European Research Council - a new element in the UE research policy

Michał Kleiber

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Challenges for Research in Europe

- Limited career opportunities
- Appealing career opportunities from third countries attracting European graduates
- Dropping private R&D investment
- Fragmentation of research and funding activities lack of competition
- Complex Administration: not helping to attract and maintain the best researchers
- Fewer students taking Science subjects

European Science Policy Paradox

How to do ground-breaking research with:

- no significant investment
- no scientists involved in policy-making

FP7

ca. € 54.5 bn ca. € 7.8 bn per year, 40% more than in FP6

- Cooperation
- Ideas

European Research Council (ERC)

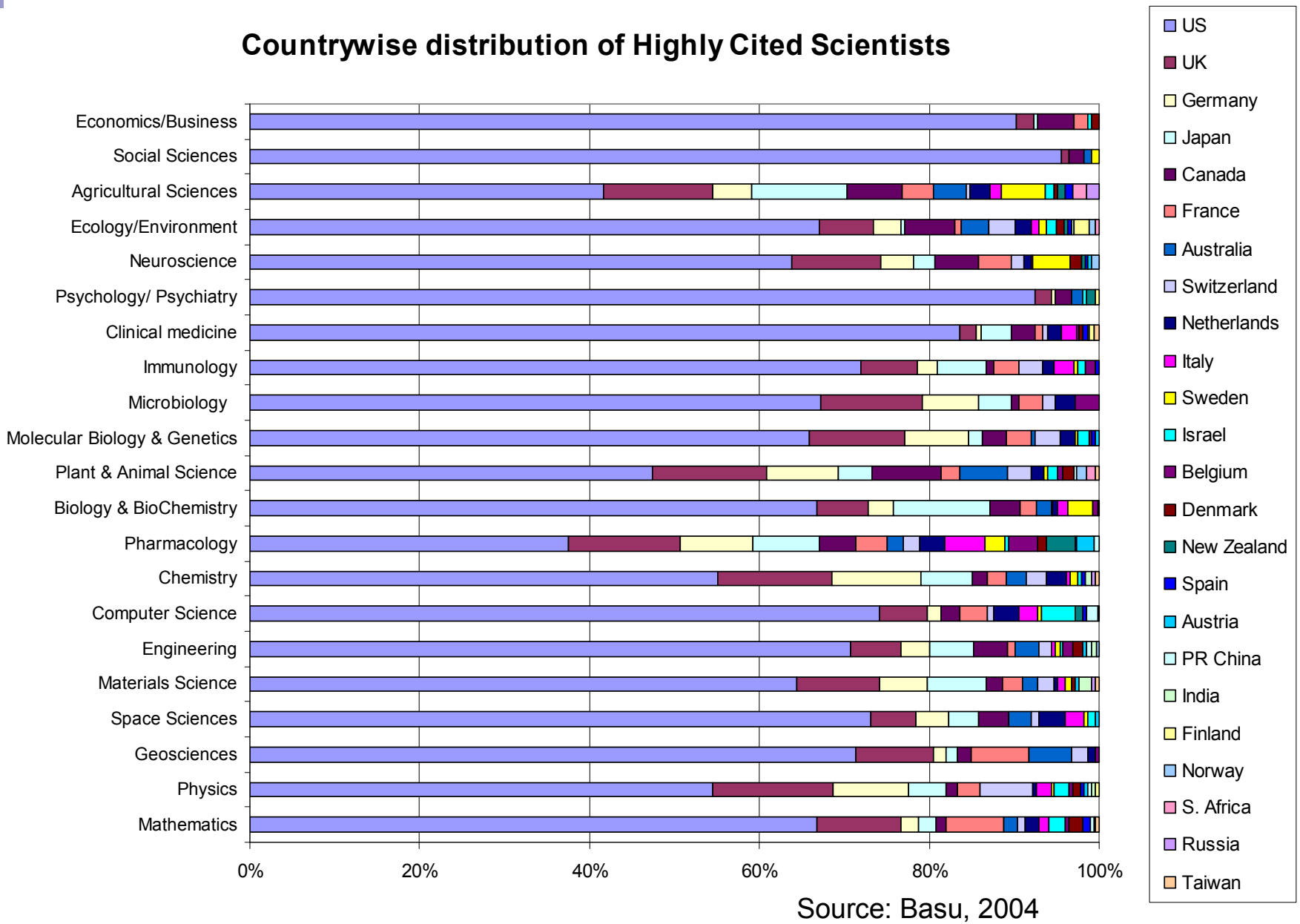
ca. € 7510 m more than € 1 bn per year, ca. 14% of FP7 total

- People
- Capacities

Why an ERC ?

- 1.93% of Europe's GDP is invested in R&D compared with 2.59% in US and 3.15% in Japan (European Commission, July 2005)
- US scientists dominate in each of the 21 subject areas of science (Basu, 2004)
- Public opinion influenced by the most spectacular, ground-breaking achievements

Countrywise distribution of Highly Cited Scientists



Source: Basu, 2004

ERC

- The Scientific Council

  Independent scientific governance

- The Executive Agency

  Practical implementation and management of operations

The mandate of the Scientific Council includes:

- Scientific strategy
- Monitoring and quality control
- Communication and dissemination

The European Research Council Identification Committee:

- Lord Patten of Barnes, Chancellor of Oxford University (Chairman)
- Dr. Catherine Bréchignac, Director, Institut d'Optique, Université Paris Sud
- Prof. Jüri Engelbrecht, Vice-President of the Estonian Academy of Science
- Prof. Guido Martinotti, Facolta di Sociologia Università degli Studi di Milano-Bicocca
- Prof. Erwin Neher, Director, Max-Plank-Institut für biophysikalische Chemie, Göttingen

Members of the ERC Scientific Council:

- Dr. Claudio BORDIGNON (IT) – medicine (hematology, gene therapy)
- Prof. Manuel CASTELLS (ES) – information society, urban sociology
- Prof. Paul J. CRUTZEN (NL) – atmospheric chemistry, climatology
- Prof. Mathias DEWATRIPONT (BE) – economics, science policy
- Dr. Daniel ESTEVE (FR) – physics (quantum electronics, nanoscience)
- Prof. Pavel EXNER (CZ) – mathematical physics
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ERC Secretary -General

- Prof. Ernst-Ludwig Winnacker (Jan 2007 – June 2009)
- Prof. Andreu Mas Colell (July 2009 – Dec 2011)

Role – ensure integrated operation of ERC

ERC – Guiding Principles

- Attractive funding for ambitious frontier research projects - all fields of research, cross-disciplinary and unconventional (high-risk) projects
- Simple and flexible application procedures
- Excellence (of person and proposal) as sole criterion
- Investigator-driven research
- All areas of research
- Individual independent teams (located in or moving to EU - no nationality criterion - open to the entire world)
- 100% reimbursement of projects
- Special emphasis on young researchers

Frontier Research

- Classical distinctions between basic and applied research have lost much of their relevance at a time when many emerging areas of science and technology (e.g. biotechnology, ICT, materials and nanotechnology) often embrace substantial elements of both.
- Frontier research pursues questions irrespective of established disciplinary boundaries. It may well involve multi- or trans-disciplinary research that brings together researchers from different disciplinary backgrounds, with different theoretical and conceptual approaches, techniques, methodologies and instrumentation, perhaps even different goals and motivations.
- The task of funding agencies is confined to supporting the best researchers with the most exciting ideas.
- Need to confront the intrinsic risk involved in frontier research projects.

ERC challenges

- Avoid outmoded distinctions :
  - Between “basic” and “applied” research
  - Between “science” and “technology”
  - Between “traditional” disciplines

ERC Grants

- **The ERC Starting Independent Researchers Grants (ERC Starting Grants; StG).** The objective is to provide adequate support to the independent careers of excellent researchers, whatever their nationality, located in or moving to the EU and associated countries, who are at the stage of establishing and leading their first research team or program.

- **The ERC Advanced Investigator Grants (ERC Advanced Grants; AdG).** The objective is to encourage and support excellent, innovative investigator-initiated research projects by leading advanced investigators across the EU member states and countries associated to the framework programme. It will complement the Starting Grant scheme by targeting the population of researchers who have already established themselves as being independent leaders in their own right.

ERC Grants

- Oversubscription is likely a serious problem (lmits on repeat proposals, ...)
- Minimum threshold on the size of grants

StG:

- Two-stage submission procedures:
  - outline proposals
  - final proposals

AdG:

- One stage submission, two-stage evaluation procedures

Provisional Schedule of calls for proposals

Call	Indicative date of publication
StG 1	December 2006
AdG 1	August 2007
StG 2	August 2008
AdG 2	October 2008
StG 3	August 2009
AdG 3	October 2009
StG 4	August 2010
AdG 4	October 2010
StG 5	August 2011
AdG 5	October 2011
StG 6	August 2012
AdG 6	October 2012

The Scientific Council has established, based on world-wide practice, the following indicative budget for each of the 3 main scientific domains:

- **Physical Sciences and Engineering: 45%**
- **Biological and Life Sciences: 40%**
- **Social Sciences and Humanities: 15%**

A reserve in the overall budget, not exceeding 20% of the total, may be retained for funding proposals that have been judged of comparable merit but beyond the budget allocated to the specific scientific domain, and can be used to further promote frontier research and interdisciplinarity.

The ERC Starting Grant Scheme (StG):

The 3 Rs: Recruit, Repatriate, Retain TOP TALENT to Europe

- ~ 1/3 of the ERC's annual budget (~ € 350 mln)
- ~ 200 grants annually, each for up to 5 years at the level of € 100 000 ÷ 400 000 per year
- Support for researchers at the stage at which they are starting their independent research or, depending on the field, establishing their first research team
- The selection panels will be empowered to assess whether applicants are being granted independence by their administrative superior

ERC Starting Independent Researcher Grant (ERC Starting Grant):

- Eligibility
  - Located in (or moving to) EU or Associated States (AS)
  - 2-9 years since PhD (or equivalent doctoral degree) at submission deadline
  - Newly established in (or offered) independent position
  - No nationality criterion: open to the entire world

Independence implies that the Principal Investigator has the authority to:

- Apply for funding independently of senior colleagues
- Manage the research funding for the project and make appropriate resource allocation decisions
- Publish as senior author and invite as co-authors only those who have contributed substantially to the reported work
- Supervise team members, including research students or others
- Have access to reasonable space and facilities for conducting the research

Two-stage application procedure:

- At the first stage, a proposal is presented and evaluated, describing the project and the qualifications of the Principal Investigator.
- Successful Principal Investigators at the first stage are invited to submit a more detailed proposal by the second stage deadline.

- The following elements are required:
  - CV and a self-evaluation of the Principal Investigator's research achievements, including a succinct "funding ID" which must specify any current research grants and any ongoing application for work related to the proposal.
  - Description of scientific and technical aspects of the project.
  - Description of the scientific environment and resources.

Strict limits will be applied to the length of proposals*:

*12 pt font, single spaced with minimum 2 cm margins

- Stage 1: 8 pages total (3+4+1)
- Stage 2: 16 pages total (4+10+2)

Only the material that the proposal contains within these limits will be evaluated.

At stage 1, the hosting institution must confirm its association and support to the project and Principal Investigator.

At stage 2, the hosting institution must provide a binding statement that the conditions of independence are already fulfilled or will be provided to the Principal Investigator if the application is successful.

Reapplications and multiple applications

Rules will apply to reapplications by Principal Investigators for ERC grants whose proposals are not judged to meet the threshold of quality, as well as for multiple applications within the same or different type of ERC grants. These rules, which may subsequently be modified by the Scientific Council in light of experience, are as follows:

- No principal or collaborating investigator may be associated with more than one application to the ERC during the same year.
- A Principal Investigator may not submit an application for an ERC grant during the calendar year following the submission of an unsuccessful application unless that application was judged to meet the quality threshold for funding. (Note: this rule will not apply to the second call for ERC Starting Grants, in view of the long interval between first and second calls).

Reapplications and multiple applications

- Only one ERC grant by the Principal Investigator can be active at any time. In addition, applications by researchers who have successfully applied for a similar type of funding will not be normally accepted unless the objectives of the proposed project are clearly distinct. However, it will be possible for ERC Starting grantees to compete for an Advanced Investigator Grant to allow for uninterrupted funding of their project/activity.

Evaluation criteria for ERC Starting Grants

- **Principal Investigator: Potential to perform world class research**
  - **Quality of research output:** Has the Principal Investigator published in high quality peer reviewed journals or the equivalent? To what extent are these publications ground-breaking and demonstrative of independent creative thinking and capacity to go significantly beyond the state of the art?
  - **Intellectual capacity and creativity:** To what extent does the Principal Investigator's record of research, collaborations, project conception, supervision of students and publications demonstrate that he/she is able to confront major research challenges in the field, and to initiate new productive lines of thinking?

Evaluation criteria for ERC Starting Grants

- **Quality of the proposed research project**
  - **Ground-breaking nature of the research:** Does the proposed research address important challenges in the field(s) addressed? Does it have suitably ambitious objectives, which go substantially beyond the current state of the art (e.g. including trans-disciplinary developments and novel or unconventional approaches)?
  - **Potential impact:** Does the research open new and important, scientific, technological or scholarly horizons?
  - **Methodology:**

    a) is the outlined scientific approach (including the activities to be undertaken by the individual team members) feasible? (Stage 1)

    b) is the proposed research methodology (including when pertinent the use of instrumentation, other type of infrastructures etc.) comprehensive and appropriate for to the project? Will it enable the goals of the project convincingly to be achieved within the timescales and resources proposed and the level of risk associated with a challenging research project? (Stage 2)

Evaluation criteria for ERC Starting Grants

- **Research Environment (to be assessed only during stage 2 evaluation)**
  - **Transition to independence:** Will the proposed project enable the Principal Investigator to make or consolidate the transition to independence?
  - **Hosting institution (normally applicant legal entity):** Does the institution hosting the project have most of the infrastructure necessary for the research to be carried out? Is it in a position to provide an appropriate intellectual environment and infrastructural support and to assist in achieving the ambitions for the project and the Principal Investigator?
  - **Participation of other legal entities:** If it is proposed that other legal entities participate in the project, in addition to the applicant legal entity, is their participation fully justified by the scientific added value they bring to the project?

ERC Advanced Grant

ERC Advanced Investigator Researcher Grant scheme is designed to support excellent investigator-initiated research projects by established investigators

The ERC Advanced Investigators Grant Scheme (AdG):

- The host institution must confirm its association and support to the project and Principal Investigator
- During the first step of the evaluation, the evaluation panels will only consider the proposal's *extended synopsis*.
- The applicant is expected to provide a synopsis of the full proposal, demonstrating the ground-breaking nature of the research approach and linking it to his/her recent achievements (5 most important references to published results in significant peer-review journals or equivalent during the recent 5 years). The text of the synopsis must follow the structure of the full proposal: i) CV and "self-evaluation", ii) Project description, iii) Scientific environment and resources (including overall budget).
- Strict limits will be applied to the length of proposals (12 pt font, single spaced with minimum 2 cm margins :
  - Full Proposal: 20 pages total [(4+15+2)]
  - Extended Synopsis: 5 pages total

The ERC Advanced Investigators Grant Scheme (AdG):

- ~ 300 – 400 grants, € 100 000 – 500 000 per year committed each year
- 3 – 5 years
- up to € 2,5 mln / proposal
- overhead ≤ 20 %

Reapplications and multiple applications

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- A Principal Investigator may not submit an application for an ERC grant during the calendar year following the submission of an unsuccessful application unless that application was judged to meet the quality threshold for funding.
- Only one ERC grant by the Principal Investigator can be active at any time. However, it will be possible for ERC Starting grantees to compete for an Advanced Investigator Grant to allow for uninterrupted funding of their project/activity.

Who can apply ?
Individual Teams

- The Team Leader (“Principal Investigator”) has:
  - the power to assemble his/her research group,
  - the freedom to choose the research topic.

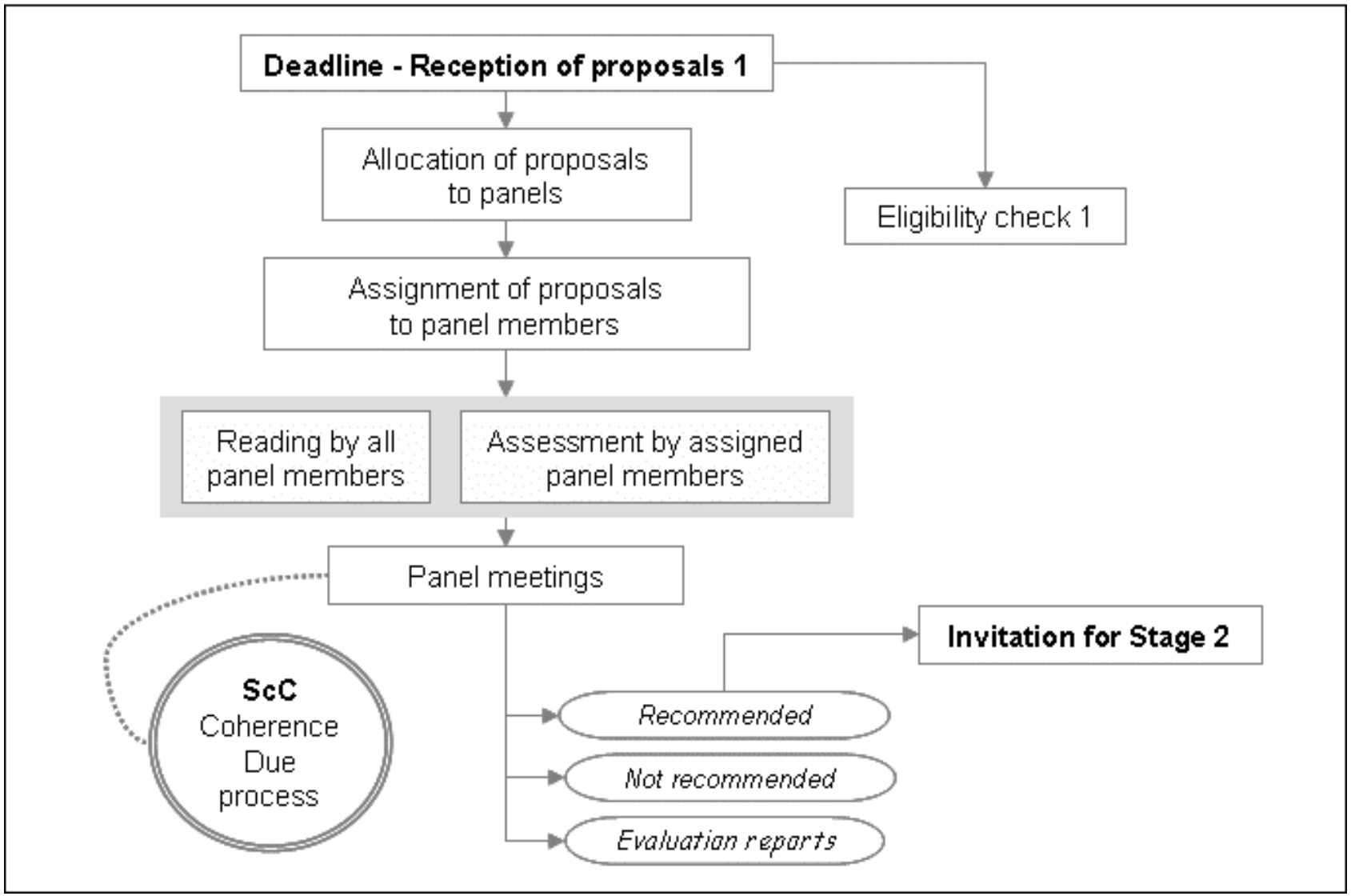
- Individual teams should consist of a grouping of researchers which meets the needs of the project, without “artificial” administrative constraints; thus members may be drawn from one or several legal entities, from either within or across national boundaries, including third countries.

Evaluation Process

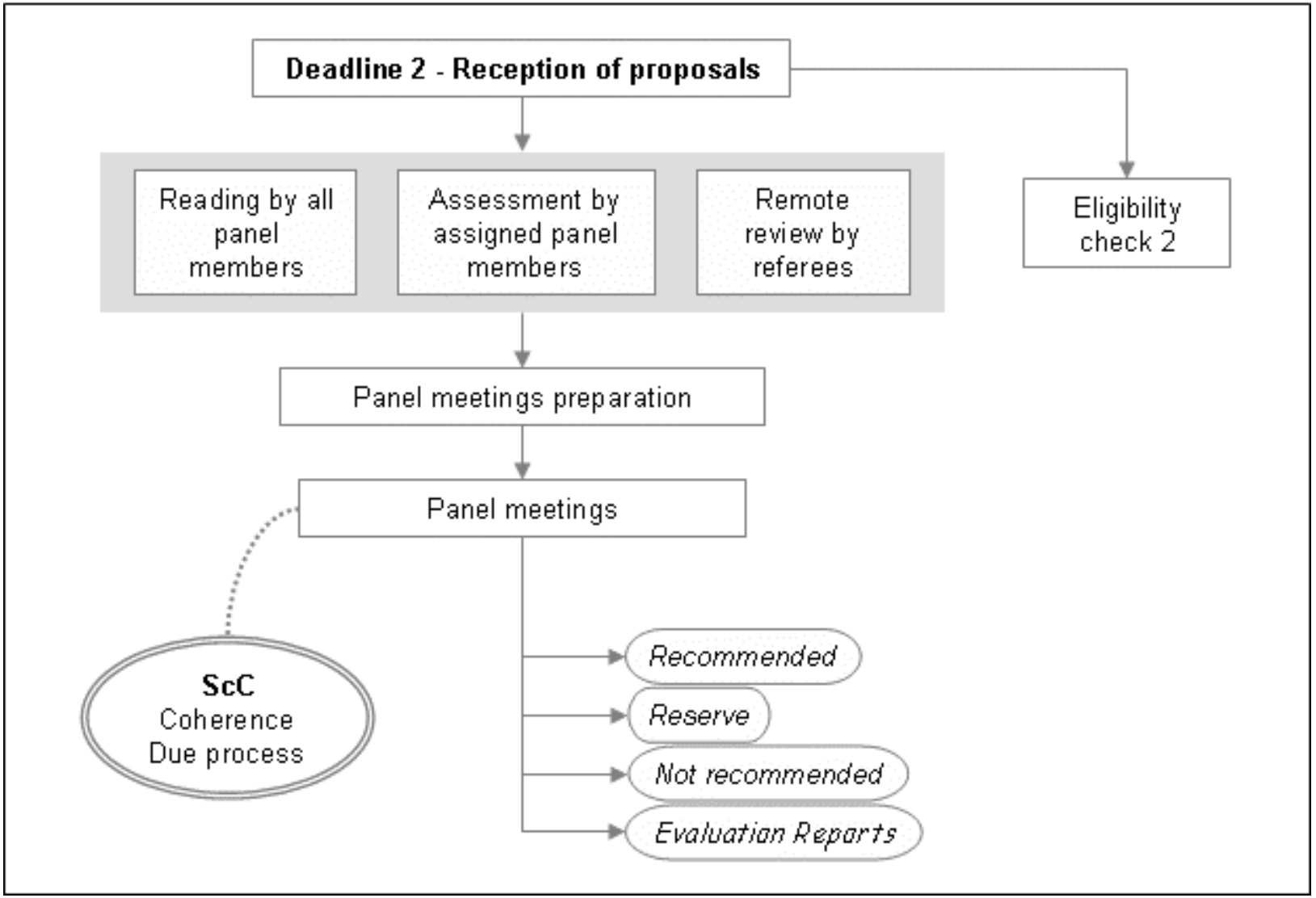
- Peer Review Evaluation
  - 20 high level panels (~12 members)
  - Multidisciplinary projects encouraged appraised by all appropriate panels
  - ScC members as observers on each panel
  - Interviews by Panels at stage 2 for Starting Grants

- Evaluation Criteria
  - Excellence of project
  - Potential of people (research excellence, achievements, publications)

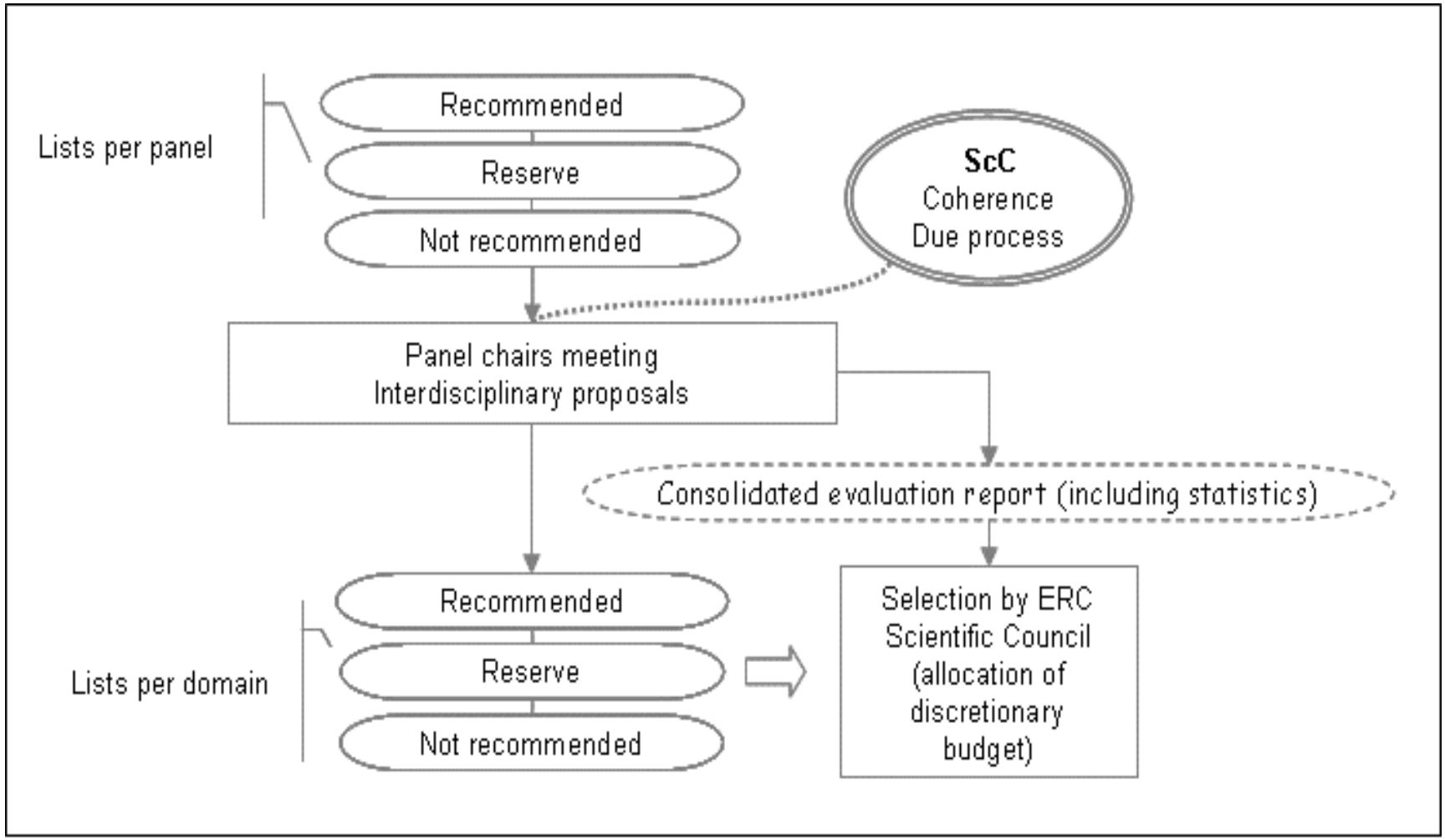
Evaluation - Stage 1



Evaluation - Stage 2



Consolidation



Physical Sciences and Engineering

PE1 **MATHEMATICAL FOUNDATIONS :** All areas of mathematics, pure and applied, plus mathematical aspects of theoretical computer science, and mathematical physics.

PE2 **FUNDAMENTAL CONSTITUENTS OF MATTER :** High energy, particle, nuclear, plasma, atomic, molecular, gas, and optical physics.

PE3 **CONDENSED MATTER IN PHYSICS AND CHEMISTRY:** Condensed matter (structure, electronic properties, fluids,…), statistical physics, nano-sciences, reactions.

PE4 **MATERIAL AND CHEMICAL SCIENCES :** Material sciences, molecular architecture, chemical theory, analysis and synthesis (organic and inorganic), physical and environmental chemistry, method development.

PE5 **INFORMATION AND COMMUNICATION :** Informatics and information systems, computer science, scientific computing, communication technology, intelligent systems.

PE6 **ENGINEERING SCIENCES :** Electronics, product design, process design and control, construction methods, fluid and solid mechanics, energy systems, bio-engineering.

PE7 **UNIVERSE SCIENCE:** Astro-physics/chemistry/biology/geology; solar system; stellar, galactic and extragalactic astronomy; cosmology; space science, instrumentation.

PE8 **EARTH SYSTEM SCIENCE:** Physical geography, geology, geophysics, meteorology, oceanography, climatology, ecology, global environmental change, biogeochemical cycles, solar planets, natural resources management.

PE1 **MATHEMATICAL FOUNDATIONS :** All areas of mathematics, pure and applied, plus mathematical aspects of theoretical computer science, and mathematical physics.

- Foundations of mathematics and logic
- Algorithms
- Number theory
- Combinatorial analysis
- Algebra
- Geometry
- Topology
- Analysis
- Computational mathematics
- Theoretical computer science
- Numerical analysis
- Probability and statistics
- Applied mathematics
- Operations research
- Mathematical physics
- Other areas of mathematics

PE2 **FUNDAMENTAL CONSTITUENTS OF MATTER :** High energy, particle, nuclear, plasma, atomic, molecular, gas, and optical physics.

- High energy physics
- Fundamental interactions and particles
- Particle physics
- Nuclear physics
- Gas and plasma physics
- Atomic, molecular physics
- Optics and quantum optics
- Relativity
- Classical physics
- Thermodynamics
- Non-linear physics
- General physics
- Metrology

PE3 **CONDENSED MATTER IN PHYSICS AND CHEMISTRY:** Condensed matter (structure, electronic properties, fluids,…), statistical physics, nano-sciences, reactions.

- Biophysics
- Condensed matter and solid state physics
- Statistical physics
- Phase transitions
- Structural properties of materials
- Electronic properties of materials & transport
- Magnetism
- Superconductivity
- Semiconductors
- Material sciences (physics related)
- Nano-sciences and nanotechnology (physics related)
- Reaction mechanisms
- Chemical reactions
- Reaction dynamics
- Theoretical and computational chemistry of condensed matter
- Supramolecular structures
- Chemical physics, physical chemistry of condensed matter
- Nano-chemistry

PE4 **MATERIAL AND CHEMICAL SCIENCES :** Material sciences, molecular architecture, chemical theory, analysis and synthesis (organic and inorganic), physical and environmental chemistry, method development.

- Physical chemistry of molecules
- Environment chemistry
- Homogeneous & inhomogeneous catalysis
- Spectroscopic and spectrometric techniques
- Molecular architecture
- Molecular chemistry
- Analytical chemistry
- Organic chemistry
- Inorganic chemistry
- Instrumental techniques
- Macromolecular chemistry, polymer chemistry
- Solid state chemistry
- Synthesis (organic and inorganic)
- Material science (chemistry related)
- Surface science
- Colloid science
- Combinatorial chemistry
- Theoretical and computational chemistry of molecules
- Method development
- Supramolecular chemistry
- Chemistry of biological systems (biological chemistry)

PE5 **INFORMATION AND COMMUNICATION :** Informatics and information systems, computer science, scientific computing, communication technology, intelligent systems.

- Computer architecture
- Database management
- Formal methods
- Graphics
- Human computer interaction and interface
- Informatics and information systems
- Theoretical computer science
- Intelligent systems
- Scientific Computing
- Modelling tools
- Multimedia
- Networks
- Parallel and Distributed Computing
- Robotics
- Signals, Speech and Image Processing
- Systems and software

PE6 **ENGINEERING SCIENCES :** Electronics, product design, process design & control, construction methods, fluid and solid mechanics, energy systems, bio-engineering.

- Aerospace engineering
- Biomedical engineering and technology
- Chemical engineering
- Civil engineering
- Control engineering
- Electrical & electronic engineering
- Computational engineering
- Fluid dynamics
- Energy systems
- Maritime engineering
- Micro-engineering
- Mechanical engineering
- Materials Engineering
- Nuclear engineering
- Process engineering
- Product design
- Simulation engineering & modelling
- Systems engineering

PE7 **UNIVERSE SCIENCE:** Astro-physics/chemistry/biology/geology; solar system; stellar, galactic and extragalactic astronomy; cosmology; space science, instrumentation.

- Solar and interplanetary physics
- Planetary systems sciences
- Interstellar medium
- Formation of stars and planets
- Astrobiology
- Stars and stellar systems
- The Galaxy
- Formation and evolution of galaxies
- Clusters of galaxies and large scale structures
- High energy and particles astronomy – X-rays, cosmic rays, gamma rays, neutrinos
- Relativistic Astrophysics
- Dark matter, dark enery
- Gravitational astronomy
- Cosmology
- Space Sciences
- Very large data bases: archiving, handling and analysis
- Instrumentation – telescopes, detectors and techniques

PE8 **EARTH SYSTEM SCIENCE:** Physical geography, geology, geophysics, meteorology, oceanography, climatology, ecology, global environmental change, biogeochemical cycles, solar planets, natural resources management.

- Atmospheric chemistry and aeronomy
- Meteorology and atmospheric sciences
- Climatology (incl. paleo-climatology), climate modeling
- Ecology, environmental chemistry, water, air and soil pollution
- Geography, geology, geochemistry
- Global environmental change
- Geophysics, seismology, volcanology
- Oceanography/marine sciences (physical, chemical, biological)
- Biogeochemistry
- Geophysics, geochemistry, mineralogy
- Solar planetology
- Petrology, sedimentology
- Physical geography
- Earth observations from space/remote sensing
- Geomagnetism, paleomagnetism
- Ozone and atmospheric composition
- Soil science, tectonics
- Waste disposal, water science

Biological and Life Sciences

LS1 **MOLECULAR, CELLULAR AND DEVELOPMENTAL BIOLOGY:** Molecular biology, biochemistry, biophysics, structural biology, cell biology, cell physiology, signal transduction and pattern formation in plants and animals.

LS2 **GENETICS, GENOMICS, BIOINFORMATICS AND SYSTEMS BIOLOGY:** Molecular and cell genetics, genomics, transcriptomics, proteomics, metabolomics, bioinformatics, computational biology, biostatistics, biological modelling and stimulation, systems biology.

LS3 **ORGANISMIC PHYSIOLOGY, INCLUDING INFECTION AND IMMUNITY:** Organogenesis, organ physiology, endocrinology, ageing, regeneration, metabolism, immunobiology, microbiology, virology, parasitology, toxicology.

LS4 **NEUROSCIENCES:** Neurobiology, neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, neuroimaging, systems neuroscience, psychiatry.

LS5 **EVOLUTIONARY, POPULATION AND ENVIRONMENTAL BIOLOGY:** Evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology, ecotoxicology.

LS6 **MEDICAL AND HEALTH SCIENCE RESEARCH:** Aetiology, diagnosis and treatment of disease, public health, epidemiology, pharmacology, regenerative medicine, veterinary medicine, medical ethics.

LS7 **APPLIED LIFE SCIENCE, BIOTECHNOLOGY AND BIOENGINEERING:** Agricultural, animal, fishery, forestry and food sciences; biotechnology, chemical biology, genetic engineering, synthetic biology, industrial biosciences; environmental biotechnology and remediation; bioethics.

LS1 **Molecular, cellular and developmental biology:** Molecular biology, biochemistry, biophysics, structural biology, cell biology, cell physiology, signal transduction and pattern formation in plants and animals.

- Molecular biology and interactions
- General biochemistry and metabolism
- Nucleic acid biosynthesis, modification and degradation
- RNA processing and modification
- Protein synthesis, modification and turnover
- Biophysics
- Structural biology (crystallography, NMR, EM)
- Morphology and functional imaging of cells
- Cell biology and molecular transport mechanisms
- Cell cycle and division
- Apoptosis
- Cell differentiation, physiology and dynamics
- Organelle biology
- Cell signalling and cellular interactions
- Signal transduction
- Development, developmental genetics, pattern formation and embryology
- Molecular evolution

LS2 **Genetics, genomics, bioinformatics and systems biology:** Molecular and cell genetics, genomics, transcriptomics, proteomics, metabolomics, bioinformatics, computational biology, biostatistics, biological modelling and simulation, systems biology.

- Molecular genetics
- Epigenetics and gene regulation
- Quantitative genetics
- Cell genetics
- Comparative genetics
- Human genetics
- Reverse genetics and RNAi
- Genomics, comparative genomics, functional genomics
- Proteomics
- Transcriptomics
- Metabolomics
- Glycomics
- Bioinformatics
- Computational biology
- Biostatistics
- Systems biology
- Biological systems analysis, modelling and simulation

LS3 **Organismic physiology, including infection and immunity:** Organogenesis, organ physiology, endocrinology, ageing, regeneration, metabolism, immunobiology, microbiology, virology, parasitology, toxicology.

- Organ physiology
- Comparative physiology
- Endocrinology
- Ageing
- Metabolism, biological basis of metabolism related disorders
- Toxicology
- Parasite biology
- Microbiology, microbial genetics
- Virology, viral genetics
- Innate immunity
- Adaptive immunity
- Phagocytosis and cellular immunity
- Immunosignalling
- Immunological memory and tolerance
- Immunogenetics
- Biological basis of immunity related disorders

LS4 **Neurosciences:** Neurobiology, neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, neuroimaging, systems neuroscience, psychiatry.

- Neurobiology
- Neuroanatomy
- Neurophysiology
- Neurochemistry and neuropharmacology
- Systems neuroscience
- Cognition
- Behaviour
- Brain and neuroimaging
- Biological basis of neural and psychiatric disorders

LS5 **Evolutionary, population and environmental biology:** Evolution, ecology, animal behaviour, population biology, biodiversity, biogeography, marine biology, ecotoxicology.

- Evolutionary biology, biological adaptation
- Evolution and development
- Population biology, population dynamics, population genetics
- Ecology, environmental and conservation biology, biodiversity, ecotoxicology, marine biology, radiation biology
- Environment and health risks including radiation biology, environmental medicine and toxicology

LS6 **Medical and health science research:** Aetiology, diagnosis and treatment of disease, public health, epidemiology, pharmacology, regenerative medicine, veterinary medicine, medical ethics.

- Biological basis of non-communicable diseases, except for neural/psychiatric, immunity-related and metabolism-related disorders. E.g. cancer and cardiovascular diseases.
- Diagnostics
- Therapies: drug therapies, gene therapy, surgery
- Stem cell biology, regenerative medicine
- Public health and epidemiology
- Pharmacology and pharmacogenomics
- Health services, health care research
- Veterinary medicine
- Ethics in medical and health sciences

LS7 **Applied Life Sciences, biotechnology and bioengineering:** Agricultural, animal, fishery, forestry and food sciences; biotechnology, chemical biology, genetic engineering, synthetic biology, industrial biosciences; environmental biotechnology and remediation; bioethics.

- Genetic engineering, transgenic organisms, recombinant proteins, biosensors
- Synthetic biology and new bio-engineering concepts
- Chemical biology
- Agriculture and food: animal husbandry, dairying, livestock raising, crop production, soil biology and cultivation, applied plant biology
- Aquaculture, fisheries
- Forestry, biomass production
- Environmental biotechnology: bioremediation; biodegradation
- Industrial biotechnology: bioreactors, industrial microbiology
- Drug discovery, drug design
- Biofuels, biomimetics
- Biohazards, biological containment, biosafety, biosecurity
- Ethics in life sciences (other than medical and health sciences)

Social Sciences and Humanities

SH1 **INDIVIDUALS AND ORGANISATIONS:** Economics, management, demography, geography, urban and environmental studies.

SH2 **INSTITUTIONS, BEHAVIOUR, VAULES AND BELIEFS:** Anthropology, sociology, political science, law, communication, social studies of science and technology.

SH3 **THE HUMAN MIND AND ITS COMPLEXITY:** Cognition, linguistics, psychology, philosophy and education.

SH4 **CULTURES AND CULTURAL DIVERSITY:** Literature, visual and performing arts, music and cultural studies.

SH5 **THE STUDY OF THE PAST AND OF CULTURAL ARTEFACTS:** Memory, history and archaeology.

SH1 **Individuals and organisations:** economics, management, demography, geography, urban and environmental studies

- Macroeconomics, growth, development, business cycles
- Microeconomics, institutional economics
- Environment, sustainability, social and industrial ecology
- Econometrics, statistical methods
- Financial markets, banking and corporate finance
- Innovation, competitiveness, research and development
- Consumer behaviour, marketing
- Organization studies, strategy
- Human resource management, employment and earnings
- Public administration, public economics
- Income distribution, poverty
- International trade, economic geography
- Human and social geography, spatial and regional planning
- Population dynamics, health and population
- Urbanization, urban planning, transport studies

SH2 **Institutions, behaviour, values and beliefs:** anthropology, sociology, political science, law, communication, social studies of science and technology

- Social structure, inequalities, mobility
- Communication networks, media studies, information society
- Aging, work, social policies
- Globalization, migration, interethnic relations
- Identity, community, nation, religion
- Legal systems, human rights, constitutions
- Kinship, cultural dimensions of classification and cognition
- Myth, ritual, symbolic representations
- Ethnography
- Political systems, legitimacy, political support
- Global and transnational governance, civic participation
- Transformation of societies, democratization, social movements
- Scientific knowledge production, politics of knowledge
- Technosciences and societies, mutual engagement
- History of science and technology

SH3 **The human mind and its complexity:** cognition, linguistics, psychology, philosophy and education

- Evolution of mind and cognitive functions
- Formal, cognitive and functional linguistics
- Neuro-, psycho-, sociolinguistics
- Linguistic typology, comparative and historical linguistics
- Human life-span development
- Neuro- and cognitive psychology
- Clinical and experimental psychology
- Education
- Philosophy
- Epistemology, logic
- Ethics and moralit

SH4 **Cultures and cultural diversity:** literature, visual and performing arts, music and cultural studies

- Classics, classical literature, classical art
- Literature, literary theory, analysis and criticism
- Comparative literature
- Textual philology and textual criticism
- Visual arts
- Performing arts
- Museums and exhibitions
- Music and musicology
- Cultural studies, cultural diversity
- Ethnic and postcolonial studies
- Cultural heritage

SH5 **The study of the past and of cultural artefacts:** memory, history and archaeology

- Modern and contemporary history
- Ancient history, ancient cultures
- Medieval history
- National, transregional and transnational history
- Entangled histories, global history
- Social, economic, cultural, political history
- Historiography
- Archeology, prehistory, protohistory
- Collective memories and identities, lieux de memoire
- History of art and architecture
- History of ideas, intellectual history

First statistics (StG1):

- 9,167 proposals were submitted at the closure date (25th April).
- Average grant size: 1 M€
- Not eligible: ~100
- Female/male applicants: 30/70%

Number of proposals sorted by the number of institutions involved:

No. of Institutions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	17	22
No. of Proposals	8011	578	268	124	74	41	20	20	12	6	3	2	4	1	2	1

Proposals in the domains, StG1

Domain	Number of proposals	%
Life Sciences	3,396	37,0
Physical Sciences & Engineering	4,408	48,1
Social Sciences & Humanities	1,363	14,9
Total	**9,167**	

Overview

Panel	Proposals submitted	% total
LS1	716	7,8%
LS2	429	4,7%
LS3	413	4,5%
LS4	453	4,9%
LS5	358	3,9%
LS6	672	7,3%
LS7	355	3,9%
PE1	472	5,1%
PE2	408	4,5%
PE3	671	7,3%
PE4	719	7,8%
PE5	631	6,9%
PE6	768	8,4%
PE7	236	2,6%
PE8	503	5,5%
SH1	379	4,1%
SH2	355	3,9%
SH3	349	3,8%
SH4	130	1,4%
SH5	150	1,6%

StG1 appears to be a great success

But, measures are needed:

- to simplify the evaluation procedure
- to reduce the number of submitted proposals
- to increase resources
- ...

Further Information

Website of the ERC Scientific Council at

http://erc.europa.eu