

An Introduction to Horizon Europe

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**EASTERN
ARC**

Academic Research
Consortium

Horizon Europe is different.

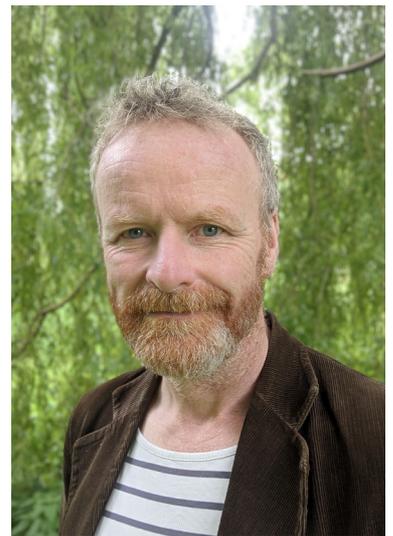
European research and innovation programmes have been a part of the funding landscape since the mid-1980s. Horizon Europe marks both an evolution and a radical change in direction, with new 'Missions', a new Innovation Council, a demand for open science, and a clear alignment to the Sustainable Development Goals (SDGs).

This short guide is intended to give applicants at the three Eastern Arc universities of UEA, Essex and Kent an overview of the programme. Horizon Europe offers us a great opportunity to develop new and productive partnerships and thereby achieve a step change in our research, as well as giving us the chance to innovate, engage and commercialise our research.

The willingness to work differently chimes with the ethos of Eastern Arc, whose member institutions were all founded on radical, interdisciplinary principles. By understanding what Horizon Europe is about, we can explore how we can benefit from the opportunities it offers.

If you want to find out more once you've read this guide, contact the experts in your research support office to help you in identifying the most appropriate schemes, and helping you through the application process. Their details are at the end of this guide.

I want to thank Ian Beggs for preparing this guide, and for Beate Knight and Sarah Tetley for providing comments and input to it. I hope you find it as useful as I have in navigating this exciting new programme.



Phil Ward
Director of Eastern Arc



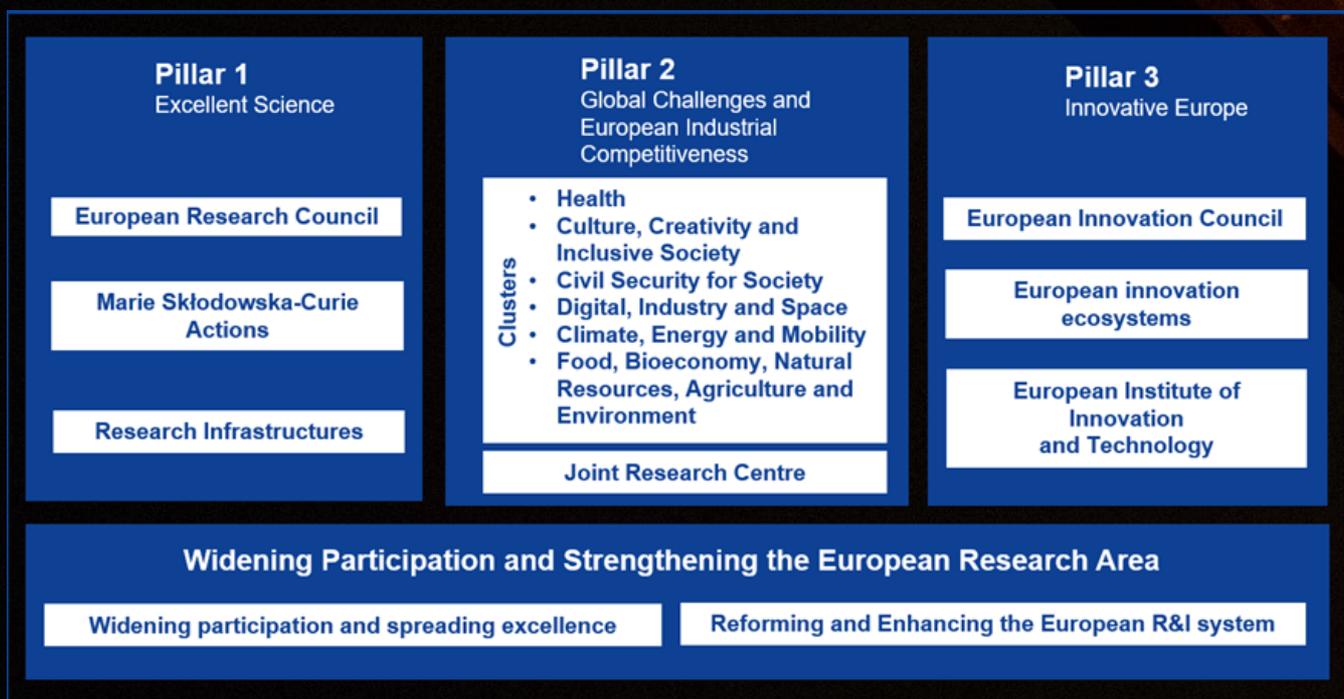
Structure

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'Horizon Europe' is the EU's new flagship research and innovation programme, and the successor to Horizon 2020 (2014-2020).

The new programme was fully launched in June 2021 and runs through to the end of 2027. It has a range of funding streams which support the wider political objectives of the European Commission, including the green and digital transformation and a sustainable recovery from the COVID-19 pandemic.

Horizon Europe has a three pillar structure, similar to Horizon 2020. There is a fourth area - 'widening participation' - that cuts across the pillars. We'll look at each pillar in turn as we go through this guide.



Missions

Under Horizon Europe, there will be an overriding focus on five so-called 'Missions' - defined as *“a portfolio of actions across disciplines intended to achieve a bold and inspirational and measurable goal within a set timeframe, with impact for society and policymaking as well as relevance for a significant part of the European population and wide range of European citizens”*. At one point these were being labelled 'Moonshots'.

Since they are new, Missions are - by definition - experimental, providing a learning lab for policy experimentation. They are about creating something that will make people on the street talk about science. They are akin to the billion-euro flagship schemes in Horizon 2020 that focused on the brain, graphene and quantum technologies.

Each of the five Missions has a 'Mission Board' consisting of 15 well-respected experts from a pool of talented citizens along with academic, financial, and industry leaders. Collectively, they propose and implement specific objectives.

The five “Missions” are given in the box below.



Adaptation to climate change, including societal transformation



Cancer



Healthy oceans, seas, coastal & inland waters



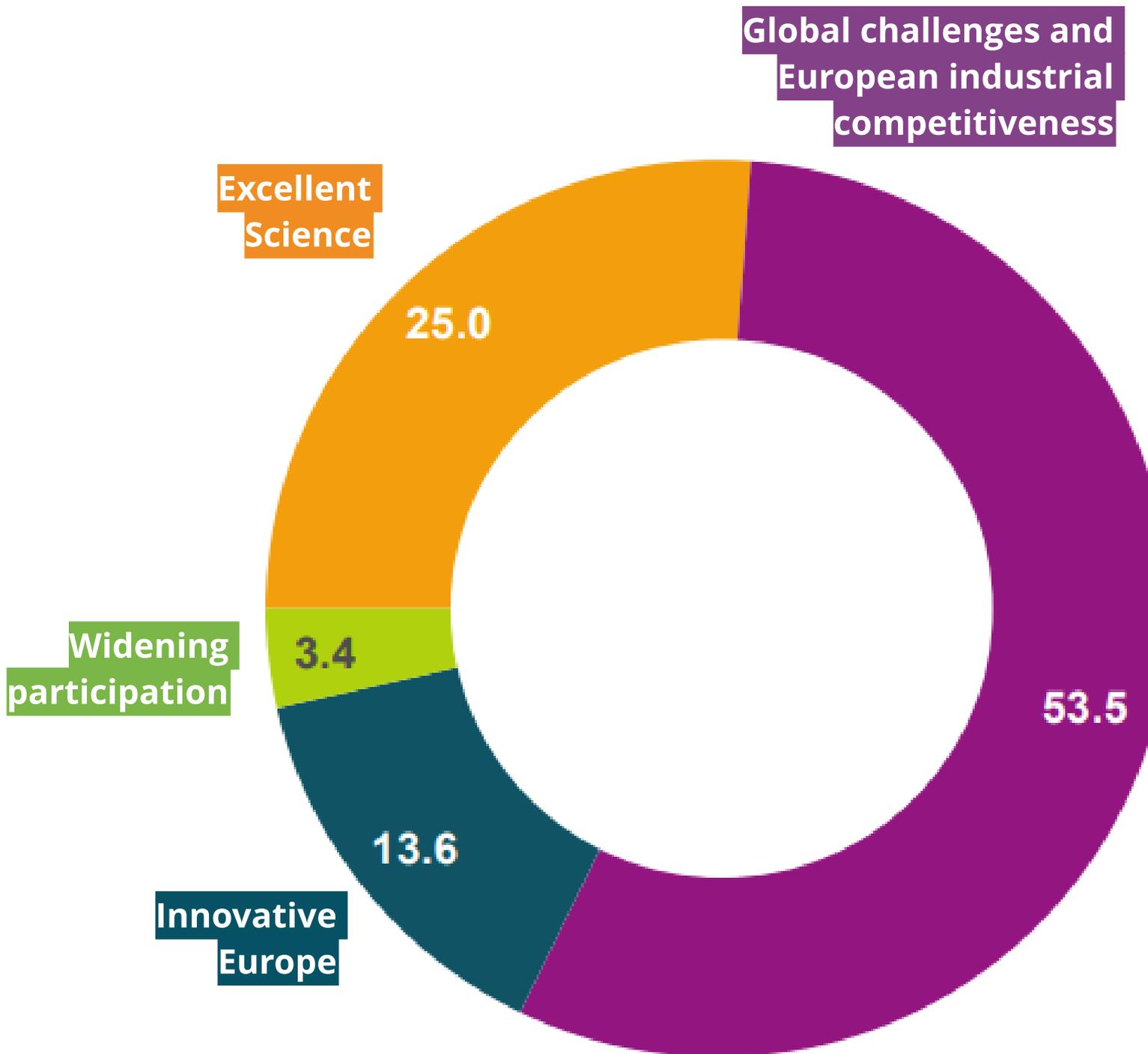
Climate-neutral & smart cities



Soil health & food

Budget

Horizon Europe has an overall budget of €95.5bn. However, this could grow significantly once non-EU countries 'associate' to the programme. The current budget is divided between the pillars as follows (€bn):



The Pillars

Horizon Europe is organised into three pillars. In this section of the guide, we'll give an overview of each.

Pillar 1: Excellent Science

Excellent Science is bottom-up support for 'frontier research' designed and driven by researchers.

When Horizon Europe talks about 'science', it means 'research'; all disciplines are covered. Pillar 1 is home to the European Research Council (ERC), which provides high-profile, prestigious grants aimed at researchers at different stages of their career (see box below); it also funds fellowships and the mobility of researchers through the Marie Skłodowska-Curie Actions; and it invests in world-class research infrastructures.

European Research Council

Frontier research by the best researchers and their teams

€16 billion

Marie Skłodowska-Curie Actions

Equipping researchers with new knowledge and skills through mobility and training

€6.6 billion

Research Infrastructures

Integrated and inter-connected world-class research infrastructures

€2.4 billion



Starting Grant: up to €1.5 million. Duration: up to 5 years. 2-7 years of experience since completion of PhD.



Consolidator Grant: up to €2 million. Duration: up to 5 years. 7-12 years of experience since completion of PhD.



Advanced Grant: up to €2.5 million. Duration: up to 5 years. An excellent scientific track record of recognized achievements in the last 10 years.

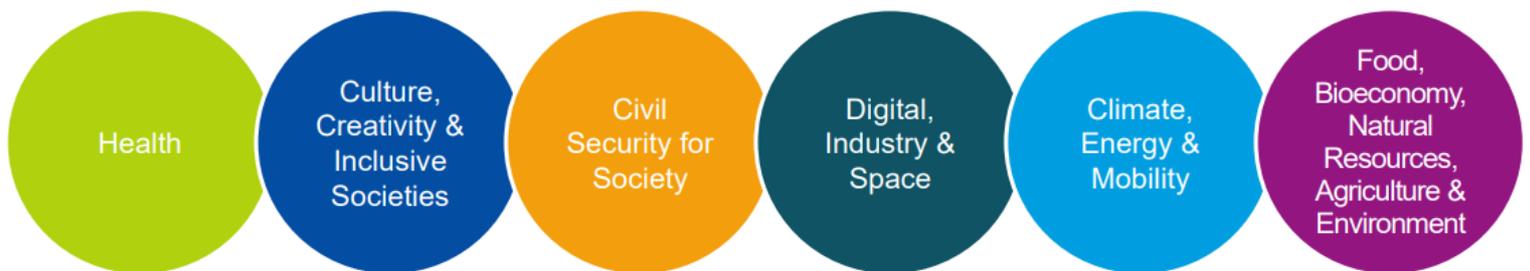


Synergy Grant: 2-4 researchers (one can be based outside Europe). Up to a maximum of €10 million for a period of 6 years.

Pillar 2: Global challenges and European industrial competitiveness

Pillar 2 is based around six 'Clusters', which are large, multi-million Euro calls seeking transnational, collaborative proposals involving multi-disciplinary teams.

These focus on boosting key technologies and solutions underpinning EU policies *and the UN Sustainable Development Goals (SDGs)*. For the first time, there will be a dedicated funding programme for the cultural sector (the '*Culture, Creativity and Inclusive Society*' cluster). These are the clusters:



This pillar is essentially a merger of the second and third pillar under Horizon 2020 (Industrial Leadership, and Societal Challenges). It aims to foster research related to societal challenges around issues that worry citizens daily, such as health, climate change, and security.

Pillar 2 supports technological and industrial capacities, and sets EU-wide missions with ambitious goals to tackle some of our biggest problems. It also supports partnerships with Member States, industry and other stakeholders to work jointly on research and innovation; however this will be a smaller, consolidated number of partnerships than we saw in Horizon 2020.

Clusters operate on a **challenge-based approach**: that is, the European Commission sets out the issues that need addressing in the call and invites funding bids for collaborative projects that would contribute towards tackling them.

By definition, **interdisciplinarity** is not only encouraged, it is essential: the Commission's view is many global challenges need to be addressed through research and innovation but are too complex for one (or only a few) scientific disciplines to deliver upon.

Calls

Under Horizon Europe, there will be changes to the way calls are structured to give applicants greater freedom on how to structure their proposals and maximum flexibility on how to achieve their goals. Calls will typically set out a 'destination' or 'destinations', with clear expected outputs and impacts. However, the exact approach to achieving them will be left to the applicant(s).

What makes a successful bid?

Successful bids will be large, complex, international projects, involving institutions in at least three EU Member States or 'Associated Countries' (of which the UK will be one). In most cases, consortia will have dozens of participants and be significantly larger than the minimum quorum.

A collaborative bid is headed by a consortium lead who defines the overall project, its individual elements (or 'work packages'), and submits the application. This lead institution will also receive and manage the funding if successful.

It is common for there to be a long lead time to put together a Cluster bid, given that an application requires detailed, long-term planning. Involvement of strong businesses and SMEs is also an increasingly important element of successful bids.

The budget for each cluster is as follows:

		<i>in current prices</i>
Cluster 1	Health	€8.246 billion <small>(including €1.35 billion from NGEU)</small>
Cluster 2	Culture, Creativity & Inclusive Societies	€2.280 billion
Cluster 3	Civil Security for Society	€1.596 billion
Cluster 4	Digital, Industry & Space	€15.349 billion <small>(including €1.35 billion from NGEU)</small>
Cluster 5	Climate, Energy & Mobility	€15.123 billion <small>(including €1.35 billion from NGEU)</small>
Cluster 6	Food, Bioeconomy, Natural Resources, Agriculture & Environment	€8.952 billion
	JRC (non-nuclear direct actions)	€1.970 billion

Pillar 3: Innovate Europe

Innovative Europe is intended to make the EU a front-runner in market-creating innovation and SME growth through the European Innovation Council (EIC).

The EIC aims to support innovations with breakthrough and disruptive nature and scale up potential that are too risky for private investors. 70% of the budget is earmarked for SMEs. The European Institute of Innovation and Technology (EIT) will continue to foster the integration of business, research, higher education and entrepreneurship.

European Innovation Council

Support to innovations with breakthrough and market creating potential

The budget: **€10.6 billion**, incl. up to **€527 million** for ecosystems (including NGEU – Recovery Fund parts dedicated to EIC).

European innovation ecosystems

Connecting with regional and national innovation actors

European Institute of Innovation and Technology (EIT)

Bringing key actors (research, education and business) together around a common goal for nurturing innovation

circa **€3 billion**

Horizon Europe will introduce a fully established 'European Innovation Council' (EIC), which was first piloted under Horizon 2020.

The EIC represents a new and sizeable part of the new Horizon Europe programme and will act as a counterpart to the European Research Council (ERC). With a budget of €10.1bn for 2021-2027, this new agency aims to provide a coherent and connected system of innovation funding, and is expected to identify and help scale-up breakthrough technologies and disruptive innovations, supporting start-ups, SMEs and research teams in developing high-risk, high-impact innovations of all kinds with a particular focus on breakthrough, market-creating and deep-tech innovations.

EIC schemes

The principal funding schemes of the EIC are:

- **Pathfinder:** funding for research teams to undertake visionary research with the potential to lead to technology breakthroughs. Research consortia must comprise at least three different independent 'legal entities' (e.g. research organisations, universities, SMEs) from at least three different eligible countries. The scheme offers grants of up to €3m (Open Calls) or €4m (Challenge-Driven Calls) to achieve the proof of principle and validate the scientific basis of breakthrough technology (TRL 1-4). Single applicants or small consortia (two partners) may be able to apply for Pathfinder Challenge-Driven Calls, subject to the call specifications. UK entities can participate on an equal footing in this
- **Transition:** funding to turn research results into innovation opportunities, by maturing a novel technology and developing a business case to bring it to market. Transition funding will support single applicants (SMEs, spin-offs, start-ups, research organisations, universities) or small consortia (two to five partners) building on the results from eligible Pathfinder funding, FET or ERC Proof of Concept projects. The scheme offers grants of up to €2.5m (or more if properly justified) to validate and demonstrate technology in application-relevant environments (TRL 4 to 5/6) and develop market readiness. UK entities can participate on an equal footing with entities in this.
- **Accelerator:** funding and investments for individual start-ups and small companies to develop and scale up high impact innovations with the potential to create new markets or disrupt existing ones. Accelerator funding is available to single start-ups and SMEs (including spin-outs), individuals (intending to launch a start-up/ SME) and in exceptional cases small mid-caps (fewer than 500 employees). The Accelerator offers grants of up to €2.5m, as well as a unique blended finance combining grants plus equity investments (or quasi-equity such as convertible loans) of between €0.5m and €15m distributed through 'The EIC Fund' (a unique entity owned by the European Commission and established to make direct equity investments in companies). Whilst UK entities can apply for grant only funding under the Accelerator, they cannot apply for 'blended finance' because the UK Government decided not to participate in financial instruments of the EU.

Across all three of the above funding components of the EIC, there will be two main types of call in 2021 – 'Open Calls' (with no thematic priorities) and 'Challenge-Driven Calls' (which have strategic priority, such as 'a green, digital and healthy society').

The budget for the 2021 calls alone is more than €1.5bn. Whilst the EIC's main funding schemes will be principally targeted at SMEs and industry; the EIC Pathfinder and EIC Transition schemes offer opportunities for academic involvement.

'Widening participation'

There is also a fourth component in the Horizon Europe structure: 'Widening participation and Strengthening the European Research Area'. This cross-cutting part of the programme will support EU Member States in developing their national research and innovation capacities. A special focus will be put on encouraging countries that currently perform lower in research and innovation to succeed under Horizon Europe.

The goal of this part of the Horizon Europe programme is to boost research performance in EU regions that are lagging behind.

WP measures under Horizon Europe will be similar to those in Horizon 2020, such as helping universities in certain 'target' countries to partner with wealthier institutions elsewhere when applying for grants.

But Horizon Europe is likely to add new measures too. The Commission will launch three lines of action: enhancing networking between researchers in widening countries and their counterparts in leading R&I countries; reversing brain drain and encouraging brain circulation; and strengthening the European Research Area (ERA).

Specific calls in the next two years will fund the creation and upgrades of new centres of excellence with grants of up to €15m; support twinning programmes to enhance networking between research institutions in widening countries and their internationally leading counterparts (including a one-off special programme for Western Balkans); and give out grants for attracting talent to widening countries.



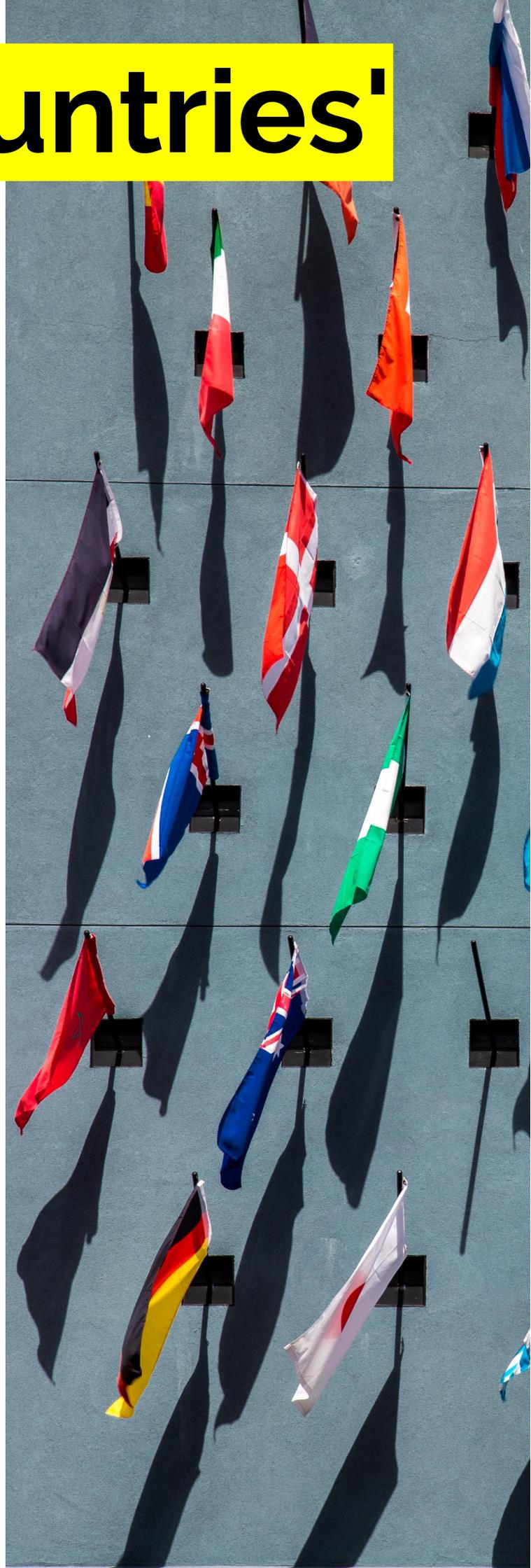
'Third Countries'

Which non-EU countries can participate in Horizon Europe, and on what terms, is still to be addressed. This is principally down to the protracted post-Brexit UK:EU trade talks. However, discussions have now commenced with several non-EU countries.

Previously, the Third Countries that 'associated' to Horizon 2020 included the likes of Switzerland, Norway, and Israel. 'Association' sees non-EU countries pay into the same pot of cash that funds all Horizon programmes, allowing them to participate in Calls on an equal footing with EU Member States.

Indeed, one of the ambitions for Horizon Europe was for it to offer enhanced association opportunities for Third Countries (non-EU countries). The UK has already said it wishes to associate, and we hope that this will be finalised over the next few weeks. The EU is also keen to target the likes of Canada and Japan to join Horizon Europe this time as Associated Countries, boosting the prestige and excellence of the programme at the global level.

Researchers in non-Associated Countries can also participate if they bring their own money to each project – the incentive being the opportunity to participate in joint international research.



Partnerships

Horizon Europe will streamline the number of Partnerships that the EU co-programmes or co-funds with the likes of private sector industry, civil society, funding foundations and other stakeholders. The aim is to have a new generation of objective-driven and more ambitious Partnerships to deliver on global challenges and industrial modernisation through concerted research and innovation efforts.

These are not expected to be fully finalised until later in 2021. But three types of Partnerships are foreseen:

- **Institutionalised European Partnerships:** these are partnerships where the EU participates in research and innovation funding programmes that are undertaken by EU countries. For example, EIT 'Knowledge and Innovation Communities' (KICs) are also institutionalised partnerships. Institutionalised partnerships will only be implemented where other parts of the Horizon Europe programme, including other types of partnership, would not achieve the desired objectives or expected impacts.
- **Co-programmed European Partnerships:** partnerships between the European Commission and private and/or public partners, based on memoranda of understanding and/or contractual arrangements.
- **Co-funded European Partnerships using a programme co-fund action:** partnerships involving EU countries, with research funders and other public authorities at the core of the consortium.

A number of partnerships will evolve from existing ones under Horizon 2020, but there will be new ones too. Overall, there will be around 50 large, medium and small Partnerships in total, which still represents a strategic reduction overall in the numbers seen in previous programmes – down from more than 100 – and will see some of the new Partnerships given broader and bigger budgets.

Eventually, they will launch their own calls for proposals. UK participation will depend on the type of Partnership. Some will be open to EU Member States and countries associated to Horizon Europe (including the UK) and organisations from these countries will then be able to participate in projects funded by the Partnerships in similar ways to those funded by Horizon Europe. However, other Partnership calls may be restricted to participants from certain countries. In addition, some calls will be very industry-focused, whereas others will encourage stronger involvement from research organisations. Therefore, it will be important to scrutinise the eligibility criteria for each call.

COST Actions

A lesser-known part of European funding are the 'COST' actions. COST stands for 'European Cooperation in Science and Technology', and it funds pan-European, bottom-up, inter-disciplinary networks across a wide range of research fields, including social sciences and humanities. It was established before the framework programme, but now receives funding from Horizon Europe.

it does not fund research activities but provides support for **networking activities**, such as meetings, training schools, short-term scientific missions or other networking activities.

COST Actions have a continuous 'Open Call'. They are open to all researchers, irrespective of gender or career stage, within universities, research centres, large and small public and private organisations. Besides setting up their own COST Action, researchers can join an existing one that is already up and running.

There needs to be at least seven participants, at least one of whom must be in a less research-intensive Inclusiveness Target Countries (ITCs). The duration of an Action can be four years, and you can apply for €130k per annum. The focus needs to be on:

- Building capacity by connecting high-quality scientific communities in Europe and worldwide;
- Providing networking opportunities for researchers; and
- Increasing research impact on policymakers, regulatory bodies and national decision makers as well as on the private sector.

Funding and Tenders Portal

The European Commission publishes calls for proposals on the EC Funding & Tenders Portal.

There is a public part of the Portal (e.g. searching funding opportunities, guidance documents, etc.) and a membership part of the Portal (from where you create and edit proposals).

Each user has to have an EU Login account (formerly called an ECAS username and password) to log in on the Portal. If you already have such an account from previous research programmes such as Horizon 2020, you can still use that one. If you do not have an account yet, you need to create it by clicking on the REGISTER button. Otherwise you get access only to the public part of the site.

There is a search facility on the Portal, allowing you to search for potential calls of interest, by entering different keywords that characterise best your field of interest.

There is also a partner search facility, whereby you can publish your partner search request or offer.



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More info

Contact

To find out more about Horizon Europe, what funding is available and how you can participate, talk to the experts in your university.

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Eastern Arc

Eastern Arc is the regional research consortium comprising the universities of East Anglia, Essex and Kent. Established in 2013, it launched a new five year strategy in 2020 that has three simple objectives: to develop collaborations; to support risk-taking, experimental research, and to advocate on behalf of the three universities.

Links

- [Horizon Europe](#)
- [COST Actions](#)
- [Eastern Arc](#)

Credit

Thanks to Ian Beggs for writing this overview, and to Beate Knight and Sarah Tetley for providing additional information and comments. Images all come from Unsplash, and credit is given to the photographer on each page. The graphs and infographics are all taken from the EU's presentation on Horizon 2020, available [here](#).