EXCELLENT SCIENCE - European Research Council (ERC)

Specific objective

The specific objective is to reinforce the excellence, dynamism and creativity of European research. Europe has set out its ambition to move to a new economic model based on smart, sustainable and inclusive growth. This type of transformation will need more than incremental improvements to current technologies and knowledge. It will require much higher capacity for basic research and science-based innovation fuelled by radical new knowledge, allowing Europe to take a leading role in creating the scientific and technological paradigm shifts which will be the key drivers of productivity growth, competitiveness, wealth, sustainable development and social progress in the future industries and sectors. Such paradigm shifts have historically tended to originate from the public-sector science base before going on to lay the foundations for whole new industries and sectors.

World-leading innovation is closely associated with excellent science. Once the undisputed leader, Europe has fallen behind in the race to produce the very best cutting-edge science and has played a secondary role to the United States in the major post-war technological advances. Although the Union remains the largest producer of scientific publications in the world, the United States produces twice as many of the most influential papers (the top 1% by citation count). Similarly, international university rankings show that US universities dominate the top places.
In addition, 70% of the world's Nobel Prize winners are based in the United States. One part of the challenge is that while Europe and the United States invest similar amounts in their public-sector science bases, the Union has nearly three times as many public-sector researchers, resulting in significantly lower investment per researcher. Moreover, US funding is more selective about allocating resources to the leading researchers. This helps to explain why the Union's public-sector researchers are, on average, less productive and, altogether, make less combined scientific impact than their far less numerous US counterparts.

Another major part of the challenge is that in many European countries the public and private sector still does not offer sufficiently attractive conditions for the best researchers. It can take many years before talented young researchers are able to become independent scientists in their own right. This leads to a dramatic waste of Europe's research potential by delaying and in some cases even inhibiting the emergence of the next generation of researchers, who bring new ideas and energy, and by enticing excellent researchers starting their career to seek advancement elsewhere. Furthermore, these factors compound Europe's relative unattractiveness in the global competition for scientific talent.

**Rationale and Union added value**

The ERC was created to provide Europe's best researchers, both women and men, with the resources they need to allow them to compete better at global level, by funding individual teams on the basis of pan-European competition. It operates autonomously: an independent Scientific Council made up of scientists, engineers and scholars of the highest repute and expertise, of both women and men in different age groups, establishes the overall scientific strategy and has full authority over decisions on the type of research to be funded. These are essential features of the ERC, guaranteeing the effectiveness of its scientific programme, the quality of its operations and peer-review process and its credibility in the scientific community. Operating across Europe on a competitive basis, the ERC is able to draw on a wider pool of talents and ideas than would be possible for any national scheme. The best researchers and the best ideas compete against each other. Applicants know they have to perform at the highest level, the reward being flexible funding on a level playing field, irrespective of local bottlenecks or the availability of national funding. Frontier research funded by the ERC is thereby expected to have a substantial direct impact in the form of advances at the frontiers of knowledge, opening the way to new and often unexpected scientific and technological results and new areas for research which, ultimately, can generate the radically new ideas which will drive innovation and business inventiveness and tackle societal challenges. This combination of excellent individual scientists with innovative ideas underpins every stage of the innovation chain.

Beyond this, the ERC has a significant structural impact by generating a powerful stimulus for driving up the quality of the European research system, over and above
the researchers and projects which the ERC funds directly. ERC-funded projects and researchers set a clear and inspirational target for frontier research in Europe, raise its profile and make it more attractive for the best researchers at global level. The prestige of hosting ERC grant-holders and the accompanying 'stamp of excellence' are intensifying competition between Europe's universities and other research organisations to offer the most attractive conditions for top researchers. And the ability of national systems and individual research institutions to attract and host ERC grant-winners sets a benchmark allowing them to assess their relative strengths and weaknesses and reform their policies and practices accordingly. ERC funding is therefore in addition to ongoing efforts at Union, national and regional level to reform, build capacity and unlock the full potential and attractiveness of the European research system.

**Broad lines of the activities**

The fundamental activity of the ERC shall be to provide attractive long-term funding to support excellent investigators and their research teams to pursue ground-breaking, high-gain/high-risk research.

ERC funding shall be awarded in accordance with the following well-established principles. Scientific excellence shall be the sole criterion on which ERC grants are awarded. The ERC shall operate on a 'bottom-up' basis without predetermined priorities. The ERC grants shall be open to individual teams of researchers of any age, gender, and from any country in the world, working in Europe. The ERC shall aim to foster healthy competition across Europe based on robust, transparent and impartial evaluation procedures which address, in particular, potential gender bias. The ERC shall give particular priority to assisting the best starting researchers with excellent ideas to make the transition to independence by providing adequate support at the critical stage when they are setting up or consolidating their own research team or programme. The ERC will also continue to provide appropriate levels of support for established researchers.

The ERC shall also give support, as necessary, to new ways of working in the scientific world with the potential to create breakthrough results and to facilitate exploration of the commercial and social innovation potential of the research which it funds.

By 2020, the ERC shall therefore aim to demonstrate that the best researchers are participating in the ERC's competitions, that ERC funding has led to scientific publications of the highest quality and to research results with high societal and economic potential impact, and that the ERC has contributed significantly to making Europe a more attractive environment for the world's best scientists. In particular, the ERC shall target a measurable improvement in the Union's share of the world's top 1% most highly cited publications. In addition it shall aim at a substantial increase in the number of excellent researchers from outside Europe whom it funds. The ERC shall share experience and best practices with regional and national research funding agencies in order to promote the support of excellent researchers. In
addition, the ERC shall further raise the visibility of its programmes. The ERC's Scientific Council shall continuously monitor the ERC's operations and evaluation procedures and consider how best to achieve its objectives by means of grant schemes that emphasise effectiveness, clarity, stability and simplicity, both for applicants and in their implementation and management, and, as necessary, to respond to emerging needs. It shall endeavour to sustain and further refine the ERC's world-class peer-review system which is based on fully transparent, fair and impartial treatment of proposals so that it can identify ground-breaking scientific excellence, breakthrough ideas and talent regardless of a researcher's gender, nationality, institution or age. Finally, the ERC shall continue conducting its own strategic studies to prepare for and support its activities, maintain close contacts with the scientific community, the regional and national funding agencies and other stakeholders and aim to make its activities complement research conducted at other levels. The ERC will ensure transparency in communication about its activities and results to the scientific community and the general public and maintain updated data from funded projects.

Context

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