Peer review and Interdisciplinary research at the ERC

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ERC

Brussels, 6 December 2011
Outline

Part 1 - ERC
- What is the ERC?
- ERC Starting and Advanced Grant Schemes

Part 2 – Evaluation
- Submission
- Evaluation process
- What’s new & deadlines

Part 3 - Data from previous calls
- General
- Interdisciplinarity
Seventh Framework Programme for Research and Technological Development
FP7 (2007-13)

Main instrument of the EU for funding research

- Cooperation – *Collaborative Research*
- Ideas – *Frontier Research*
- People – *Marie Curie Actions*
- Capacities – *Research Capacity*

Total FP7 Budget: € 50.4 billion
Funds top scientists based all over Europe working on “Frontier Research”

- Evaluation only based on “excellence”
- Bottom up, Principal Investigator approach
- Sizeable and flexible grants that make a difference

**Activities:** 4 grant schemes
ERC Grant Schemes

Funding Strategy

- ERC Starting Grants (StG)
- ERC Advanced Grants (AdG)

- ERC Synergy Grants (from 2012)
- ERC Proof of Concept Grants (only for ERC grantees!)
ERC grant schemes
2012 Call budget distribution

2012 total budget: €1,578.1M

AdG: Advanced Grants
StG: Starting Grants
Syn: ERC Synergy
PoC: Proof of Concept
ERC Granting schemes

Starting Grants

- Attract/retain next-generation top scientists
- Address funding gap early in independent career
- Establish or consolidate an independent research team & program
- Up to €2.0 Mio

Advanced Grants

- Attract/retain current world-top scientists
- Stimulate investigator-driven, breakthrough research
- Up to €3.5 Mio

Age of grantees

Number of grantees
ERC Starting Grants
Size of the grant and eligibility

• **Possible requested amount:**
  - max. € 1,500,000 for 5 years
  - + € 500,000 if new research activity in EU: moving from third country or purchase of major equipment

• **Eligible costs:** Costs supporting the project (personnel, equipment, consumables, travel, admin)

• **Dedication of min.** 50% of PI’s working time in a EU MS or AC and min. 50% of PI’s working time to the ERC-funded project

• **First PhD awarded 2-12 years** before call publication date (i.e.20 July 2011)
  - **starters** (PhD award: 2-7 years)
  - **consolidators** (PhD award: 7-12 years)
  - Extension may be accepted for specific and duly justified reasons (maternity leave,…)

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![European Commission](logo)
ERC Advanced Grants (AdG)
Size of the grant and eligibility

• Possible requested amount:
  - max. € 2,500,000 for 5 years
  - + € 1,000,000 if new research activity in EU by moving from third country to MS or AC or if purchase of major equipment

• Eligible cost: costs supporting the project (personnel, equipment, consumables, travel, admin)

• Dedication of min. 50% of PI’s working time in a EU MS or AC and min. 30% of PI’s working time to the ERC-funded project
Researchers Career development and complementary funding schemes

- ERC Advanced
- ERC StG – Consolid.
- ERC StG - Starters
- Marie Curie
- Erasmus
- Students
- Post Graduates
- Post-docs
- Junior Professor/ Junior Researcher
- Associated Professor
- Full Professor
- Senior Professor
- ERC grant holder
- Researcher in ERC research projects
- Research assistants in ERC research projects
ERC Grant schemes:
Who can apply? What type of research – General requirements

- Excellent Researchers (PIs)
  - Any nationality, age or current place of work
- In conjunction with a Host Institution
  - Based in EU or associated countries
- Individual research team
  - Under control of the lead researcher (PI)
- All fields of science and scholarship are eligible
  - Investigator-driven, bottom-up (no thematic priorities)
- Research
  - Innovative breakthrough research: high risk/high gain
Who evaluate the proposals?

**Panel members:** typically 600 / call
- High-level scientists
- Recruited by ScC from all over the world: ~14% from outside Europe
- About 12 members plus a chair person

**Referees:** typically 2000 / call
- Evaluate only a small number of proposals
- Similar to normal practise in peer-reviewed journals

Europe and Associated Countries (86%)
- Other (7%)
- US (7%)
ERC Grant Schemes (StG & AdG)
Panel structure: 3 domains and 25 panels

<table>
<thead>
<tr>
<th>Life Sciences</th>
<th>Physical Sciences &amp; Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS1 Molecular &amp; Structural Biology &amp; Biochemistry</td>
<td>PE1 Mathematical foundations</td>
</tr>
<tr>
<td>LS2 Genetics, Genomics, Bioinformatics &amp; Systems Biology</td>
<td>PE2 Fundamental constituents of matter</td>
</tr>
<tr>
<td>LS3 Cellular and Developmental Biology</td>
<td>PE3 Condensed matter physics</td>
</tr>
<tr>
<td>LS4 Physiology, Pathophysiology &amp; Endocrinology</td>
<td>PE4 Physical &amp; Analytical Chemical sciences</td>
</tr>
<tr>
<td>LS5 Neurosciences &amp; neural disorders</td>
<td>PE5 Materials &amp; Synthesis</td>
</tr>
<tr>
<td>LS6 Immunity &amp; infection</td>
<td>PE6 Computer science &amp; informatics</td>
</tr>
<tr>
<td>LS7 Diagnostic tools, therapies &amp; public health</td>
<td>PE7 Systems &amp; communication engineering</td>
</tr>
<tr>
<td><strong>LS8 Evolutionary, population &amp; environmental biology</strong></td>
<td>PE8 Products &amp; process engineering</td>
</tr>
<tr>
<td>LS9 Applied life sciences &amp; biotechnology</td>
<td>PE9 Universe sciences</td>
</tr>
<tr>
<td></td>
<td>PE10 Earth system science</td>
</tr>
</tbody>
</table>

Each panel:
Panel Chair and 10-15 Panel Members

**Social Sciences and Humanities**
- SH1 Individuals, institutions & markets
- SH2 Institutions, values, beliefs and behaviour
- SH3 Environment & society
- SH4 The Human Mind and its complexity
- SH5 Cultures & cultural production
- SH6 The study of the human past
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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
  - Part B: Scientific proposal itself
Submission is to Panels

- Applicant submits to a *Targeted Panel* (of PI choice)
  - Can flag one “*Alternative Review Panel*”
- Applicant chooses *his/her panel*, that panel is “responsible” and takes ownership for the evaluation of that proposals
- Only switch proposals between panels in case of clear mistake on part of applicant
- Switching proposals between domains (deadlines) not possible
- But: In case cross-panel or cross-domain proposals, evaluation by members of other panels possible
Proposal structure: Part A

- **Part A**: “Administrative forms” containing
  - A1 Information on PI
    - Request for change of stream (StG only)
  - A2 Information on Host Institution
  - A3 Budget breakdown by year and partner
    - Not detailed
Proposal Structure: Part B

- **Section 1 = “The PI”**
  - Scientific Leadership profile (1 page)
  - CV (including “funding ID”) (2 pages)
  - 10-year track record (or “early achievements” for StG) (2 pages)
  - Extended synopsis (5 pages)

- **Section 2 = Full Scientific proposal** (15 pages)
  - Ethical Review information (where appropriate)
  - Separate additional document:
    - Host Institution Support Letter (compulsory StG + AdG)
    - Copy of Ph.D. (compulsory StG)
    - Documents to prove extension to 10 year eligibility window (StG)
ERC Grant Schemes
Evaluation criteria

- Criterion 1: Quality of Principal Investigator
- Criterion 2: Quality of Research Project

Numerical **score** for each criteria
- 4 (A) : outstanding
- 3 (A or B) : excellent
- 2 (B) : very good
- 1 (C) : non-competitive

Referees and panel members **evaluate and score** each criteria **ranking** of the projects
ERC Grants: how does it operate?
Submission, evaluation and selection

1. Submission of full proposals
2. Eligibility check
3. Step 1 (remote) evaluation on the basis of section 1 of proposal* by panel members
4. 1st Panel meeting
5. Proposals passing to step 2
6. Individual assessment of full proposal by panel members & referees
7. AdG: 2nd Panel meeting
8. StG: 2nd Panel meeting incl. interviews of applicants
9. Proposals selected for funding
Remote part of evaluation

• Remote part of evaluation takes part completely electronically

• **Step 1**: proposals assigned to ~4 PMs

• **Step 2**: proposals also sent to specialized remote experts (to be determined at Step 1 panel meeting)
What are panels looking for in an interview? (StG only)

- Maturity, leadership and vision
- Proposal is the applicant’s (not his/her supervisor’s)
- Answer technical questions and uncertainties / feasibility
- Mastery of detail
Call budget distribution for 2012 calls

- Starting Grant: ~ €730m
- Advanced Grant: ~ €680m

Indicative call budget

- Life Sciences – LS
- Physical Sciences & Engineering – PE
- Social Sciences & Humanities – SH

Within each domain, budget is broken down according to total funding requested per panel (equal chance in each panel)
New “scoring”

Move away from “absolute marks” and towards A, B and C + approximate rank-in-panel information to give applicants a better idea of how close (or how far) they got to being funded.

In Step 1:

- **A** is of sufficient quality to pass to Step 2 of the evaluation;
- **B** is of high quality but not sufficient to pass to Step 2 of the evaluation;
- **C** is not of sufficient quality to pass to Step 2 of the evaluation.

In Step 2:

- **A** fully meets the ERC's excellence criterion and is recommended for funding if sufficient funds are available
- **B** meets some but not all elements of the ERC's excellence criterion and will not be funded
# Timetable of StG and AdG calls

<table>
<thead>
<tr>
<th>ERC open calls</th>
<th>Publication of call</th>
<th>Size of Grants</th>
<th>Submission Deadline(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Starting Grants</strong> ERC-2012-StG</td>
<td>20 July 2011</td>
<td>Max. €1,500,000 for five years (+ €500,000*)</td>
<td>PE: 12 Oct. 2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LS: 09 Nov. 2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SH: 24 Nov. 2011</td>
</tr>
<tr>
<td><strong>Advanced Grants</strong> ERC-2012-AdG</td>
<td>16 Nov. 2011</td>
<td>Max. €2,500,000 for five years (+ €1000,000*)</td>
<td>PE: 16 Feb. 2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SH 11 Apr. 2012</td>
</tr>
</tbody>
</table>

* Extra funds for PIs to establish themselves in EU or assoc. country:
  • ‘start-up’ costs for PIs moving from abroad
  • Purchase of major equipment

Panels decide whether requests are justified
Essential documents

http://erc.europa.eu => funding and grants

- ERC Work Programme 2012
- ERC Guide for Applicants – StG, AdG, PoC, SyG
- ERC Rules on submission, evaluation, selection and award procedures
- ERC Grant agreement (and guidance)
- ERC Guide for Grant Holders
- ERC Guide for Peer Reviewers
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## ERC Competitions 2007-2011

<table>
<thead>
<tr>
<th></th>
<th>Total number of applications received</th>
<th>Evaluated*</th>
<th>Funded</th>
<th>success rates**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting Grant 2007</td>
<td>9.167</td>
<td>8.794</td>
<td>299</td>
<td>3,4</td>
</tr>
<tr>
<td>Starting Grant 2009</td>
<td>2.503</td>
<td>2.392</td>
<td>245</td>
<td>10,2</td>
</tr>
<tr>
<td>Starting Grant 2010</td>
<td>2.873</td>
<td>2.767</td>
<td>436</td>
<td>15,8</td>
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<tr>
<td>Starting Grant 2011</td>
<td>4.080</td>
<td>4.005</td>
<td>478</td>
<td>11,9</td>
</tr>
<tr>
<td>Starting Grant</td>
<td><strong>Starting Grant</strong> 18.623</td>
<td><strong>17.958</strong></td>
<td><strong>1.458</strong></td>
<td><strong>10,3</strong></td>
</tr>
<tr>
<td>Advanced Grant 2008</td>
<td>2.167</td>
<td>2.043</td>
<td>282</td>
<td>13,8</td>
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<tr>
<td>Advanced Grant 2009</td>
<td>1.587</td>
<td>1.526</td>
<td>245</td>
<td>16,1</td>
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<tr>
<td>Advanced Grant 2010</td>
<td>2.009</td>
<td>1.967</td>
<td>271</td>
<td>13,8</td>
</tr>
<tr>
<td>Advanced Grant 2011***</td>
<td>2.284</td>
<td>2.246</td>
<td>798</td>
<td>14,5</td>
</tr>
</tbody>
</table>

* withdrawn and ineligible proposals not taken into account;
** percentage of funded proposals in relation to evaluated proposals
*** evaluation not yet completed
STG 2009-2012 Evolution of Submissions

ERC STG 2009 - 2012 - Submissions

# Proposals submitted
StG2009 (2503)  StG2010 (2873)  StG2011 (4080)  StG2012 (4741)

Domain
PE  LS  SH
Success rates per country

- Success rates for different countries are shown in the bar chart.
- France has the highest success rate with 13.
- Turkey has the lowest success rate with 1.
- The Netherlands, UK, and Germany also have high success rates.
- Several countries have similar success rates, such as Spain, Estonia, Hungary, Finland, Ireland, Cyprus, Portugal, Czech Republic, Italy, Bulgaria, Greece, and Poland, all with 4.
- Switzerland has the second highest success rate with 20.
- Israel has a high success rate with 14.
- Norway and Iceland have success rates of 7.
- Greece and Poland both have success rates of 3.
- Slovenia has a success rate of 2.
- Sweden, Denmark, and Austria have success rates of 10, 9, and 8 respectively.
- Italy and Bulgaria also have success rates of 4.
- Cyprus has a success rate of 5.
ERC Starting grant 2007-2011
ERC Advanced grant 2008-2010

Over 2000 ERC grantees

Country of HI

Funded Proposals

UK 486
DE 303
FR 174
NL 161
CH 150
IT 132
ES 150
SE 125
AT 92
FI 74
DK 56
FI 42
DK 37
HU 24
PL 22
IE 20
PL 20
IT 16
PT 9
PT 8
CZ 4
BG 3
TR 2
IE 1
FI 1
PL 1
IT 1
SE 1

AdG  StG
Mobility Patterns I: Origin of Grantees
Mobility Patterns II: Residence of Grantees

The graph illustrates the mobility patterns of European Research Council grantees. It displays the number of nationals abroad and nationals in the country for various countries. The countries are ranked from left to right based on the difference in numbers, with the largest difference shown at the top and the smallest at the bottom.

Key:
- **Nationals Abroad**
- **Nationals in the Country**

Countries are sorted by the absolute value of the difference between nationals abroad and nationals in the country, with the following order:

- United Kingdom (UK)
- France (FR)
- Germany (DE)
- Italy (IT)
- Netherlands (NL)
- Spain (ES)
- Sweden (SE)
- Belgium (BE)
- Switzerland (CH)
- Denmark (DK)
- Hungary (HU)
- Austria (AT)
- Finland (FI)
- Greece (EL)
- Norway (NO)
- Ireland (IE)
- Portugal (PT)
- Poland (PL)
- Czech Republic (CZ)
- Cyprus (CY)
- Bulgaria (BG)
- Estonia (EE)
- Iceland (IS)
- Turkey (TR)
- Albania (AL)
- Croatia (HR)
- Lithuania (LT)
- Luxembourg (LU)
- Malta (MT)
- Romania (RO)
- Slovakia (SK)
Averaged over the first eight ERC calls 34% of the ERC panel members were women.
ERC STG 2009-2011 Success Rates

ERC STG 2009-2011 Success rates by Years passed PhD with eligibility limits

<table>
<thead>
<tr>
<th>Category</th>
<th>Success rate 2009</th>
<th>Success rate 2010</th>
<th>Success rate 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
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<td>14</td>
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</tbody>
</table>

# Complete years passed PhD
ERC STG 2011
Success Rates by Domain

ERC STG 2011 Results Of Call
Success rates by Domain
Call success rate ~ 11.9%
ERC STG 2011 Results Of Call

* Average age of Grantees F = 37.44, Median Age = 37.85, Standard Deviation = 5.58
Average age of Grantees M = 36.61, Median Age = 36.89, Standard Deviation = 4.32
Interdisciplinarity : principles

**ERC Workprogramme 2012:**

- Applications can be made in any field of research (...)
- with particular emphasis on the frontiers of science, scholarship and engineering

**Proposals of an interdisciplinary nature:**

- which cross the boundaries between different fields of research,
- addressing new and emerging fields of research
- introducing unconventional, innovative approaches and scientific inventions
Interdisciplinary Proposals

- Approach for Interdisciplinary proposals: “mainstreaming”
- Proposal submitted to a target panel primarily responsible for its evaluation
- Both Step 1 and Step 2:
  - Assigned for reviews from PMs outside primary panel, if necessary
- Step 2:
  - Remote reviewers: any reviewer in the world (hence any domain)
A substantial number of proposals require expertise outside of the primary panel.

- **At step 1**: Panels seek reviews from other panels for the proposals requiring additional expertise outside the primary panel.

- **At step 2**: The same secondary panels (or additional ones) provide a review on the previously identified cross-panel proposals.
StG2010 and AdG2010 CP/CD Submission per call

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Cross-Panel</th>
<th>Cross-Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>StG 2010</td>
<td>2876</td>
<td>1127</td>
<td>199</td>
</tr>
<tr>
<td>AdG 2010</td>
<td>2010</td>
<td>737</td>
<td>119</td>
</tr>
</tbody>
</table>
StG2011 and AdG2011 CP/CD Submission per call

- **Grand Total**: 4080 (STG 2011), 2284 (ADG 2011)
- **Cross Panel**: 1209 (STG 2011), 590 (ADG 2011)
- **Cross Domain**: 320 (STG 2011), 146 (ADG 2011)

The chart shows the number of submissions per call for STG 2011 and ADG 2011, categorized by Grand Total, Cross Panel, and Cross Domain.
ERC AdG 2008 – 2010
Success rates per call (as indicated by the applicant)
ERC STG 2009-2011
Success rates by call
(as indicated by the applicant)

<table>
<thead>
<tr>
<th></th>
<th>Cross Domain</th>
<th>Cross Panel</th>
<th>Call Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>STG 2009</td>
<td>9.83%</td>
<td></td>
<td></td>
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<tr>
<td>STG 2010</td>
<td>11.52%</td>
<td>15.32%</td>
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</tr>
<tr>
<td>STG 2011</td>
<td>11.52%</td>
<td></td>
<td>15.32%</td>
</tr>
</tbody>
</table>
Conclusions and Perspectives

- The vast majority of submitted proposals are interdisciplinary by nature.
- A substantial part of submitted proposals are relevant for more than one panel/domain.
- All three subject domains LS, PE and SH fully engaged with principle of supporting interdisciplinary projects.
THANK YOU FOR YOUR ATTENTION!

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ANNEXES
Restrictions on Submissions

- A PI may hold only 1 ERC grant at any one time
- A PI may only submit 1 proposal per calendar year
- A PI who holds an ERC grant can only submit a proposal for ERC synergy if their grant expires before November 15th 2013
- A PI who is a panel member in 2010 or 2012 may not apply in 2012 for the same type of grant
- A PI who submitted a proposal to a 2011 ERC call can only apply in 2012 for the same type of grant if their proposal was above the quality threshold at the end of step 1.
Host institution

Applicant legal entity: institution that engages and hosts the PI for the duration of the project

Any type of legal entity: universities, research centres, business research units … as long as it is in MS or AC

Commitment of HI: to ensure that the PI may

- apply for funding independently
- manage research and funding for the project
- publish independently as senior author
- have access to reasonable space and facilities
ERC Grant agreements

- **Simple and flexible**, no negotiations – take it or leave it

- **Are portable**

- Additional funding for StG or AdG for researchers moving to Europe or Associated Countries or for purchase of major equipment

- Cover 100% total eligible costs plus 20% indirect costs
Approach taken for “streaming” (StG only)

- **“By default”**: people fall into the stream that corresponds by the number of years past Ph.D. (covers 90-95% of cases)
  - Starters 2 – 6 years past Ph.D
  - Consolidators: 7 – 12 years past Ph.D

- **Change of stream**: rather strict / conservative approach
  - Applicants need to argue their case for different consideration.
  - All “objective” (parental leave, military service, long term illness, etc) reasons that apply for extending the eligibility window apply by analogy to extending the “starter” window.
  - **Subjective reasons**: “Career break” outside science/research (e.g. volunteer work, professional activity completely unrelated to research career, unemployment, etc)
  - Applicant needs to attach a minimum amount of documentation to make claim credible