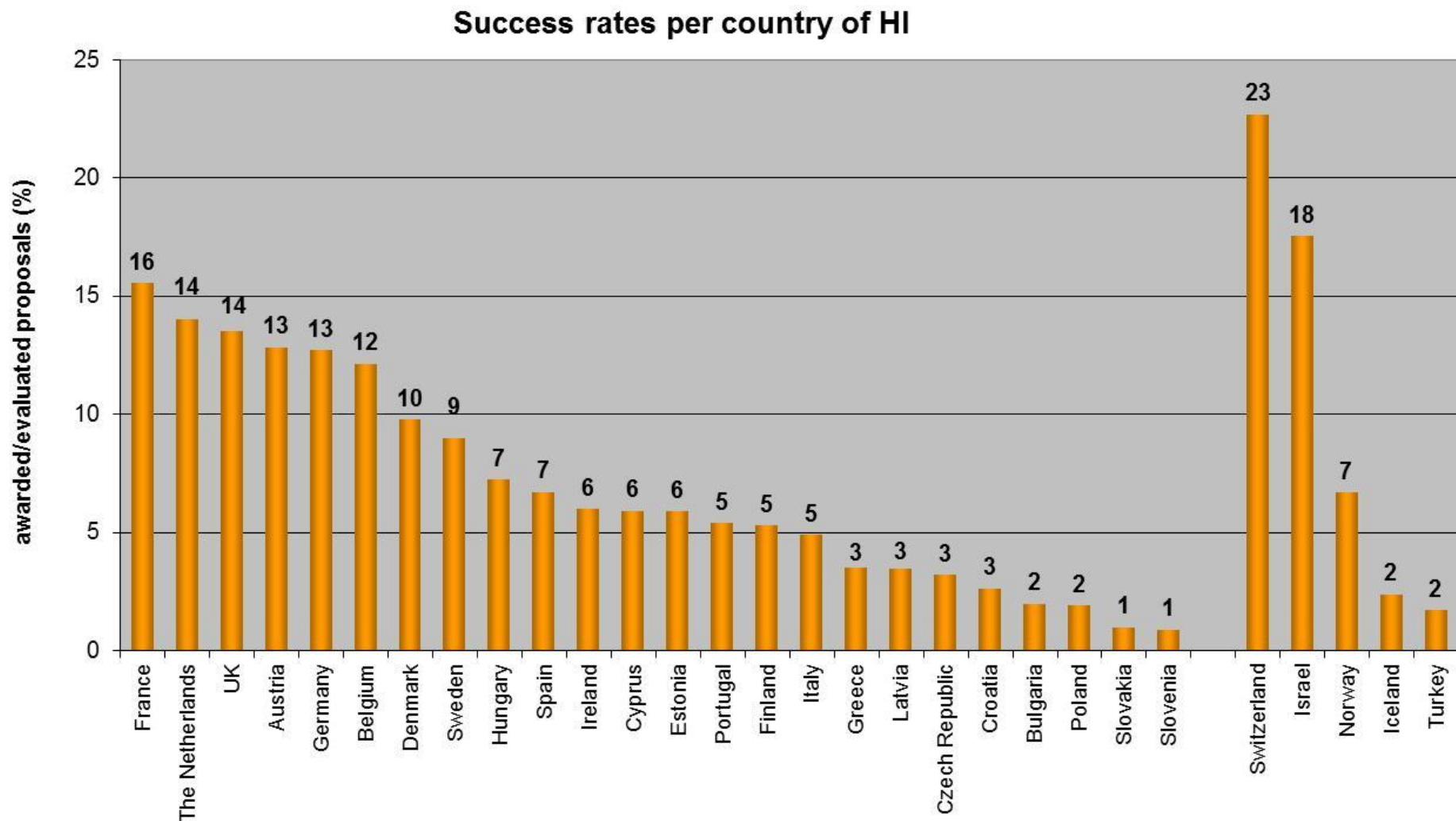
ERC Starting and Consolidator Grant calls 2007-2013

ERC Advanced Grant calls 2008-2013



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*) First legal signatories of the first grant agreement taken into account

Grants per nationality of PI

ERC Starting und Consolidator Grant 2007-2013

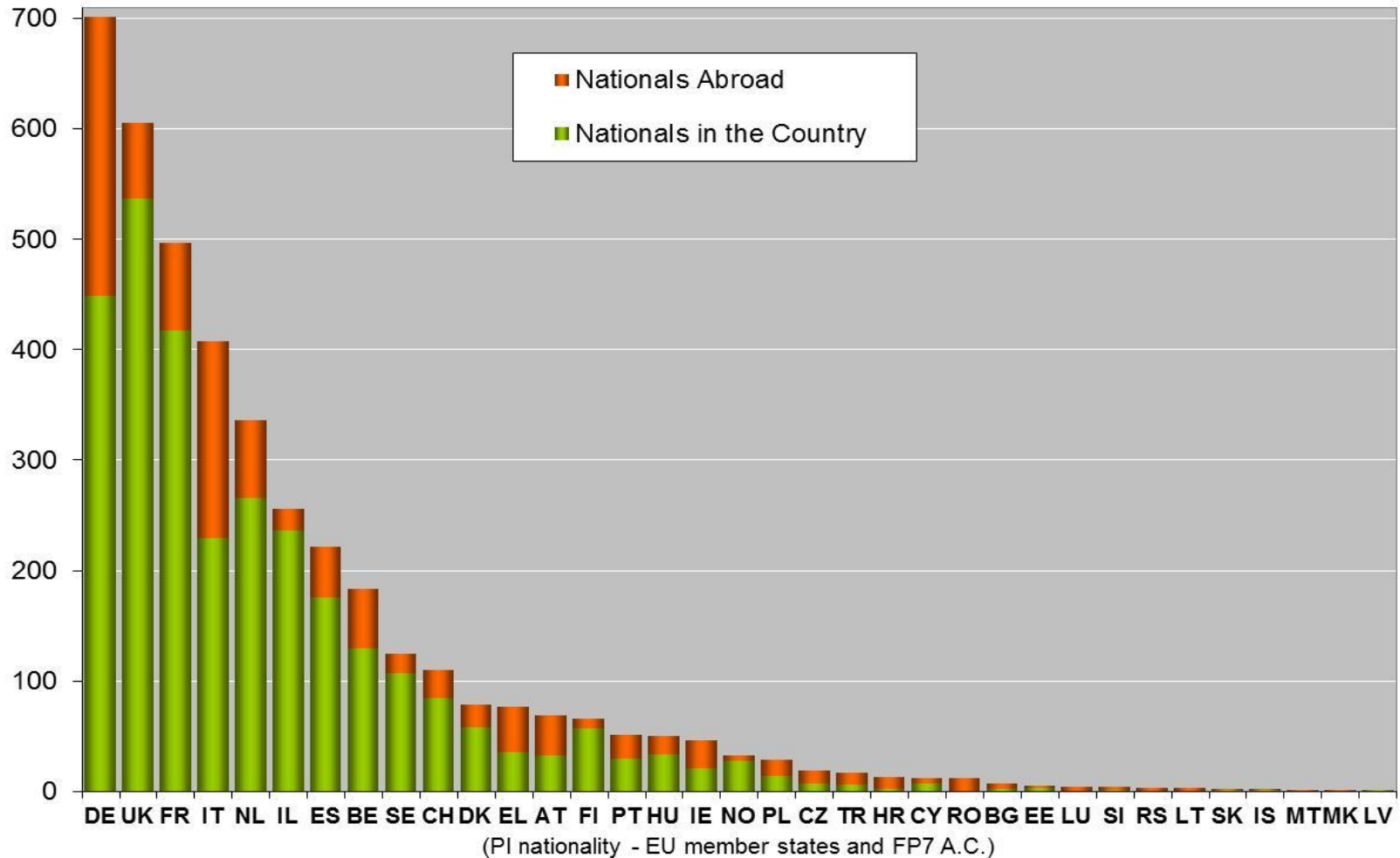
ERC Advanced Grant 2008-2013



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Nationality as last declared by the principal investigator



ERC Grantees with a non-ERA Nationality*

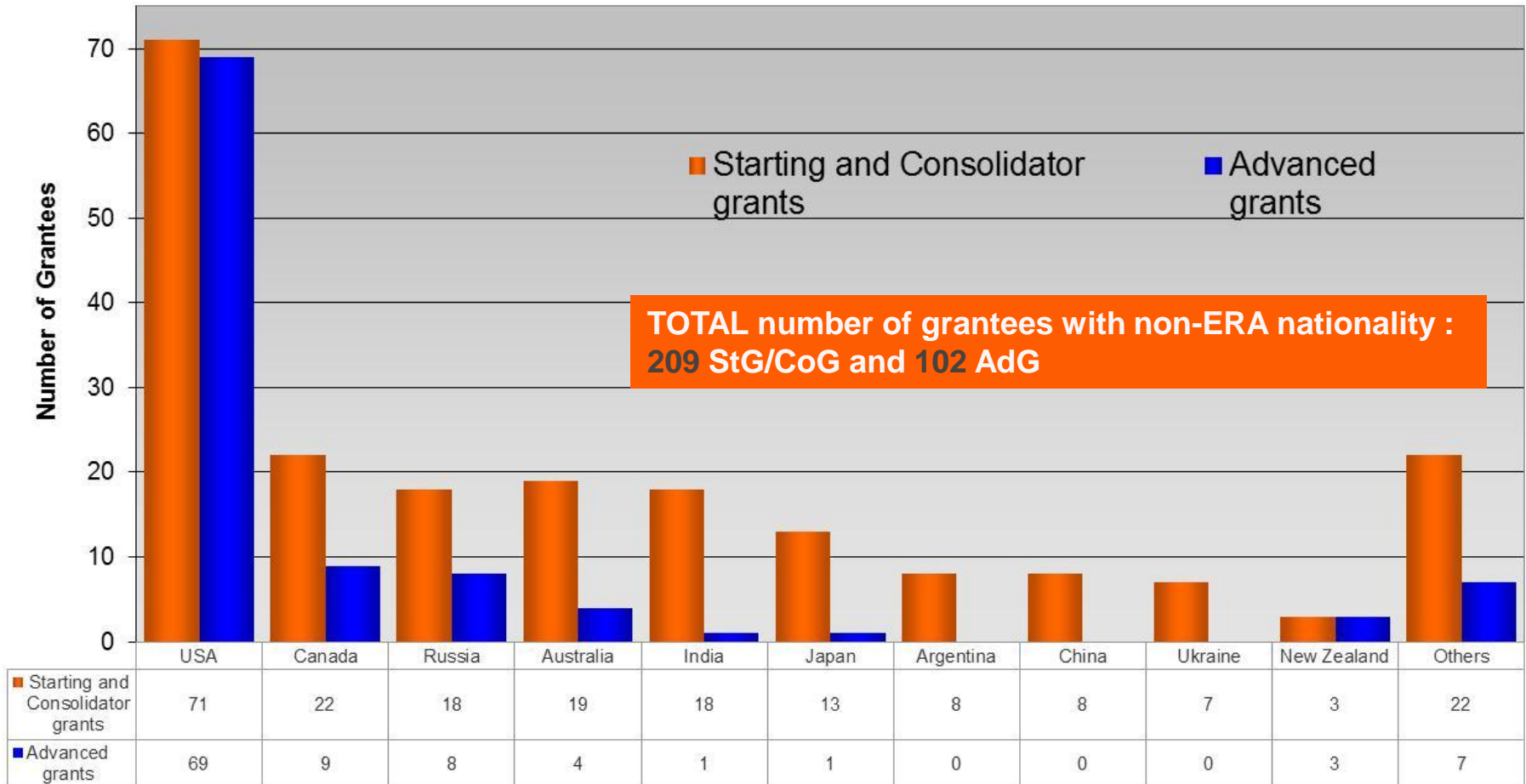
ERC Starting and Consolidator Grant calls 2007-2013

ERC Advanced Grant calls 2008 – 2013



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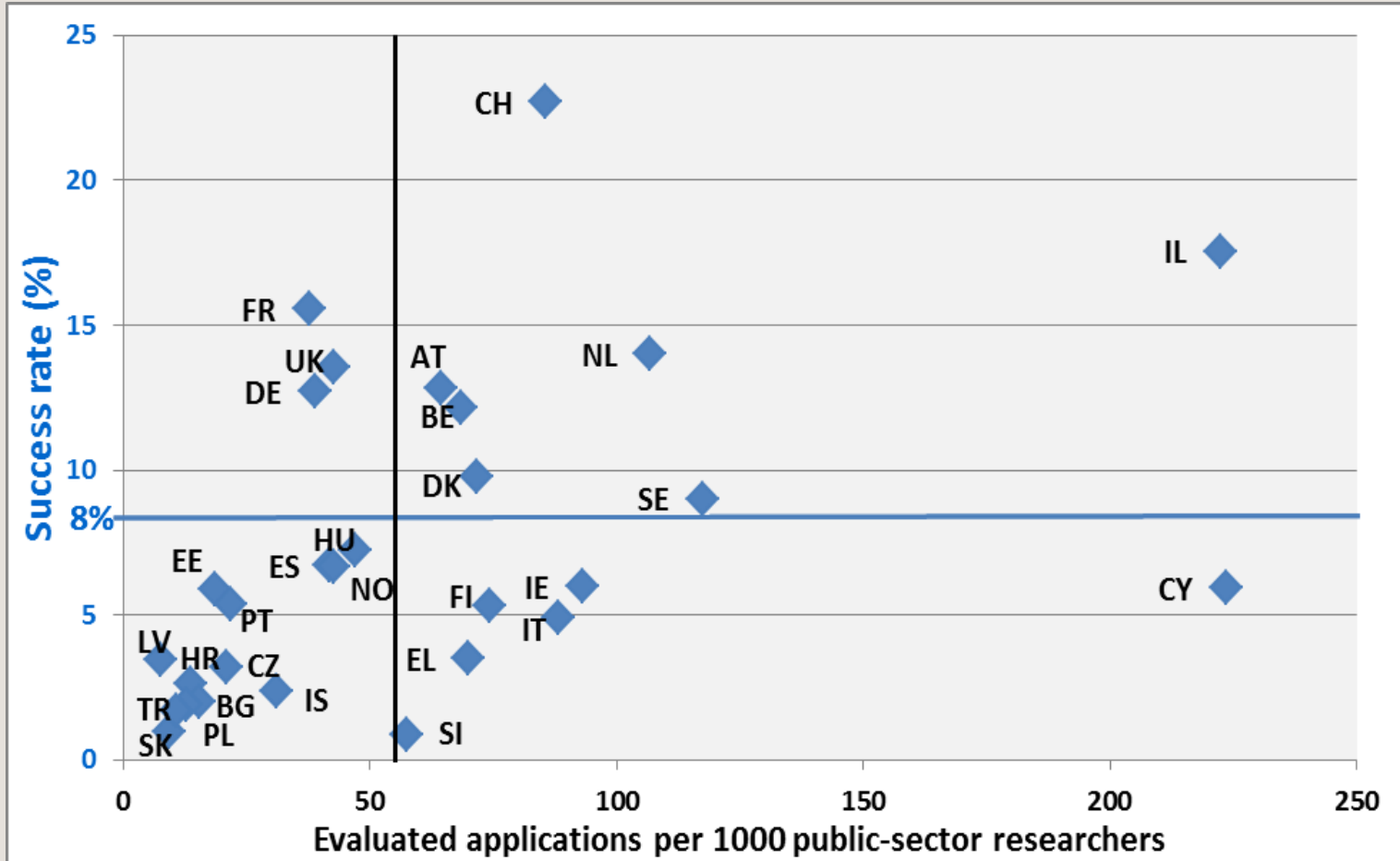


*) nationality as last declared by the principal investigator

Nationality

Data as of 21/08/2014

Application pattern by host country of applicant



Highly distinguished grantees



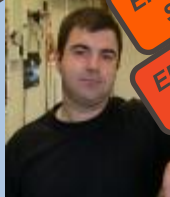
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Serge Haroche
Nobel 2012

ERC Grantee
AdG 2009



Konstantin Novoselov
Nobel 2010

ERC Grantee
StG 2007
ERC Grantee
SyG 2012



Ada Yonath

ERC Grantee
AdG 2012



Andre Geim

ERC Grantee
AdG 2012



Christoforos Pissarides

ERC Grantee
AdG 2012



Theodor Hansch

ERC Grantee
AdG 2010



James Heckman

ERC Grantee
AdG 2010



Jean-Marie Lehn

ERC Grantee
AdG 2011



Stanislav Smirnov AdG 2008
Elon Lindenstrauss AdG 2010
Simon Donaldson AdG 2009
Artur Avila StG 2010
Martin Hairer CoG 2013

2014 Brain Prize
2014 Kavli Prize
2014 Wolf Prize
2014 EMBO Gold Medal

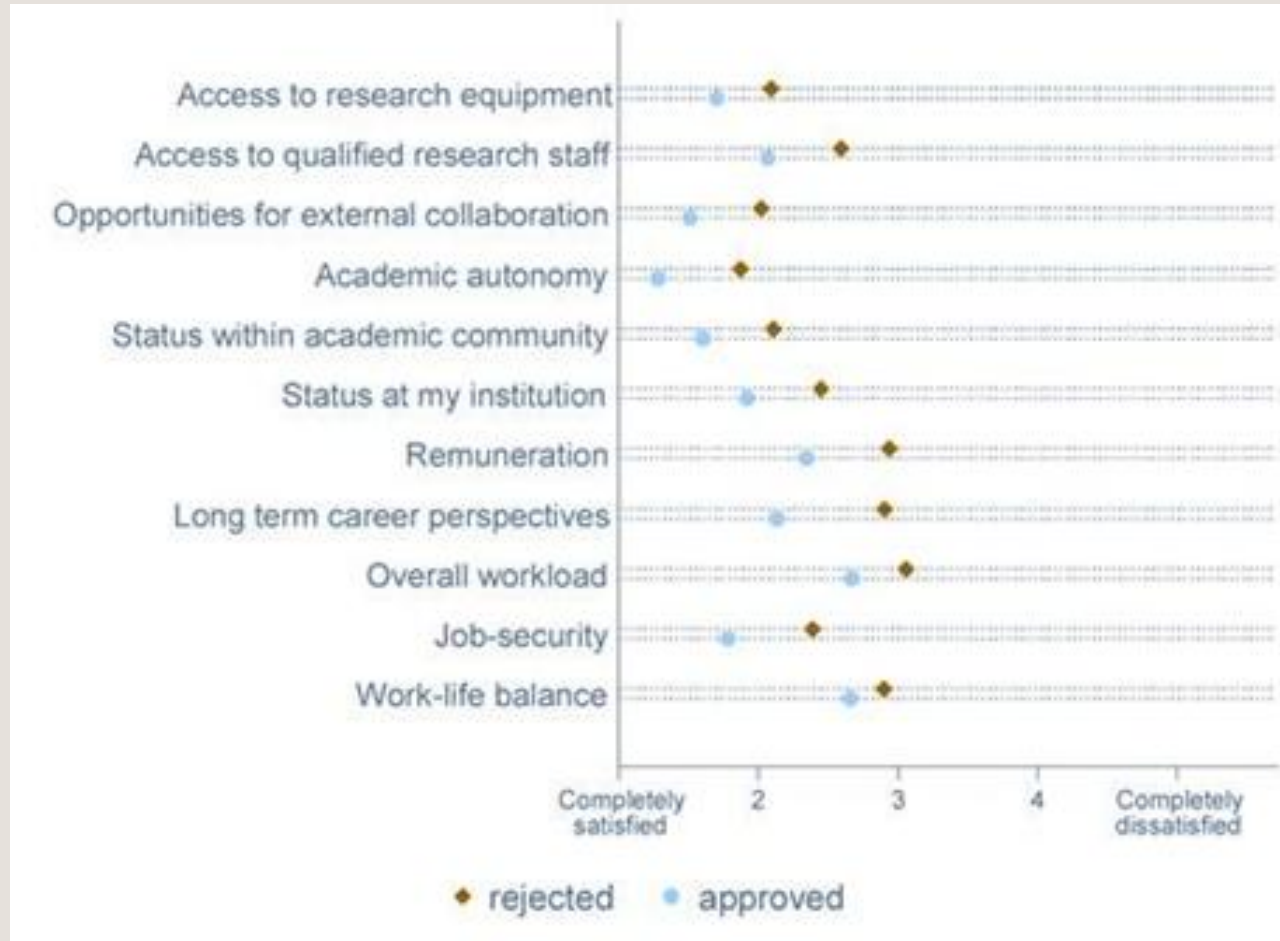
G. Rizzolatti and S. Dehaene - AdG 2009
Thomas Ebbsen - AdG 2008
Leif Andersson - AdG 2011
Sophie Martin - StG 2010

Other Prizes awarded to ERC grantees

BALZAN PRIZE 2013 - Pascale COSSART - AdG 2008, Alain ASPECT - AdG 2010
EUROPEAN LATSIS PRIZE 2012 - Uffe HAAGERUP - AdG 2009
LEIBNIZ PRIZE 2012 Michael BRECHT - AdG 2008, Joerg WRACHTRUP - AdG 2010
FEBS|EMBO WOMEN IN SCIENCE 2014 - Pascale COSSART - AdG 2008
FEBS|EMBO WOMEN IN SCIENCE 2011 - Carol ROBINSON - AdG 2010
CRAFOORD PRIZE 2011 and EUROPEAN LATSIS PRIZE 2010 - Ilkka Hanski - AdG 2008
L'ORÉAL-UNESCO AWARD FOR WOMEN IN SCIENCE 2011 - Anne L'Huillier - AdG 2008
WOLF PRIZE 2010 - Anton ZEILINGER, David BAULCOMBE - AdG 2008, Alain ASPECT - AdG 2010

HOLBERG PRIZE 2013 - Bruno LATOUR - AdG 2010
WOLF PRIZE 2013 - Peter ZOLLER - SyG 2012
CRAFOORD PRIZE 2013 - L. KLARESKOG - AdG 2009
BALZAN PRIZE 2012 - David BAULCOMBE - AdG 2008
KELVIN PRIZE 2012 - Colin McINNES - AdG 2008
EMBO GOLD MEDAL 2012 - Jiri FRIML - StG 2011
EMBO GOLD MEDAL 2011 - S. BOULTON - AdG 2010
EMBO GOLD MEDAL 2010 - Jason W CHIN - StG 2007

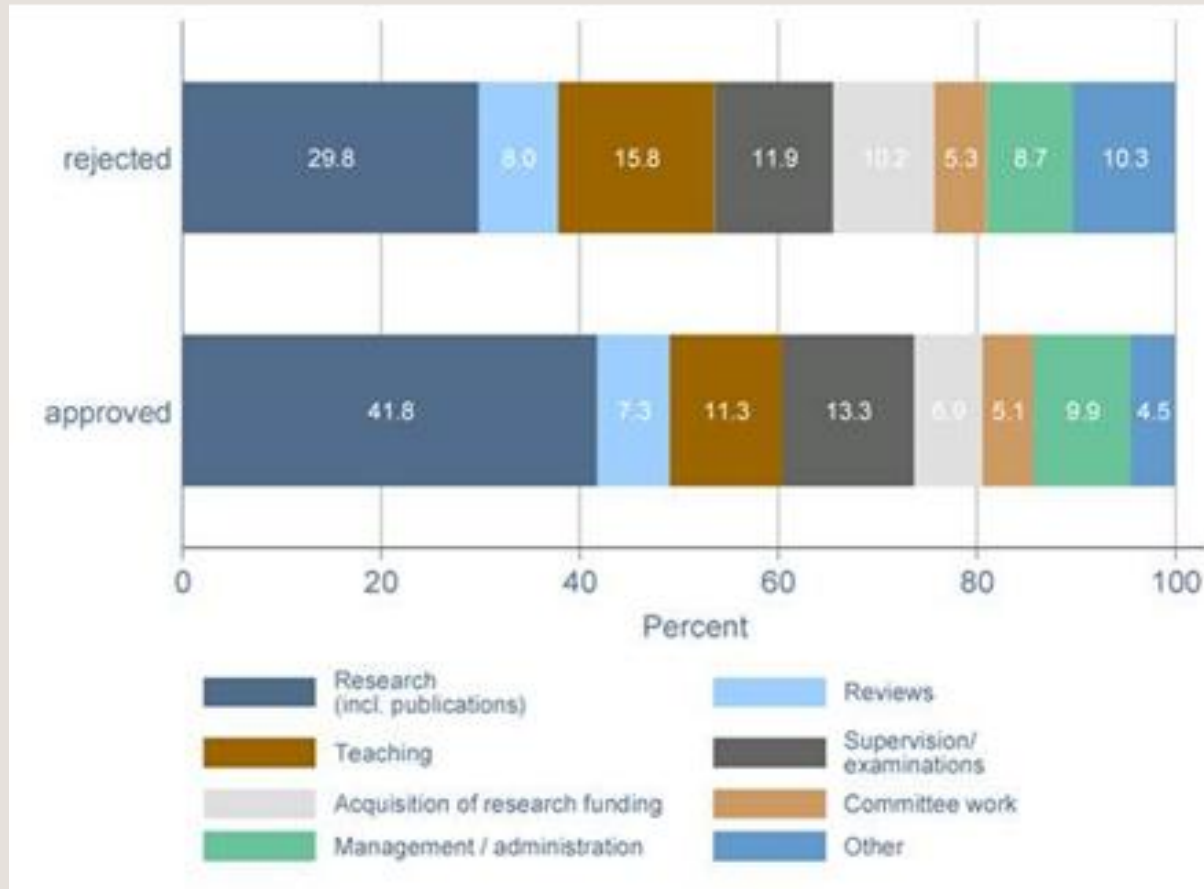
Impact on the careers of ERC grantees (I)



MERCI - monitoring ERC's implementation of excellence.

http://www.research-information.de/Projekte/Merci/projekte_merci_lang.asp

Impact on the careers of ERC grantees (II)



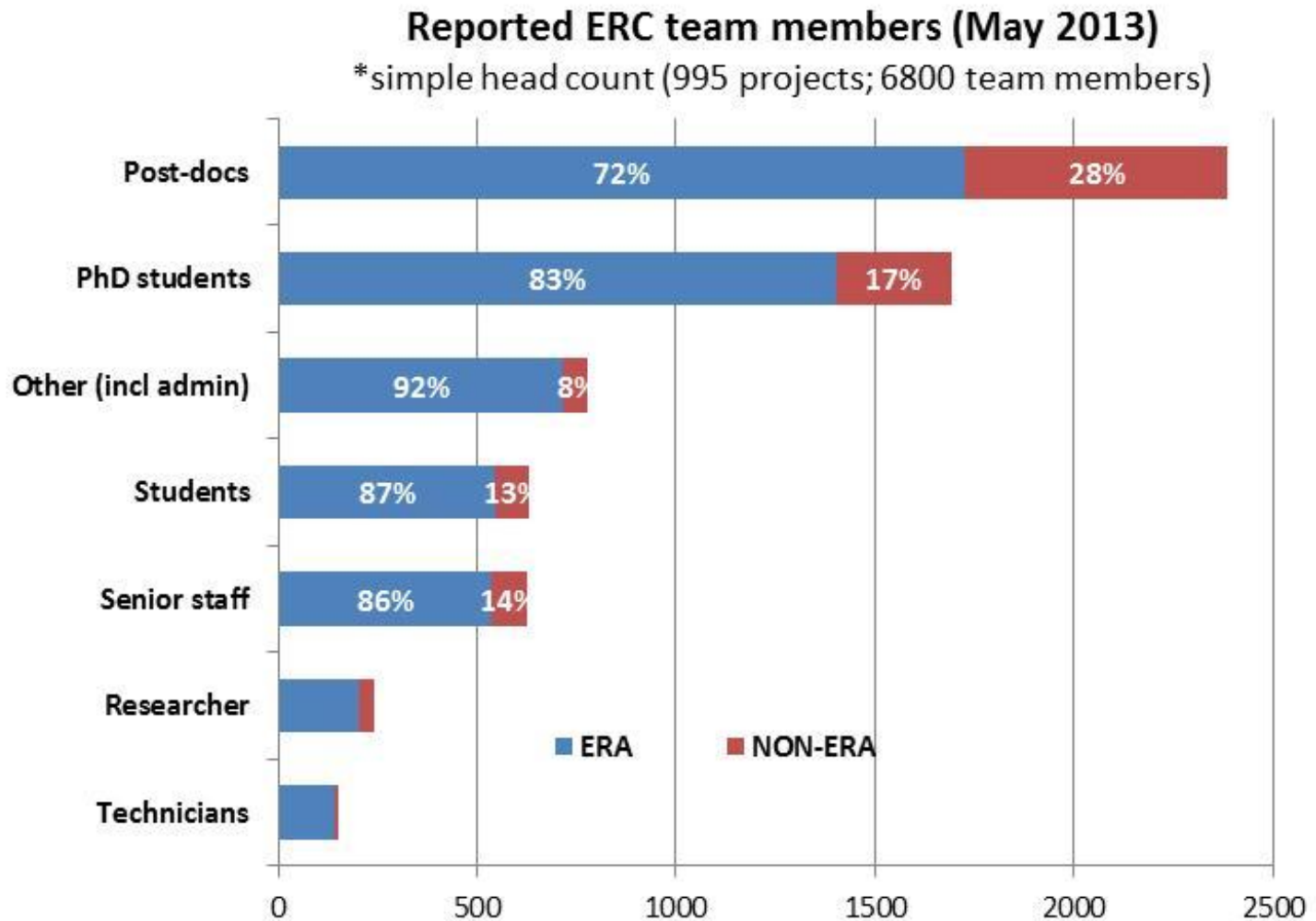
MERCI - monitoring ERC's implementation of excellence.

http://www.research-information.de/Projekte/Merci/projekte_merci_lang.asp

Developing a New Generation of Excellent Scientists

2/3 of staff are people in the training phase of their career

Analysis of 995 ERC projects





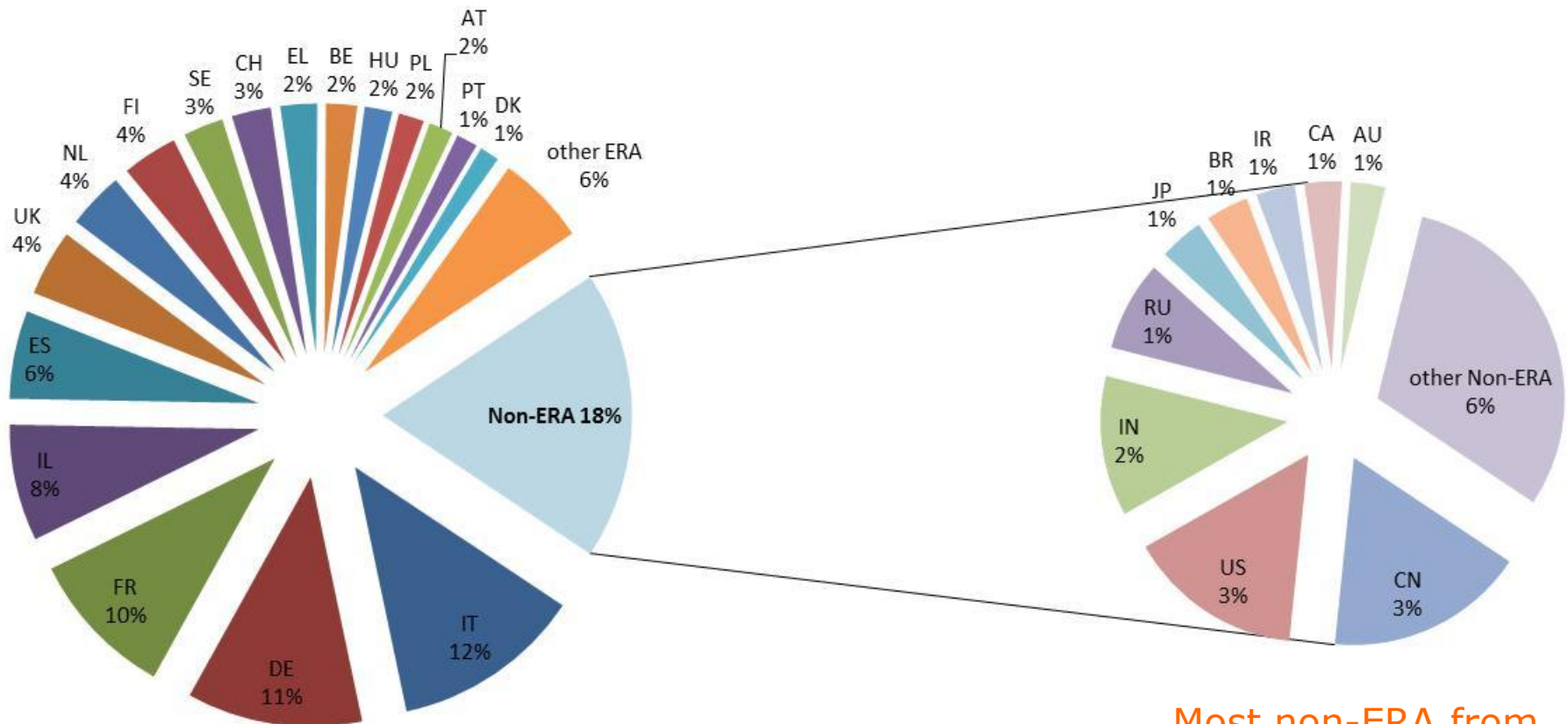
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EU: 67%
Assoc. Countries: 12%
non-ERA: 18%
unknown: 3%

Attracting Excellent Researchers

Composition of ERC teams (PIs not included)
Analysis of 995 Starting and Advanced Grants

Distribution of ERC team members by nationality - detailed



53% of non-ERA team members "attracted" to Europe with the ERC grant (10% of all team members)

Most non-ERA from **China, US, India, and Russia**

Country	Higher-Education Institution	No	StG/CoG	AdG	Total	LS	PE	SH
UK	University of Oxford	1	64	57	121	37	51	33
UK	University of Cambridge	2	69	49	118	40	57	21
UK	University College London	3	55	30	85	34	18	33
CH	Swiss Federal Institute of Technology Zurich (ETH Zurich)	4	35	46	81	25	53	3
CH	Swiss Federal Institute of Technology Lausanne (EPFL)	5	44	36	80	23	55	2
IL	Weizmann Institute	6	51	28	79	45	33	1
IL	Hebrew University of Jerusalem	7	44	30	74	34	26	14
UK	Imperial College	8	34	27	61	23	38	
BE	University of Leuven	9	30	15	45	12	23	10
UK	University of Edinburgh	10	23	21	44	10	21	13
UK	University of Bristol	11	18	21	39	8	25	6
DE	University of Munich (LMU)	12	14	24	38	16	16	6
NL	University of Amsterdam	12	21	17	38	3	11	24
NL	Radboud University Nijmegen	13	24	12	36	14	11	11
NL	Utrecht University	14	22	13	35	8	17	10
NL	Leiden University	15	19	15	34	1	17	16
IL	Technion - Israel Institute of Technology	16	25	8	33	9	23	1
CH	University of Zurich	16	18	15	33	21	5	7
NL	Free University and Medical Center Amsterdam (VU-VUmc)	17	20	12	32	9	8	15
UK	King's College London	18	22	9	31	12	5	14
IL	Tel Aviv University	18	17	14	31	11	17	3
CH	University of Geneva	18	14	17	31	19	9	3
FI	University of Helsinki	19	16	14	30	21	7	2
SE	Karolinska Institute	19	18	12	30	28		2
DK	University of Copenhagen	19	19	11	30	11	12	7
Country	Research Organisation	No	StG	AdG	Total	LS	PE	SH
FR	National Centre for Scientific Research (CNRS)	1	143	66	209	59	119	31
DE	Max Planck Society	2	66	45	111	59	45	7
FR	National Institute of Health and Medical Research (Inserm)	3	39	18	57	54	1	2
FR	French Alternative Energies and Atomic Energy Commission	4	34	9	43	7	35	1
ES	Spanish National Research Council (CSIC)	5	24	15	39	14	20	5
FR	National Institute for Research in Computer Science and Automatic Control (INRIA)	6	19	12	31		31	

Top European Institutions Hosting at least 30 ERC Grantees by Funding Schemes

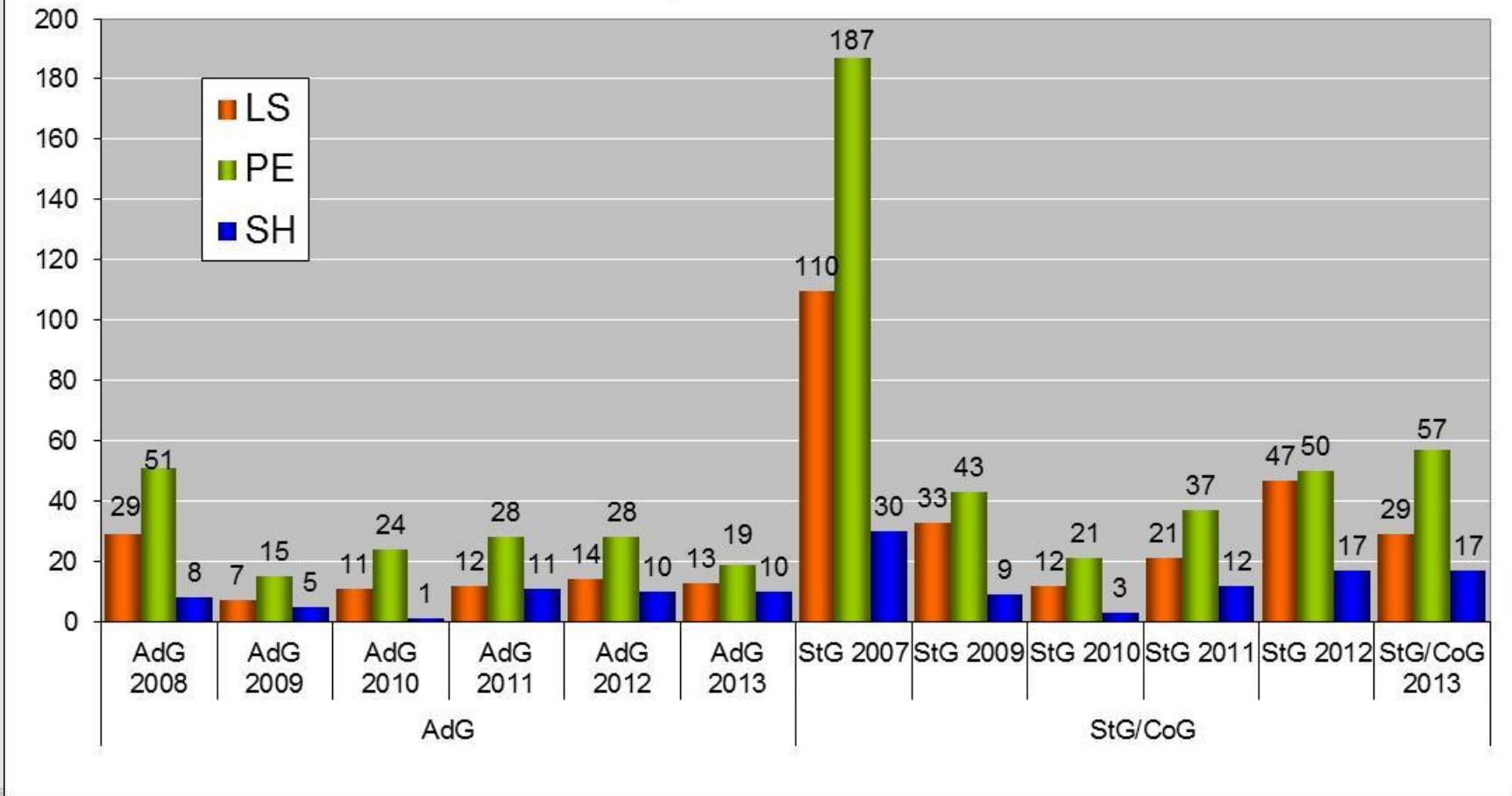
StG/CoG 2007-2013
AdG 2008-2013

First legal signatories of the grant agreement

Data as of 21/08/2014

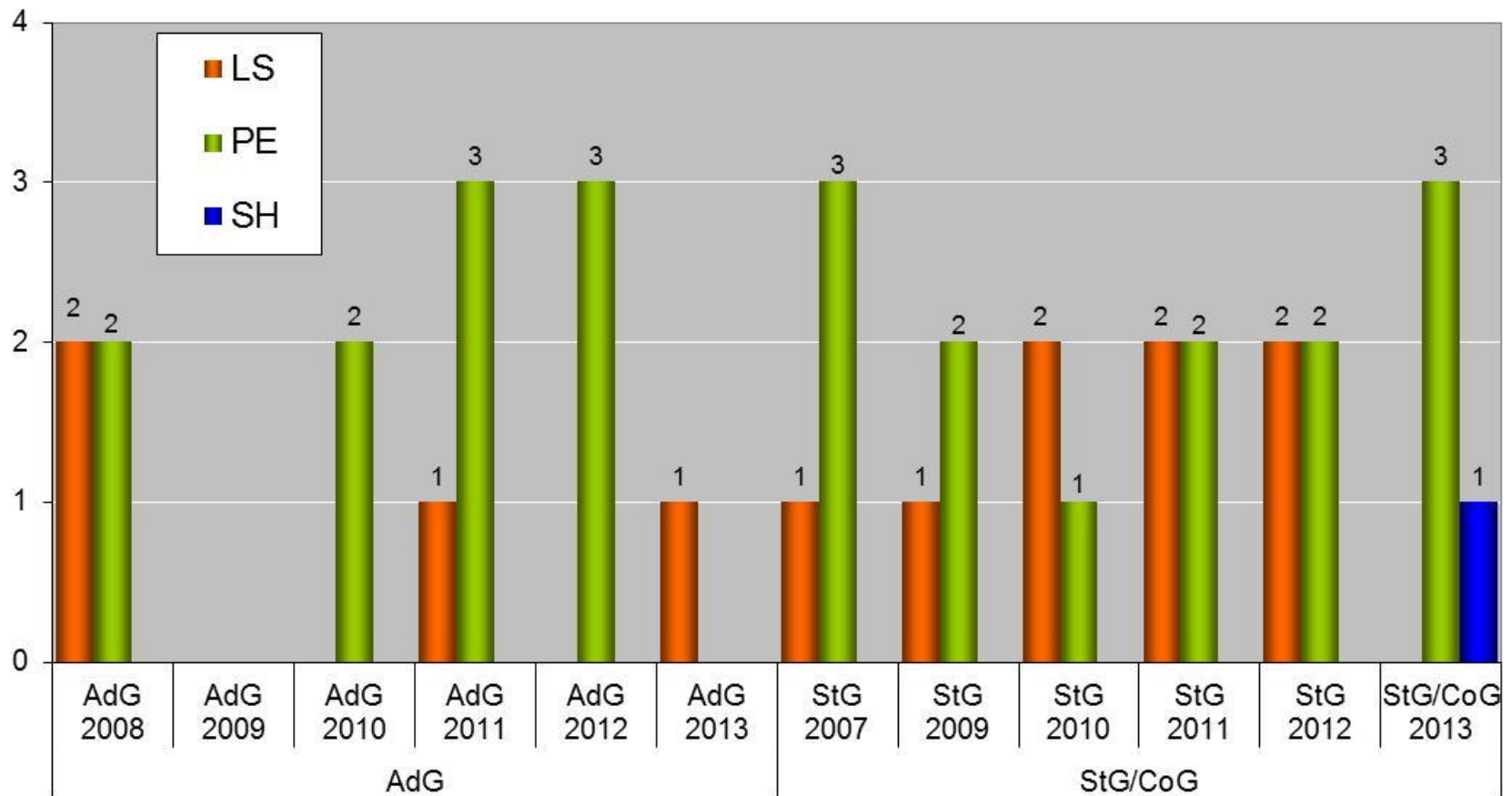
Evaluated Proposals in Greece

1031 evaluated proposals from host institutions in Greece
by ERC call and domain



Funded Projects in Greece

36 projects with a host institution in Greece
by ERC call and domain

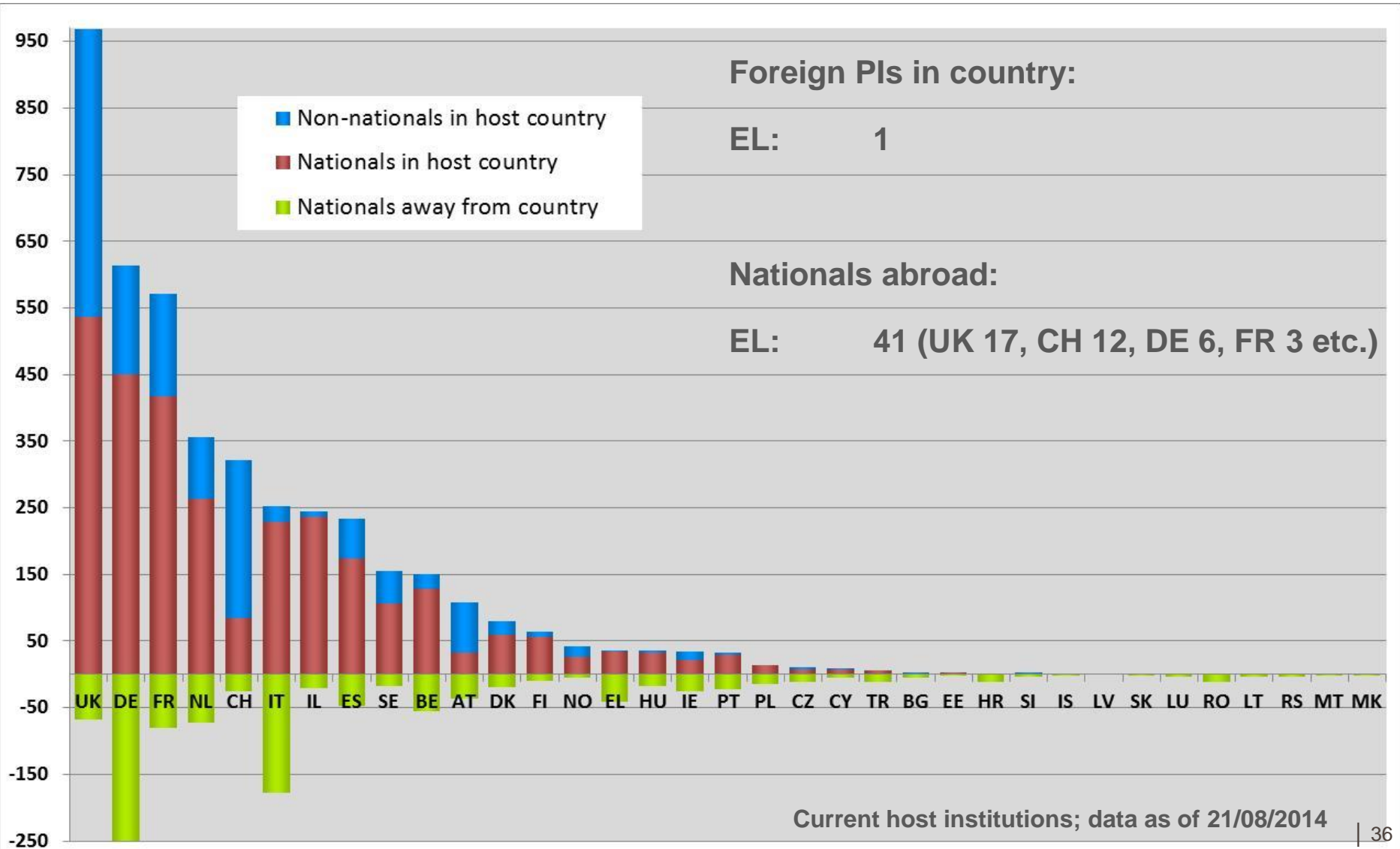


Mobility of Researchers

ERC Starting and Consolidator Grant calls 2007-2013
 ERC Advanced Grant calls 2008-2013



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Greek ERC Grantees outside Greece

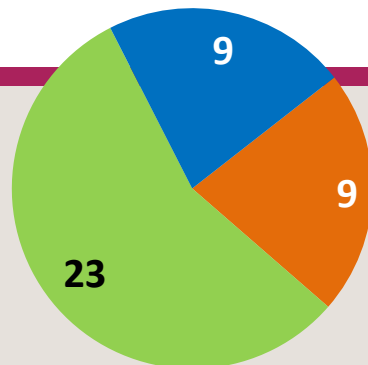
ERC StG, CoG and AdG calls 2007-2013



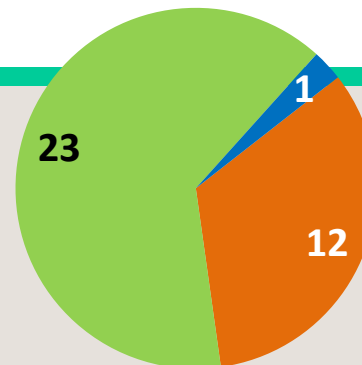
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Greek PIs outside Greece



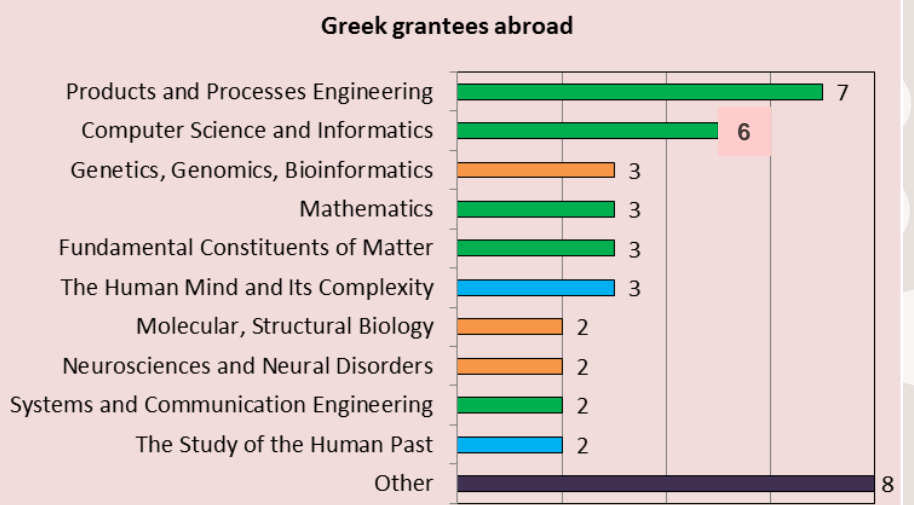
ERC grants in Greece



Greeks applying with a HI outside Greece	evaluated	grantees	s.rate
resident in Greece	33	4	12%
resident in other ERA countries	373	36	10%
resident outside ERA	9	1	11%
Total	415	41	10%

Greeks applying with a HI in Greece	evaluated	grantees	s.rate
resident in Greece	932	30	3%
resident in other ERA countries	20	1	5%
resident outside ERA	41	4	10%
Total	993	35	4%

Host institution	Greek PIs
Imperial College	4
University of Oxford	4
Swiss Federal Institute of Technology Zurich	4
Swiss Federal Institute of Technology Lausanne	4
University of Cambridge	3
University of Geneva	3
Other	19
TOTAL	41



Host Institutions in Greece

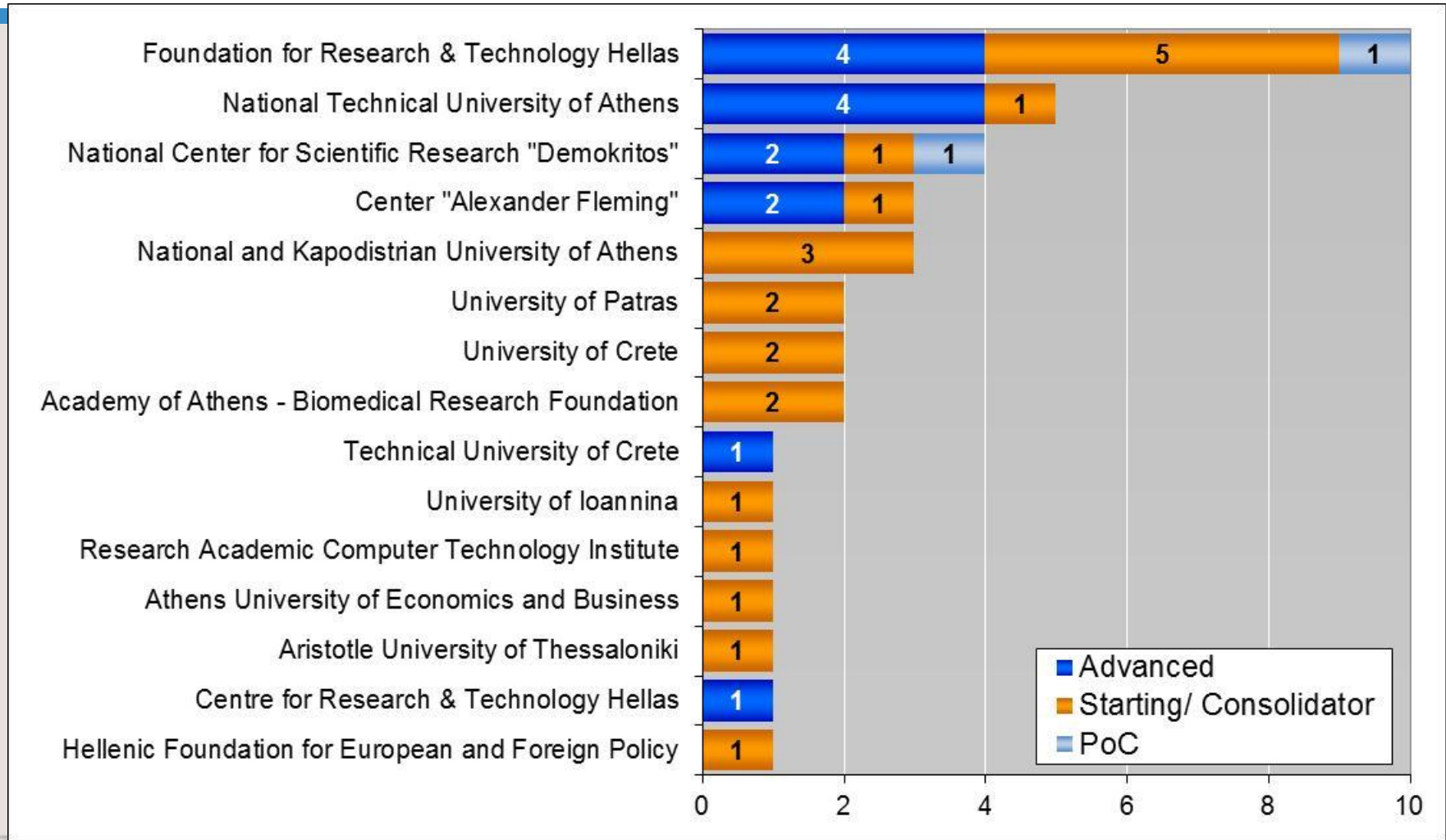
ERC Starting and Consolidator grant 2007-2013

ERC Advanced grant 2008 – 2013



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Work Programme 2015



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- Three ERC grant calls under Work Programme 2015:
 - **Starting**
 - **Consolidator**
 - **Advanced Grants**
- No pre-allocated budget quotas per domain: demand-based allocation of budget per panel
- Restrictions on applications apply to the 2015 calls based on the outcome of the evaluation of the 2014 calls
- Proof of Concept Grants continue

Forthcoming ERC Calls



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ERC calls	Budget	Call Publication	Submission Deadline(s)
Advanced Grants ERC-2014-AdG	450 M€	17 June 2014	21 October 2014
Starting Grants ERC-2015-StG	430 M€	7 October 2014	3 February 2015
Consolidator Grants ERC-2015-CoG	585 M€	13 November 2014	12 March 2015
Advanced Grants ERC-2015-AdG	630 M€	10 February 2015	2 June 2015
Proof of Concept ERC-2014-PoC ERC-2015-PoC	15 M€* 20 M€*	11 December 2013 7 November 2014	DL2: 1 Oct. 2014 DL1: 5 Feb. 2015



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