N O V E

HORIZON EUROPE
ANALYSIS AND PROSPECTS
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CONTEXT

On 7 June 2018, following months of speculation and years of preparation, the European Commission presented its legislative proposal for Horizon Europe – the successor to the current EU Framework Programme for Research and Innovation, Horizon 2020. The proposal is part of the set of initiatives being released by the Commission following its 2 May 2018 publication of its proposal for the 2021-27 Multi-annual Financial Framework (MFF).

Horizon Europe is designed to represent the "new priorities" of the EU (as well as, for example, external security, migration, and defence). The budget is increased compared to the 2014-20 MFF but the extent to which Horizon Europe's funding has increased when compared to Horizon 2020 is a matter of dispute. While the Commission presents the almost €100bn package as a 50% increase on its predecessor, the European Parliament secretariat has argued that this is only the case when 2018 prices are taken into account, and that the impact of Brexit is also not included in the Commission's perspective. Regardless, research and innovation "wins" in terms of funding priorities when compared to more "traditional" recipients of EU spending such as Cohesion Policy and the Common Agricultural Policy.

This note provides the structure of Horizon Europe in comparison with its predecessor, followed by a brief overview of the budget. Subsequently, the content of the three "pillars" is explored, as well as horizontal provisions where significant changes have been made. We then look at stakeholder reactions, and the next legislative steps.

STRUCTURE

When compared to Horizon 2020, the new Programme displays many similarities. For example, it will be based on a three "pillar" structure, though the strategic goal of each pillar has changed somewhat.

- **Pillar 1 – changed from "Excellent Science" to "Open Science",** but has retained similar funding levels and the overall aim of providing funding for scientific research using a "bottom-up" approach – this pillar is the least changed.

- **Pillar 2 – called 'Industrial Leadership" under Horizon 2020 – is now "Global Challenges and Industrial Competitiveness",** effectively integrating pillars 2 and 3 from Horizon 2020 (where Pillar 3 was "Societal Challenges"). This has been criticised both by industry (who fear a reduction in the role of industry in the new Programme) and civil society and academia (who fear that the "societal challenges" aspect of the Programme will be overshadowed by commercial concerns). **Pillar 2 remains the largest funding recipient, accounting for over half of the entire Horizon Europe budget.** It will also work differently than the other two pillars, in that it will be "top-down", meaning that the Commission in consultation with EU Member States will define the targets in a centralised manner, and the majority of funding will be allocated through calls for proposals. One of the novelties of the new Programme – research and innovation "Missions" – will be included in this pillar but as Missions have yet to be defined it is unclear how this will work in practice.

- **Pillar 3 – "Open Innovation" is the biggest change in the Programme**. The standout change is the establishment of the European Innovation Council (EIC), which aims to establish a truly "European" innovation ecosystem to increase the EU's ability to compete with Silicon Valley and emerging innovation giants such as China and India. The EIC is known to be a personal priority for current Research and Innovation Commissioner Carlos Moedas, though some have criticised it as being a rehash of similar plans (either at national level or based on collaboration e.g. between France and Germany) that already exist. Funding for this pillar is smaller than other pillars, just €13.5bn.

- **Though not officially a "pillar",** a funding stream called "**Strengthening the European Research Area**" with €2.1bn aims to reduce the concentration of R&D spending and activity in wealthier member states.

BUDGET

The overall budget of the programme is indicated as **€94.1bn** "in current prices". Across the pillars, the funding is as follows:

Pillar 1: Open Science	Pillar 2: Global Challenges and Industrial Competitiveness	Pillar 3: Open Innovation
Total budget		
€25.8bn	€52.7bn	€13.5bn
Detail		
- European Research Council: €16.6bn - Marie Skłodowska-Curie Actions: €6.8bn - Research Infrastructures: €2.4bn	- Health cluster: €7.7bn - Inclusive and Secure Society cluster: €2.8bn - Digital and Industry cluster: €15bn - Climate Energy and Mobility cluster: €15bn - Food and Natural Resources cluster: €10bn - Non-nuclear direct actions of the Joint Research Centre: €2.2bn	- European Innovation Council: €10.5bn - European Institute of Innovation and Technology: €3bn
Strengthening the European Research Area: €2.1bn		

PILLAR 1: OPEN SCIENCE

The first pillar focuses on **"pure" scientific research**. The rationale is very clear: "open and excellent science is inextricably linked to the achievement of world leading innovation" and that paradigm shifts in science have "historically tended to originate from the public-sector science base before going on to lay the foundations for whole new industries and sectors".

The majority of funding in this pillar is dedicated to the **European Research Council** (about 70%), with the **Marie Skłodowska-Curie Actions** (MSCA) and Research Infrastructures accounting for the remainder.

The **European Research Council** (ERC) operates largely autonomously, led by a President and a Scientific Council. It is tasked with awarding long-term funding grants to research projects based solely on the criterion of excellence, and from a bottom-up approach with no predetermined priorities. Projects must have high societal and economic potential impact.

The **Marie Skłodowska-Curie Actions** (MSCA) aim to reinforce the EU's efforts "to entice more young women and men to a career in research, to attract researchers from third countries, retain its own researchers and reintegrate European researchers working elsewhere back to Europe", and thus are a response to the ongoing

skills shortage in European R&D. Researchers in universities, research institutes, or private companies are eligible and the actions are open to any field from basic research up to market take-up and innovation services.

Funding for **research infrastructures** has as its overall aim to "to endow Europe with world-class sustainable research infrastructures open and accessible to all researchers in Europe and beyond, which fully exploit their potential for scientific advance and innovation". The flagship initiative here is the European Open Science Cloud (EOSC).

PILLAR 2 – GLOBAL CHALLENGES AND INDUSTRIAL COMPETITIVENESS

Pillar 2 on Global Challenges and Industrial Competitiveness is the only pillar which will be **operated in a top-down manner,** i.e. with the European Commission and executive agencies defining the parameters of action. This pillar has the largest budget: with €52.7bn it accounts for more than half of the Horizon Europe budget.

Pillar 2 is arranged around **five "clusters"** (health; inclusive and secure society; digital and industry; climate, energy and mobility; food and natural resources) which "will develop and apply digital, key enabling and emerging technologies as part of a common strategy to promote the EU's industrial leadership".

The clusters chosen are the result of much deliberation between the services of the Commission. All clusters must **contribute to larger EU policy objectives**. For example, the Inclusive and Secure Society cluster sees many resources directed towards security and defence objectives, while the Food and Natural Resources cluster will contribute to EU agricultural policy, perhaps as a "compensation" for the proposed cut to CAP spending.

With Pillar 2, the Commission hopes to support efforts "to bring technology from lab to market and to develop applications including pilot lines and demonstrators, measures to stimulate market uptake and to boost private sector commitment". There is also a commitment to maximise synergies with other programmes (see below). The clusters aim to "incentivise cross-disciplinary, cross-sectoral, cross-policy and international collaboration, thereby achieving higher impact and better [seize] the innovation potential that is often greatest at the intersection of disciplines and sectors." Though the **clusters do not seem to have specific governance structures, they will have devoted budget lines.**

Pillar 2 will also fund the much-anticipated **"Missions"**, though no specific funding is allocated and none are defined in the proposed legislation, though there have been suggestions that cancer care, clean mobility, or plastic-free oceans may be potential examples. Commissioner Moedas has been quoted as saying that each Mission will receive €5-10bn, and that it would be "arrogant" to define them in advance.

Funding for the **Joint Research Centre** is also under Pillar 2, as the JRC is managed with similar top-down governance.

PILLAR 3: OPEN INNOVATION

The third pillar under Horizon Europe represents a departure from the structure of Horizon 2020, and is based on the need to ensure European competitiveness globally against e.g. China and the USA. Pillar three aims to "enhance the conditions and environment for European innovation to thrive" to share ideas in an innovation ecosystem and ensure new ideas and technologies can quickly advance to become products and services. The pillar consists of three main parts:

- The European Innovation Council (EIC)
- European Innovation Ecosystems
- The European Institute for Innovation and Technology (EIT)

The **European Innovation Council (EIC)** is the "flagship" of the Pillar and detailed below.

The section on **European Innovation Ecosystems** will fund better coordination between public authorities' innovation programmes, as well as support for private initiatives. It largely serves as a bridge between the EIC and national-level and private innovation initiatives, and will provide support (for example) via "mentoring, coaching, technical assistance and other services that are delivered close to innovators, by networks such as Enterprise Europe Network (EEN), clusters, pan-European platforms such as Startup Europe, local innovation

actors, public but also private, in particular incubators and innovation hubs that could moreover be interconnected to favour partnering between innovators".

The **European Institute for Innovation and Technology (EIT)** is a carry-over from Horizon 2020, and should continue to develop "ecosystems where researchers, innovators, industries and governments can easily interact". The main conduits for this are Knowledge and Innovation Communities (KICs) to integrate research, innovation, and education. As of 2018, there are 6 KICs in the EU (where private businesses have an active presence), and the proposal envisages expanding to a "limited number of thematic areas". Elsewhere, the other work streams of the EIT – e.g. development of new skills curricula (in coordination with innovation actors), cooperation with entrepreneurs towards the development of market solutions, and the Regional Innovation Scheme (EIT RIS) to address the skills gap between EU regions – are all set to continue.

The **European Innovation Council** claims the bulk of funding under Pillar 3, and will promote "breakthrough innovation with scale-up potential at global level" with two mechanisms: the **Pathfinder**, which will support future and emerging breakthrough technologies, and the **Accelerator**, which will "bridge the financing gap between late stages of innovation activities and market take-up". Both types of action are complementary but focus on different levels of market readiness, echoing the "technology readiness level" of Horizon 2020's second pillar. In both cases, operations will be (mainly) based on continuous bottom-up calls, and "open to all types of innovators". This represents a change compared to earlier drafts and Commission statements that designed the EIC as rather hostile to large companies. There is some remnant of this, however – with the Pathfinder tool, large companies will not be eligible for funding as single beneficiaries.

The Pathfinder and Accelerator actions share common characteristics, namely:

- focused on breakthrough and disruptive innovations;
- mainly bottom-up, open to innovations from all fields of science, technology and applications in any sector;
- preferably, cutting across different scientific, technological fields and sectors;
- centred on innovators, simplifying procedures and administrative requirements, making use of interviews to help assess applications, and ensuring fast decision making;
- support high-risk innovations where the risks, whether technological, market and/or regulatory, cannot be borne by the market alone;
- managed pro-actively with milestones to gauge progress and reorient projects where needed.

A High Level Advisory Board will serve as the public face of the EIC and manage its activities. The board will gather "15 to 20 high level individuals…including entrepreneurs, corporate leaders, investors and researchers". It will also have a role in "identify(ing) emerging areas of innovation to be taken into account in the activities under the Global Challenges and Industrial Competitiveness pillar and missions", showing the significant influence that the EIC will exert over the general orientation of Horizon Europe. How members will be selected is not yet clear.

HORIZTONAL CONSIDERATIONS

PARTNERSHIPS

Partnership cuts across Horizon Europe actions, with Article 18 on eligibility establishing **consortia covering at least three entities in three EU Member States as the preferred approach** – however, this can be altered within any work programme or call. Article 8 on partnership, foresees a "rationalisation of the funding landscape" in Horizon Europe, with three types of partnership possibilities:

(a) **Co-programmed European Partnerships**, set up on the basis of memoranda of understanding and/or contractual arrangements between the Commission and the partners;

(b) **Co-funded European Partnerships**, based on "the commitment of the partners for financial and in-kind contributions and integration of their relevant activities using a Programme co-fund action";

(c) **Institutionalised European Partnerships**, which are research and innovation programmes undertaken by **several Member States in accordance with Article 185 TFEU**, or by bodies established pursuant to Article 187 TFEU, such as Joint Undertakings, or by EIT Knowledge and Innovation Communities under the EIT Regulation.

The Commission shows a clear preference for the first two types. Institutionalised partnerships are to "be implemented only where other forms of European Partnerships would not achieve the objectives or would not generate the necessary expected impacts, and if justified by a long-term perspective and high degree of integration including central management of all financial contributions."

PARTICIPATION OF THIRD COUNTRIES

The provisions on participation of third countries show some changes from Horizon2020, though (in what is likely an attempt to take Brexit into account) the regulation does point out that **association of a third country does not imply decision-making powers**, and that in terms of financial contributions, the Commission can ensure "automatic correction of any significant imbalance compared to the amount that entities established in the associated country receive through participation in the Programme, taking into account the costs in the management, execution and operation of the Programme".

Third countries must show "commitment to a rules-based open market economy, including fair and equitable dealing with intellectual property rights, backed by democratic institutions", **effectively excluding China.** The scope of a third country's participation "shall take into account the objective of driving economic growth in the Union through innovation", meaning **non-EU countries can be excluded from certain parts of the programme** on this basis.

SYNERGIES WITH OTHER FUNDS

The proposal foresees **synergies between Horizon Europe and other EU funds,** though the manner in which this can happen is not well explained. Generally speaking, there is a possibility to combine funding with other EU programmes[1], most notably the European Regional Development Fund (ERDF).

The only route to combined funding that is explained in detail is the **"Seal of Excellence",** which is defined as a "certified label which shows that a proposal submitted to a call for proposals exceeded all of the thresholds set out in the work programme, but **could not be funded due to lack of budget available to that call in the work programme**". The other funds in question are the European Regional Development Fund, the Cohesion Fund, the European Social Fund+, and the European Agricultural Fund for Rural Development. The sentence in bold appears to limit synergies to actions that were denied funding under Horizon Europe. While this addresses complaints from stakeholders that many high quality proposals went unfunded under Horizon2020, it appears to **rule out funding coming from both Horizon Europe and these other funds**, which is likely to disappoint those who were hoping for flexibility in combining funding between the two.

Later in the regulation, the part dealing with the European Innovation Council's "Accelerator" funding states that a Seal of Excellence under that particular part of the Programme will only be awarded if the company in question is a start-up or SME.

STAKEHOLDER REACTIONS

EUROPEAN PARLIAMENT

The EPP group has welcomed the "tone" of the proposal, but reiterated its call for a budget of €120bn. The S&D group joined the call for a €120bn budget, and demanded a strengthening of the role of SMEs. The ECR group supported the proposal and has called for it to be supported against likely opposition from areas which have seen budget reductions (likely referring to agriculture and cohesion policy). The group also called for UK inclusion in the programme, and further efforts to include EU-13 member states. At the time of writing, the other political groups had yet to comment on the 7 June proposals.

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[1] Namely, the Common Agricultural Policy (CAP), the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Single Market Programme, the European Space Programme, the Connecting Europe Facility (CEF), the Digital Europe Programme (DEP), the Erasmus Programme, the External Instrument, the InvestEU Fund, and Research and Training Programme of the European Atomic Energy Community.

OTHER STAKEHOLDERS

BusinessEurope has yet to comment but stated its support for a €160bn budget in its MFF position, as well as expressing concern that industry's role in the Programme has been weakened. DIGITALEUROPE has also been quiet but expressed reservations about the budget in its MFF position. European chemicals association Cefic welcomed the proposal – including the Digital and Industry cluster – but called for a more ambitious budget. BDI – the German industry association –stated that the role of KETs such as artificial intelligence must be highlighted, and called for a €150bn budget. SMEs association UAEPME also called for a larger budget and asked for more funding for the EIC. Agricultural lobby COPA-COGECA expressed support for the proposal, although it stresses that the administrative burden on farmers and others involved in agri-food innovation will remain too high. The European Universities Association – and many others from the broader research community – welcomed the proposal overall, but claim that the budget is too small.

NEXT STEPS

The released texts are just the beginning of a long process of legislative debate and approval. The overall proposal (Regulation of 7 June and related Annexes) will now proceed through the ordinary legislative procedure, leaving it open to amendment by both the European Parliament (rapporteur: Dan Nica (S&D, Romania)) and the Council of the EU. The second piece of legislation published on June 7 is somewhat different (a Decision of the Council with related Annexes). The Decision aims to "define the operational objectives and the activities which are specific to parts of Horizon Europe" and is subject only to approval by the European Parliament through the consultation procedure (rapporteur: Christian Ehler (EPP, Germany). The aspects included in the Decision are

- Missions (under Pillar 2)
- The European Research Council
- The European Innovation Council
- Work Programmes (again pertaining largely to Pillar 2)
- Committee Procedure

Once the current proposals are adopted, the "day-to-day" definition of aspects of Horizon Europe will be decided through inter-service consultation in the Commission, which is then submitted to a programme Committee composed of Member State representatives – this will certainly be true for the Clusters under Pillar 2, where the process will remain the same as the Pillar 2 approach in Horizon 2020. It is not yet clear whether there will be a separate Committee structure per cluster. In the case of the European Research Council and the European Innovation Council, the respective Boards will take the lead in developing the Work Programmes.