Annual Report on the ERC activities and achievements in 2019

Prepared under the authority of the ERC Scientific Council

RESEARCH & INNOVATION POLICY

European Commission

European Research Council

Established by the European Commission

EUROPEAN COMMISSION

Annual Report on the ERC activities and achievements in 2019

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chapter one

Foreword

Commissioner's message

> *Knowledge developed through ERC-funded projects will allow us to understand the challenges at a more fundamental level, and will provide us with future breakthroughs and innovation that we currently do not foresee*

A brand new European Commission took office at the end of 2019, and I am very proud to be responsible for a portfolio with such a strong focus on knowledge and future-oriented policies. Key element in this new portfolio is the ERC, a true game changer in the European research landscape.

With over 9000 top researchers funded already, the impact of the ERC in generating scientific excellence is well known, whether it is through highly cited top papers or through winners of prestigious scientific prizes who have been supported by the ERC. The latest in 2019, when Sir Peter Ratcliffe shared the Nobel Prize for Medicine for his findings that will benefit people in Europe and beyond, bringing to seven the number of ERC grantees who have won a Nobel Prize.

I was lucky enough to be personally immersed in this exciting European success story at the very beginning of my mandate as Commissioner for "Innovation, Research, Culture, Education and Youth". One of the first public events I attended in my new capacity was a conference organised by the ERC on the contribution of frontier research to a sustainable future for Europe.

There, I had the opportunity to listen to ERC grantees talk about their research covering demographic change, renewable energies, the future of medicine and threats to biodiversity. There I could see first-hand the extraordinary value of giving our best minds the scientific freedom to explore the frontiers of science. This way, they help us address major challenges in a bottom-up manner.

Knowledge developed through ERC-funded projects will allow us to understand the challenges at a more fundamental level, and will provide us with future breakthroughs and innovation that we currently do not foresee.

For the ERC, this was the last year under the presidency of Jean-Pierre Bourguignon. Our paths crossed only very briefly, but I

want to take this opportunity to pay tribute to his extraordinary work. His leadership as President has significantly contributed to strengthen the already excellent standing and reputation of the ERC. I want to thank him for all he has done during the past six years, before moving on to new challenges.

I now very much look forward to working with the Scientific Council towards further achievements and I am deeply committed to safeguarding the success of the ERC. Europe needs to reinforce its position in excellent science in order to address the enormous challenges we are confronted with.

In Horizon Europe, the ERC will continue to have a very important role to play in pursuing ground-breaking, frontier research. The curiosity-driven, bottom-up research funded by the ERC is essential to equipping us with the skills and knowledge required to face many complex and sometimes threatening challenges. Investing in the ERC gives us hope that some of the daring ideas funded today will provide us tomorrow with answers to present and future human endeavours.

Mariya Gabriel
European Commissioner for Innovation, Research, Culture, Education and Youth

Personal message from the President

> *I feel proud that, during my presidency, the ERC has continued to attract ambitious projects, many of them with a high-risk/high-gain profile*

During 2019, ERC activities had, as usual, several dimensions: one related to the selection, implementation and impact of 2019 grants; a political one, this year concerning the finalisation of Horizon Europe, the next framework programme for research and innovation; a prospective one, addressing the challenges around the evaluation of projects; and lastly, the continuous efforts around communication and international visibility of the ERC.

It was one more year when more than 1,000 ERC grants were awarded to bright talent across Europe. Among them, there were 38 Synergy Grants, a scheme reintroduced in 2018. The number of financial operations managed by the ERC Executive Agency (ERCEA) continued to grow significantly, bringing with it the challenge to use all available funds by the end of the year. Contrary to some concerns, Brexit uncertainties did not affect applications by UK-based scientists much, except in the 2019 Advanced Grants call. Still, the agency had to be prepared to face a "no-deal" Brexit with its potentially severe consequences. The reorganisation of DG Research & Innovation affected the life of the ERCEA in creating renewed questions around the key feature of its autonomy vis-à-vis the European Commission, as it is guaranteed by the legal text. The Scientific Council is well aware that the ERC continues operating in a political and administrative environment stirred, by construction, through developments decided elsewhere. During 2019 changes in the senior management of the ERCEA, some scheduled other unexpected and unfortunate increased strain on the staff.

2019 was the first year when the Fotis Kafatos Evaluation Centre was used by panels for selection sessions. It provides a significantly improved setting for the intense discussions that have become key for the ERC's positive image in the scientific community worldwide, decisively away from automatic decisions too often based on bibliometric data.

Two studies financed by the ERCEA were completed in 2019. One evaluated the compliance of ERC grant holders with Open Access obligations and showed an overall quite satisfactory situation, even if the monitoring of compliance by ERCEA staff proved to be substantially more demanding and time-consuming than expected. A second study dealt with the impact of ERC grants on the careers of grant holders and team members. It provided a detailed description of the overall very positive impact of ERC grants. The efforts by the ERC's governing body, the Scientific Council, to continuously monitor and evaluate the outcome and impact of ERC grants prove to be invaluable in establishing the added value of the programme in relation to other actions at national and/or European levels.

During the year, the Council of the EU, the European Parliament and the Commission reached a partial agreement on Horizon Europe. Its structure does not contain many changes concerning the ERC, thanks to the vigilant work of ERCEA staff in close coordination with the Scientific Council, and the support of the then Commissioner and DG Research & Innovation's Directors General. The ERC remains in the first pillar of the programme, still called "Excellent Science". Political uncertainties induced by Brexit, as well as complications in the nomination of the new Commission, delayed the discussion on the overall EU budget, and the year ended under the Finnish Presidency without the basis for a consensus on the size of the next Multi-Annual Financial Framework. Therefore, a big question mark concerning the final budget of Horizon Europe remains open. This could possibly lead to shifts in the weights of its different components. The significant increase in the ERC budget for the period 2021-2027 proposed by the European Commission is therefore not yet confirmed and this remains a cause of worry.

In 2019 the Scientific Council conducted an in-depth exploration into possible evolutions for the evaluation of ERC applications, leading to extraordinary follow-up activities. Two main reasons were behind such an exercise: the pressure that the size reached by the Starting Grant calls exerts does not allow major inequalities in the numbers of applications between panels and the eagerness of the Scientific Council to see multi-disciplinary applications evaluated without handicap. ERCEA staff and the Scientific Council worked closely together on this issue in several steps: first on the production of a document submitted for discussions to all ERC 2017 and 2018 panel chairs during an intense and very instructive one-day session; then on the development of simulations (based on past data) of what "dynamic panels", a concept experimented with success in the Synergy calls, could look like for other calls; then the first results of this study were examined by the Council in a one-day retreat and further work by ERCEA staff was studied in later plenaries. The conclusion was that changes are feasible after further validation for implementation in the 2022 calls. This prompted the Scientific Council to decide on some temporary measures to make sure that the 2021 calls can also be properly taken care of. Steps to make the ERC more visible at an international level continued with the signature of two new agreements: one with Australia and one with Singapore. In an effort to promote existing ones, events were held in Japan and Brazil. This also led to a widening

of the population of scientists who could apply through the initiative taken by the US National Science Foundation.

The interest raised by the ERC model, in particular the high value that scientists in many countries outside Europe attribute to the panel discussions they have been involved in, is remarkable. This led some countries to take inspiration from the ERC model when designing their own programmes.

The continuous effort to better understand the situation in less-performing countries brought me to visit Bulgaria, Hungary, Lithuania, Serbia and Slovenia in 2019. The recent positive evolution in a country like Slovenia shows that, through proper attention at the political level and an appropriate local organisation, the situation can improve significantly. The "Visit ERC team fellowships" scheme, that helps young researchers to get international exposure, is starting to have some impact, an encouraging sign that some actions can be designed and put in place.

The ERCEA continued to provide several successful communication tools to promote the ERC worldwide, ERCcOMICS being a particularly original and successful one. The Scientific Council's decision, after a thorough preparation by the ERCEA communication team, to create the Public Engagement with Research Awards is a further significant step taken by the ERC to recognise and promote public outreach activities.

2019 was the last year of my mandate as ERC President, hence this editorial offers me a special occasion to look back on this extraordinary adventure. I would have liked to be able to claim today that the ERC has gained a significant increase in its autonomy and agility over the years I was in charge. One would have expected this as a natural sign of trust in recognition of the ERC's maturity and successful operation over the past 13 years. I have to leave this instead as my strong wish and hope for the future, and I trust that the new Commissioner will keep watch over it and make it happen.

Still, there are some things I feel proud of. During my presidency, the ERC has continued to attract ambitious projects, many of them with a high-risk/high-gain profile, and the evaluation of projects by scientific panels continued to be fully centred on scientific quality. This required very close collaboration between ERCEA staff and Scientific Council members, the care of which was a central part of my action. In recent years, the ERC has become gender neutral after a significant improvement both in the level of submission of projects by women and their success rates. The situation, however, remains fragile and will continue to require close attention. Of course my most cherished memories will be of the fantastic opportunities the position provided me to meet exceptional people, among them Scientific Council members, grantees, evaluators and members of staff.

Prof. Jean-Pierre Bourguignon
President of the ERC (2014-2019)

chapter two

Strategy and Governance

ERC Mission

Pushing forward the frontiers of knowledge

Reinforcing the excellence, dynamism and creativity of European research.

Research funded by the ERC is expected to lead to advances at the frontier of knowledge and to set a clear and inspirational target for frontier research across Europe.

ERC Strategy

Excellence

Providing attractive long-term funding, awarded on the sole criterion of excellence, to support excellent investigators and their research teams to pursue ground-breaking, high-risk/high-gain research.

The ERC operates on a "bottom-up" basis without predetermined priorities and its grants are open to individual researchers of any age, gender or nationality, and from any country in the world, working in Europe. Particular priority is given to assisting the best young researchers starting out 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 aims to foster healthy competition across Europe based on robust, transparent and impartial evaluation procedures which address, in particular, potential gender bias.

ERC Grants

Starting Grants (StG) support researchers at the early stage of their careers to become independent research leaders.

Consolidator Grants (CoG) support researchers who are at the early stage of their careers but are often already working with their own group.

Advanced Grants (AdG) support outstanding and established research leaders to continue their work in expanding the frontiers of scientific knowledge.

Synergy Grants (SyG) enable small groups of researchers to bring together complementary skills, knowledge and resources to address ambitious research problems.

Proof of Concept Grants (PoC) support ERC grantees by helping them bridge the gap between their research ideas and social or commercial innovation.

ERC Scientific Council

The Scientific Council has the responsibility to establish the ERC's overall scientific strategy, the Work Programme and, from a scientific perspective, positions on the implementation and management of calls for proposals, evaluation criteria, peer-review processes and proposal evaluation.

It is made up of members of the scientific community at the highest level, knowledgeable about the European scene, acting in their personal capacity and independently of political or other interests.

The Scientific Council's composition allows it to be independent, combining wisdom and experience with vision and imagination and reflecting the broad disciplinary scope of research.

The 22 individual members are selected, based on their undisputed reputation as leaders and for their independence and commitment to research, following a transparent procedure by an independent committee of seven highly respected personalities in European research.

They are appointed by the European Commission for a term of office limited to four years, renewable once, on the basis of a rotating system which shall ensure the continuity of the work of the Scientific Council.

Prof. Jean-Pierre BOURGUIGNON
(Mathematics)
ERC President

Prof. Janet THORNTON
(Bioinformatics and Structural Biology)
ERC Vice-President

Prof. Fabio ZWIRNER
(Theoretical and High-Energy Physics)
ERC Vice-President

Prof. Martin STOKHOF
(Philosophy)
ERC Vice-President

Prof. Geneviève ALMOUZNI
(Biology)

Prof. Manuel ARELLANO
(Economics)

Prof. Paola BOVOLENTA
(Neurobiology)

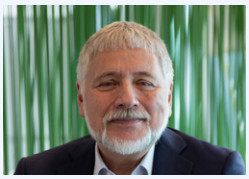
Prof. Margaret BUCKINGHAM
(Biology)

Prof. Eveline CRONE
(Psychology)

Prof. Ben FERINGA
(Organic Chemistry)

Prof. Mercedes GARCÍA-ARENAL
(History)

Prof. Andrzej JAJSZCZYK
(Electronics and Communication Engineering)



Prof. Eystein JANSEN
(Earth Science)

Prof. Tomas JUNGWIRTH
(Condensed Matter Physics)

Prof. Michael KRAMER
(Astrophysics)

Prof. Kurt MEHLHORN
(Computer Science)

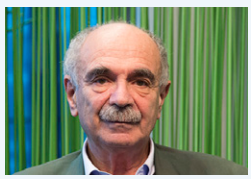
Prof. Barbara ROMANOWICZ
(Geophysics)

Prof. Giulio SUPERTI-FURGA
(Medical Systems Biology)

Prof. Jesper SVEJSTRUP
(Biology)

Prof. Nektarios TAVERNARAKIS
(Molecular Systems Biology)

Prof. Lene VESTERGAARD HAU
(Physics)



Prof. Michel WIEVIORKA
(Sociology)

ERC President

The role of the President is to chair the Scientific Council and ensure its leadership, to work closely with the ERC Executive Agency (ERCEA) and to act as an ambassador for the ERC in the world of science.

The President is appointed by the European Commission following a transparent recruitment process based on the recommendations of an independent, dedicated search committee and with the approval of the Scientific Council.

Jean-Pierre Bourguignon, an internationally respected mathematician, took office as President of the ERC on 1 January 2014 for a four-year term, renewed until the end of 2019.

Appointment of the next ERC President

In May, the European Commission appointed Mauro Ferrari as the next President of the ERC to take up his new role as of 1 January 2020, when the mandate of current President Bourguignon ended.

The European Commission appointed the ERC President Designate, following a transparent recruitment process involving an independent search committee, chaired by Mario Monti and including Carl-Henrik Heldin, Jules A. Hoffmann, Alice Gast, Fabiola Gianotti, Helga Nowotny and Maciej Zylicz.

Mauro Ferrari has a distinguished academic career, including many years in the United States, during which he contributed to multiple fields including mathematics, engineering, medicine and biology and helped pioneer the field of nanomedicine. He is the fourth ERC President since the launch of the organisation. The founding President was Fotis Kafatos (until 2010), after which Professor Helga Nowotny took office (until the end of 2013), succeeded by Jean-Pierre Bourguignon.

Steering Committee

The Steering Committee of the ERCEA is the body that monitors and oversees the operations of the Agency. It also adopts decisions necessary for the functioning of the ERCEA. These encompass among others the annual work programme of the Agency, its annual activity report as well as decisions related to the staff regulations, organisational structure, administrative budget and annual accounts.

The Steering Committee meets four times a year and is composed of five members appointed by the European Commission for a (renewable) period of two years.

The Steering Committee in office in 2019 was chaired by the Director-General of the Directorate-General for Research and Innovation, Jean-Eric Paquet. Further to the reorganisation of DG Research and Innovation in June 2019, the vice-chair of the Steering Committee, Kurt Vandenberghe, former Director for Policy Development and Coordination in the same Directorate-General, was replaced in July by Deputy Director-General Wolfgang Burtscher. The other members of the committee are the Acting Director for Talent Management and Diversity - Executive Staff in the Directorate-General for Human Resources, Henk Post, and two members of the ERC Scientific Council, Professor Margaret Buckingham and Professor Tomas Jungwirth. The ERC President also attends the meetings as an observer.

ERC Executive Agency

The ERCEA is the dedicated implementation structure that supports the Scientific Council in the conduct of all of its tasks.

It operates on the basis of the powers delegated to it by the European Commission, which has the ultimate political responsibility for the specific programme, implementing the framework programme Horizon 2020.

The organisational structure of the Agency follows its operational and horizontal objectives.

It consists of two operational departments (the Scientific Management Department and the Grant Management Department) and a Resources and Support Department. The Accounting Officer, the Communication Unit and the Support to the Scientific Council Unit report directly to the Director.

ERCEA management team

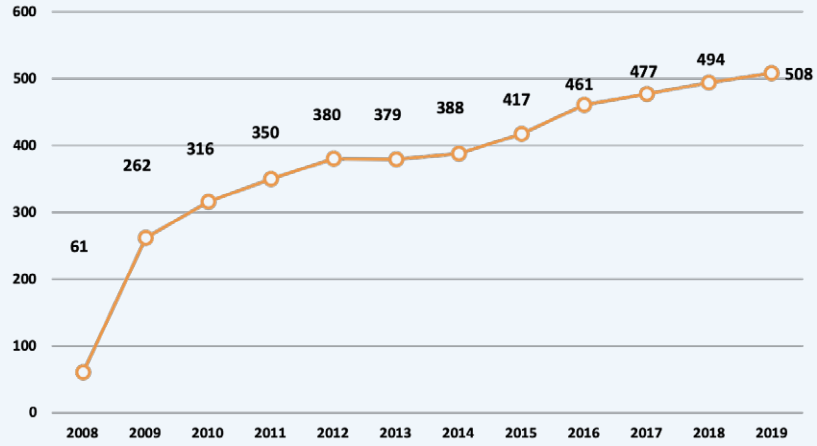
Standing (from left to right): Komninos Diamantaras, Philippe Cupers, Laurence Moreau, Nikola Car, Angela Liberatore, Michel Vanbiervliet, Anthony Lockett, Claire Levacher, Alejandro Martin Hobdey, Martin Penny, Thierry Prost, Theodore Papazoglou, Anisoara Ulceluse-Pirvan

Sitting (from left to right): Dirk Costens, Jose Labastida, Niki Atzoulatou, Waldemar Kütt, Athanasia Papathanasiou, Bruno Wastin

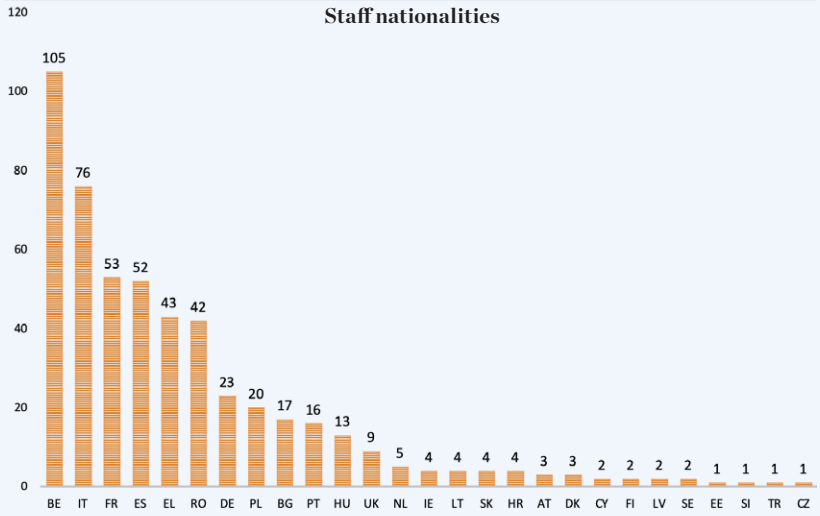
Absent: Pablo Amor (Director until August 2019), Georges-Eric te Kolsté (deceased), Mechtild May (retired in August 2019), Richard Frizon.

ERCEA Staff

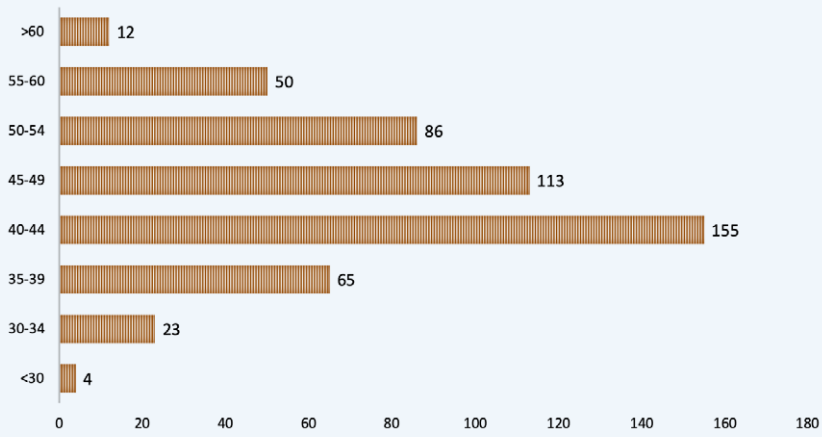
Number of staff



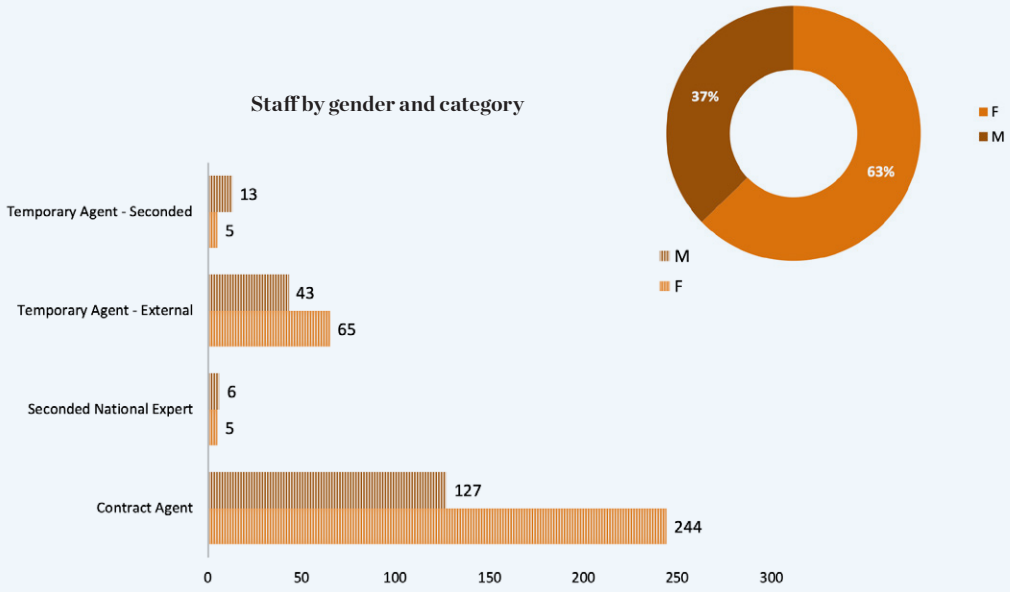
Staff nationalities



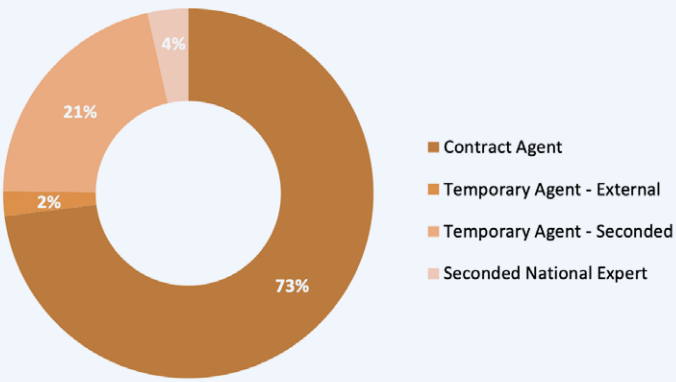
Staff by age category (average = 46 years)



Staff by gender and category



Distribution of staff by category



chapter three

Performance

ERC in figures

EUR 13 billion

ERC budget in Horizon 2020

17 %

of the entire Horizon 2020 budget

EUR 2.02 billion

ERC 2019 budget, fully committed

EUR 1.95 billion

payment credits fully executed in 2019
(EUR 219 million for FP7
and EUR 1,731 million for Horizon 2020)

> 10,500

projects of all types funded
by the ERC since 2007

82

nationalities
(ERC grantees)

34

EU and Associated Countries
hosting ERC projects

> 125,000

publications reported
by ERC projects

> 1,300

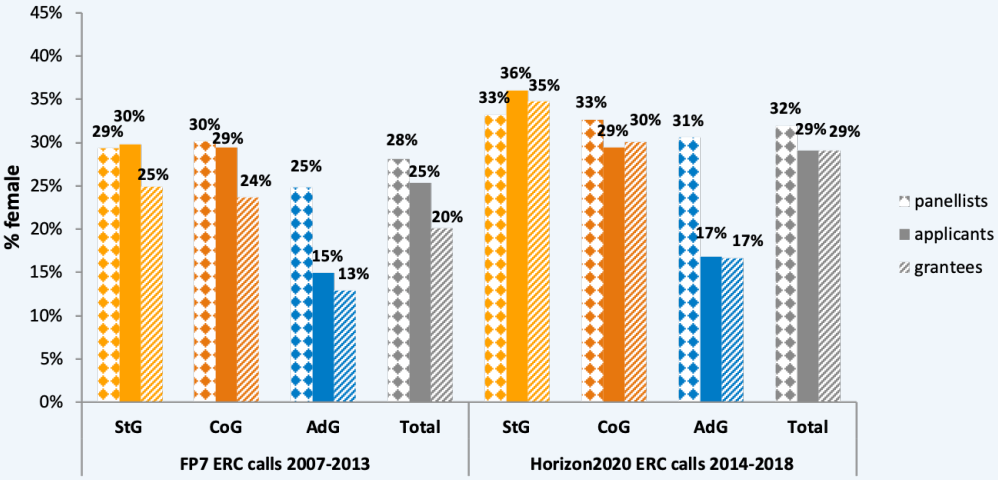
prestigious prizes
awarded to ERC grantees

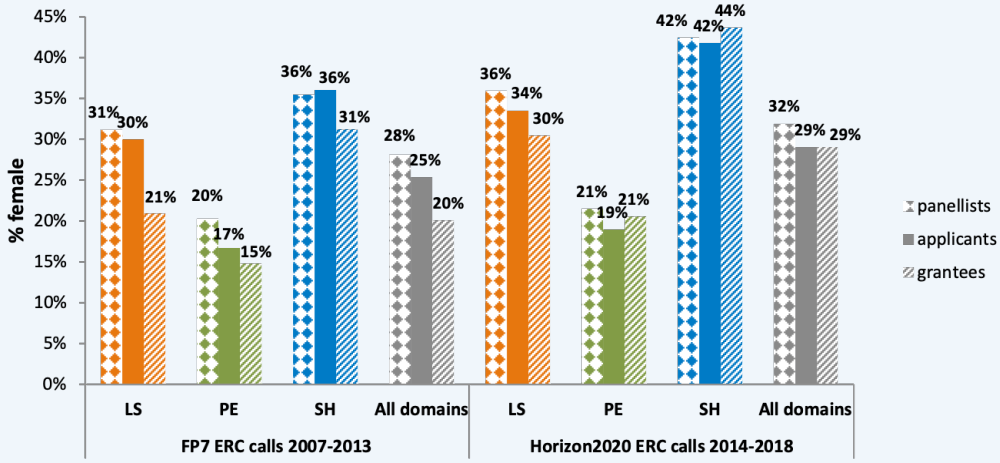
> 75,000

researchers and other professionals
hired in ERC teams

Participation of female researchers to ERC competitions

Female panellists, applicants and grantees and by funding scheme and by domain (ERC calls 2007-2018)



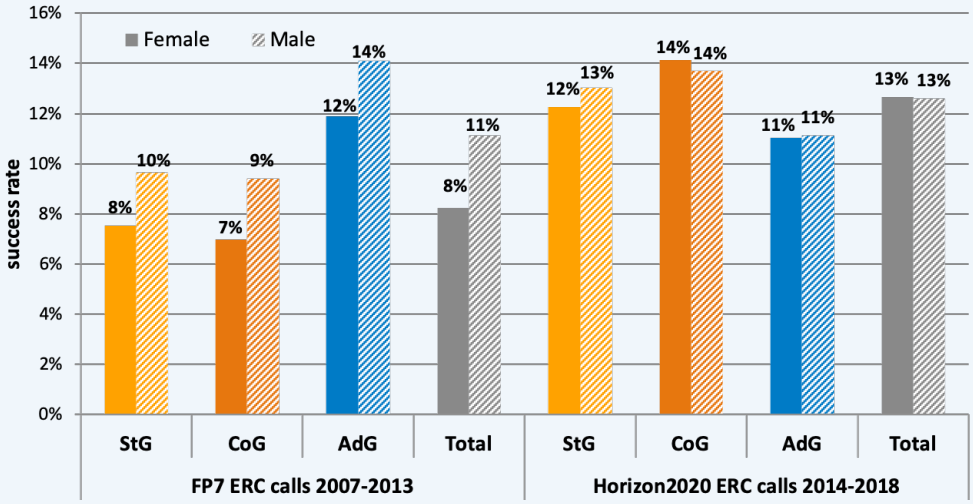


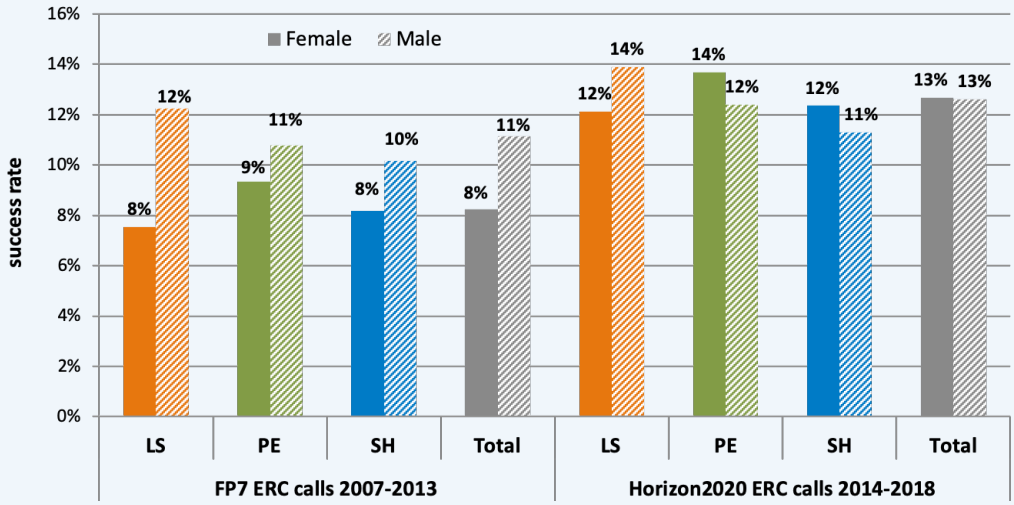
LS: Life Sciences

PE: Physical Sciences and Engineering

SH: Social Sciences and Humanities

Success rates of male and female applicants by funding scheme and by domain





Top organisations hosting ERC Principal Investigators

Host Institution	Country	FP7 2007-2013			Horizon 2020 Calls			SyG PIs
		StG	CoG	AdG	StG	CoG	AdG	
National Centre for Scientific Research	FR	130	15	65	132	132	60	7
University of Oxford	UK	55	12	59	40	50	41	5
University of Cambridge	UK	61	8	57	47	46	31	7
Max Planck Society	DE	41	5	51	70	30	45	18
University College London	UK	54	8	30	31	36	27	
Swiss Federal Institute of Technology Zurich	CH	30	3	46	42	25	34	6
Weizmann Institute	IL	43	10	28	30	38	15	5
Swiss Federal Institute of Technology Lausanne	CH	44	2	37	24	23	21	1
Helmholtz Association of German Research Centres	DE	34	4	16	41	31	16	10
Hebrew University of Jerusalem	IL	39	3	30	33	20	13	2
National Institute of Health and Medical Research	FR	30	9	18	24	23	13	4
Imperial College	UK	35	3	22	25	21	7	7
University of Edinburgh	UK	20	1	24	29	21	16	
University of Munich (LMU)	DE	13		27	43	13	13	2
University of Amsterdam	NL	16	3	17	40	20	9	
Tel Aviv University	IL	14	1	14	44	20	7	
University of Copenhagen	DK	18	3	13	27	27	11	7
University of Leuven	BE	26	5	15	17	11	17	1
University of Zurich	CH	17	3	17	17	20	12	2
Utrecht University	NL	15	3	11	23	27	7	2
Delft University of Technology	NL	13	3	10	34	15	8	3
Radboud University Nijmegen	NL	23	3	12	14	17	11	4
University of Helsinki	FI	16		12	21	19	10	1
Spanish National Research Council (CSIC)	ES	21	3	10	13	18	12	4
Leiden University	NL	18	1	13	22	16	7	3
French Alternative Energies and Atomic Energy Commission	FR	33	2	10	11	11	9	5
Technion - Israel Institute of Technology	IL	22	2	8	26	10	8	1
University of Bristol	UK	14	2	20	17	7	14	2
Technical University of Munich	DE	16	3	9	14	17	9	2
Lund University	SE	13	1	11	17	16	7	1

Data as of February 2020 - The compilation is done based on the total number of main grants (StG, CoG, AdG). The Synergy PIs from all SyG calls are presented in the last column. The grants distribution is according to Participant Identification Code (PIC) of the current Host Institution, as appears in CORDA, the European Commission's database of projects. Prior to the compilation of the table, the Helmholtz Association had requested the grouping of the PICs that corresponded to its research centres, providing the appropriate information to the ERC. The ERC Scientific Council is currently discussing a new policy for presenting data at institutional level in the ERC Annual Report during Horizon Europe. Depending on the outcome of these discussions, there might be new adjustements in the list.

Closing the gap between research and innovation

Where ERC-funded researchers meet investors

Holders of ERC Proof of Concept Grants (PoC) who are in the process of verifying the innovation potential of an idea that spun out of their ERC project or who have maybe already started up a company can now join the ERC Virtual Venture Fair, a platform dedicated to ventures created around an ERC-funded project. On the platform, they can easily attract investors willing to offer the capital and support needed to scale-up their project or company.

The platform is open free of charge to investors, providing them with an effective system to manage their dealflow. They can quickly browse through numerous possible deals, going through pitch videos and decks and prepare their first expression of interest.

By stewarding connections between ERC-funded scientists and possible investors, the ERC Virtual Venture Fair facilitates the valorisation of cutting edge research by pairing the interests of researchers and specialised investors to their mutual benefit.

ERC PoC grantees are regularly informed about the existence of the platform through messages inviting them to check out a service that the ERC is making available to all of its grantees, free of charge and with no obligation to join. On the platform they can meet potential investors by submitting a short description of their idea, product or service and their market estimates. The platform is very simple to use and does not require much time and effort from the side of PoC grantees to upload information about their venture and it is entirely up to them to decide if they want to use it or not.

Investors have been invited to join the platform mainly through the European Business Angel Association (EBAN) and other forms of publicity. Access is given to each of them individually by the ERCEA after checking their investor profile.

Contact: ERC-VIRTUAL-FAIR@ec.europa.eu

chapter four

2019 in Review

ERC Conference "Frontier Research: Creating Pathways to Sustainability"

One of the ERC highlights in 2019 was a conference on how frontier research creates pathways to sustainability. The event took place between the 2-3 December and around 120 participants attended the ERC premises in Brussels. The ERCEA's Acting Director, Waldemar Kütt, together with the ERC President, Jean-Pierre Bourguignon, and the Director General of DG Research and Innovation, Jean-Eric Paquet opened the first session by highlighting the ERC's contribution to the UN Sustainable Development Goals (SDGs) through funding bottom-up research. This provided the starting point for five exciting sessions in which 21 ERC grantees covered a broad range of topics such as human behaviour and sustainability, food and sustainability, clean energy, climate change and sustainable cities and communities. Two special lectures were also part of the opening session, one by the chairman of the High Level Expert Group of the UN Committee on World Food Security, Patrick Caron, and one by ERC grantee Johan Rockström who advises the United Nations Sustainable Development Solutions Network and the United Nations Framework Convention on Climate Change.

This conference showed many examples of how curiosity driven research leads to outcomes that can be directly relevant to societal challenges like the SDGs, bringing to light the positive relationship between scientific excellence and societal impact. Furthermore, a number of the projects presented were supported by Proof of Concept top-up funding for exploration into the commercial/societal innovation potential of the corresponding ERC project outcomes.

The conference also provided a networking forum for researchers leading ERC funded projects, representatives of EU wide and national research organisations as well as representatives from various EU institutions and industry stakeholders.

Research project leaders showed that curiosity driven research can provide sustainable solutions for preserving biodiversity while addressing farmers and producers' needs for better eco-friendly crop production and for combating major health challenges like obesity and antimicrobial resistance (AMR). These ERC researchers proposed a pathway for feeding a "healthy" planet.

The session on energy offered a set of complementary projects starting with the design and preparation of revolutionary molecular materials for solar cells, including the improvement of solar energy conversion in algae, innovating with novel market/consumer relationships and finally addressing smart functional glazing for the windows of tomorrow.

All sessions provided the possibility to take a close look at human interaction with the environment, the climate, biodiversity as well as the sustainability of our lifestyles. The need for equity and benefit sharing and both legal instruments and new digital commons were brought forward as tools to achieve a more sustainable sharing of resources.

Presentations in the final session encouraged a review of the design of cities and one to challenge the way communities function. Everyday issues such as streamlining traffic via automation may change our habits. The session also invited the audience to rethink neighbourhoods and consider the potential of urban sharing to reducing inequalities and promote responsible consumption patterns.

Giulia Grancini,
Professor at the
University of Pavia, Italy

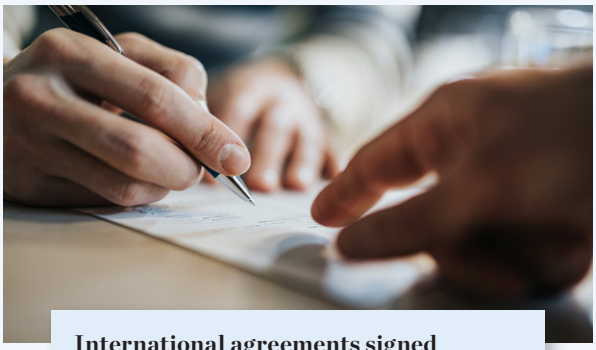
Natalia Fabra,
Professor at the
Universidad Carlos III de Madrid, Spain

Samuel Sanchez,
researcher at the Institute of
Bioengineering of Catalonia, Spain

MEP Eva Kaili at the joint STOA-ERC event in the European Parliament

Joint STOA-ERC event "Investing in researchers – shaping Europe's future"

In February, at the European Parliament in Brussels, ERC grantees and MEPs were brought together to share panel discussions at the second joint Science and Technology Options Assessment (STOA)-ERC event. Under this year's topic "Investing in researchers – shaping Europe's future", they discussed the latest findings and policy trends in the topical research areas of smart agriculture and food, migration and demography as well as CRISPR biotechnology. The ERC worked in close collaboration with the European Science Media hub to showcase ERC projects to an audience of policymakers, scientists and journalists. The gathering was part of the "Science Week at the European Parliament" opened by MEP and STOA Chair Eva Kaili. President Bourguignon, Deputy Director General for Research and Innovation Wolfgang Burtscher and MEP Paul Rübig followed and were joined on stage by seven ERC grantees.

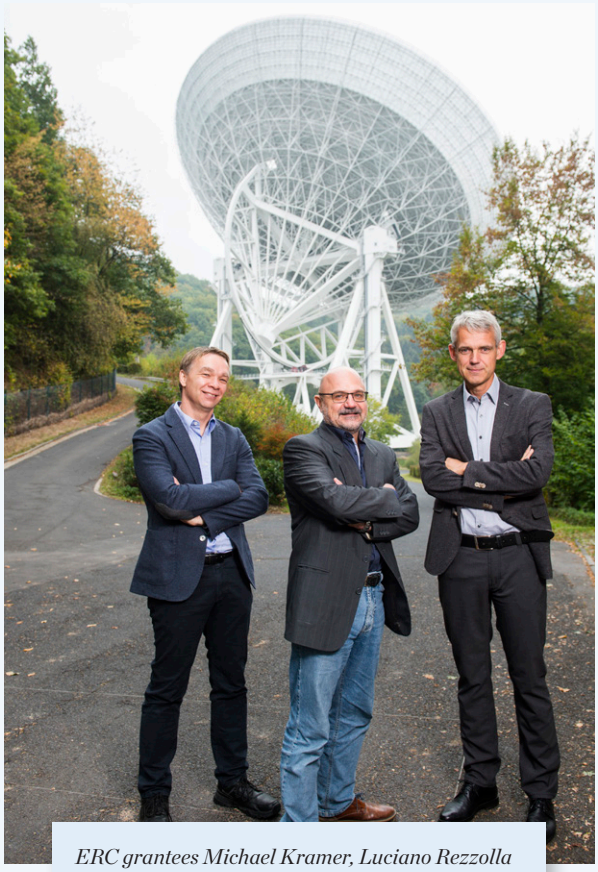


International agreements signed

In February, the EU and Australia concluded a new agreement that enables first class talent from Australia to join research teams funded by the ERC across Europe. The joint initiative with the Australian Research Council (ARC) is the second of its kind for the ERC with an Australian funding body. The initiative aims to encourage top scientific talent funded by the ARC to make research visits to Europe, where they will temporarily join ERC-funded teams. In October 2018, a similar agreement was concluded with the Australian National Health and Medical Research Council (NHMRC).

A similar deal was signed in October between the EU and Singapore to encourage top Singaporean scientists to join research teams funded by the ERC.

This agreement with the National Research Foundation Singapore (NRF) is the fourteenth international agreement of its kind. It forms part of the ERC's global outreach strategy, which aims to make Europe a hub for research talent.



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ERC grantees Michael Kramer, Luciano Rezzolla and Heino Falcke played a key role in capturing the first ever image of a black hole

Black hole revealed

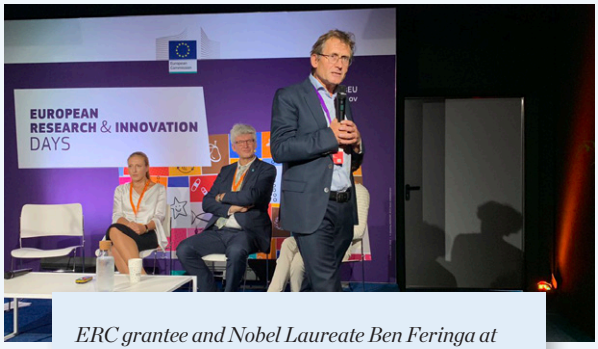
The first ever image of a black hole made headlines around the world in April 2019. Three ERC grantees played a crucial role in this breakthrough. It not only verified Einstein's general theory of relativity but also opened up a new era of astronomical observations. This major scientific milestone was the result of a global collaboration of scientists working on the Event Horizon Telescope (EHT) project. With a €14 million Synergy Grant, the ERC supported the key scientists on EHT: the Chair of the EHT Science Council Heino Falcke (Radboud University, Netherlands), Michael Kramer (Max Planck Institute for Radioastronomy, Germany), Luciano Rezzolla (Goethe University Frankfurt, Germany) and their teams. Together with the US National Science Foundation, the ERC was the main funder of the EHT.

President Bourguignon at the World Economic Forum in Davos, Switzerland with Constantinos Demetriades, Dame Linda Partridge, Magdalena Skipper and Virpi Lummaa

Davos and summer Davos

Once again, the ERC took part in the two annual meetings of the World Economic Forum (WEF) - in Davos in January, and in Dalian (China) in July. In Davos, a delegation of eight ERC grantees, including climate change scientist Johan Rockström, joined Commissioner Moedas and President Bourguignon in a successful press conference on the science of healthy ageing. The grantees also spoke at ten sessions throughout the conference.

In Dalian, at the WEF's Annual Meeting of the New Champions (AMNC), also known as "Summer Davos", nine grantees presented their expertise in discussions around cancer treatments, disability, scientific trust and much more. A dedicated Ideas Lab "Tackling Cancer from the Inside with the European Research Council" shone a light on frontier research's fight against this deadly disease.



ERC grantee and Nobel Laureate Ben Feringa at the R&I Days

R&I Days

The first European event dedicated to research and innovation took place between the 24-26 September. The 'R&I Days' objective was to bring stakeholders together to debate and shape the future research and innovation landscape. The ERC organised a policy session on fundamental research with ERC grantees and President Bourguignon to discuss the importance of empowering the next generation of scientists to take risks while remaining open to unexpected outcomes. It also joined forces with Nobel Laureates and the Kavli Foundation for a session with ERC grantee and Nobel Laureate Ben Feringa on innovation that stems from the most fundamental research. More than 15 grantees took part in the whole event, either as speakers or as exhibitors. In the exhibition area, ERC projects entertained participants with insights into the world of black holes, space debris and the power of mixing art and science with ERCcOMICS.

The winners of the first Horizon Impact Award, announced at the R&I Days, included two ERC-funded scientists. Lucie Cluver and Karthikeyan Bhargavan were awarded prizes of EUR 10,000 for making a societal or economic impact.

Commissioner Moedas and President Bourguignon launch the first ERC award for "Public Engagement with Research"

ERC's Public Engagement with Research Award

In the context of the R&I Days, Commissioner Carlos Moedas and ERC President Jean-Pierre Bourguignon launched the first ERC award for "Public Engagement with Research". The purpose of the award is to recognise ERC grantees who make the effort to engage with audiences beyond the scientific community and do so in effective and original ways. The award has three categories: public outreach, press and media relations and online and social media. The winners will be announced during a ceremony planned to take place at the EuroScience Open Forum (ESOF) in Trieste, Italy, in July 2020.

ERC grantee Sir Peter J. Ratcliffe was awarded the Nobel Prize in Medicine

ERC grantee wins Nobel Prize

In October, the Nobel Assembly at the Karolinska Institute awarded the 2019 Nobel Prize in Physiology or Medicine to Sir Peter J. Ratcliffe, Professors William G. Kaelin Jr and Gregg L. Semenza "for their discoveries of how cells sense and adapt to oxygen availability". The ERC supported the work of Sir Peter J. Ratcliffe for five years. In 2008, he won an ERC Advanced Grant as co-principal investigator, together with Christopher J. Schofield, to study hypoxia inducible factor hydroxylases. These proteins are involved in reading changes in oxygen levels and are key to fighting a number of important diseases. He is the seventh ERC-funded researcher to be awarded a Nobel Prize to date.

A distinguished panel of guests discusses frontier research and sustainability

Frontier research and sustainability

The year was marked by key political changes in the EU. Given this context, the ERC organised, in collaboration with Euractiv, a policy event on 3 December for the new European decision makers. Scientists and policy-makers debated the contribution of frontier research to a sustainable future for Europe. Among the speakers were Sir Peter Ratcliffe, Nobel Prize winner and ERC grantee, Prof. Robbert Dijkgraaf, Director of the Institute for Advanced Study Princeton, Prof. Subra Suresh, President of Singapore's Nanyang Technological University, Anita Lehikoinen, Permanent Secretary in the Finnish Ministry of Education and Culture and Eva Kaili, Chair of the STOA panel of the European Parliament. Mariya Gabriel, the newly appointed Commissioner for Innovation, Research, Culture, Education and Youth, expressed her support for the ERC and defended its budget under Horizon Europe. The event was also an opportunity to highlight some ERC projects tackling sustainability issues.

Study on open access to publications and research data management and sharing within ERC projects

The mission of the ERC is to support excellent frontier research in the sciences and the humanities. The main outputs of this research are new knowledge, ideas and understanding, which the ERC expects its researchers to publish in peer-reviewed articles and monographs. The ERC considers that providing free online access to these materials is the most effective way of ensuring that the fruits of the research it funds can be accessed, read and used as the basis for further research[1]. In this context, the ERC Scientific Council decided to launch a major study to better understand attitudes and practices among ERC funded researchers related to the provision of open access to publications, the management, sharing and reuse of research data, as well as other open science practices.

The study was carried out between June 2017 and March 2019 by a consortium consisting of the Public Policy and Management Institute (PPMI), the University of Göttingen and the University of Edinburgh (Digital Curation Centre), together with several subcontractors. It identified common challenges encountered by ERC-funded researchers, but also incentives and support available to them from their Host Institutions and other bodies. The research methods included a survey of ERC PIs[2], more than 130 interviews, 15 case studies, bibliometric analysis and two workshops with ERC PIs and Host Institution representatives. In addition, country profiles of the 28 EU member states, Switzerland, Norway and Israel were prepared. These comprised information on legal provisions, policies and guidelines on open access (OA) and research data management (RDM) applicable in the different countries. Building on the findings of the study, the contractor also described possible scenarios for the development of a ERC strategy in the areas of the study.

Key findings from the area of open access to publications

- PIs' general **attitudes towards OA to publications were positive** (89% of survey respondents), but with large variations regarding different models - green OA was accepted the most (85%), gold (63%) and especially hybrid (50%) favoured less.
- Above 70% of the journal articles were OA, which places **the ERC as a global leader among research funders**.
- However, this rate does not fully correspond to the positive attitudes expressed by PIs, who mentioned high publishing costs as well as issues with perceived journal quality as the main barriers.
- The estimated average OA costs for journal articles per project were about EUR 13,000, but with large variations across and within domains.
- Evidence related to OA monographs and chapters was limited. The average publication charge was about EUR 5,500 per book and EUR 1,100 per book chapter, but this data should be used with caution.

1 - https://erc.europa.eu/sites/default/files/document/file/ERC_Open_Access_Guidelines-revised_feb_2016.pdf
2 - PIs from 5,433 ERC frontier research projects funded under FP7 and Horizon 2020 were approached for participation in the survey. 1,064 responses were received (response rate of 19.6 %).

- Many PIs called for **more guidance, especially on licencing and copyright issues**.
- Many PIs saw the **ERC and other funders in a position to influence publishers' policies on OA**, particularly with regard to OA fees and embargo periods.

Key findings from the area of research data management and sharing

- Overall, PIs' attitudes to RDM and data sharing were largely positive, **but many still saw it as an administrative task and not as a part of core research practice**.
- Most PIs reported having encountered **no or only a few obstacles** limiting their ability to manage and share their data (87%). Those who did encounter obstacles reported the increased time and effort required (85%), lack of specific skills (69%) and lack of recognition for RDM activities (65%), among others.
- PIs expressed a need for clearer guidance **on costing RDM** into grant applications, and how to handle costs incurred after the end of the grant.
- They also asked for **discipline specific guidance** on making their data FAIR (findable, accessible, interoperable, reusable). Ethics and data protection were also mentioned as areas where PIs would appreciate more guidance and support.
- Access to **trusted and sustainable infrastructure** that supports RDM and data sharing practices needs to be improved.

Key findings related to other open science practices

- The majority of ERC PIs (51%) reported that they share preprints of their publications at least most of the time, but there are large differences in uptake across disciplines (PE 64%, SH 44%, LS 32%) and also in timing.
- Reactions to the various elements of open peer review were mixed. While 48% supported 'open reports' (publishing review reports alongside a publication), only 25% agreed with 'open identities' (revealing reviewer names to authors).
- Sharing **outputs beyond traditional publications and data** (e.g. protocols, codes, software) was generally highly valued by ERC PIs and widely practiced, especially in the life sciences.
- The overwhelming majority of ERC PIs use and value researcher identifiers (86%), especially ORCID (64%). However, **practical benefits for PIs** of keeping their profile up-to-date **need to be strengthened**.
- **Disseminating results to non-research audiences** was very or rather important for most of the surveyed PIs (78%). A wide range of practices were reported, including engaging with the general public (23%) and journalists/media (21%) and dissemination to practitioners (17%), industry/business (14%), teachers (13%), or policymakers and government (11%).

Analysis of re-application patterns for ERC funding

The evaluation of proposals by qualified experts is a process of paramount importance for the ERC mission supporting the highest quality research and constitutes one of its most important assets. In the context of the ERC Monitoring and Evaluation Strategy, the ERC often conducts analyses of various aspects related to the peer review process that leads to the selection of research projects for ERC funding.

Since its establishment, the ERC has launched and completed 28 main calls for proposals for its main grants (StG, CoG, AdG) during the period 2007-2018. In total, almost 55,000 distinct individuals and 80,000 proposals were evaluated during this period. Among them, 15% Principal Investigators (PIs) were successful at least once, this corresponding to 11% of all evaluated proposals. Despite the low success rate of individual submissions, excellent science has a high probability of being ultimately funded by the ERC.

Given the very high quality of research proposals submitted for ERC funding and the finite amount of funding available, the competition at the top-level is intense and the success rates are quite low. This leads many excellent PIs to resubmit their research idea through a new proposal in the coming years, often more than once, subject to certain restrictions. Furthermore, ERC grant holders often return to re-apply for a subsequent ERC grant.

How many unfunded PIs re-apply and when?

> 50% of all unfunded applicants in the FP7 main calls returned up to 6 years later to re-apply for ERC funding.

> Up to 92% of the unfunded applicants who return to the ERC re-apply within the first 4 years, as soon as re-application restrictions allow them to, independently of the main grant scheme.

How do initial scores affect the behaviour of unfunded re-applicants?

> The lower the score at first attempt, the less motivated are PIs to re-apply: 72% of PIs with unfunded As come back, whereas only 11% of PIs scoring C come back in the following 6 years.

> Re-application restrictions have a long-term discouraging effect, even when they no longer apply, especially for PIs scoring B at evaluation Step 1, compared to unfunded A or B at Step 2.

What are the success rates of returning unfunded applicants?

> The higher the score at first attempt, the higher the success rate at re-application: 28% for initially unfunded As, 19% for Bs at Step 2, 12% for Bs at Step 1, and 4% for Cs.

> StG applicants rejected at Step 2 on first submission are twice as more successful in obtaining an A when re-applying to the same scheme than when applying for a CoG.

What are the score variations through application rounds?

> 30% of re-applying PIs improve their score at re-application; 40% of re-applying PIs obtain the same score.

> 57% of PIs with initially unfunded A and 45% of PIs with a B at Step 2 on first attempt make it again to evaluation Step 2 upon resubmission.

> One third of PIs scoring B (at either Step) on first attempt, improve their score at resubmission.

> Half of PIs obtaining C at first attempt and re-applying for funding improve their score.

Any mobility between funding schemes and domains at re-application?

> Among all PIs funded after one or more failures, 6% have switched domains (a few among them more than once) before ultimately receiving funding (in their majority right after switching domains).

> 60% of StG unfunded PIs re-applied to the same scheme and almost all the remaining for CoG grants; almost all CoG and AdG unfunded applicants re-applied to the same scheme.

What are the re-application patterns for ERC grantees?

> 50% of all ERC FP7 grantees have re-applied so far for ERC funding; the majority among them do so shortly before/after the end of their grant.

> 30% of re-applying grantees are successful on first attempt and ultimately more than 40% obtain funding after multiple attempts.

> The success rate of re-applying grantees on first attempt is double that of unsuccessful re-applicants and triple that of newcomers to ERC calls.

		Resubmission (2013-2018)					
		Successful	Unfunded A	B Step2	B Step1	C	Total
Submission (2012-2017)	Unfunded A	28%	15%	14%	38%	5%	100%
	B Step 2	19%	9%	17%	45%	10%	100%
	B Step 1	12%	7%	13%	49%	20%	100%
	C	4%	2%	7%	41%	46%	100%
	Total	15%	8%	13%	45%	18%	100%

Proposals scoring A fully meet all ERC excellence criteria and are recommended for funding, subject to availability of funds.

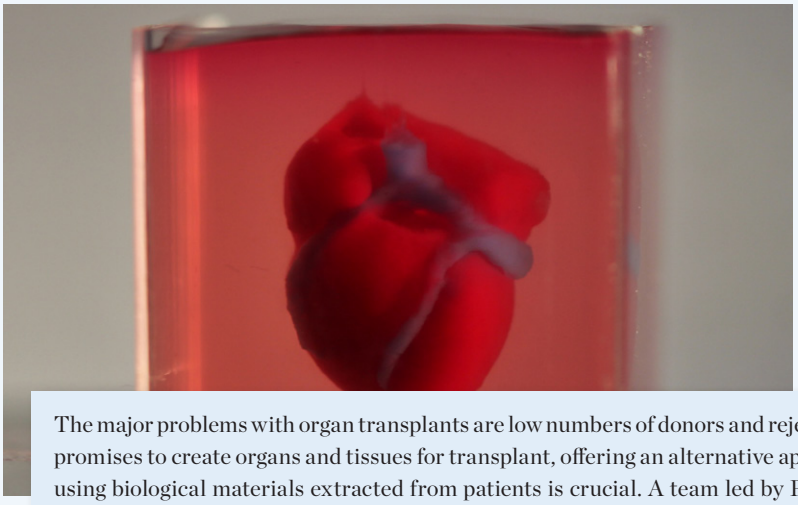
Proposals scoring B meet some but not all of the ERC excellence criteria and are not recommended for funding – B may be awarded at Step 2 or Step 1, in the latter case re-submissions are not allowed in the following year.

Proposals scoring C are not of sufficient quality to pass to Step 2 of the evaluation and re-submissions are not allowed in the two subsequent years.

chapter five

Research Highlights

Patients' cells used to 3D-print miniature heart

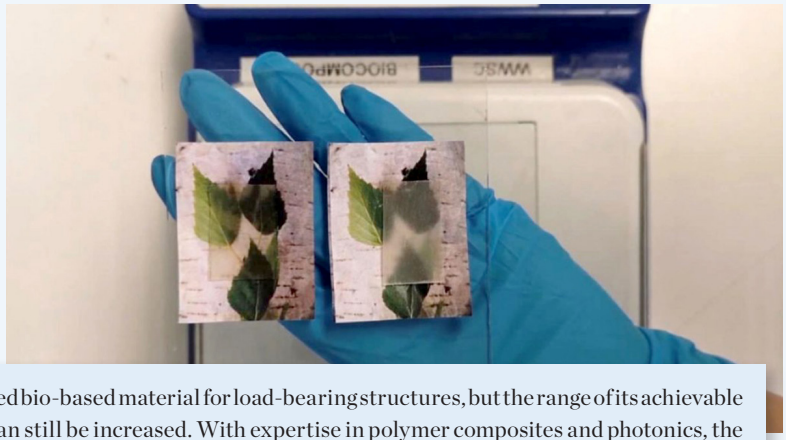


© Wiley

The major problems with organ transplants are low numbers of donors and rejection. Tissue engineering promises to create organs and tissues for transplant, offering an alternative approach. To fight rejection, using biological materials extracted from patients is crucial. A team led by Prof. Tal Dvir managed to 3D-print vascularized perfusable cardiac patches and a mini heart using specific cells directly from the patient. About the size of a big cherry, the first-of-its-kind heart has cells, blood vessels, ventricles and chambers, but it's far from being ready to be used for transplantation into humans. The team still have significant challenges to overcome and plan to eventually test out 3D-printed hearts in animal models. This result, however, is a significant step towards revolutionising the field of tissue engineering and regenerative medicine, solving the problem of organ donor shortage and implant rejection.

SmartCardiacPatch, Tal Dvir, Tel Aviv University, Israel

Smart glass made by wood



© Courtesy of Wallenberg Wood Science Center

Wood is the most widely used bio-based material for load-bearing structures, but the range of its achievable properties and functions can still be increased. With expertise in polymer composites and photonics, the team led by Prof. Lars Berglund developed the concept of 'transparent wood' for engineering applications. After removing lignin (the major light-absorbing component in wood) from a natural wood composite, they filled the remaining empty porous spaces with a polymer that matches the wood refractive index so that light propagates through it. The researchers then incorporated a phase change material, a substance that, changing from solid to liquid, and liquid to solid, gives the wood self-regulating thermal properties. The result is a transparent wood that not only transmits light, but also absorbs, stores and releases heat, potentially saving on energy costs.

WoodNanoTech, Lars Berglund, Royal Institute of Technology (KTH), Sweden

The role of women in post-war transitions

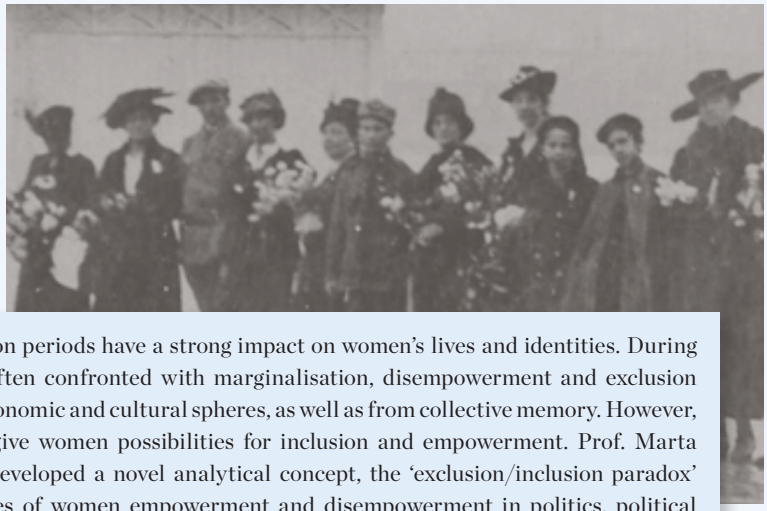
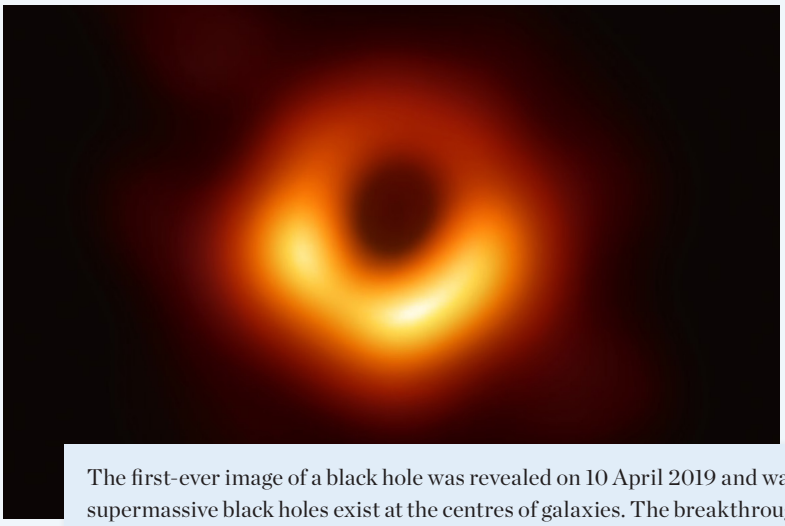


Photo: G. Padovan. © Fototeca dei Civici musei di Storia ed Arte [Photo library of the Civic History and Art Museums]

War and post-war transition periods have a strong impact on women's lives and identities. During these times, women are often confronted with marginalisation, disempowerment and exclusion from the political, socio-economic and cultural spheres, as well as from collective memory. However, transitional periods also give women possibilities for inclusion and empowerment. Prof. Marta Verginella and her team developed a novel analytical concept, the 'exclusion/inclusion paradox' where they focus on modes of women empowerment and disempowerment in politics, political violence, work and family. The North-Eastern Adriatic region, which includes parts of Italy, Austria, Slovenia and Croatia proves to be a noteworthy case study because of its violent past. The region was deeply marked by the two world wars and the Yugoslavian wars and experienced radical changes in terms of political borders and systems that affected women differently than men.

Eirene, Marta Verginella, University of Ljubljana, Slovenia

Black hole image captured for the first time

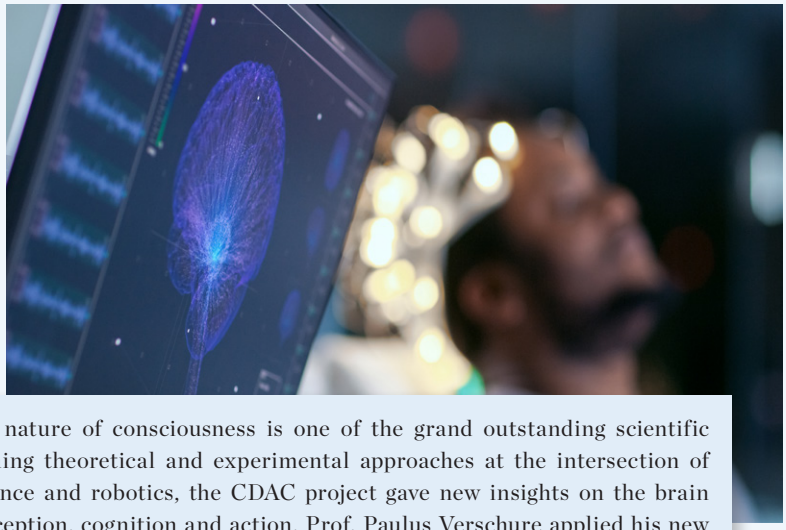


© The Event Horizon Telescope (EHT)

The first-ever image of a black hole was revealed on 10 April 2019 and was the best evidence yet that supermassive black holes exist at the centres of galaxies. The breakthrough was the result of a global collaboration of hundreds of scientists, using multiple telescopes around the world to pick up the high-frequency radio waves emitted by matter near the black hole. The ERC has been a key supporter of the endeavour. It funded a 14 million Synergy Grant for Professors Heino Falcke, Michael Kramer and Luciano Rezzolla and their teams who were instrumental to the success of the international project. This major scientific achievement marks a paradigm shift in our understanding of black holes, confirms the predictions of Albert Einstein's General Theory of Relativity and opens up new lines of enquiry into our universe.

BlackHoleCam, Heino Falcke Radboud University Nijmegen, Netherlands
Michael Kramer, Max Planck Institute for Radioastronomy, Germany
Luciano Rezzolla, Goethe University Frankfurt, Germany

Consciousness: what is it?



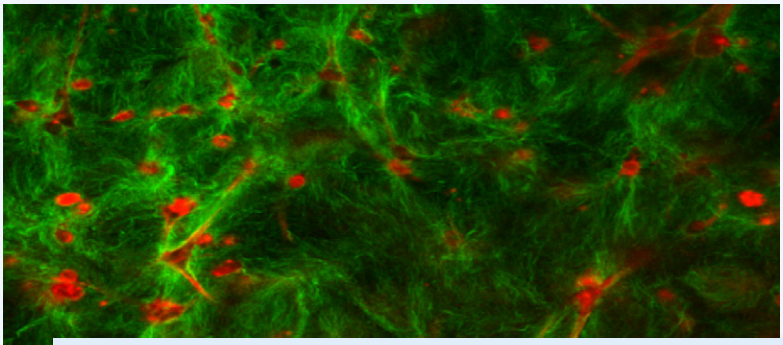
Understanding the nature of consciousness is one of the grand outstanding scientific challenges. Combining theoretical and experimental approaches at the intersection of cognitive neuroscience and robotics, the CDAC project gave new insights on the brain mechanisms of perception, cognition and action. Prof. Paulus Verschure applied his new theories to the design of a novel generation of robots with advanced social competences as well as to the development of revolutionary neuro-rehabilitation technologies, including the Rehabilitation Gaming System (RGS), a tool for the integrated treatment of deficits resulting from brain damage. The RGS has been validated in a large number of clinical studies, has treated over 3,000 patients and is currently being commercialised to assist people affected by a stroke. This step is supported via an ERC Proof of Concept grant.

CDAC, Paulus Verschure, Pompeu Fabra University, Spain

Ocean sustainability at risk

Climate change has great impacts on the oceans, marine resources and coastal communities. Current fishery management systems may no longer be effective, with heavy ecological and socio-economic implications. The lack of empirical and theoretical evidence on how fisheries' socio-ecological systems should adapt to climate change opens the opportunity to enter a new field of research. Prof. Elena Ojea addresses these challenges in Europe and elsewhere providing evidence for decision-makers. Her research on fisheries' systems and adaptation contributed to the High Level Panel blue paper 'The Future of Food from the Sea' on how far the ocean can meet the increasing global demand for nutritious food. She also contributed to another blue paper on the expected impacts of climate change on the sustainable ocean economy that she presented to the Conference of the Parties of Climate Change (COP25) in December 2019.

CLOCK, Elena Ojea, University of Vigo, Spain



New therapeutic applications for tamoxifen

Successfully used to treat breast cancer, tamoxifen is a drug that prevents oestrogens, hormones stimulating tumour growth, from reaching cancer cells. A new study demonstrated that tamoxifen also weakens the physical environment of solid tumours, such as pancreatic cancer, in mice. Most pancreatic carcinomas are surrounded by a large amount of connective tissue that becomes stiff under the pressure exerted by so-called pancreatic stellate cells (PSCs). The stiff tissue stands like scaffolding around the tumour, blocking chemotherapy drugs. Dr. Armando Del Río Hernandez observed that tamoxifen stops PSCs from hardening the connective tissue around the tumour. This mechanism is totally different from the one observed in breast cancer. Additional research is now needed before use on human patients. These findings offer a paradigm shift for tamoxifen from an anti-oestrogen hormonal therapy drug for breast cancer to an alternative candidate for stromal targeting strategies in pancreatic, and possibly other, tumours.

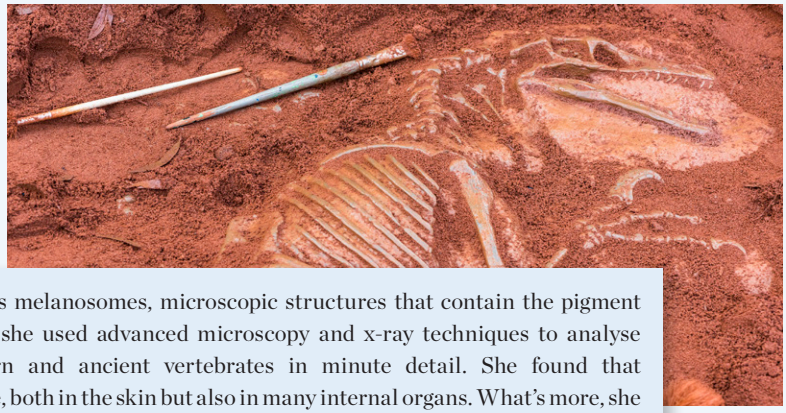
ForceRegulation, Armando Del Río Hernandez, Imperial College, United Kingdom

Are we curious by choice or by chance?

Prof. Valentin Wyart is interested in how humans make decisions in the face of uncertainty. In particular, why some choices seem driven by a desire to explore uncertain paths when safer options are available. Although these 'exploratory' choices have been put down to curiosity, he has found that many of them are actually the result of imprecise brain computations in the frontal cortex. His team used functional MRI to analyze participants' behaviour when choosing between two actions associated with uncertain rewards in a slot machine game. Using a new mathematical model of decision-making accounting for imprecise computations, they found that more than half of exploratory choices were caused by random errors and not by curiosity.

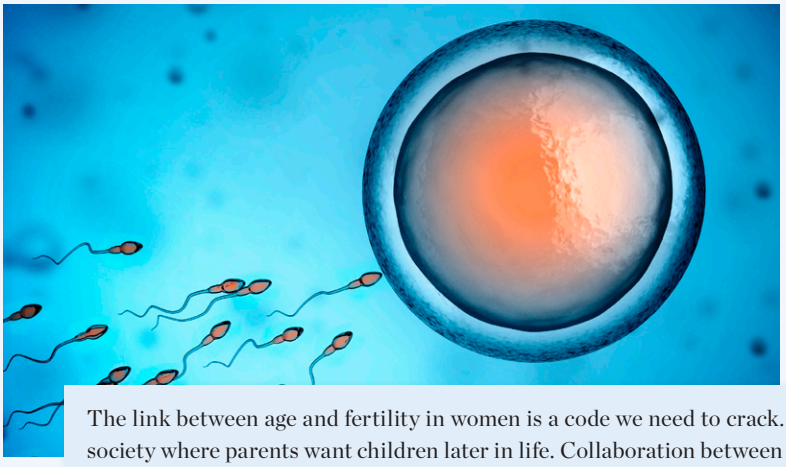
OPTIMIZERR, Valentin Wyart, French Institute of Health and Medical Research (INSERM), France

Dinosaurs and their colourful feathers



Dr Maria McNamara studies melanosomes, microscopic structures that contain the pigment melanin. For the first time, she used advanced microscopy and x-ray techniques to analyse melanosomes across modern and ancient vertebrates in minute detail. She found that melanosomes are everywhere, both in the skin but also in many internal organs. What's more, she was surprised to discover that the chemical make-up and shape of melanosomes varies between organ types. These variations can preserve in fossils, thus opening up exciting opportunities to use fossil melanosomes to map the long gone soft tissues of ancient animals. This work also strongly suggests that melanin may have evolved for functions other than the provision of colour to skin, hair and feathers. Her team already showed that we can reconstruct the true colours of fossil skin, informing on the communication strategies used by ancient animals. She also discovered that feathers are present not only in birds and dinosaurs, but also in their flying relatives the pterosaurs, completely questioning when feathers evolved. Her work has important repercussions for our understanding of these ancient creatures, inside and out.

ANICOLEVO, Maria McNamara, University College Cork, Ireland



Decoding the puzzle of fertility

The link between age and fertility in women is a code we need to crack. This is especially true in a society where parents want children later in life. Collaboration between two ERC grantees brought new insights into the physiological changes that cause infertility. They used super high-resolution cameras to capture the microscopic structures of meiosis, the cellular process through which, in women, eggs form. Documenting egg cells in the moments preceding fertilisation, allowed to identify a culprit: the kinetochores. These structures anchor the chromosomes to the spindle, a cellular machine that separates chromosomes. The spindle pulls on the kinetochores to tear the chromosomes apart, leading to a cell with only one copy of each chromosome, ready to fuse to its male counterpart. The researchers found that the kinetochores fragment into pieces with age and attach incorrectly to the spindle. This causes chromosomal abnormalities, providing a fundamental piece of the puzzle of infertility.

ChromOocyte, Melina Schuh, Max Planck Institute, Germany

ReCAP, Eva Hoffmann, Copenhagen University, Denmark

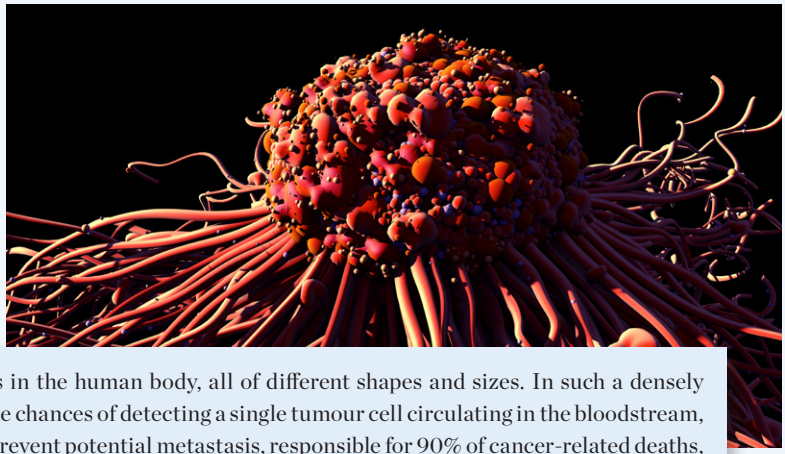
Water detected on an exoplanet

© ESA/Hubble, M. Kornmesser

Can we find Earth 2.0? We are one step closer after water vapour was detected for the first time in the atmosphere of a remote and potentially habitable planet. Three ERC grantees based at University College London were among the co-authors of the study. Planet K2-18b is now the only one known to have both water and temperatures that could support life. The exoplanet orbits a star some 110 lightyears away. The team used data captured by the ESA/NASA Hubble Space Telescope and developed open-source algorithms to analyse the starlight filtered through K2-18b's atmosphere. The results revealed the molecular signature of water vapour, also indicating the presence of hydrogen and helium in the planet's atmosphere. Further studies are required to estimate cloud coverage and the percentage of atmospheric water present.

ExoAI, Ingo Waldmann, University College London, United Kingdom
ExoLights, Giovanna Tinetti, University College London, United Kingdom
ExoMol, Jonathan Tennyson, University College London, United Kingdom

Tracking rare metastatic cells in the bloodstream



There are trillions of cells in the human body, all of different shapes and sizes. In such a densely populated environment, the chances of detecting a single tumour cell circulating in the bloodstream, seem pretty weak. Yet, to prevent potential metastasis, responsible for 90% of cancer-related deaths, early detection is a must. After four years of research, Prof. Liesbet Lagae developed a microchip that hunts, inspects and sorts rare cells circulating in the blood. Equipped with a 2D digital imaging system and a microfluidic switch made of microscopic bubbles, the device will be able to analyse multiple fluid channels simultaneously resulting in a throughput of up to 20 million cells per minute and separate cancerous cells from healthy ones. With this device, cheaper, safer and faster than any existing cell analyser, a simple blood test will be sufficient to screen for the information needed on the tumour cell specificities and take the more appropriate therapeutic approach. Sorted cancer cells can further be sequenced for finding specific mutations in the course of further refining or synthesizing the best treatment options.

SCALPEL, Liesbet Lagae, Interuniversity Microelectronics Centre, Belgium

ERC-funded research: Outstanding publications

Editors of major scientific outlets such as Science, Physics World, and La Recherche agree that the unveil of the first ever image of a black hole (funded also by ERC project BlackHoleCam, showcased in this report) has generated such a paradigm shift in the physical sciences to be considered the most important scientific breakthrough of the year.

More ERC-funded research findings also made it into the list of the most important scientific discoveries of 2019:

The journal Science included among the ten major breakthroughs of 2019 a series of papers revealing what happened 66 million years ago when most life, including dinosaurs, disappeared from earth. The most widely supported hypotheses trace back this mass extinction to either intense volcanic activity or an extra-terrestrial impact in the form of an asteroid. ERC Consolidator grantee Andrew John Ridgwell, University of Bristol (project: PALEOGENIE) and Starting grantee James Rae, University of St. Andrew (project: OldCO2NewArchives) contributed to gain important new insights supporting the hypothesis of an asteroid hitting earth as the cause. Their study shows that the impact of the asteroid caused an acidification of the ocean at the time which resulted in an ecological collapse in the sea and consequently on land. They then simulated how recovery of life and climate was possible after such a huge shock, and more generally, how studying marine life can help reconstruct the earth's history.

A study in the field of environmental biology, bringing together 141 researchers, among which three were ERC grantees, is part of La Recherche's review of the most important discoveries of 2019. ERC Starting grantee Nico Eisenhauer, University of Leipzig (project: ECOWORM), Advanced grantees Wilhelmus Henricus Van Der Putten, Royal Netherlands Academy of Arts and Science (project: SPECIALS) and Matthias Rillig, Free University of Berlin (project: Gradual_Change) published new research on global earthworm diversity. This study provides a huge database describing the presence of earthworm species worldwide, thereby revealing large disparities depending on climate. Interestingly, their results showed that temperature and rainfall seem to be the most important drivers for earthworm occurrence, while soil properties mattered very little. These data highlight how climate changes influence biodiversity and how important soil organisms are for the proper functioning of ecosystems.

The journal Nature cites an ERC funded project in their News and Views section amongst the most important papers of 2019: Starting grantee Christina Graham (née Hicks), Lancaster University (project: FAIRFISH) published new data about the global fish market and its relation to malnutrition. The researchers emphasize the rich source of micronutrients in fish, detailing their geographic differences, but most importantly, mapping fish nutritional data to the prevalence of nutrient-deficiency diseases in communities living within 100 kilometres of the coast. In particular, the study showed that some regions at high risk for malnutrition had local fish containing some of the highest concentration of key nutrients. These results raise important issues for health policy by showing how local fisheries in developing countries could be critical in helping to overcome malnutrition.

When looking into the scientific papers that have attracted most attention from the public sphere in 2019, the company Altmetric lists three ERC funded articles in their top 100:

- A geosciences publication from Advanced grantee Jonathan Louis Bamber, University of Bristol (project: GlobalMass). This study provides an alarming estimation of the rising sea levels due to climate change. According to pooled expert judgements, increased temperatures will melt Greenland and Antarctic ice sheets, which in turn will lead to a rise in sea levels of at least two meters by 2100. These consequences of climate change could result in massive land loss and displacement of millions of people in the future.

- A publication authored by the three ERC grantees from University College London Giovanna Tinetti, (project: ExoLights), JonathanTennyson, (project: ExoMol) and Ingo Waldmann (project: ExoAI) working in the physical sciences about the discovery of water in the atmosphere of another planet. The article represents a major step in the search for habitable planets (the related ERC funded projects are showcased in this report on page 51).

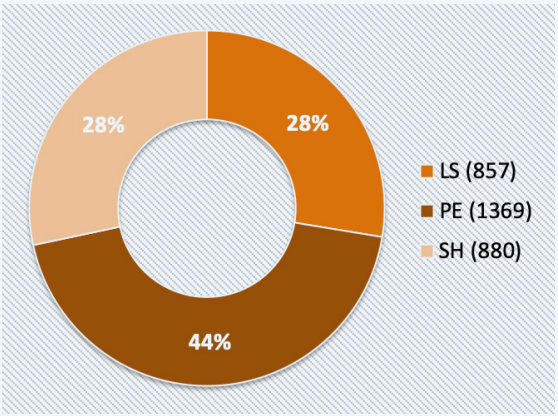
- A publication by paleoanthropologist and double grantee Aikaterini Charvati, University of Tübingen (project: CROSSROADS) revisiting the time in evolution when homo sapiens arrived in Europe. By re-examing two skulls that were found 40 years ago in a cave in Greece, this study claims to provide the earliest evidence of homo sapiens presence in Europe, dating it back to 210,000 years ago, which is 150,000 years earlier than previously thought. This finding changes our understanding of early human migration from Africa and highlights the importance of southeastern Europe for fossil records.

chapter six

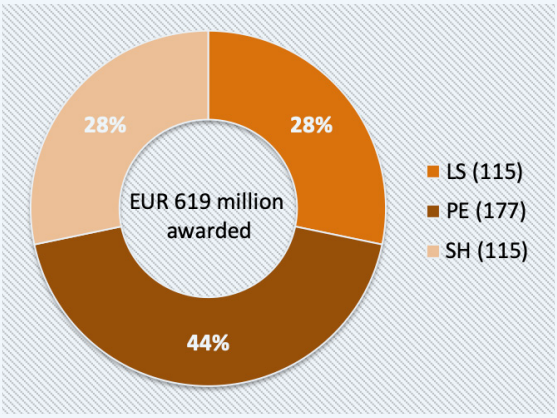
Advancing Frontier Research

ERC calls 2019

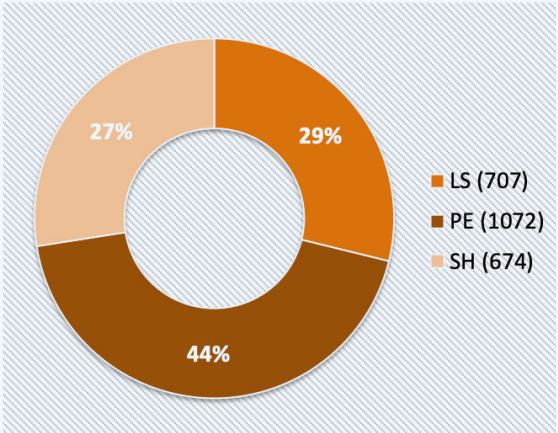
Starting Grant 2019 - Submitted proposals



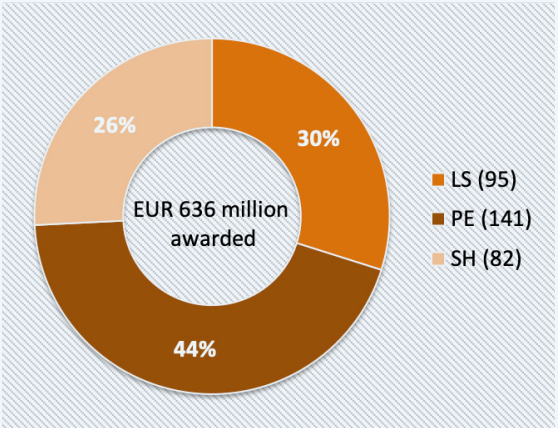
Starting Grant 2019 - Funded projects



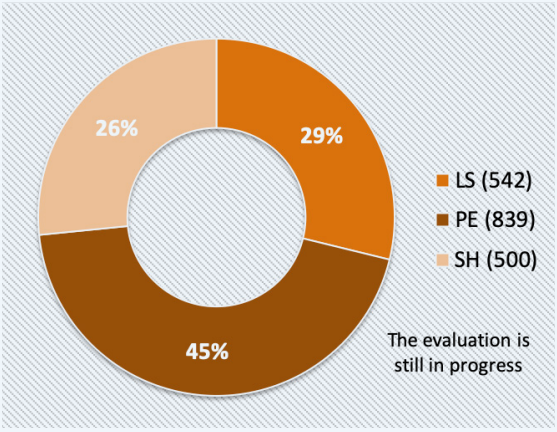
Consolidator Grant 2019 - Submitted proposals



Consolidator Grant 2019 - Funded projects

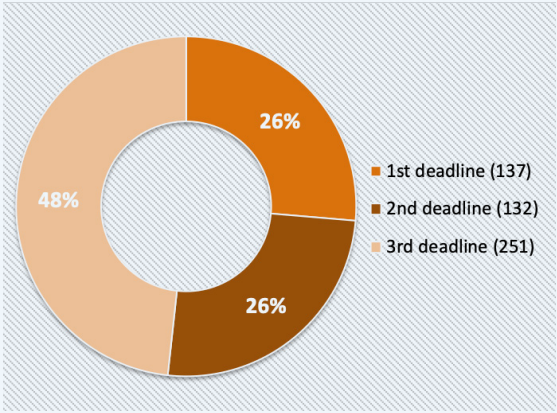


Advanced Grant 2019 - Submitted proposals

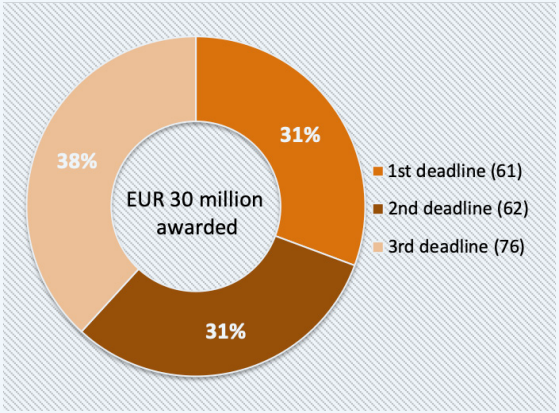


Synergy Grant 2019

Proof of Concept Grant 2019 - Submitted proposals



Proof of Concept Grant 2019 - Funded projects



7,440

proposals submitted in 2019 to ERC core schemes

288

proposals submitted to SyG 2019

746

projects selected for funding in StG, CoG and SyG 2019 *

520

proposals submitted in 2019 to the PoC scheme

+ 18%

increase in submissions compared to 2018

199

projects selected for funding in PoC 2019

2,343

proposals submitted in 2019 by female applicants

+ 3%

more female StG and CoG applicants compared to 2018

- 11%

less female AdG applicants compared to 2018

> 3,500

panel members in 2014-2019 calls

56

European and non-European countries hosting ERC panel members

> 35,000

external reviewers in 2014-2019 calls

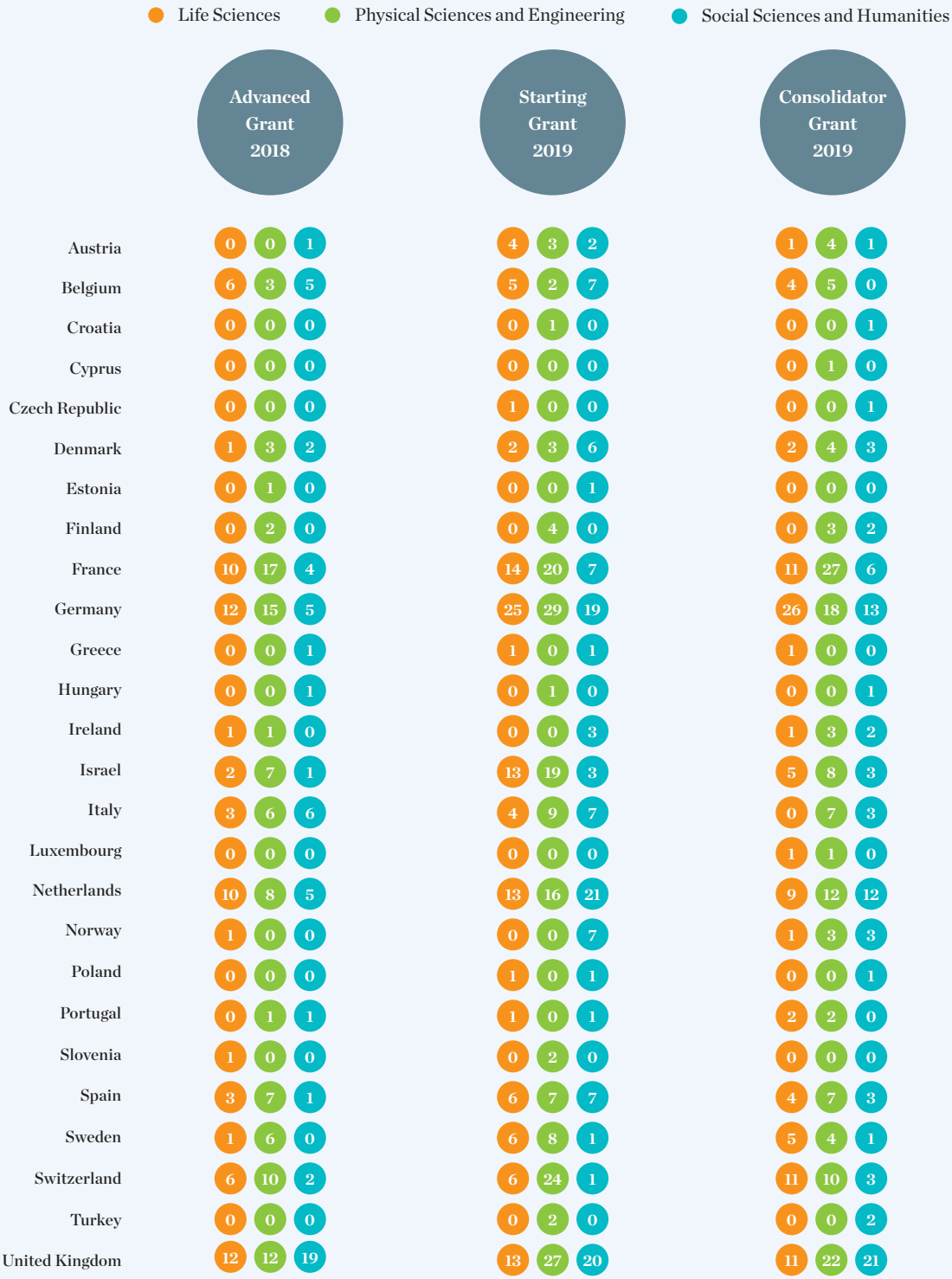
The Advanced Grant 2019 proposals were still under evaluation at the moment of preparing this report

ERC calls in Horizon 2020

	Total number of applications	of which		
		Evaluated*	Funded	Success rates**
Starting Grant 2014	3,273	3,204	375	11.7
Starting Grant 2015	2,920	2,862	349	12.2
Starting Grant 2016	2,935	2,881	391	13.6
Starting Grant 2017	3,082	3,032	407	13.4
Starting Grant 2018	3,170	3,123	405	13.0
Starting Grant 2019	3,106	3,060	407	13.3
Starting Grant	18,486	18,162	2,334	12.9
Consolidator Grant 2014	2,528	2,485	371	14.9
Consolidator Grant 2015	2,051	2,023	303	15.0
Consolidator Grant 2016	2,305	2,274	314	13.8
Consolidator Grant 2017	2,539	2,498	328	13.1
Consolidator Grant 2018	2,389	2,356	292	12.4
Consolidator Grant 2019	2,453	2,419	318	13.1
Consolidator Grant	14,265	14,055	1,926	13.7
Advanced Grant 2014	2,287	2,250	192	8.5
Advanced Grant 2015	1,953	1,927	277	14.4
Advanced Grant 2016	2,404	2,373	231	9.7
Advanced Grant 2017	2,167	2,137	268	12.5
Advanced Grant 2018	2,052	2,027	222	11.0
Advanced Grant	10,863	10,714	1,190	11.2
Proof of Concept 2014	442	426	121	28.4
Proof of Concept 2015	339	323	160	49.5
Proof of Concept 2016	437	405	159	39.3
Proof of Concept 2017	532	497	160	32.2
Proof of Concept 2018	441	417	160	38.4
Proof of Concept 2019	520	498	199	40.0
Proof of Concept	2,711	2,566	959	38.0
Synergy Grant 2018	300	295	27	9.2
Synergy Grant 2019	288	285	38	13.3
Synergy Grant	588	580	65	11.2

* withdrawn and ineligible proposals not taken into account
** percentage of funded proposals in relation to evaluated proposals
Data as of February 2020

Geographical distribution of grantees for each call



Data as of
February 2020

Chairs of ERC evaluation panels 2019

Panel	Starting Grant 2019	Consolidator Grant 2019	Advanced Grant 2019
Life Sciences			
LS1 Molecular Biology, Biochemistry, Structural Biology and Molecular Biophysics	Andrea Mattevi	Helen Saibil	Kristina Djinovic-Carugo
LS2 Genetics, 'Omics', Bioinformatics and Systems Biology	Magnus Nordborg	Henk Stunnenberg	Alea Mills
LS3 Cellular and Developmental Biology	Marta Miaczynska	Antoine Peters	Malcolm Bennett
LS4 Physiology, Pathophysiology and Endocrinology	AntonioVidal-Puig	Jan Paul Medema	Didier Trono
LS5 Neuroscience and Neural Disorders	Rohini Kuner	Anne Marie Martine Ammassari-Teule	David Brooks
LS6 Immunity and Infection	Rose Zamoyska	Dirk Haller	Francisco García-del Portillo
LS7 Applied Medical Technologies, Diagnostics, Therapies and Public Health	Nico Verdonschot	Konstantina Nikita	Caroline Sabin
LS8 Ecology, Evolution and Environmental Biology	Nick Barton	Juha Merilä	Michel Milinkovitch
LS9 Applied Life Sciences, Biotechnology and Molecular and Biosystems Engineering	Kåre Magne Nielsen	Karl Ritz	Dirk Inzé
Physical Sciences and Engineering			
PE1 Mathematics	Stefaan Vaes	Marta Sanz-Sole	Jonathan Keating
PE2 Fundamental Constituents of Matter	Nigel Glover	Diederik Wiersma	Dieter Lüst
PE3 Condensed Matter Physics	Jean-Marc Triscone	Julie B. Staunton	Marileen Dogterom
PE4 Physical and Analytical Chemical Sciences	Jeanne Pemberton	Deborah Jones	Deborah Leckband
PE5 Synthetic Chemistry and Materials	Thomas R. Ward	Nikolai D. Denkov	Antonio M. Echavarren
PE6 Computer Science and Informatics	Pierre Wolper	Anne-Marie Kermarrec	Horst Bischof
PE7 Systems and Communication Engineering	Michaela Vellekop	Hans Zappe	Marios Polycarpou
PE8 Products and Processes Engineering	Suad Jakirlić	Dimitris A. Saravanos	Michael F. Petrou
PE9 Universe Sciences	Luigi Guzzo	Carsten Dominik	Chryssa Kouveliotou
PE10 Earth System Science	Katharine Cashman	Veronique Garçon	Jeannot Trampert
Social Sciences and Humanities			
SH1 Individuals, Markets and Organisations	Alfonso Gambardella	Peter Egger	Hélène Rey
SH2 Institutions, Values, Environment and Space	Serge Hoogendoorn	Tanja Boerzel	Stephan Parmentier
SH3 The Social World, Diversity, Population	Henri Bergeron	Carsten Karel Willem De Dreu	Hanna Ayalon
SH4 The Human Mind and Its Complexity	Shu-Chen Li	Patrick Haggard	Elena Leonidovna Grigorenko
SH5 Cultures and Cultural Production	Gábor Betegh	Ray Siemens	Anna Chahoud
SH6 The Study of the Human Past	John Tolan	Lin Foxhall	Helena Hamerow

Synergy Grant 2019				
Julian Gardner	Alan Irwin	Maria Leptin	Søren Kragh Moestrup	Johan Mooij

chapter seven

Strategy Support

For the ERC President

40

presentations

14

briefings

14

data analyses

For members of the Scientific Council

17

presentations

5

briefings

4

data analyses

Documents and in-depth analysis for:

Scientific Council
Standing Committees
Working Groups

Support to the Scientific Council

Strategy support consists of activities undertaken by the ERCEA to support the Scientific Council with the task of setting the scientific strategy, of establishing positions on scientific management, monitoring and quality control and of undertaking communication and dissemination efforts. These activities cover:

> policy analysis and advice
> programme design and review
> management of Standing Committees and Working Groups
> programme monitoring and evaluation
> communication and dissemination.

All ERCEA staff contribute to a greater or lesser extent to the development of the Scientific Council's strategy for the ERC, but two units in particular are dedicated to providing strategic support to the Scientific Council:

- **Support to the Scientific Council:** The unit supports the Scientific Council to establish the overall research funding and management strategy of the ERC, including the ERC annual work programme and leads on the assessment, monitoring, evaluation, reporting and statistical analysis of the ERC's activities. In response to requests by the Scientific Council the unit continuously advises them in their activities by providing analysis and intellectual input through the drafting of various documents that reflect the Scientific Council's main orientations. Due to the specific governance model, the Scientific Council's plenary meetings are also prepared with the organisational and administrative support of this unit.

- **Communication Unit:** The unit assists the Scientific Council and the ERCEA in their communication strategy towards the scientific community, public authorities, media and the public at large. It also advises and assists the President in terms of communication activities, including media interviews.

Meetings

The Scientific Council (ScC) held regular plenary meetings in 2019 both in Brussels and across Europe, usually at the invitation of national authorities. Meeting in different countries, either EU Member States or Associated Countries, is a way of making the ERC more visible and make the members of the Scientific Council better aware of local situations.

January

- 22-25: World Economic Forum Annual Meeting 2019 (Davos)

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April

- 4-6: ScC Plenary and retreat (Lisbon)
- 7-12: European Geosciences Union General Assembly 2019 (Vienna)
- 11-12: The International Astronomical Union 100 Years 1919-2019 (Brussels)
- 24: Workshop "Open Access for Anthropology: A Model for Universal Open Access" (Cambridge, MA)

February

- 7: European Parliament STOA-ERC event "Investing in Young Researchers, Shaping Europe's Future"
- 14-17: AAAS 2019 Annual Meeting (Washington)
- 21-22: Workshop on ERC Evaluation and Funding (Brussels)
- 26-27: ScC Plenary (Brussels)

May

- 1-3: Global Research Council Annual Meeting (São Paulo)
- 8-9: "Connecting Science and Society" – 25th Anniversary of ALLEA (Bern)
- 23: "How do we assess scientific quality" - Symposium of the Royal Swedish Academy of Sciences (Stockholm)

March

- 18-19: Next Einstein Forum Steering Committee visit to the African Academy of Sciences (Nairobi)
- 19: Conference "The future of frontier research. Is there a 'good way' to open science?" (Pisa)

June

- 5: Enhancing EU-Japan Research Cooperation on the Frontiers of Knowledge (Tokyo)
- 9-14: 8th International Congress of Chinese Mathematicians (Beijing)
- 17-18: Heads of International Biomedical Research Organisations meeting (Washington)
- 20-21: ScC Plenary (Brussels)
- 25: European Forum for Science, Research and Innovation 2019 (Dresden)

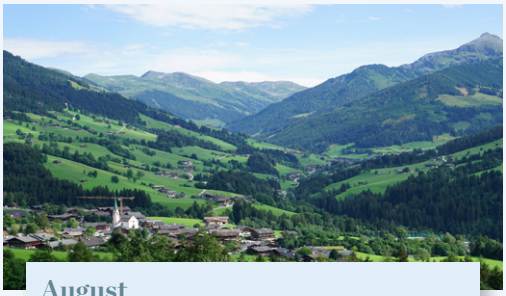
The meetings are also considered important events both by the national authorities as well as the local scientific and research community. In addition, in 2019 members of the Scientific Council participated in meetings and events around the world representing the ERC, including scientific conferences.

July

- 1-3: World Economic Forum Annual Meeting of the New Champions 2019 (Dalian)
- 16: International Congress on Industrial and Applied Mathematics ICIAM 2019 (Valencia)
- 17: Europe-Korea Conference on Science and Technology EKC 2019 (Vienna)

October

- 3-4: 17th European Gender Summit (Amsterdam)
- 5-8: STS Forum 2019 (Kyoto)
- 12: 150th Anniversary celebration of the Bulgarian Academy of Sciences (Sofia)
- 14-15: Open Access 2020 Summit of Chief Negotiators (Berlin)
- 22-23: ScC Plenary (Krakow)



August

- 22-24: European Forum Alpbach 2019 Technology Symposium

November

- 8-9: Falling Walls Events 2019 (Berlin)
- 12: Hearing of the ERC President at the ITRE Committee of the European Parliament (Brussels)
- 20-23: World Science Forum (Budapest)
- 26: International Symposium for the CNRS 80th Anniversary (Paris)

September

- 5: ERC Widening Participation event (Belgrade)
- 11-3: 3rd AXON Meeting (Alicante)
- 24-26: European Research and Innovation Days (Brussels)
- 25-27: 6th ACM International Conference on Nanoscale Computing and Communication (Dublin)

December

- 2-3: ERC Conference "Frontier Research: Creating Pathways to Sustainability" (Brussels)
- 3: ERC policy event "A Sustainable Future for Europe – The Contribution of Frontier Research" (Brussels)
- 5-6: ScC Plenary (Brussels)
- 18-19: Visit of the ERC President to Lithuania (Vilnius)

Standing Committees

The Standing Committee on Panels deals with the selection of evaluation panellists.

The Committee met four times in 2019.

The Standing Committee on Conflict of Interest, Scientific Misconduct and Ethical Issues (CoIME) provides guidance on conflict of interest, scientific misconduct and ethical issues.

In 2019, the CoIME gave its advice on 18 cases of alleged scientific misconduct. An anonymised reporting of these cases can be found on the ERC website.

The Committee met once in 2019, besides the consultations of members on specific cases.

The Standing Committee for Programme Impact Monitoring and Evaluation (PRIME) provides guidance regarding ERC tasks to monitor the quality of operations, evaluate programme implementation and achievements and make recommendations for future actions.

It was created in February 2019 at the recommendation of the Scientific Council Working Group on Key Performance Indicators, which was active between 2013 and 2018 and was discontinued after the creation of PRIME.

The Committee met twice in 2019.

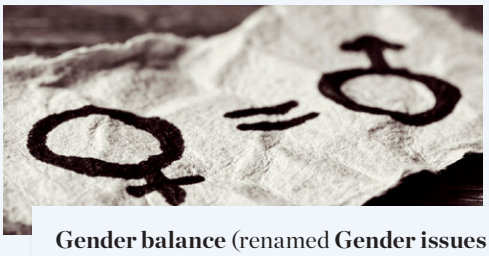
Working Groups

The members of the Scientific Council also meet in Working Groups (WGs) that carry out analyses and contribute to the ERC's scientific strategy through proposals to be adopted by the Scientific Council in plenary in areas addressing specific issues.

There are currently five Working Groups dedicated to the following topics, which are of particular interest to the ERC:

Innovation and relations with industry, to examine the impact of ERC funded research on innovation and ERC's relationship with the industrial/business sector.

The WG met once in 2019.



Gender balance (renamed **Gender issues** in 2019), to ensure that the ERC is at the forefront of best practices with regard to gender balance in research.

The WG met twice in 2019.

Widening European participation, to encourage low performing countries and, in particular, Central and Eastern European countries to better nurture their scientific talent and invest more in research.

The WG met twice in 2019.

Open access, to develop an ERC position on issues related to open access to publications, research data management and sharing and open science more broadly.

The WG met three times in 2019.

Science behind the projects, to perform an ex-ante content analysis of the ERC funded projects, using expert judgment that will enable ERC to systematically report on the research areas, topics and fields that it funds, including on funding trends.

The WG met once in 2019.

The table below presents an overview of the activities of the various WGs, focusing on their objectives and the recommendations made by each group to the ERC Scientific Council so far.

WG	Objectives	
Gender issues (since 2008)	• Inform and raise awareness among both male and female excellent researchers of the opportunities of the ERC grants; • Give equal opportunities and treatment to men and women applying in all ERC grant competitions; • Monitor gender distribution within the ERC's peer review system; • Take into account the gender dimension in all ERC grants. N.B. The WG also drafted the ERC Gender Equality Plan 2007-2013 and Plan 2014-2020.	
Open access (since 2009)	• Monitor developments on open access, research data management and open science more broadly within scientific communities, funding organisations, universities and other research performing organisations, and other stakeholder communities (such as publishers, learned societies, or civil society) that affect the remit of the ScC; • Investigate the effects of these developments and those of the ScC strategies in this area on the scientific communities that the ERC serves; • Advise the ScC, upon request or on its own initiative, on new strategies that the ScC should adopt and on measures to effectively implement these strategies.	
Innovation and relations with industry (since 2009)	• Analyse ERC relations with the industrial/business sector as potential HIs and to demonstrate the ERC's contribution to the European economy; • Design, development, implementation and follow-up of the Proof of Concept (PoC) scheme; • Changes or improvements to ensure PoC success. N.B. The new Terms of Reference propose to change these objectives with the aim to broadening the focus of activity of the group to cover issues related to the assessment of the socio-economic impact of the ERC programme and on the links between ERC-funded projects and innovation.	
Widening European participation (since 2012)	• Capitalise on the full European potential for frontier research without departing from the ERC's principle of excellence; • Contribute to a truly inclusive European culture of competitiveness in science; • Strengthen participation in ERC calls by researchers from the EU's less research-performing regions; • Facilitate systematic debate and interactions with relevant stakeholders to promote national and local support for promising scientists from the EU's less research-performing regions.	
Science behind the projects (SBP) (since 2015)	• Define the scope and strategic direction of the SBP initiative; • Identify potential uses and users of the SBP initiative and data collected; • Design a common methodology for the three domains to facilitate the collection of data about the scientific content of projects; • Contribute to a robust analysis of the data collected; • Define the communication and dissemination strategy; • Determine how the SBP initiative and data collected can be best used to justify the importance of the ERC philosophy and strategy.	

	Proposals to the Scientific Council
	• 6 recommendations were related to changes in eligibility rules, application procedures and costs eligibility with the aim to ensure equal opportunities to men and women applicants; • 3 were related to awareness raising on unconscious biases; • 2 were related to the organisation of workshops. N.B. The WG has also commissioned two studies: • Gender aspects in career structures and career paths; • ERC proposal submission, peer review and gender mainstreaming.
	• 12 recommendations were related to the inclusion of specific actions (grants, procurements) in the ERC Work Programme; • 9 were related to issuing or endorsing major statements or documents; • 3 were related to endorsing or adopting other statements or documents. N.B. • The WG has also organised 7 workshops or seminars, jointly with other organisations or by the ERC alone; • The WG has actively discussed and contributed to a study on "Open access and research data management and sharing in the context of ERC projects".
	• The main recommendation was made in 2010: to introduce the PoC as a new grant in the ERC portfolio; • 6 were related to changes or the fine-tuning of rules on PoC, its eligibility and its evaluation criteria and procedures; • 5 were related to activities to facilitate PoC grantees relations with potential investors; • 2 were related to the launch of an assessment exercise of the PoC scheme and on the subsequent ScC conclusions and recommendations on the results of the exercise.
	• Adoption of an ERC Action Plan on Widening Participation (2013); • Launch a campaign to change Horizon 2020 remuneration rules in order to allow consistent salary levels for all ERC researchers (not accepted); • Establish a visitor scheme to ERC projects for post-docs from weak performing countries; • Provide support to a consortium of NCPs to identify and share good practices and raise the general standard of support to ERC applicants, with particular focus on those from low performing countries; • Foresee an additional funding option for "start-up" costs of applicants moving to a widening country (not accepted). N.B. The WG organized 9 Widening European Participation events in different countries.
	• Establishment of the scope (aims, uses and users) of the SBP initiative; • Establishment of the SBP methodology: development of the in-house 3-dimensional classification and data collection structure; • Presentation of the results of the 2014-2016 SBP data collection with a set of possible dissemination outputs and suggestion that the SBP data should be tested by the ScC members before making anything public; • Selection of ERC Horizon 2020 interim panel reports (2014-2017 calls) as the first dissemination output of the SBP-H2020 exercise and suggestion of an initial template structure and of the types of analysis that can be carried out at the panels' level using data collected so far.

Communication

The ERC has a mandate to communicate to the scientific community, key stakeholders and the public. In 2019, communication activities focused around three objectives set by the ERC Scientific Council.

Attracting the best ideas and the brightest minds

The ERC continued to raise awareness of its funding opportunities in Europe and abroad. While trying to assure the widest possible awareness of its grant competitions, the ERC reinforced communication towards researchers in the countries with low numbers of applications and grants, as well as from outside Europe and women. With this purpose, the ERC took part in scientific gatherings in Europe and beyond. It encouraged and supported seminars for applicants in Poland and Romania, and produced online material targeting prospective applicants in these countries. It organised international campaigns in the USA, Japan and Brazil with the help of partners such as the EU delegations and Euraxess. It also promoted content related to career opportunities across many of its own media, sharing testimonials and targeted career guidance.

Sharing the passion for frontier science

The research funded by ERC grantees is changing the way we look at the world around us, from fundamental knowledge to its innovative applications. In 2019, the ERC continued to use this communication potential to reach press and media, as well as to create its own news stories disseminating them as videos, podcasts and articles, through its different channels. Public engagement and outreach were key priorities, with the ERC taking part in large gatherings around Europe with audiences ranging from the public and families, to science journalists and museum professionals. The two outreach projects ERCcOMICS and ERC=Science2 ended this year, while their outputs continued to be promoted and incorporated in the ERC's communication efforts. Finally, collaboration with key partners, such as the host institutions of ERC grantees was intensified and grantees were encouraged to communicate about their work through the launch of the ERC's first "Public Engagement with Science Award".

Positioning the ERC as a success story for Europe

To demonstrate the relevance and the value of its mission for Europe and its citizens, at a critical time for the European Union, the ERC organised several communication activities targeting decision-makers at EU and national level and key influencers. These included a joint ERC event with the European Parliament's Science and Technology Options Assessment (STOA) Panel, an ERC policy event "A Sustainable Future for Europe – the Contribution of Frontier Research", as well as participation of ERC leaders and grantees in the Research and Innovation Days and the World Economic Forum meetings in Davos and Dalian. Collaborations with partners such as the European Commission and other Directorates General were fostered. The ERC President and the members of the Scientific Council took part in numerous communication and media events to promote this message. Press activities were organised to enhance the ERC's visibility and reputation for excellence and to support its broader narrative within the EU.

ERC press in figures

> 30

press announcements released by the ERC

> 18,400

media mentions of the ERC

1,500

media articles on ERC competition results/ new ERC winners

73,900

Twitter followers

29,300

Facebook followers

773 million

potential reach on ERC social media

73,000

ERC Magazine and news update subscribers

100,000

social media mentions of the ERC

760,000

website unique visitors

Luxembourg: Publications Office of the European Union, 2020

Title: Annual report on the ERC activities and achievements in 2019

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"The European Research Council has, in a short time, achieved world-class status as a funding body for excellent curiosity-driven frontier research. With its special emphasis on allowing top young talent to thrive, the ERC Scientific Council is committed to keeping to this course. The ERC will continue to help make Europe a power house for science and a place where innovation is fuelled by a new generation."

Jean-Pierre Bourguignon
ERC President and Chair of its Scientific Council

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