

FP7 IDEAS Programme

European Research Council



# The European Research Council

“ERC goes global” campaign



**Prof. Donald Dingwell**  
**ERC Secretary General**

**Visit to Japan**  
**July 2012**



# The European Research Council

## What is ERC





# What is ERC?

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

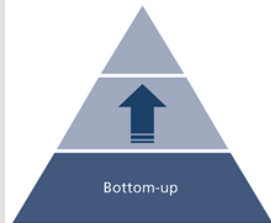
**Budget:** € 7.5billion (2007-2013) - 1.1 billion €/year

## Legislation

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

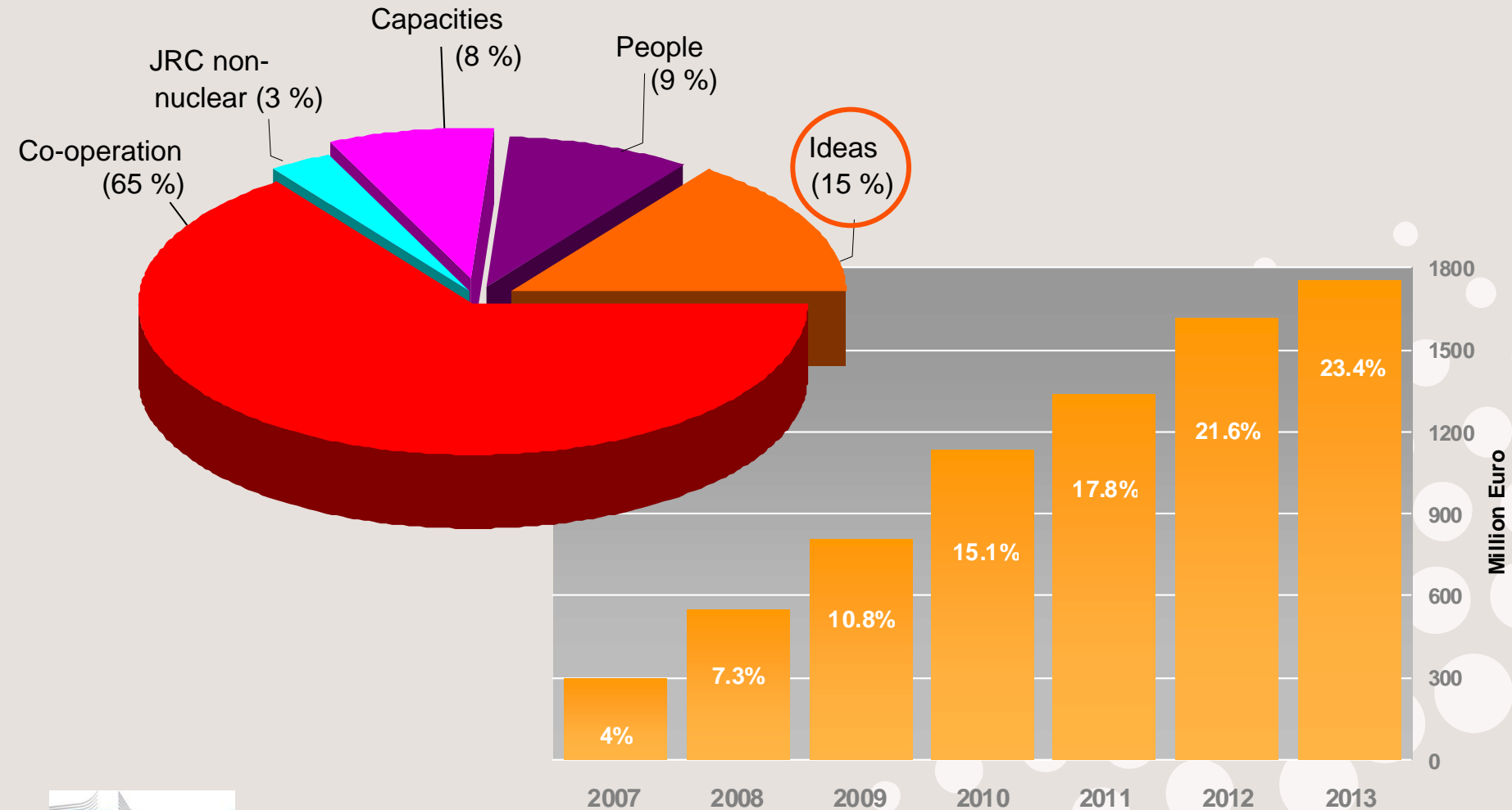
## Strategy

- 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



# FP7 budget € 50.5 billion

ERC budget € 7.5 billion; Increase by € 250 M/year



# ERC Structure

## 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

- **22 prominent researchers** proposed by an independent identification 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



# ERC Scientific Council Members

- Prof. Claudio BORDIGNON (Medicine)
- Prof. Nicholas CANNY, (History)
- Prof. Sierd A.P.L. CLOETINGH (Earth Sciences)
- Prof. Mathias DEWATRIPONT (Economics)
- Prof. Tomasz DIETL (Physics)
- Prof. Daniel DOLEV (Computer Sciences)
- Prof. Carlos M. DUARTE (Biology)
- Prof. Daniel ESTEVE (Physics)
- **Prof. Pavel EXNER (Applied Mathematics & Mathematical Physics), ERC Vice President**
- Prof. Hans-Joachim FREUND (Physics & Physical Chemistry)
- **Prof. Carl-Henrik HELDIN (Molecular Cell Biology), ERC Vice President**
- Prof. Timothy HUNT (Biology)
- Prof. Norbert KROO (Physics)
- Prof. Maria Teresa LAGO (Astrophysics)
- Prof. Henrietta L. MOORE (Social Anthropology)
- **Prof. Helga NOWOTNY (Science and Technology Studies), ERC President**
- Prof. Christiane NÜSSLEIN-VOLHARD (Genetics)
- Prof. Alain PEYRAUBE (Linguistics)
- Dr. Jens ROSTRUP-NIELSEN (Chemistry)
- Prof. Mart SAARMA (Biology)
- Prof. Anna TRAMONTANO (Biochemistry)
- Prof. Isabelle VERNOS (Molecular and Cell Biology)

**Prof. Don Dingwell**  
*ERC Secretary General*

# After 5 years of existence...

## A success story

- Highly recognised by the research community
- ~2 600 top researchers funded (58% are at early-career stage); 53 nationalities represented
- Working in >480 different institutions in 26 countries
- **Highly competitive** (average success rate 12%)
- 50% of grantees in 50 institutions; “Excellence attracts excellence”
- **Benchmarking** effect, e.g. pan-European competition among researchers; EU value added
- Efficient and fast grant management

# Future perspectives

## ERC's role in the Innovation Union 2020

- **HORIZON 2020** structure:
  - Excellence Science
  - Industrial leadership
  - Societal challenges
  - EIT
  - JRC
- **Excellent Science:** reinforcing and extending the excellence of the EU's science base and consolidating ERA to make EU's R&I system more competitive on a global scale
  - ✧ **European Research Council (proposed budget: 15 billion euro)**
  - ✧ Future and Emerging Technologies
  - ✧ Marie Curie
  - ✧ Research Infrastructures



# The European Research Council

## ERC Grant schemes



# ERC Grant schemes

## Starting Grants

starters (2-7 years after PhD)  
consolidators (7-12 years after PhD) up to € 2.0 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

## Synergy Grants

2 – 4 *Principal* Investigators  
up to € 15.0 Mio for 6 years

## Proof-of-Concept

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

# Creative freedom of the 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

# Attractive features for researchers from outside Europe

## Flexibility:

- Additional “start-up” funding for scientists moving to Europe (EUR 500 000 for Starting and EUR 1 Million for Advanced grantees)
- Grantee can keep affiliation with home institute outside Europe (“significant part” of work time in Europe)
- Team members can be based outside Europe
- Grantee can move within Europe with the grant

## Negotiation:

- Several European countries/host institutions assist applicants and reward grantees with top-up funds or long-term professorships



# ERC funding process

## Peer Review Evaluation

### Starting and Advanced Grants

#### Panel Members are appointed by the ERC Scientific Council

- **25 Panels** covering all fields of science, technology and scholarship
- **2 sets of Panels:** StG Panels, AdG Panels
- Each Panel consists of the **Panel Chair** and **10-15 Panel Members**
- Panel Chair **oversees evaluation process** for the proposals assigned to his/her panel in collaboration with the ERC staff
- Evaluation criteria:

#### Principal Investigator

- ❖ Intellectual capacity and creativity
- ❖ Commitment

#### Research project

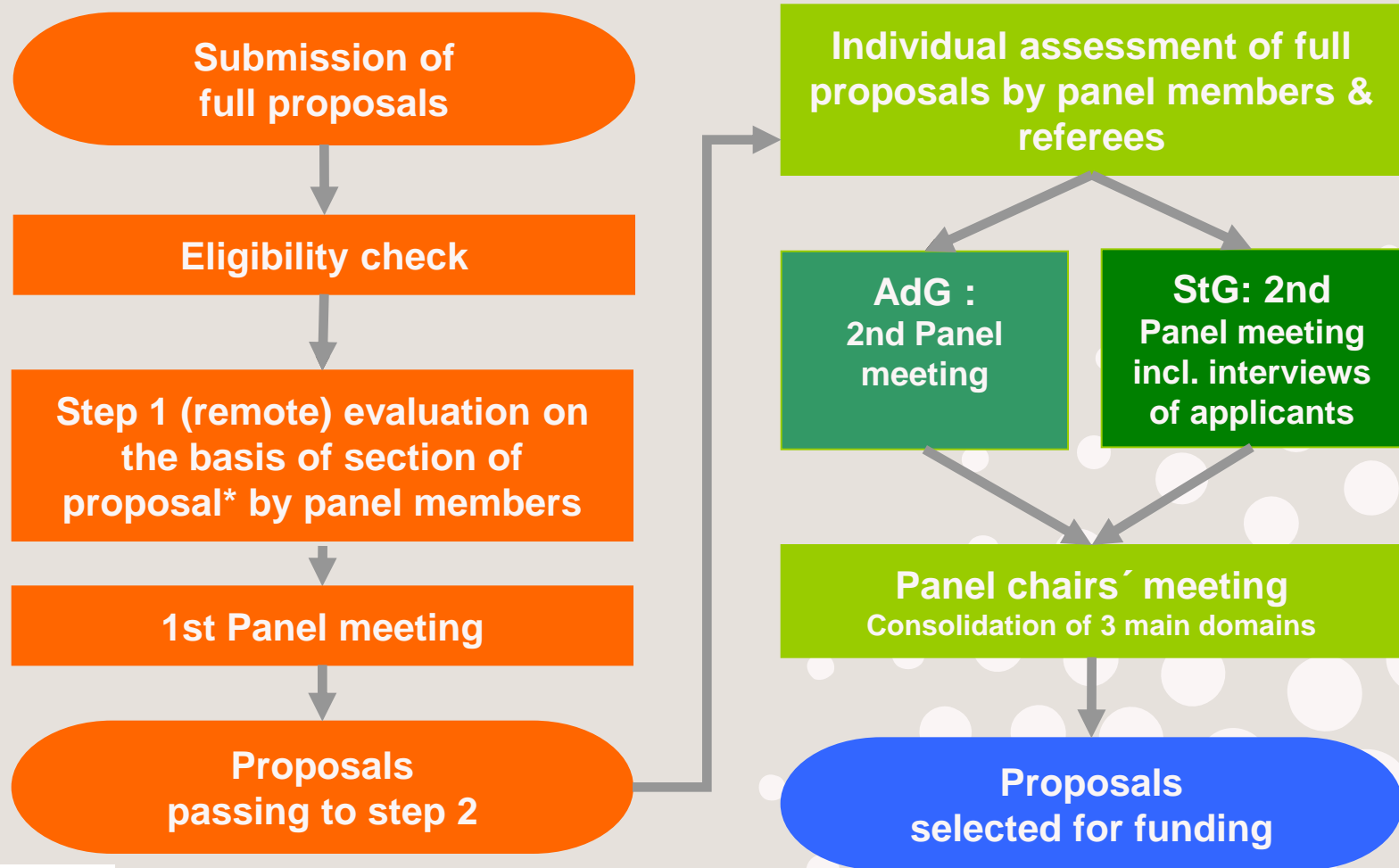
- ❖ Ground-breaking nature and potential impact
- ❖ Methodology

# 25 panels for all areas of science

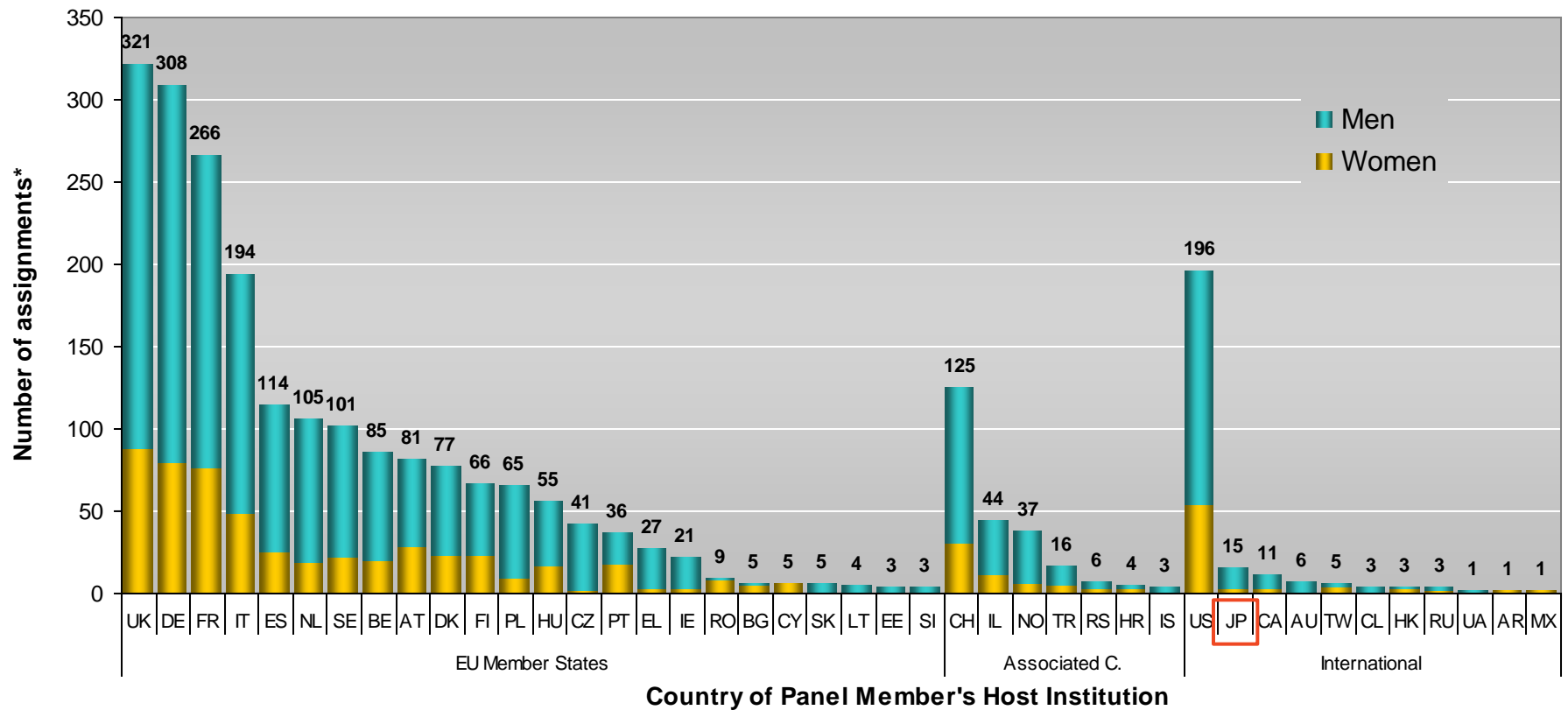
<b>Physical Sciences &amp; Engineering</b>  10 panels	<b>Mathematics</b> Fundamental constituents of matter Condensed matter physics Physical and analytical chemical sciences Synthetic chemistry and materials Computer science and informatics Systems and communication engineering Products and processes engineering Universe sciences Earth system science	<b>Social Sciences &amp; Humanities</b>  6 panels  Individuals, institutions and markets Institutions, values, beliefs and behaviour Environment, space and population The Human Mind Cultures and cultural production The study of the human past
<b>Life Sciences</b>  9 panels	<b>Molecular and structural biology and biochemistry</b> Genetics, genomics, bioinformatics and systems biology Cellular and developmental biology Physiology, pathophysiology and endocrinology Neurosciences and neural disorders Immunity and infection Diagnostic tools, therapies and public health Evolutionary, population and environmental biology Applied life sciences and biotechnology	

# Submission, evaluation and selection

Starting and Advanced Grants



# International participation to proposals evaluation



Based on the eight ERC StG and AdG calls 2007 - 2011



# Speeding up the discovery process: ERC Synergy grant

- 2012 work programme on a pilot basis
- 2 – 4 Principal Investigators; complementary skills, knowledge & resources; to jointly address frontier research problems
- Up to €15m for up to six years
- Based on ERC principles (no consortia, no networks):
  - bottom-up and risk-taking
  - driven by scientific demand
  - PIs expected to spend significant “core time” together
  - only one Host Institution, but groups not required to be physically located in the same place
- **710** submissions to the first Synergy Call

# Frontier research and innovation: ERC Proof of Concept

- Initiated to help ERC grant-holder to bridge the gap between their research and the earliest stage of a marketable innovation
- Supporting grant-holders during the pre-demonstration
- Up to 150.000 Euro per grant
- One step evaluation
- First call in Autumn 2011 with 2 deadlines
- Next call in Spring 2012 (deadlines: 3 May and 3 October 2012)

# ERC Competitions 2007-2011

	Total number of applications received	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	487	12.2
<b>Starting Grant</b>	<b>18,623</b>	<b>17,951</b>	<b>1,467</b>	<b>10.4</b>
Advanced Grant 2008	2,167	2,034	282	13.9
Advanced Grant 2009	1,583	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
<b>Advanced Grant</b>	<b>8,043</b>	<b>7,772</b>	<b>1,099</b>	<b>14.3</b>
Proof of Concept 2011 - 1	78	73	29	39.7
Proof of Concept 2011 - 2***	73	66	22	33.3
<b>Proof of Concept</b>	<b>151</b>	<b>139</b>	<b>51</b>	<b>36.5</b>



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## International participation





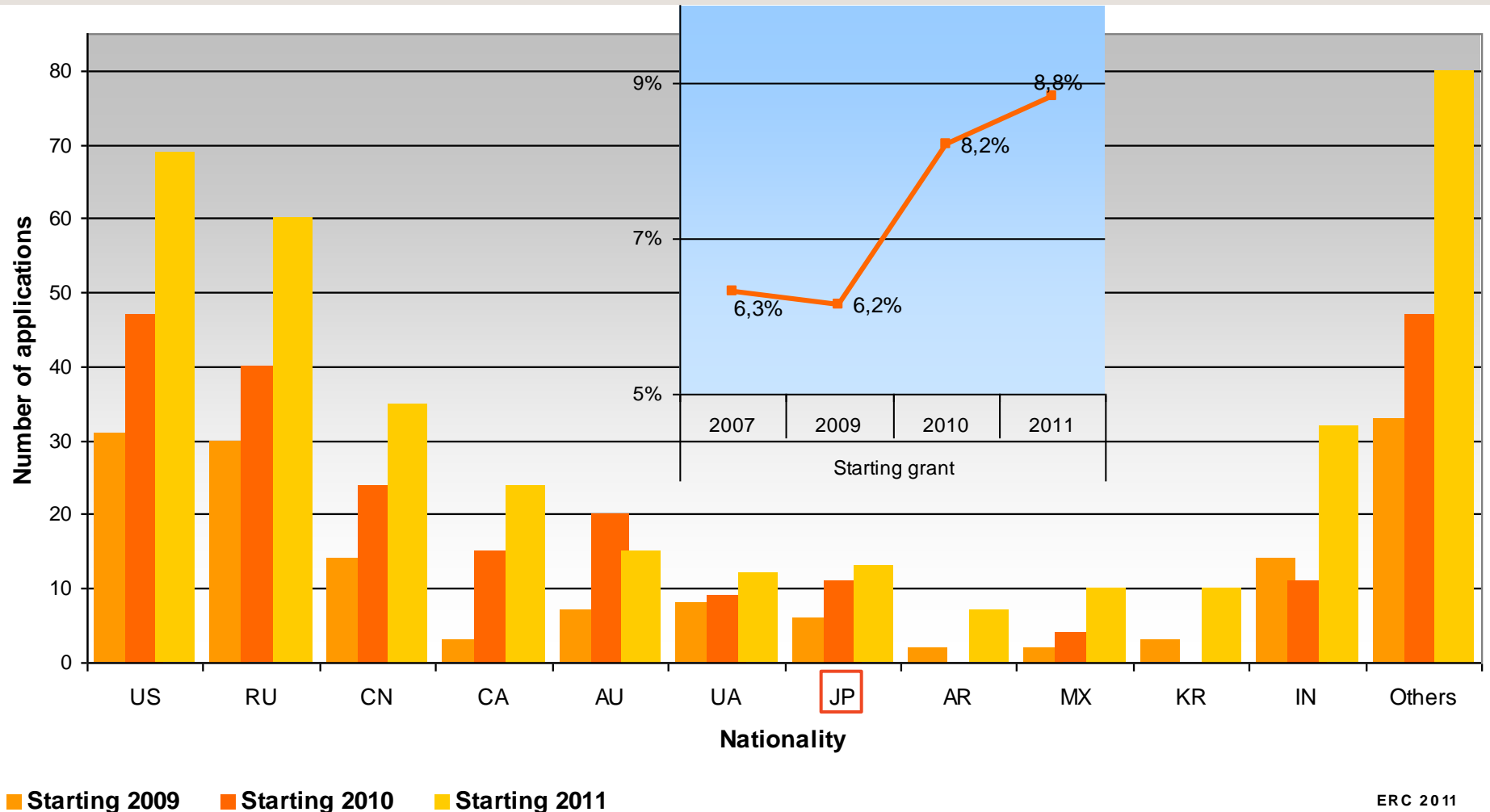
# Submitted proposals from researchers with non-ERA\* nationality

European Research Council



## ERC Starting grant calls 2009 – 2011

\* ERA = European Research Area



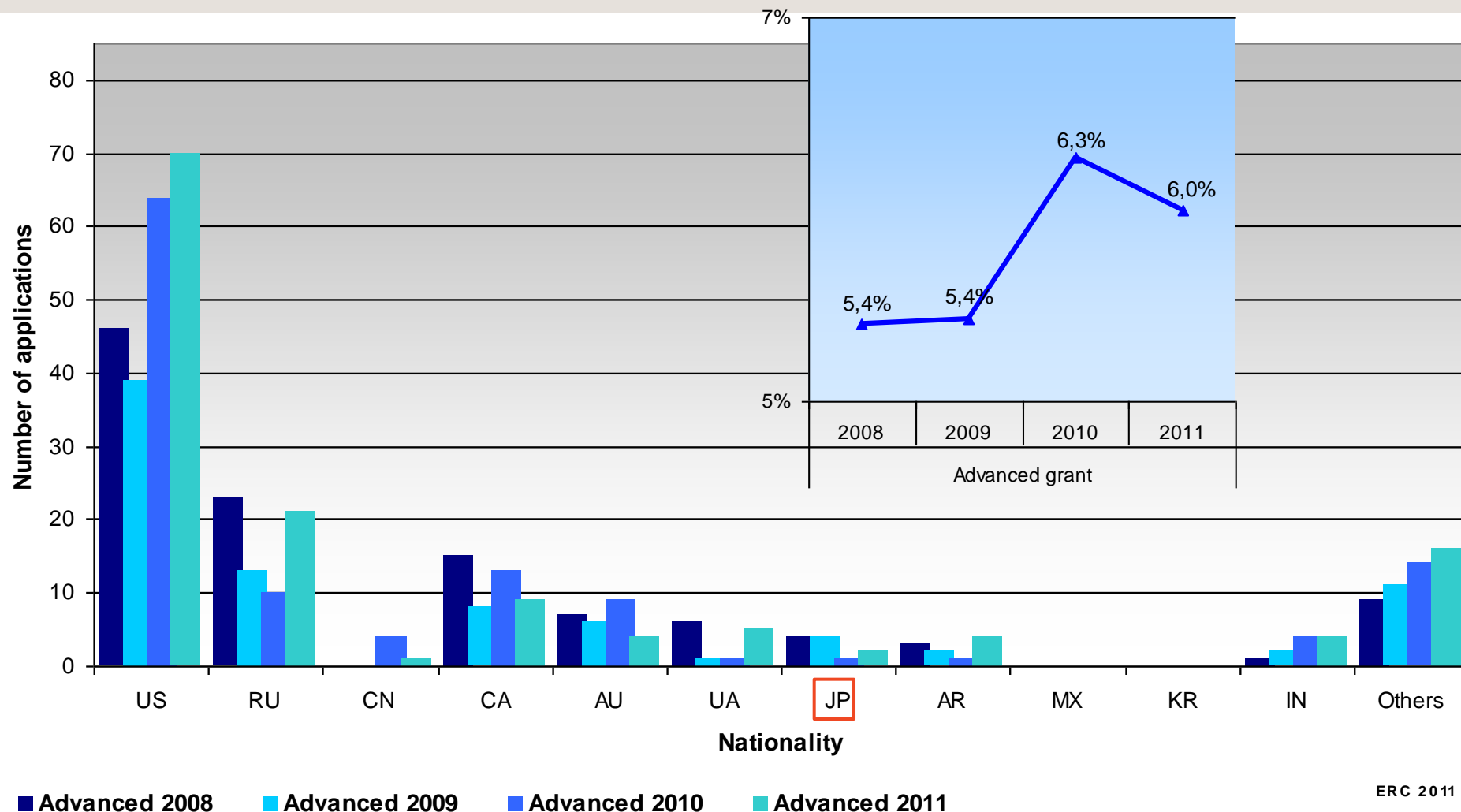
# Submitted proposals from researchers with non-ERA\* nationality

European Research Council



## ERC Advanced grant calls 2008 – 2011

\* ERA = European Research Area



# Submitted proposals from Japanese researchers

ERC Starting grant calls 2007 - 2012

ERC Advanced grant calls 2008 – 2012

## Submitted applications from nationals

Country*	StG calls	AdG Calls	All ERC calls	Life Sci	Phys&Eng	Soc&Hum
Japan	68	14	82	28	46	8
South Korea	31	1	32	11	11	10
Taiwan	9		9	1	5	3
Hong Kong	3	2	5		2	3
<b>Total:</b>	<b>111</b>	<b>17</b>	<b>128</b>	<b>40</b>	<b>64</b>	<b>24</b>

\*) nationality as last declared by the principal investigator

- the applications of JP nationals have the host institution in UK (23), Germany (15), France (11), Sweden (6), other countries (27)

## Submitted applications from researchers resident in the country at the time of application

Country	StG calls	AdG Calls	All ERC calls
Japan	22	5	27
South Korea	5	1	6
Taiwan	2		2
Hong Kong	1	2	3
<b>Total:</b>	<b>30</b>	<b>8</b>	<b>38</b>

- 7 of the applicants that were resident in Japan at the time of application are nationals of the country

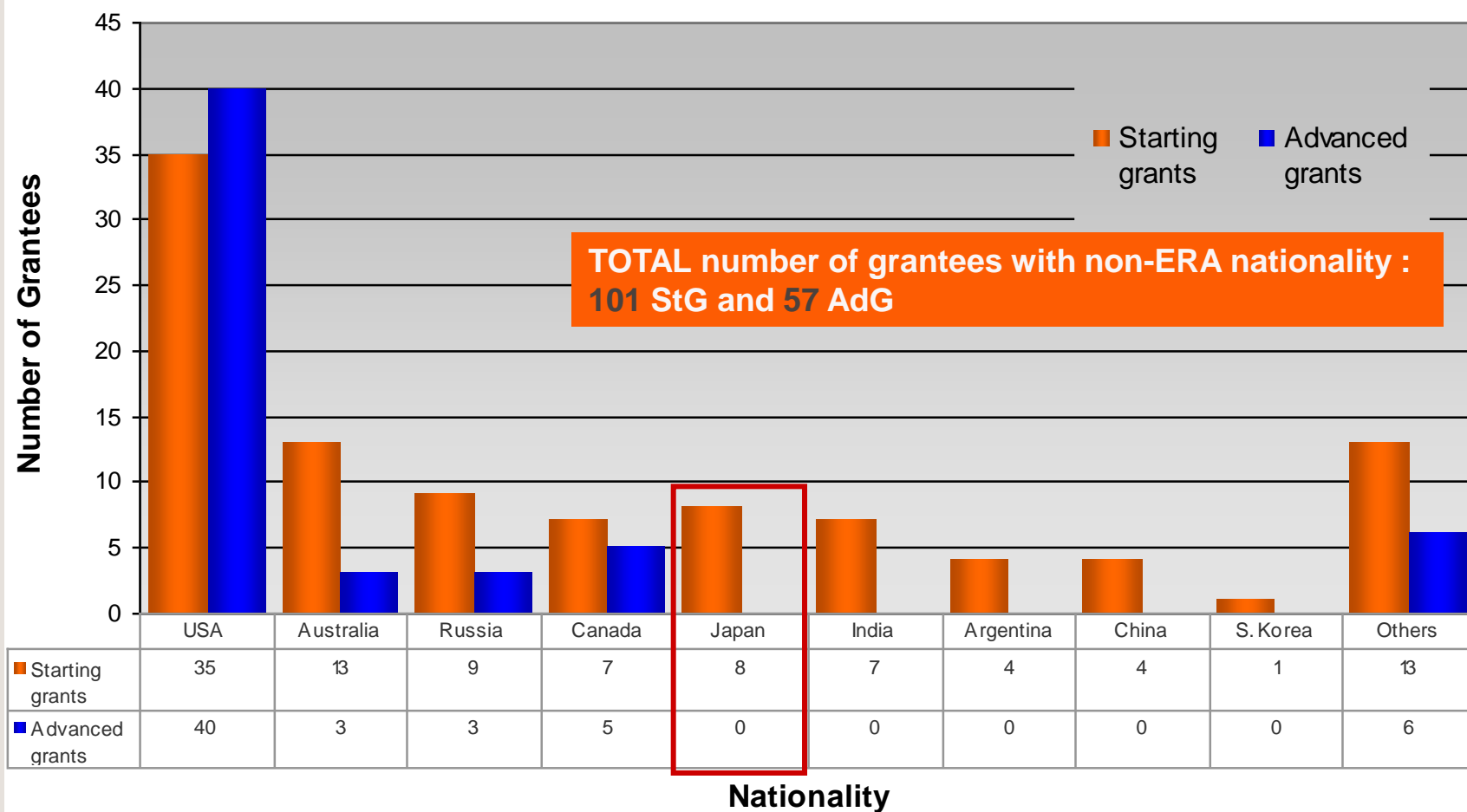
# ERC grantees with a non-ERA\* nationality

European Research Council



## ERC Starting and Advanced Calls 2007 – 2011

\* ERA = European Research Area





# ERC Grantees with Japanese nationality

ERC Starting Calls 2007 – 2011

ERC Advanced Calls 2008 - 2011



ERC grantees					
Country*	Host Institution	HI Country	ERC call	Domain	Grantees
Japan	EMBL	DE	StG-2007	Life Sciences	8
	Institute of Molecular Biotechnology	AT		Life Sciences	
	Norwegian University of S&T	NO		Life Sciences	
	University of Portsmouth	UK	StG-2010	Phys Sci & Eng	
	CEA	FR		Phys Sci & Eng	
	University of Edinburgh	UK		Life Sciences	
	University of Leuven	BE	StG-2011	Phys Sci & Eng	
	University College London	UK		Life Sciences	

\*) nationality as last declared by the principal investigator

# ERC Grantees with Japanese nationality

## Project examples (I)



### Dr. Kazufumi MOCHIZUKI

Group Leader at the Institute of Molecular Biotechnology (Austria)

ERC Starting Grant **RNA directed DNA elimination in Tetrahymena**

The recent accelerated expansion of the universe originates from dark energy or alternatively, by a large-distance modification to the general relativity. The project purpose is to construct consistent models for modified gravity and to develop efficient ways to combine observational data sets to distinguish between the two models.

How can cells distinguish junk from precious DNA? Evidence suggests that small RNAs act as security guards to identify transposable elements. However, many remains unknown about how these small RNAs are produced, how they patrol the genome, and how they induce heterochromatin.



### Dr. Kazuya KOYAMA

Reader in Cosmology at the Institute of Cosmology and Gravitation, University of Portsmouth (UK)

ERC Starting Grant **Modified Gravity as an Alternative to Dark Energy**

# ERC Grantees with Japanese nationality

## Project examples (II)



**Dr. Dai AOKI**

Researcher at the Institute for Nanoscience and Cryogenics, CEA (France)

ERC Starting Grant

**Novel materials and extreme conditions to open new frontiers in heavy fermion physics**

The project objective is to explore low-temperature novel phenomena of heavy fermion systems. It will focus on:

- (1) new materials and high quality single crystals,
- (2) precise temperature-pressure-field phase diagrams,
- (3) quantum singularities and Fermiology,
- (4) the mechanism of unconventional superconductivity,
- (5) field-induced phenomena.

Many critical photo-chemical and photo-physical processes depend on an efficient light-matter interaction.

The project aims to drastically increase the activities of (photo)catalysts, enabling their efficient operation under sunlight or even in weak room light conditions.



**Prof. Hiroshi UJII**

Associate Professor at the University of Leuven (Belgium)

ERC Starting Grant

**Plasmonics-based Energy Harvesting for Catalysis**

# Few grantees from outside ERA

Mainly researchers moving/returning from the US

Country of residence	International grantees	ERA nationals	Total
Argentina	1		1
Australia	1	2	3
Brazil	1		1
Canada	1	1	2
Japan	1	1	2
Korea		1	1
USA	13	51	64
Total	18	56	74

- 2 grantees with residence in Japan at the time of application:  
1 Japanese and 1 Czech national

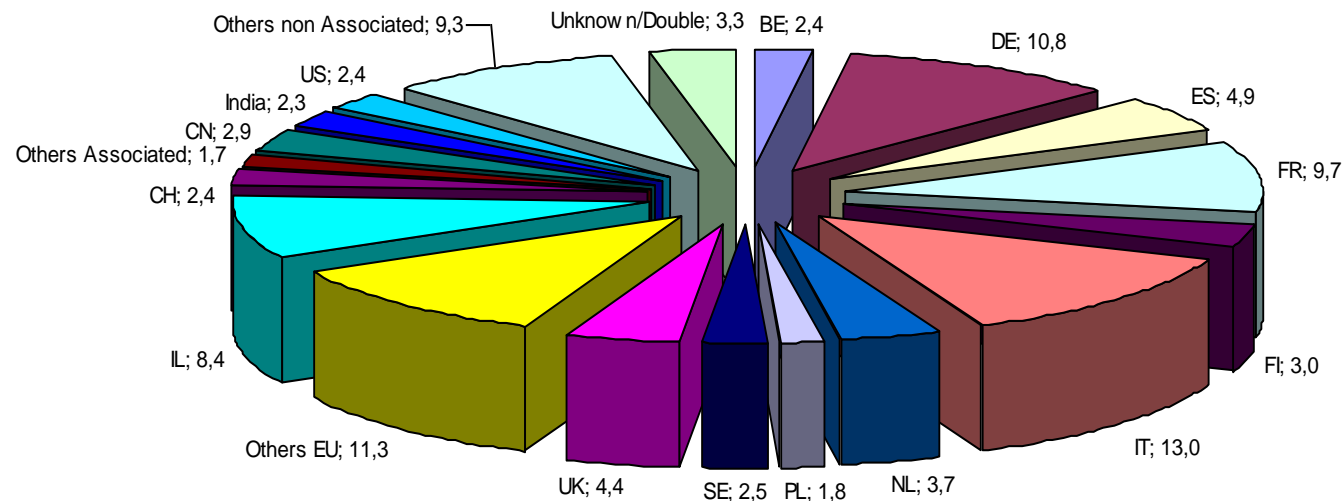
Note: Researchers residing outside ERA at the time of application

# Team members: internationalisation

a sample of 383 on-going projects

about 2200 team members without principal investigators

- Breakdown **by nationality** (77):



EU: 67%    Assoc. Countries: 13%    Other Countries: 17%    Unknown: 3%

# Attracting excellent researchers worldwide

## "ERC goes global" campaign

### targeting top and emerging research locations

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# Global researchers

## Example



ERC Project: “**TRACSYMBOLS**”  
<http://tracsymbols.eu/home/>

South African professor  
Christopher S. Henshilwood,  
appointed Professor of African  
Archaeology at the University of  
Bergen, Norway in 2007,  
received an ERC Advanced Grant  
in 2009

He also holds a complementary  
Research Professorship and  
Research Chair at the  
University of the Witwatersrand,  
South Africa

# More information on ERC

- **Ideas NCPs** <http://erc.europa.eu/national-contact-points>
- **ERC Website** <http://erc.europa.eu>
- **ERC Helpdesk** <http://erc.europa.eu/about-erc/links>
- **Quarterly ERC e-newsletter and e-News Alerts**
- **Euraxess-Jobs** <http://ec.europa.eu/euraxess/index.cfm/jobs/index>

New ERC calls	Expected Publication	Deadline
Starting 2013	10 July 2012	17 Oct. 2012
Consolidator 2013	7 Nov. 2012	21 Feb. 2013
Advanced 2013	10 July 2012	22 Nov. 2012
Synergy 2013	10 Oct. 2012	10 Jan. 2013
PoC 2013	10 Jan. 2013	24 April 2013
		3 Oct. 2013



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**Thank you!**



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## Proposal structure



# Submission of proposals

- Single submission
  - ➔ “1 stage, 2 step” evaluation
- Electronic submission via EPSS only
- Deadlines strictly enforced
- Proposals have two parts:
  - ➔ Part A: Administrative forms
    - Structured information
  - ➔ Part B: Scientific proposal itself
    - Free form pdf file

# Proposal structure: Part A

## Part A: “Administrative forms” containing

- A1 Structured information on proposal, PI and contact details of host institution
- A2 Information on Host Institution
- A3 Budget table



# Proposal Structure: Part B

## Starting and Advanced Grants

- **Section 1 = The Principal Investigator and a synopsis of the proposal**
  - Scientific Leadership potential (1 page)
  - Early achievements track-record (2 pages)
  - CV (including “funding ID”) (2 pages) StG
  - 10-year track record (2 pages) AdG
  - Extended synopsis (5 pages)
- **Section 2 = Full Scientific proposal (15 pages, not accessible for referees in step 1!)**
- Ethical Review information (where appropriate)
- Host Institution Support Letter (compulsory)

# Submission to Panels

- Proposals are submitted to a *Targeted Panel* (of PI's choice)
  - ➔ Can flag one “*Secondary Review Panel*”
- **Applicant chooses his/her panel**, this panel is “responsible” and takes ownership for the evaluation of the particular proposal
- Switching proposals between panels not possible unless clear mistake on part of applicant, or due to the necessary expertise being available in a different panel
- Switching proposals between domains (deadlines) not possible at all.
- But: In case of cross-panel or cross-domain proposals, evaluation by members of other panels possible

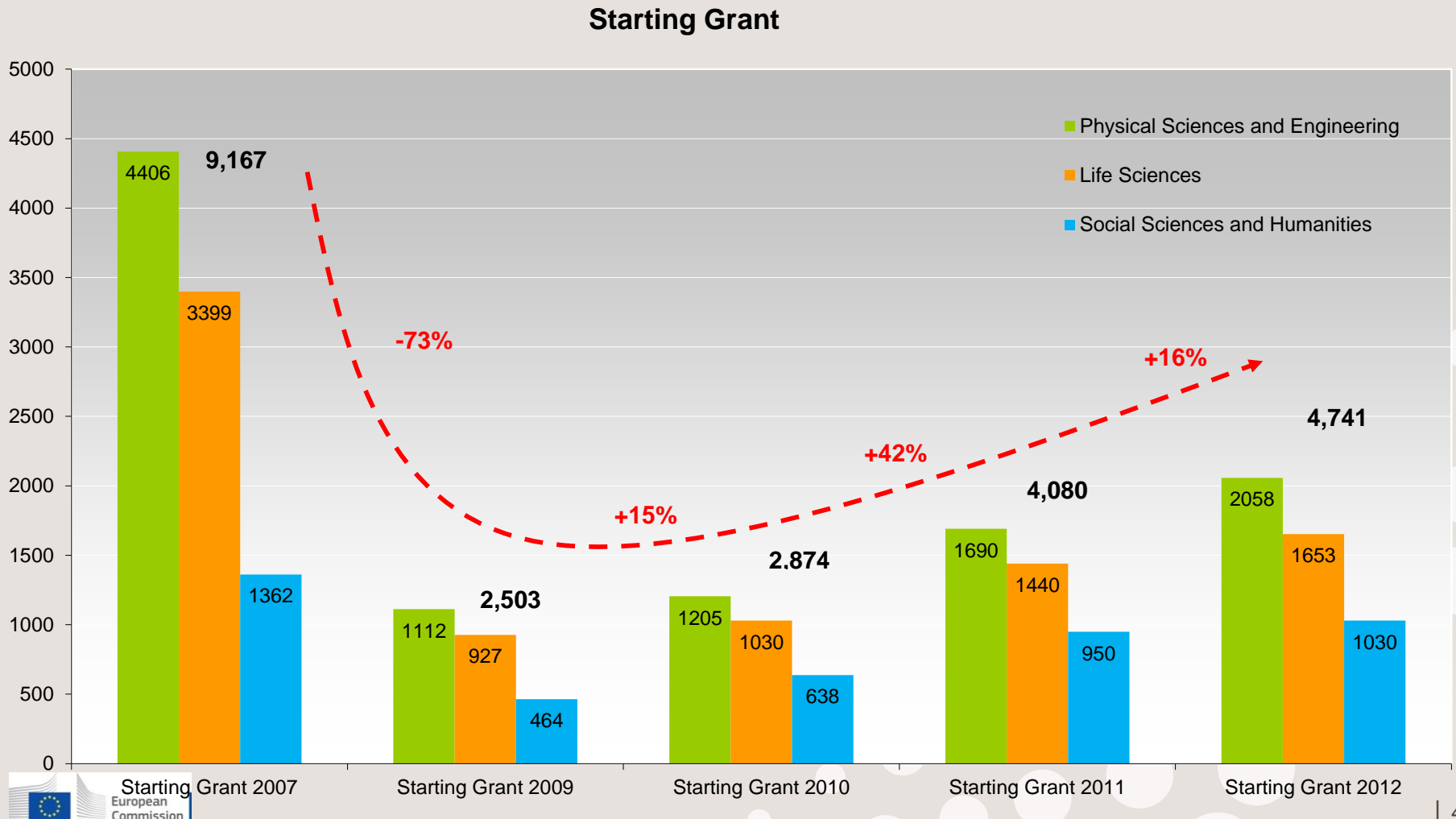
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## Statistics on ERC calls



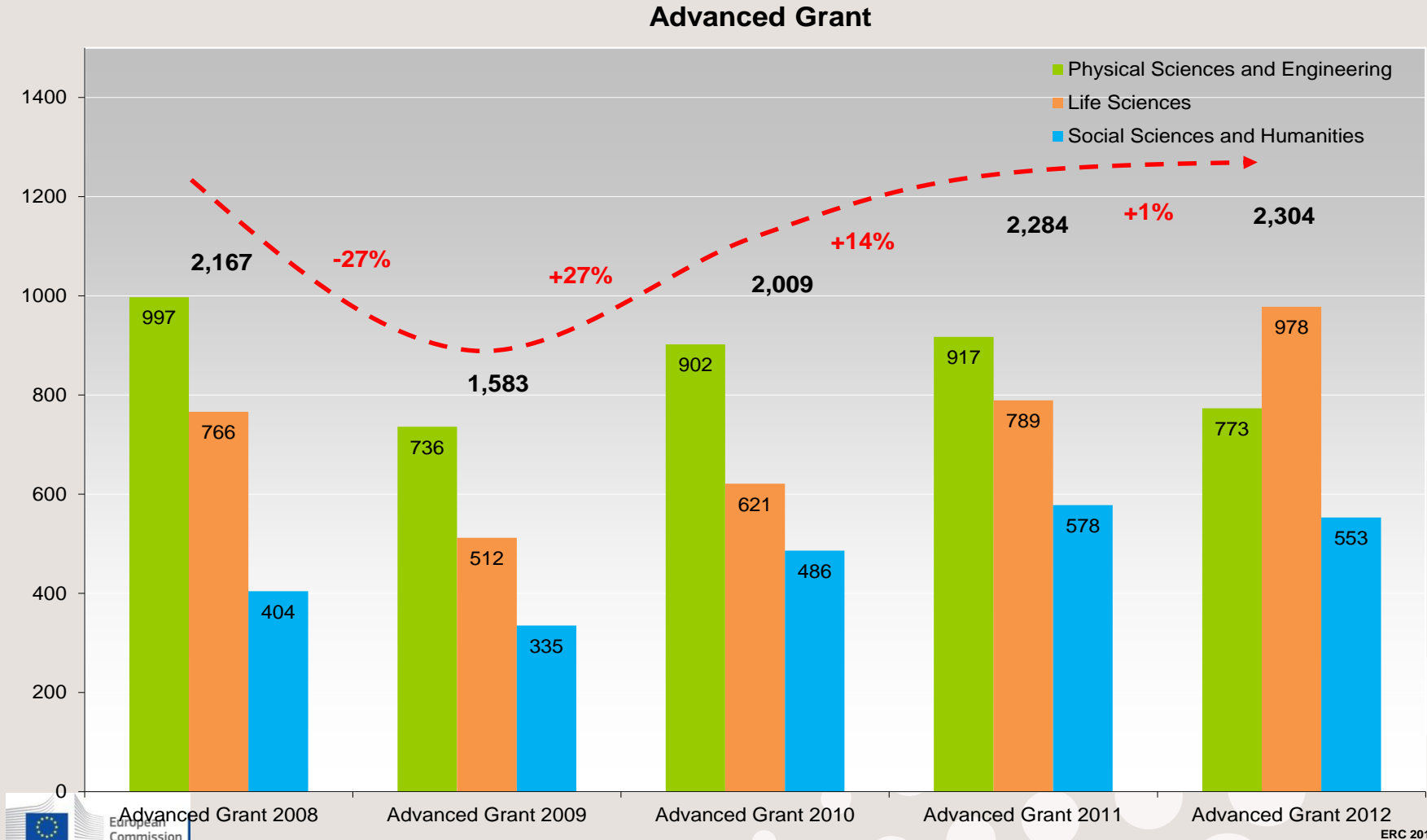
# Submitted proposals by domain

## ERC Starting grant calls 2007 - 2012

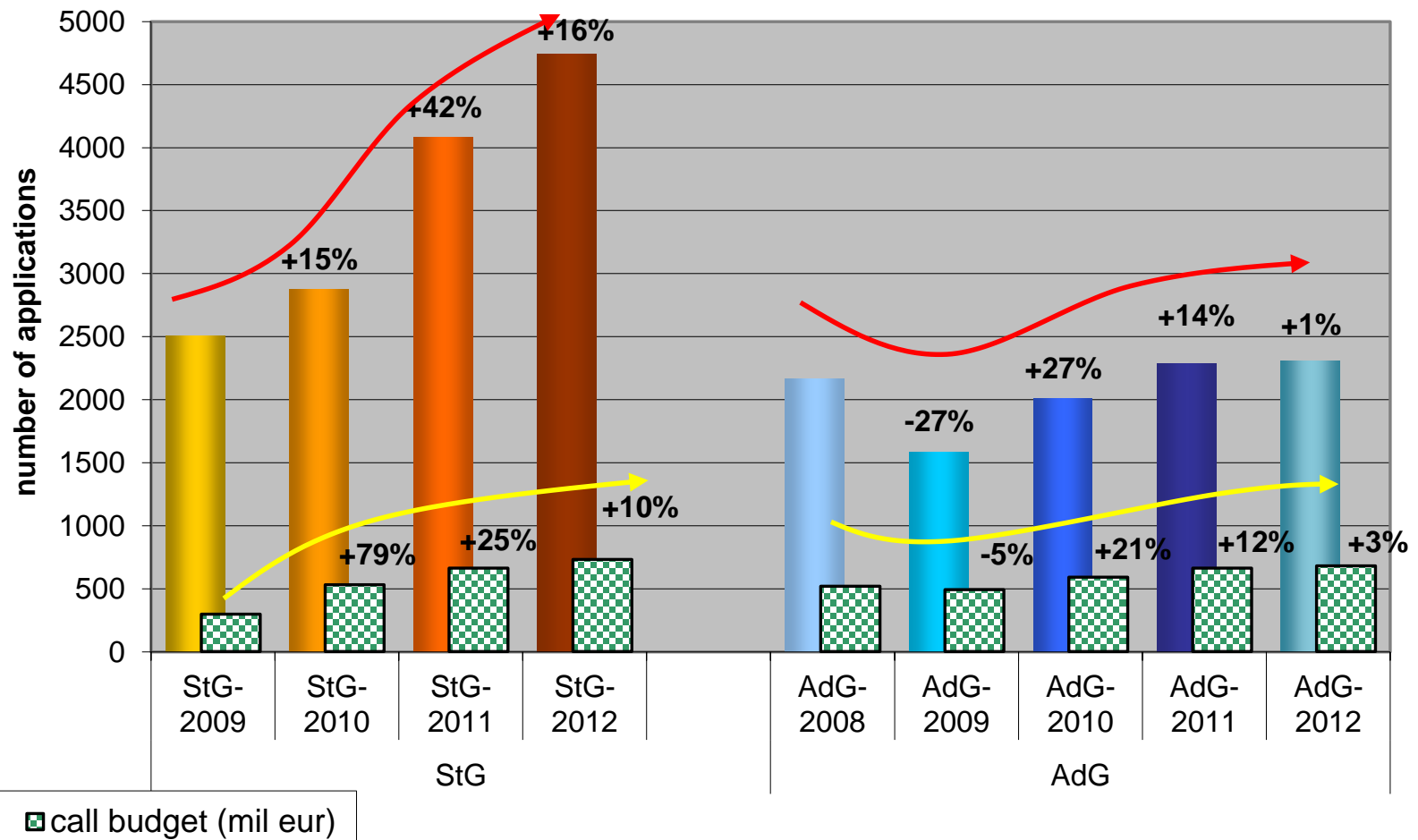


# Submitted proposals by domain

## ERC Advanced grant calls 2008 - 2012



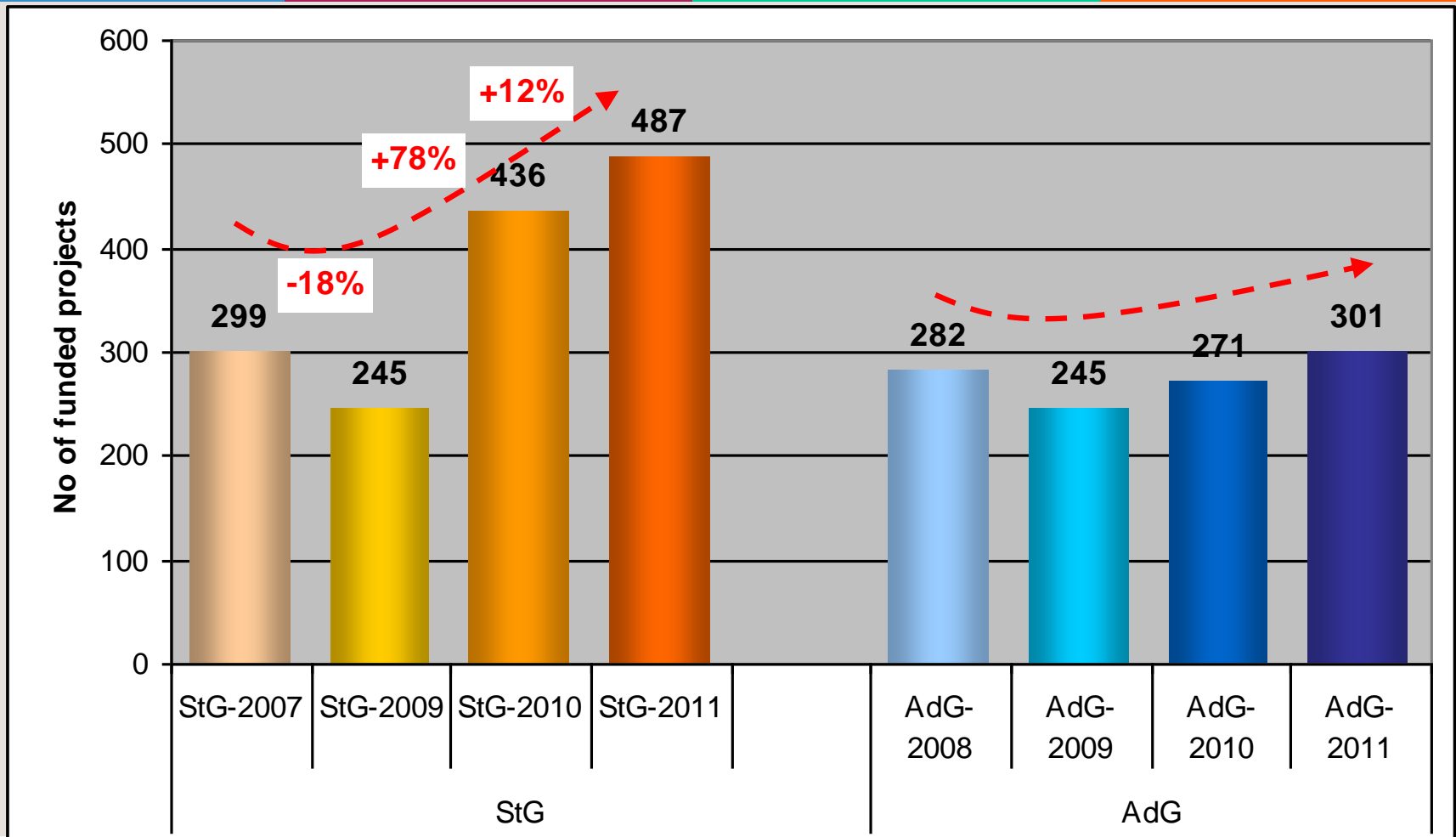
# Rising applications





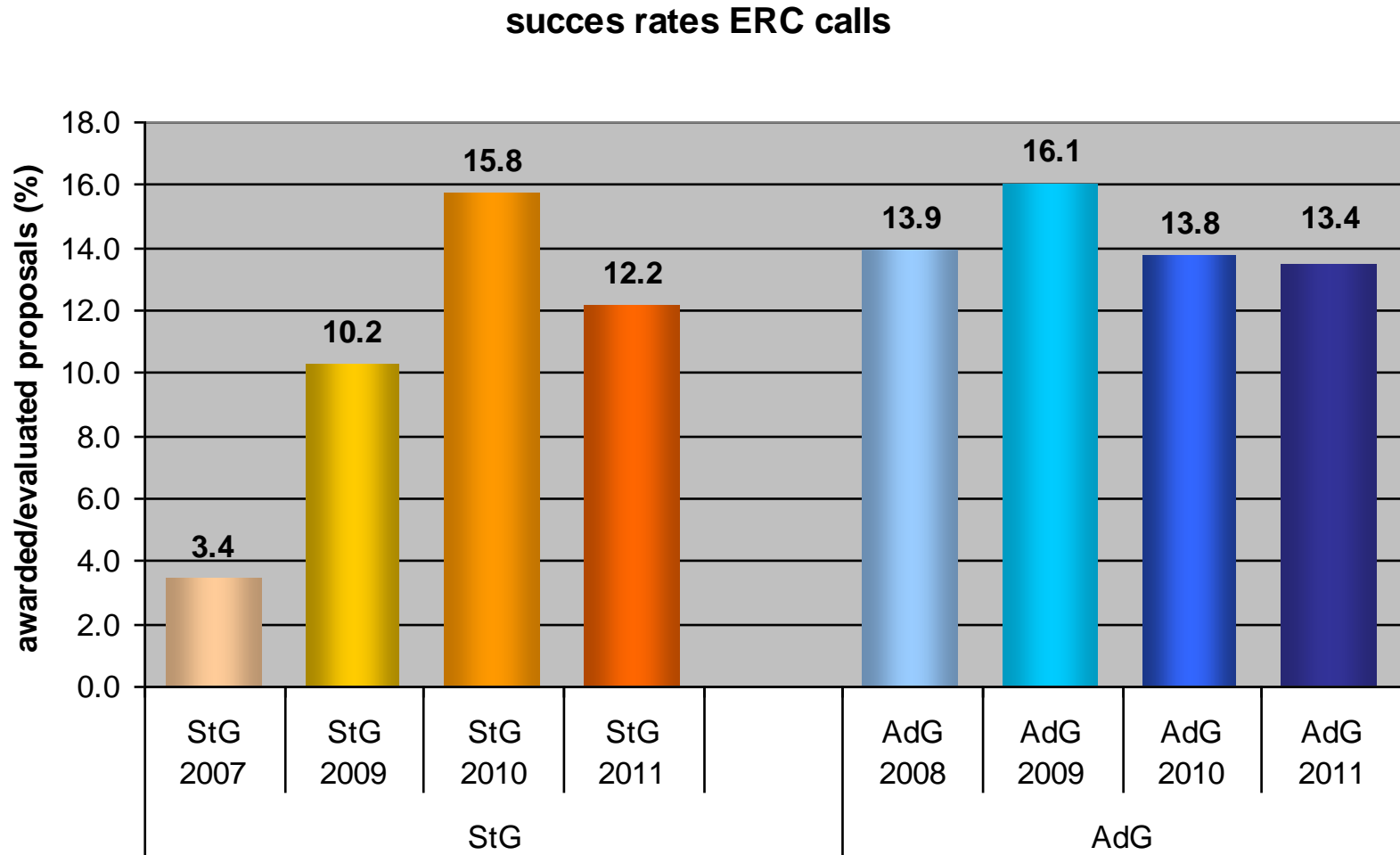
# Funded projects

ERC Starting & Advanced grant calls 2007 – 2011



# Success rates

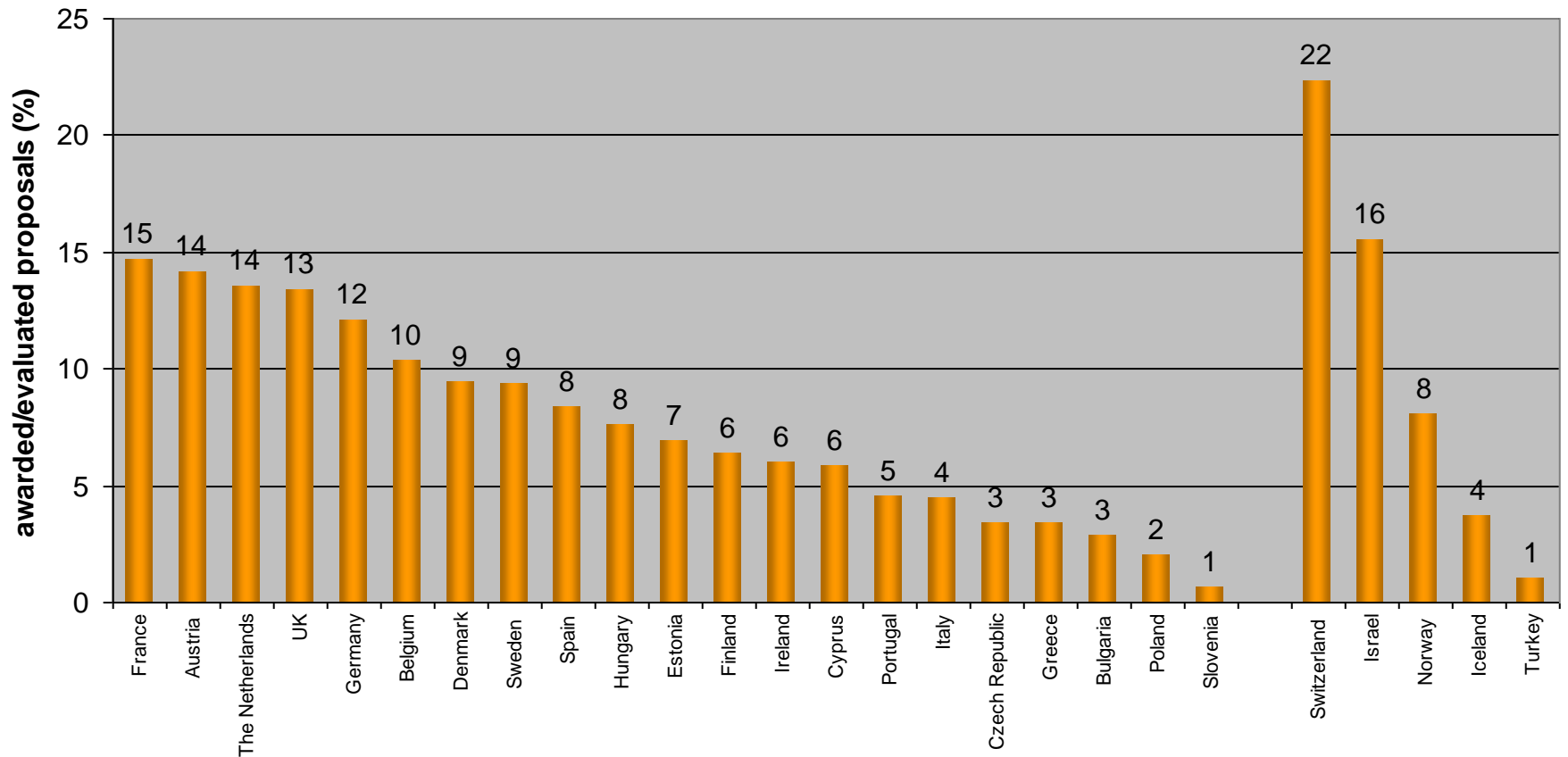
ERC Starting & Advanced grant calls 2007 - 2011



# Success rates per country of Host Institution

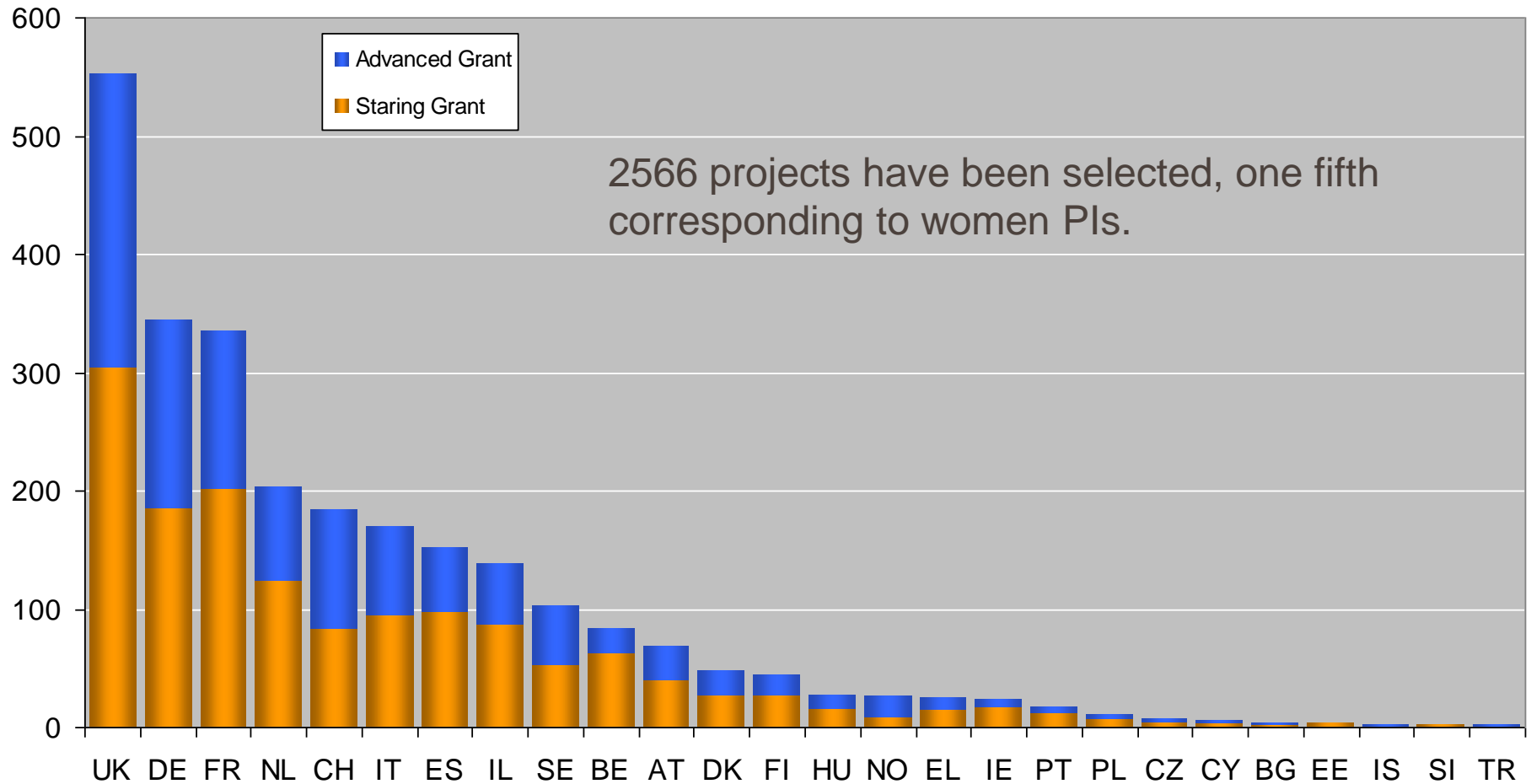
ERC Starting & Advanced grant calls 2007 - 2011

Success rates per country of HI



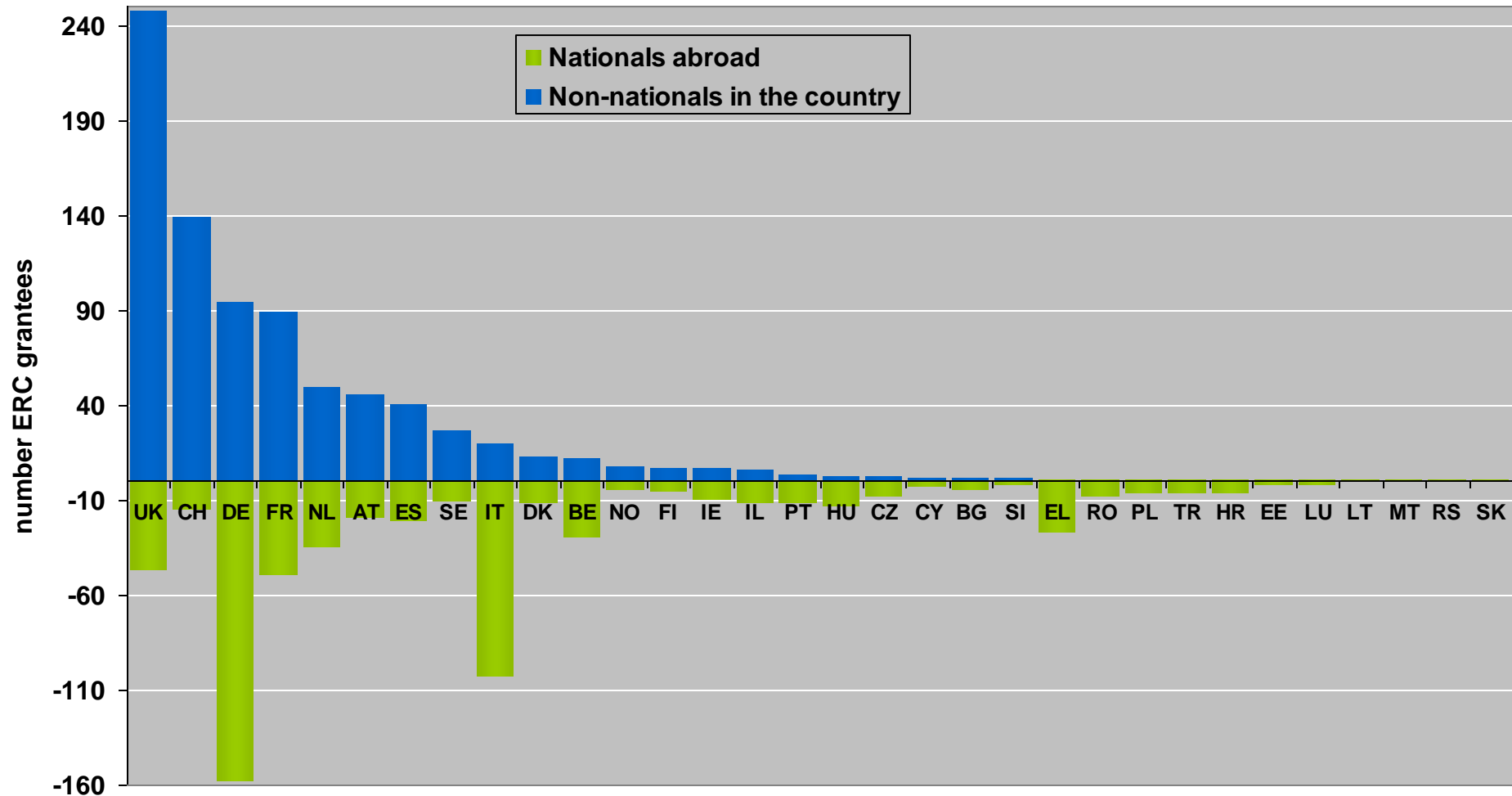
# ERC grant distribution per country of Host Institution

ERC Starting & Advanced grant calls 2007 – 2011



# International exchange of researchers

ERC Starting & Advanced grant calls 2007 - 2011



Country	Higher-Education Institution	No	StG	AdG	Total	Top European Institutions hosting at least 20 ERC Grantees by funding Schemes
UK	University of Cambridge	1	44	32	76	
UK	University of Oxford	2	38	34	72	
CH	Swiss Federal Institute of Technology Lausanne	3	27	25	52	
IL	Hebrew University of Jerusalem	4	28	17	45	
CH	Swiss Federal Institute of Technology Zurich (ETH Zurich)	5	14	29	43	
UK	University College London	6	23	19	42	
UK	Imperial College	6	22	20	42	
IL	Weizmann Institute	7	21	18	39	
BE	University of Leuven	8	19	8	27	
UK	University of Bristol	9	9	15	24	StG 2007-2011 AdG 2008-2011
DE	University of Munich	10	8	15	23	First legal signatories of the grant agreement
NL	Leiden University	10	12	11	23	
CH	University of Zurich	10	10	13	23	
UK	University of Edinburgh	10	11	12	23	Data as of 03/05/2012
FI	University of Helsinki	11	12	9	21	
NL	University of Amsterdam	11	13	8	21	
IL	Technion - Israel Institute of Technology	12	17	3	20	
SE	Karolinska Institute	12	11	9	20	
Country	Research Organisation	No	StG	AdG	Total	
FR	National Centre for Scientific Research (CNRS)	1	86	38	124	
DE	Max Planck Society	2	33	29	62	
FR	French Alternative Energies and Atomic Energy Commission	3	23	6	29	
FR	National Institute of Health and Medical Research (Inserm)	4	18	10	28	
FR	National Institute for Research in Computer Science and Automatic Control (INRIA)	5	12	8	20	
ES	Spanish National Research Council (CSIC)	5	14	6	20	