



ERC in a nutshell

The European Research Council (ERC) was set up by the EU in 2007 to fund individual scientists to carry out research at the frontiers of knowledge in Europe. It is Europe's magnet for top talent.

General features

- Funding schemes set up "**for scientists, by scientists**"
- Open to top researchers of **any nationality, age and gender, from anywhere in the world**, to perform research in Europe
- Long-term, individual grants for **ground-breaking, high-risk and high-gain research**
- **No thematic priorities**; any field of research (physical sciences and engineering, life sciences, social sciences and humanities)
- **Bottom-up**, curiosity-driven approach
- Sole selection criterion: **scientific excellence**
- Selection based on international **high-quality peer review**

Facts & figures

- Location: Brussels, Belgium
- Budget: **€13 billion** (2014-2020), under "Horizon 2020", the largest funding programme for research and innovation of the EU, for which Commissioner Carlos Moedas is responsible
- Budget 2007-2013: **€7.5 billion**

Since the ERC creation in 2007:

- **> 5,000 grantees** of 66 nationalities in 626 institutions in 32 countries across Europe funded with around €9 billion
- **> 50,000** proposal evaluated
- **40,000 researchers** and other professionals employed in ERC teams, including **9,000 PhD** and **14,000 post-doc** researchers

ERC grant schemes

- **ERC Starting Grants** for early-career, emerging research leaders: up to €1.5 million per grant
- **ERC Consolidator Grants** for excellent researchers who are already independent: up to €2 million per grant
- **ERC Advanced Grants** for established top researchers: up to €2.5 million per grant
- **ERC Proof of Concept Grants** open *only* to ERC grantees to help them commercialise results arising from their ERC research: up to €150,000 per grant

Governance

- **ERC President: Prof. Jean-Pierre Bourguignon**
- ERC Vice Presidents: Prof. Sierd Cloetingh, Prof. Mart Saarma, Prof. Nuria Sebastian Galles
- **ERC governing body:** independent **Scientific Council** with 22 eminent scientists
- ERC Executive Agency, under the responsibility of the European Commission, Director: Pablo Amor

ERC benefits

- The ERC **makes Europe a more attractive place for bright minds**, whether they are staying, moving there from afar, or returning to Europe. The ERC thereby contributes to reversing the brain-drain
- By creating **open and direct competition** for funding between the very best researchers in Europe, the ERC enhances aspirations and achievements. It enables the best ideas and talent to be recognised from a larger pool that exists at national level
- The ERC's competitive funding is channelled into the **most promising new fields**, with a degree of agility not always possible in national funding schemes
- The ERC stimulates research organisations to invest more in the support of promising new talent - the **next generation of research leaders** in Europe
- The ERC helps **nurture science-based industry** and to create a greater impetus for the establishment of research-based spin-offs
- From a societal perspective, the ERC provides a mechanism for investing rapidly in research targeted at new and emerging **issues confronting society**.

Scientific impact of the ERC

The ERC's mission is to encourage the highest quality research in Europe through competitive funding and to support investigator-driven frontier research across all fields, on the basis of scientific excellence.

Being 'investigator-driven', or 'bottom-up', in nature, the ERC approach allows researchers to identify new opportunities. This ensures that funds are channelled into new and promising areas of research at the frontier of knowledge, including interdisciplinary studies and social sciences.

Since 2007, the ERC has **funded 5,000 bright minds and their high-risk/high-gain research** at the frontiers of knowledge. They have been given the freedom and trust to pursue their innovative ideas and to set up research teams. These projects have produced **ground-breaking scientific outcomes** that benefit the economy, but also society at large. Breakthroughs in cancer research, solar cells technology or material science, to name but a few, help improve health, environment and people's daily lives.

The scientific impact can be measured by the number of publications in international **top scientific journals** (such as *Nature* and *Science*). To date, **40,000 publications** in such journals derive from ERC projects. 1/3 of all ERC grantees have published articles that ranks the top 1% most highly cited publications worldwide.

What's more, numerous grantees won prestigious prizes: **5 Nobel Prizes, 3 Fields Medals, 5 Wolf Prize** and more.

Examples of breakthroughs in ERC projects

Solar cells “revolution”

Dr Henry Snaith (Oxford University) has unveiled a new generation of solar cell using 'Perovskite', a new photo voltaic material. His research helped simplify the cell's architecture and push its efficiency. The new solar cells can be embedded in windows to produce energy.

The strongest material

Prof. Nicola Pugno (University of Trento) has discovered that the strongest biological material is made of the teeth of tiny limpets. It could be used to produce, for example, a new generation of cars, airplanes and boats.

Mapping the ocean beds to understand climate change

Dr Veerle Huvenne (National Oceanic Center, Southampton, UK) has developed an automated method for classifying hundreds of kilometres of the deep sea floor in a way that is more cost-efficient, quicker and more objective than previously possible. The new method could help collect more information to understand the impact of climate change on the sea flora and fauna.

See more projects in this [brochure](#)

Impact on researchers' career

After only eight years of existence, the ERC has a proven record of strong impact on researchers' careers. It plays a key role in training and developing a new generation of top scientists in Europe and nurturing their most creative ideas.

The ERC funding is filling a huge gap for the young: **2/3 of ERC grants** go to **early career** researchers, with 2 to 12 years of experience after obtaining a PhD.

The ERC contributes to sustainable **job creation** in Europe at a wider scale: some **40,000 researchers** and other experts have been employed in ERC teams so far. This includes around **9,000 PhD** students and **14,000 post-doc** researchers, who have the possibility to work with and learn from top scientists in their field.

"I am very proud to see that PhD and post-doctoral students who worked in my ERC project team could find jobs in the field of R&D, within pharmaceutical companies or laboratories."

Prof. Patrick Couvreur, ERC Advanced Grant

"The ERC grant meant a big change in my funding. I have been able to triple my research group from 4-5 people to 15, which allowed me to gather a critical mass of research talent working on my project."

Prof. Anne L'Huillier, ERC Advanced Grant 2008

"The ERC grant made a big difference to my work as it allowed me to consolidate my funding into a single source. Now I can put a critical mass of researchers over a longer period of time in a single research team which makes it possible for us to make more significant scientific progress."

Prof. Dr František Štěpánek, ERC Starting Grant 2007

"Not only did the ERC grant help me establish myself as an independent researcher in Poland at an early stage of my career, but it was also crucial in setting up my 6-member research team. I can say that without the ERC grant I would not have been able to work on such a scale in the field of Social Sciences!"

Dr Natalia Letki, ERC Starting Grant 2009

"The ERC grant is the reason why I unexpectedly came back from the US to Europe and a unique opportunity to carry out risky research."

Prof. Luca Guidotti, ERC Advanced Grant 2009

The ERC impact goes beyond funding the most pioneering research ideas. A recent report has provided solid evidence confirming the role of the ERC in speeding up young researchers' transition to independence. Almost **95% of Starting Grant holders**, who took part in the study, state that the ERC grant has had a **very positive impact on their careers**. Furthermore, **70% of them obtained a professorship** in only 3 years after they received a Starting Grant, compared 46% of the control group.

Some examples:

Ghent University offers tenure-track appointment to successful ERC candidates;

Ludwig-Maximilians University Munich systematically appoints ERC grantees as assistant professors with prospects of receiving permanent professorship;

Any Italian university can hire (since 2011) Starting Grant holders as associate professors and Advanced Grant holders as full professors;

Example. In 2014, **Ca' Foscari University of Venice** offered an associate professor position to Dr Marco Sgarbi, 31 at the time, because of him winning an ERC Starting Grant. This allowed him to acquire a permanent professorship around ten years earlier than it would usually happen in the Italian research system.

University of Cyprus introduced a fast-track hiring procedure for ERC grantees in 2015.

Impact on national research funding

The ERC has been widely acknowledged as a highly successful competitive research funding model. Its existence has had a strong impact at a national level.

11 EU Member States have set up national research councils since the creation of the ERC in 2007. This has almost doubled the total number of EU countries having such scientific institutions (currently there are 23).

12 EU Member States have launched funding schemes inspired by the ERC structure – Denmark, France, Germany, Greece, Hungary, Italy, Ireland, Luxembourg, Poland, Romania, Spain and Sweden.

17 European countries have launched initiatives to fund those candidates who passed the ERC competitions' strict quality threshold, but were left unfunded purely due to budgetary constraints – Belgium, Cyprus, Czech Republic, Finland, France, Greece, Hungary, Ireland, Italy, Luxembourg, Norway, Poland, Romania, Slovenia, Spain, Sweden and Switzerland.

Poland: *National Science Centre* (NCN) is a government executive agency set up in 2010 to fund basic research with the ERC as an explicit model.



Hungary: *Momentum* is a programme of the Hungarian Academy of Sciences (MTA) running since 2009 which aims to attract outstanding young researchers back to Hungary. Just as ERC grants, Momentum funding is based on excellence as sole criterion.

Germany: *Reinhard Koselleck Projects* of the German Research Foundation (DFG) aim to enable outstanding researchers with a proven scientific track record to pursue innovative or high-risk projects since 2008.



Spain: The government established in 2013 *Europa Excelencia* – a programme for those ERC Starting and Consolidator candidates with excellent proposals who ended up without funding.

The ERC has also had an impact at a regional level.

Some examples:

The **Research Foundation Flanders** (FWO) in Belgium supports the best ranked ERC Starting Grant applicants who remained unfunded.

In **Galicia** (Spain), the regional authorities have introduced a new research policy with a goal to prevent brain drain and attract ERC Grant holders to universities and research institutions in the region. They are offered permanent positions provided they move to Galicia.

"There are many ways to measure research excellence and we use one that is fully recognised internationally – to get an ERC grant – as a condition for hiring."

Manuel Varela, Director of the Galician Agency for Innovation (GAIN)

International impact

The ERC's core mission is to stimulate scientific excellence and **make Europe more attractive to the brightest talent**. The substantial, long-term funding that the ERC offers is open to top scientists from anywhere in world.

First-class science is intrinsically international and the ERC encourages scientific exchange and 'brain circulation'. It not only has a specific working group on internationalisation, but also launched the 'ERC goes global' campaign (2012) to **attract more talent from overseas**.

To raise awareness and to forge closer ties with counterparts abroad, the ERC has visited all continents since 2007. The ERC also attends major science events globally. Only this year, the ERC took part in the World Economic Forum (WEF) in Davos (Switzerland), the American Association for the Advancement of Science (AAAS) conference in San Jose (US), the European Commission's Destination Europe events around the US, the International Conference on Robotics and Automation in Seattle (US), the Global Research Council meeting in Tokyo (Japan) and the World Conference of Science Journalists in Seoul (South Korea).

In line with its quest to increase international scientific exchange, the ERC launched initiatives to boost opportunities for young scientists, supported by non-European funding agencies, to come to Europe to join the research teams of ERC grantees. To date agreements have been signed with agencies in:

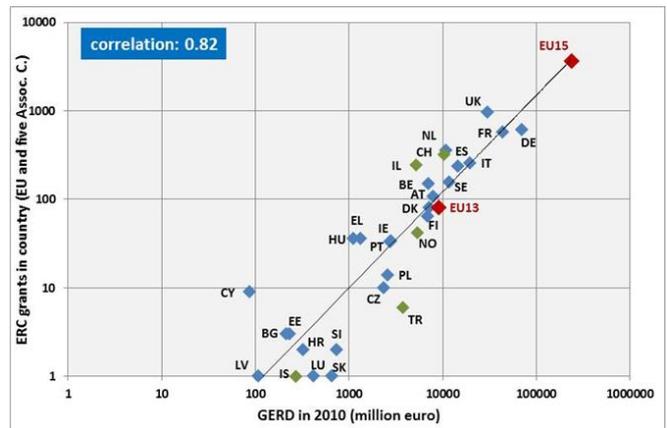
- the United States in 2012 (National Science Foundation, NSF)
- South Korea in 2013 (Government of Republic of Korea)
- Argentina in 2015 (National Scientific Technical Research Council, CONICET)
- Japan in 2015 (Japan Society for the Promotion of Science, JSPS)

ERC grants are becoming more and more internationally recognised as awards for scientific excellence. So far, 66 nationalities in 626 host institutions in 32 countries across Europe received ERC grants. In total, 395 researchers are non-European nationals, which represents 8% of all ERC grantees. These grant holders are mainly nationals of the US (171), Canada (41), Russia (33), Australia (29), India (25), and Japan (18). Also, 17% of the ERC team members are non-European.

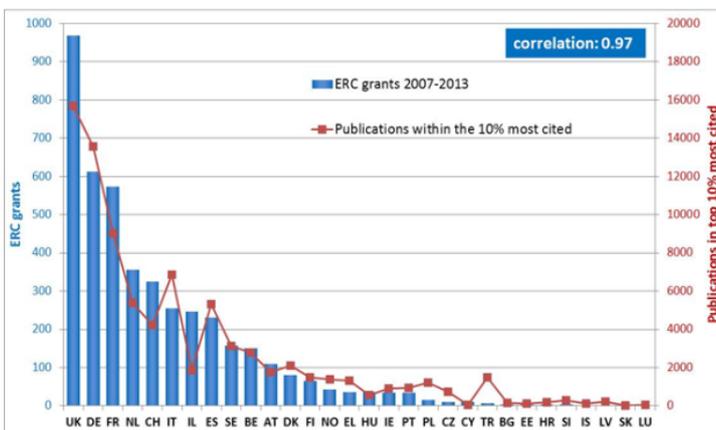
Funding top talent across Europe

The ERC has a mission to fund talent and scientific excellence wherever it may be across Europe. With no geographical quotas for funding and excellence being the sole selection criterion, **there are ERC grantees of all EU nationalities**. They are working in **626 institutions across the European Union, as well as** in countries part of the European Research Area. However, some countries and universities are more successful than others.

It should be noted that a country's ERC performance corresponds to a large extent to its **investment in Research and Development (GERD)**: generally speaking, the more a country spends on research, the higher the number of ERC grantees it hosts.



FP7 ERC Grant Distribution vs. R&D Expenditure



FP7 ERC Grants vs. top publications

Similarly, the number of ERC grants in a given country, region or institute is closely linked to the number of **publications in the top 10% most cited scientific journals** worldwide.

FP7 ERC Grants vs. top publications

More research-intensive institutions tend to be more successful in competing for ERC grants. Thus, 50% of grantees are based in 50 institutions around Europe, demonstrating that "excellence attracts excellence."

The ERC Scientific Council – the ERC's governing body – acts as ambassador of excellent science in every corner of Europe. While always maintaining the excellence criterion, it takes the uneven distribution of grants seriously. Therefore, it set up the **ERC Widening Participation Working Group** which:

- proposes measures to encourage high-calibre scientists from regions with a lower participation rate to successfully apply to the ERC;
- analyses data and processes to assure that the ERC peer review is unbiased and that it is solely based on scientific quality, no matter which country the scientist comes from.

The Scientific Council also meets regularly for its plenary sessions around Europe, including the newer EU Member States. This serves as an occasion to interact with local research communities and to promote ERC funding opportunities. These plenary sessions have already taken place in the Czech Republic, Hungary and Poland among other countries. In October this year, the Scientific Council is meeting in Tallinn, Estonia.

Also, the network of ERC NCPs (National Contact Points) plays an increasingly important role in supporting the ERC efforts to widen the participation in its calls.

ERC and gender balance

The ERC Scientific Council takes the view that women and men are equally able to perform excellent frontier research. It continues its efforts to avoid gender bias and to encourage more female top scientists to apply for ERC grants, which is why it created a dedicated Working group on Gender Balance in 2008.

The Working group came up with an **ERC Gender Equality Plan** in 2010 (revised in 2014) which includes:

- **raising awareness** about the **ERC gender policy** among applicants
- working towards **improving the gender balance** among ERC **applicants** and within the **ERC funded teams**
- identifying and **removing any potential gender bias** in the ERC evaluation procedure
- **embedding gender awareness** within all levels of the ERC processes
- striving for **gender balance** among the **ERC peer reviewers** and ERC **decision-making bodies**

In all ERC calls until 2013, around **25% of applicants** and **20% of grantees** were women. The lower share of women in the ERC calls mirrors the overall situation in science in Europe.

In the 2014 ERC Consolidator Grant call, the overall **success rate of women was higher** than men for the first time.

To help female scientists who are mothers, the ERC has established a **set rules regarding parental leave**. It allows them to have their eligibility window extended by 18 months per child. For example, if a scientist has one child, and she obtained her PhD 8 years back, she can still apply for a Starting Grant (although the general rule is that only those who received their PhD between 2 to 7 years are eligible).

"This is perhaps one of the most progressive funding policies I've seen over the years and should be adopted by any agency looking to encourage women to continue in science."

David Kent, writer for *University Affairs*

Innovation, industry and society

"The history of science shows very clearly that without this curiosity-driven, basic research, no research directed toward solving "real problems" would exist and neither would technological progress."

Prof. Sierd Cloetingh, ERC Vice President

Proof of Concept

In 2011, the ERC launched a Proof of Concept scheme for existing grantees and since then almost 300 of these top-up grants helped ERC grantees bring the results of their projects to market.

Some examples of Proof of Concept grantees:

- Prof. Eiliv Lund who is commercialising a **simple cheap blood test** that can be used to **diagnose breast cancer**.
- Prof. Marc Pollefeys who is giving anyone the ability **to capture the world in 3D with their smartphone or tablet**, anywhere, anytime.
- Dr Armağan Koçer is working on the introduction of sensory pores into the liposomes that should ensure that **drug delivery matches the efficacy of the drugs**.

Another Proof of Concept recipient (2011) is Prof. Markus Aspelmeyer. He co-founded the start-up Crystalline Mirror Solutions (CMS), a company that manufactures high-performance mirrors for optical precision measurement with applications in advanced navigation systems, broadband communications and trace gas sensing.

"The early support through a Proof of Concept grant made financing of our first prototypes possible. The grant helped to cover the initial costs of this ambitious project – funding which is absolutely crucial when starting your own business."

Prof. Markus Aspelmeyer, Proof of Concept Grantee

ERC and the industry

The ERC encourages links between frontier research and the industry. It has therefore set up a special working group on innovation and relations to industry to help basic research meet industry. Participating in the World Economic Forum summits in Davos, for instance, has been a way for the ERC to bring in science into the debate and forge relations to industry at the global level.

Moreover, the European Round Table of Industrialists (ERT) – which brings together some of Europe’s biggest companies such as Airbus Group, Inditex, L’Oréal, Nokia or Royal Philips – co-signed a letter with the ERC in 2013 urging European leaders to support basic research and approve the €80 billion budget of the Horizon 2020 programme, arguing that *“it will lay the foundations for growth in Europe”, as “discoveries and technological progress will produce new products, processes and services, and new industries will be created in their wake”*.

Some voices from the ERT:

“Truly excellent science is hard to identify in prospect and requires world class capability, both people and equipment – and the ERC has proven itself to be highly adept in supporting this kind of research.”

David Eyton, Group Head of Technology, BP

“Basic research is the backbone for most research carried out in industry and also for ensuring that we have access to outstanding talents. Europe’s future can only be built on its brains. To secure this, public funding of basic research is crucial both on an EU level as well as on national levels.”

Leif Johansson, Chairman of Ericsson and AstraZeneca plc.

Societal impact

ERC-funded research is highly innovative and can make a substantial contribution to improving people's quality of life. For instance, since 2007, the ERC has supported more than 100 projects with a total amount of over €200 million in the field of cancer research. It is a significant contribution to the fight against the disease that, 14 million people were diagnosed with in 2012, according to the World Health Organization.

Prof. Cédric Blanpain, Starting Grant 2007, has explored the importance of cancer stem cells during the different stages of tumour progression and for the first time, has showed the existence of cancer stem cells within their natural environment. These crucial findings on the cell origin of cancer and its progression with cancer stem cells could point at new targets for anti-cancer therapies and imply that drug developers should focus on killing these tumour-generating cells. This is just one example out of the 5000 projects funded to date.

Many ERC projects are also funded in areas such as climate change, transport, energy, new materials, neurosciences, economics, law etc.

ANNEX

Total number of grants

Core funding schemes	2007-2014
Starting Grant	2707
Consolidator Grant	685
Advanced Grant	1709
Total grants	5101

Funded projects per domain

