

The research programs of the European Union

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Overview

1. Erasmus+ – higher education and academic collaboration
2. Horizon 2020 – multilateral research and innovation, including
 - European Research Council (ERC)
 - Marie Skłodowska-Curie Actions (MSCA)
 - Future and Emerging Technologies (FET)
 - Leadership in Enabling and Industrial Technologies (LEIT)

Who has been involved?



The typical story

- you're either from Europe, or spent a good part of your professional career in Europe
- you have 20+ years of research experience
- a colleague in Europe approached you
- relationships (old and new) were a key factor
- you thought it would be horribly bureaucratic, but it turned out ok
- your European research colleagues misled you on the rules (OMG!)

Some little-known perks

- OCT countries (e.g. New Caledonia) count as EU countries, allowing us to use EU programs for regional collaborations 😊
- projects will virtually always be coordinated by an EU institution, hence dramatically reducing your admin burden
- if you already have an ongoing bilateral program with an EU partner, then EU funds may free up their cash (some of which you may be able to negotiate to come your way)



Erasmus+

- send students/staff to the EU
- build education & training programs with EU partners
- enhance your European studies programs
- seed deeper faculty or institutional partnerships

<https://eacea.ec.europa.eu/erasmus-plus>

Actions

- Action 1: Learning Mobility of Individuals
- Action 2: Cooperation for innovation and the exchange of good practices
- Action 3: Support for policy reform
- Jean Monnet Activities
- Sport

Australian individuals and institutions can participate in many aspects – as a “Partner Country” (Region 13)

Action 1

- Mobility projects for higher education students and staff
 - EU + Australian institutions can submit proposals for student (Bachelor, Masters or PhD) or staff exchange programs. Student exchanges: 3-12 months. Staff teaching or training: 5 days-2 months. EU funding will cover a portion of the costs (per participant).

- Erasmus Mundus Joint Masters Degree
 - for integrated joint degree programs, with study spread across at least two consortia members
 - EU funds will cover up to 60 scholarships, plus guest lecturers
 - students can apply to any EMJMD consortia
 - a catalogue of all current EMJMD programs can be found online at:
https://eacea.ec.europa.eu/erasmus-plus/library/emjmd-catalogue_en

Action 2

- Strategic Partnerships in Education
 - development, transfer or implementation of innovative practices
 - joint initiatives promoting cooperation, peer learning and exchanges of experience
 - student and staff involvement
- Knowledge Alliances
 - working with businesses, to increase innovation and entrepreneurship

Jean Monnet

- Jean Monnet Modules
 - teach a course (min 40 hours) in EU studies
 - 3 year program, €30,000
- Jean Monnet Chairs
 - EU studies lecturer
 - 3 years, €50,000
 - must teach min 90 hours per year, plus publish, run events, engage the public

- Jean Monnet Centres of Excellence
 - partial replacement for current EU centres
 - €100,000 for 3 years
- Jean Monnet Projects
 - to ‘sell’ the EU and knowledge about EU issues
 - €60,000 for 1-2 years
- Jean Monnet support for Associations
- Jean Monnet Networks

... now to *research*



ANU in H2020



- **CMHR – ImpleMentAll**: Towards evidence-based tailored implementation strategies for eHealth
<http://www.implementall.eu/>
- **RSPE – M-CUBE**: MetaMaterials antenna for ultra-high field MRI
http://cordis.europa.eu/project/rcn/207468_en.html
- **NCI – EarthServer-2**: Agile Analytics on Big Data Cubes
<http://www.earthserver.eu/>
- **NCEPH – COMPARE**: COllaborative Management Platform for detection and Analyses of (Re-)emerging and foodborne outbreaks in Europe
<http://www.compare-europe.eu/>

Quick rules to remember

- proposals must involve *at least 3* independent entities from 3 different EU Member States (or Associated Countries)
- successful projects must be coordinated by one of the EU partners
- evaluations based on Excellence, Impact, and Quality/Efficiency of Implementation
- Australian partners normally won't get funding, but...

Brexit, Catexit, Flexit...

- Whether it be the UK exiting the EU, or Catalonia, Flanders or other regions declaring independence from their EU Member State, the result is the same:

No more EU funding

Two main chunks

- Excellent Science
 - Marie Skłodowska-Curie Actions (MSCA)
 - European Research Council (ERC)
 - Future and Emerging Technologies (FET)
 - Research Infrastructures
- Industrial Leadership & Societal Challenges
 - this is where the bulk of the money and calls are

<http://ec.europa.eu/programmes/horizon2020>

Marie Skłodowska-Curie Actions

- RISE – Research and Innovation Staff Exchange
 - build multi-year and multi-institution lab-lab exchange programs
 - can include technical and management staff
 - no funding for Australians, but get creative...
- ITN – Innovative Training Networks
 - European Training Networks (ETN)
 - European Industrial Doctorates (EID)
 - European Joint Doctorates (EJD)

- MSCA European/Global Fellowships
 - fully-funded individual fellowship to/from Europe
 - *all* areas of research
 - focused on the researcher and their proposed research, but must also demonstrate impact, dissemination, training, knowledge transfer
 - must have PhD or 4 years research experience
 - apply with/via a *host institution* in Europe

<http://ec.europa.eu/research/mariecurieactions>

European Research Council

grant	ARC equivalent	eligibility	amount
StG Starting Grant	DECRA	2-7 years after PhD At least 1 major paper	€1.5 million + €0.5 million
CoG Consolidator Grant	Future Fellowship	7-12 years after PhD Several major papers	€2 million + €0.75 million
AdG Advanced Grant	Laureate Fellowship	10+ years of significant research	€2.5 million + €1 million
Synergy Grant	~Discovery	2-4 PIs	€10 million + €4 million

- for individual investigators and their teams
- *any* researcher of *any* nationality can apply
- portable grant!
- must undertake the project at a host institution in Europe (including private enterprise)
- can include international partners (with funding)
- must spend at least 50% (30% for AdG) of time working on project, and 50% of time in Europe – i.e. joint appointments are possible
- funding for up to 5 years (6 for Synergy)

<http://erc.europa.eu/>

Future and Emerging Technologies

- like ERC... on steroids
- only for technology areas, only for *wild* ideas
- high risk / high reward research, normally too risky for ARC to take a chance on

- FET also funds massive flagships (€1 billion)
 - Graphene
 - Human Brain Project
 - Quantum Technologies (upcoming)

Industrial Leadership & Societal Challenges

- enormous array of calls, each addressing a wide range of topics, sub-topics, and sub-sub-topics
- also funds networks and coordination
- don't bother if you can't address the topics – they are quite specific

- Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, and Biotechnology
- Information and Communication Technologies
- Space
- Health, Demographic Change and Wellbeing
- Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy
- Secure, Clean and Efficient Energy
- Smart, Green and Integrated Transport
- Climate Action, Environment, Resource Efficiency and Raw Materials
- Europe in a changing world – Inclusive, innovative and reflective societies
- Secure societies – Protecting freedom and security of Europe and its citizens
- Spreading Excellence and Widening Participation
- Science with and for Society

2018-2020 calls

- all current and upcoming calls listed on the Participant Portal

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020>

- 30 flagships for international cooperation, including (for Australia):
 - nanotechnology safety and regulation
 - road transport automation

Big ticket challenges

- Building a low Carbon, Climate-resilient Future, €3.3 billion
- Connecting economic and environmental gains – the Circular Economy, €1 billion
- Digitising and transforming European industry and services, €1.7 billion
- Boosting the effectiveness of the Security Union, €1 billion
- Migration, €200 million

looking closer at:

- call topic NMBP-14-2018 –
Nanoinformatics: from materials models to predictive toxicology and ecotoxicology
 - open: 31 October 2017
close: 23 January / 28 June 2018
 - funding: ~€6 million per project

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/nmbp-14-2018.html>

“Despite the significant amounts of data on physico-chemical and toxicological and ecotoxicological properties of nanomaterials generated over the last decades, detailed knowledge on how these properties are linked to specific physico-chemical characteristics is only beginning to emerge. The challenge is to develop and implement modern methods, more cost effective and less reliant on animal testing, for toxicity investigations in each stage of product innovation, through making best use of joining existing and emerging data with the help of progress in nanoinformatics.”

“Scope:

- Development of models that support the prediction of both specific functionalities and hazard and are crucial to establish safe-by-design principles at early stages of material development;
- Development of a sustainable multi-scale modelling framework, based on the integration/linking of different types of nanoinformatics models in order to advance towards predictively linking of physico-chemical NM property models to NM functionality and hazard;
- Uptake and valid use of these tools and nanoinformatics models, user-friendly interfaces to enhance accessibility and usability of the nanoinformatics models, and clear explanations of their applicability domains, especially regulatory compliance, should be provided for different stakeholders (industry, regulators, and civil society).

“Expected Impact:

- Reliable nanomaterials safety data systems, models and strategies to allow material characteristics to be linked to adverse outcomes;
- A validated accessible framework, designed to predict human and environmental toxicological hazards;
- Increased confidence in nanosafety nanoinformatics predictive models through agreed standards, harmonised standard operating procedures, considering OECD validation principles.”

ERA Chairs **new**

- €2.5 million for up to 5 years
- to give a research “adrenaline shot” to the (underperforming) host institution
- for a researcher (who will also be research manager), plus relevant staff
- aim is to affect *structural & cultural change* at the institution

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/widespread-04-2019.html>

Hints & tips

- know your position of strength, and the value you bring to the consortium
- determine what you want/need in order to participate
- develop a financially viable default position
- be an evaluator for the European Commission:
<http://ec.europa.eu/research/participants/portal/desktop/en/experts>

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