GLOBALISING FP10: BETTER ENGAGEMENT WITH ASSOCIATED AND LOW- AND MIDDLE-INCOME COUNTRIES

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SUMMARY

The European Union is currently designing its tenth Framework Programme for Research and Innovation (FP10), the successor to Horizon Europe, against a backdrop of heightened geopolitical tension and a renewed focus on industrial competitiveness. The programme's reach has transitioned from a European arrangement to a global network, placing the EU at a strategic crossroads.

Association has proven mutually beneficial, fostering scientific excellence and soft power; yet, the current proposed programme gives the impression that it will be less open to non-EU countries, as the narrative of tackling global challenges seems overshadowed by the drive to strengthen the EU as a competitive power.

To ensure FP10's success, this analysis suggests moving away from an EU-centric narrative, which risks alienating global partners. Instead, this report advocates for a 'Team World' approach that integrates Associated Countries into governance and prioritises joint missions on climate and health. Key recommendations include establishing stable, predictable association models from the outset, adopting risk-based security rules for dual-use technologies, and empowering LMIC partners through leadership roles rather than symbolic consultation. In short, FP10 must adopt international collaboration as a core strategy to amplify European influence and tackle global challenges effectively.

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EXECUTIVE SUMMARY

The European Union is currently laying the groundwork for the tenth edition of its Framework Programme for research and innovation (FP10), again entitled 'Horizon Europe'. Against a backdrop of intensifying geopolitical competition and renewed emphasis on European competitiveness following the Draghi report, we examine one of the most consequential but under-discussed dimensions of FP10. This concerns the future of international participation through associated countries, and the role of low- and middle-income countries (LMICs). The analysis draws on original interviews with representatives of associated countries and LMICs, complemented by a review of official documents, national evaluations, and academic literature.

A global network is in the making. Since the first Framework Programmes, international participation has evolved from a narrow arrangement linking a handful of European neighbours to a rapidly expanding global system. As of April 2026, 22 countries are associated to Horizon Europe, ranging from EEA/EFTA partners like Norway and Iceland to the UK, Turkey, the Western Balkans, Eastern Neighbourhood countries, Tunisia, Egypt, and – for the first time – global economies such as Canada, New Zealand, South Korea, and Japan. The forthcoming association of India, Australia, and Singapore would further extend this network. Were these additions to be completed, the combined GDP of the EU's associated partner network would exceed that of the EU27 itself. In aggregate, the annual public R&I funding of the broader group would roughly match that of the EU Member States – creating a transnational research system of unprecedented scale.

The value of association is clear and mutual. Evidence from national evaluations – most comprehensively from the UK, Norway, Switzerland, Israel, and Canada – consistently shows that the value of association lies less in financial returns than in access to high-quality research networks, large-scale collaborative projects, frontier infrastructure, and a seat at the table that enables partners to help shape European research priorities. The UK case study is particularly instructive: UK researchers secured approximately EUR 7.8 billion across nearly 11 000 Horizon 2020 projects. They have rapidly re-engaged with Horizon Europe since re-association in January 2024, topping the European Research Council's Advanced Grant rankings in 2024. Canada and New Zealand both reported participation as tripling or quadrupling within their first year of association.

Across all cases, association is assessed as a strategic investment, generating returns in scientific excellence, talent attraction, industrial competitiveness, and soft power – for both the EU and its partners. The financial correction mechanism introduced under Horizon Europe further reduces fiscal risk for associated countries, making the arrangement commercially viable even for large economies.

Low- and middle-income countries remain underserved. Despite Horizon Europe's stated commitment to openness, LMIC participation remains limited, fragmented, and largely secondary. Only EUR 1 in every EUR 99 of Horizon Europe funding currently reaches LMIC-based entities, and 36% of eligible LMICs have received no funding at all. LMIC institutions are typically confined to secondary roles within research consortia, with leadership positions, intellectual ownership, and publication outputs dominated by European partners.

Association itself offers limited additional value for LMICs facing foundational capacity constraints; instruments such as the EU's Global Gateway are better positioned to address those systemic gaps. Nevertheless, Pillar II – with its focus on global challenges including health, climate, food systems, and biodiversity – represents the most promising avenue for meaningful and mutually beneficial engagement with LMICs. Strengthening LMIC participation there would benefit the EU as well: diseases, climate risks, and biodiversity loss do not respect borders, with context-rich research environments in partner countries often being indispensable for generating relevant and implementable findings.

FP10 risks undermining its own global ambitions. A range of shortcomings in design and governance threatens to erode the EU's extraordinary, and hitherto largely unrealised, potential to anchor the world's largest high-quality R&I collaboration network.

- A narrow interpretation of competitiveness centred on 'made in Europe' or the 'investment journey' narrative may render FP10 unattractive to associated countries whose researchers and industries seek global impact rather than European industrial consolidation.
- The growing entanglement of Horizon Europe with the European Competitiveness Fund introduces financial uncertainty, governance opacity, and potential access restrictions for trusted partners.
- The expansion of dual-use and research security provisions – while necessary given the geopolitical context – risks being implemented in ways that are unpredictable, excessive, or discriminatory towards precisely the trusted partners which the EU seeks to attract.
- The enhanced flexibility of FP10 priority-setting will undermine associated countries' confidence if it is not accompanied by structured consultation mechanisms and transparent governance.
- The episodes of delayed association for Switzerland and the UK illustrate that even brief periods of uncertainty cause lasting damage to research networks and institutional trust. Such delays must not recur under FP10.

The report concludes with ten concrete policy recommendations for FP10:

(1) establish a stable, predictable association model from the outset, with early political clarity on scope, financial conditions, and transition arrangements;

(2) grant associated countries structured participation in the proposed Councils on Competitiveness and on Global Challenges, commensurate with their growing scientific and financial weight;

(3) adopt an outward-looking, network-based definition of competitiveness that recognises associated countries as force multipliers rather than outsiders, including in sensitive frontier technologies such as AI, quantum, and semiconductors;

(4) enable associated countries to join mission-oriented Pillar II projects under proportionate, risk-based, and transparent security rules, avoiding ad hoc political discretion;

(5) design flagship initiatives in foundational technologies as trusted capability coalitions spanning EU Member States and their associated networks, rather than excluding key scientific partners;

(6) earmark dedicated resources for global challenges under a multistakeholder governance structure that includes LMIC representatives as active participants, not symbolic consultees;

(7) launch co-funded global missions on health, climate, food systems, and biodiversity in partnership with associated countries, LMICs, and multilateral organisations – taking a 'Team World' approach to R&I for global public goods;

(8) use foresight and economic complexity tools to guide partner selection, matching countries to specific thematic areas where complementarities are strongest and joint returns highest;

(9) evaluate international projects against criteria that reward leadership balance, technology transfer, capacity building, and long-term impact, not just scientific output;

(10) appoint independent, expert programme managers for large strategic projects, signalling quality and building trust among international partners, the private sector, and philanthropies.

The window for building a truly global R&I network anchored around the EU is open, and growing wider. FP10 must seize it – not by treating international participation as a residual feature of the programme, but by recognising it as a strategic asset that strengthens European competitiveness, resilience, and influence in equal measure.

INTRODUCTION

The European Union is currently shaping the tenth edition of its landmark Framework Programme for research and innovation (FP10), entitled 'Horizon Europe' like its predecessor. Horizon Europe stands out as the largest public R&I funding programme in the world, and has become a reference for researchers and innovators across the globe. Yet, it still represents a mere 6% of total public R&I funding in Europe. Its overall budget – currently at EUR 95 billion for the budget cycle 2021–27 – is dwarfed by national R&I programmes, which seldom work in sync with the EU's. Even so, its present edition, FP9, appears to be delivering important results and scientific breakthroughs.

At the same time, it has been found to suffer from excessive bureaucracy, limited dynamism in programme and project management, funding channels that are too fragmented, and insufficient leveraging of public and private resources. These feed into one of Europe's most widely acknowledged problems – scattered public R&I funding and an overall insufficiency of private R&I investment. These problems have been highlighted by many recent reports, from the Draghi and Heitor Group reports to the European Commission's own evaluation of FP8- Horizon 2020 (European Commission, 2024a).

The latest European Commission proposal for the next budget cycle, set to start in 2028, entails a significant increase in the budget to EUR 175 billion and a partial reorganisation of the pillar structure of Horizon Europe. There is renewed emphasis on excellent research (nested in the European Research Council (ERC)) and on researcher mobility (Marie Skłodowska-Curie Fellowships). Also notable is a substantial effort to boost the translation of quality research into innovative solutions, in what the President of the European Commission has called the 'investment journey'.

In all this, FP10 appears to be predominantly geared towards revamping European competitiveness. Indeed, until July 2025, when the Commission unveiled its proposal for the next financial framework for 2028–34, there was significant uncertainty about whether FP10 would disappear as a stand-alone budget heading. There was some question as to whether it might be conflated with the larger European Competitiveness Fund (ECF), organised around five main pillars with the ambition to dramatically boost the effectiveness and coherence of EU policies and spending programmes, as well as restore the EU's ability to compete.

The shift towards competitiveness is understandable, given the vibrant calls coming from the Draghi report, which tower over the priorities being set by the European Commission and depict a rather gloomy picture of an EU facing 'slow agony' and potential future irrelevance. This 'North Star' starkly contrasts with the overall objective set by FP9, which was launched with a clear emphasis on the Sustainable Development Goals. Thus, it has

a more international orientation, as well as a priority mix geared towards economic, social and environmental sustainability.

This reorientation is largely seen in Pillar II of the Commission's proposal, which devotes the bulk of resources to competitiveness and leaves a relatively small budget (approximately EUR 1 billion a year) for societal concerns. Even within this latter budget line, priorities such as climate change, biodiversity or global health are not prominently mentioned among global societal challenges. Importantly, Horizon Europe seems closely linked to the ECF, with no apparent connection to the Global Europe Fund – where most of the global challenges that Horizon Europe projects address would otherwise have the opportunity to trigger international collaboration for far-reaching impact.

This development seems at odds with the European Commission's renewed activism in expanding its network of partnerships for the future Horizon Europe. Associated countries now include key partners such as the UK, Switzerland, Iceland and Norway. The network extends to countries in the Western Balkans, the Eastern Partnership and Turkey, Israel, Tunisia, Egypt, and the Faroe Islands. Even distant partners have joined the group, such as New Zealand, Canada, South Korea and Japan. Other countries are likely to do so, including India, Australia, Singapore and Morocco. Most of these countries are associated with the whole programme, whereas a few (for example, Canada) have opted for a more à la carte approach, associating themselves with one pillar of it.

Beyond association, Horizon Europe also implies the possibility for trusted international partners (e.g. at least until recently, the US) to join EU R&I projects through self-funding (this is mostly the case for the US, among others). It offers the prospect of collaboration with a broader group of non-associated third countries, including a rather long list of low- and middle-income countries (LMICs).

Against this background, in FP9 associated and other third countries have benefited from funding from both Pillar I, through the ERC and Marie Skłodowska-Curie Actions (MSCA), and Pillar II. Yet, given the tone and scope of the latest proposal, several questions emerge:

- Will the countries that joined FP9 want to join FP10?
- Will these countries (and possibly other new ones) continue to find Horizon Europe attractive, in a programme dominated by the imperative of EU competitiveness?
- Will projects mostly aimed at speeding up the investment journey in the EU be sufficiently appealing to countries legitimately interested in their own economic performance?

- And given today's rather dramatic geopolitical landscape, will the EU continue to engage with third countries in projects that require enhanced guardrails for research security and in fields entailing dual-use R&I?
- More generally, what is the outlook and rationale for international R&I collaboration through, or even beyond, Horizon Europe?

In this report, we look into these questions, taking stock of developments in international collaboration under EU R&I Framework Programmes. We then explore the case for enhanced cooperation with trusted partners and LMICs under the aegis of Horizon Europe, and also possibly beyond it.

Accordingly, the remainder of the report is structured as follows. Section 1 charts the evolution of international collaboration in EU R&I Framework Programmes. Section 2 presents the experience of associated countries and low and middle-income countries with EU R&I Framework Programmes, as emerging from a series of interviews and additional desk research, with a specific case study on the UK. Section 3 discusses the prospects for associated countries and LMICs in the context of the future Horizon Europe, illustrating the rationale for governance reforms and continued and expanded participation of third countries in FP10. Section 4 translates this analysis into a set of concrete policy recommendations. Our findings and recommendations are supported by empirical evidence collected through a series of semi-structured, in-person interviews conducted specifically for this report between February and March 2026. A range of representatives from associated countries and low- and middle-income countries (LMICs) were consulted, reflecting diverse perspectives and country contexts. Interviewees included relevant government officials, representatives of national research organisations and associations. These discussions aimed to gather insights from their current experience with FP9, as well as their expectations for FP10. All interviews were anonymised to ensure the confidentiality of respondents.

1. EVOLUTION OF INTERNATIONAL R&I COOPERATION IN EU FRAMEWORK PROGRAMMES

International cooperation dates back to the early days of EU research policy. However, under the first editions (focused on research, not yet on innovation), the programmes largely concerned countries within the single market, plus EEA/EFTA partners like Norway and Iceland. By FP5, the focus had shifted towards pre-accession countries, with research collaboration as a training ground for countries like Poland, Hungary, and the Baltic states before they officially joined the EU in 2004. During this period, association had a clear geographical focus, with Israel as a notable exception. After the launch of the European Research Area in 2000, and throughout FP6 and FP7, the EU fully integrated as partners the Western Balkans and European Neighbourhood countries. The list of partners grew from a handful to over a dozen, effectively making the Framework Programme the scientific glue holding a broader Europe together.

As shown in Table 1, the number of associated countries has continued to grow since then, with a temporary contraction as some of the associated countries became members of the EU. Horizon 2020 signalled a major shift in the EU's vocation to international collaboration on R&I. The EU adopted the slogan 'open science, open innovation, open to the world', actively encouraging participation from around the globe. While the list of associated countries has remained largely centred on those in the European Neighbourhood (with the additions of Tunisia, Georgia, and Armenia), the programme has made it easier for third countries like the US, China, and Brazil to join consortia (though ineligible for EU funding). Association has no longer been just about geography; it has increasingly been viewed as a badge of like-mindedness and shared values in research ethics and excellence.

Table 1. Number of associated countries in EU Framework Programmes

Framework Programme	Period	Number of associated countries
FP1–FP3	1984–94	*No formal association scheme; emerging structured cooperation*
FP4	1994–98	4–6 *First structured use of "associated" country logic (EFTA, EEA, pre-accession states)*

FP5[1]	1998–2002	15-16 *(expansion to candidate-type agreements)*
FP6[2]	2002–06	5- 18 *(two formal sub-groups: associated states and associated candidate countries)*
FP7[3]	2007–13	13 –14 *(consolidated list of associated countries)*
Horizon 2020[4]	2014–20	16
Horizon Europe[5]	2021–27	16–23

Source: Authors' compilation based on official EU information (incl. archived CORDIS data, FP-5/6/7 "third-country" annexes, and Horizon 2020/Horizon Europe "List of Participating Countries")
Note: The concept of "associated countries" evolved significantly over time. Early Framework Programmes did not formally define association status; participation was governed by bilateral agreements and multilateral cooperation mechanisms (e.g. COST, EFTA/EEA frameworks). Counts for FP5 onwards reflect estimate variations across programme years (e.g. changing legal status of a country e.g. becoming EU Member States).

The current Horizon Europe (2021–27) features another radical change. For the first time, the EU has expanded its programme to countries that are not geographically close to Europe and have no view to join the EU in the future. This has allowed countries like New Zealand, Canada, Japan and South Korea to become associated partners. This shift has been driven by a new strategy, clearly outlined in the European Commission's Communication on a Global Approach to Research and Innovation. The strategy blends openness to high-capacity scientific nations with 'strategic autonomy' to ensure that the EU remains competitive against rivals. Alongside Pillar I, where the ERC and the MSCA are effectively open to scientists from all over the world, associations to Pillar II are now intended to shape a global network of trusted scientific allies extending far beyond the borders of Europe.

Association is governed by bilateral international agreements. The scope of association may vary by partner and may exclude certain parts of the programme, while full association allows participation largely on equal footing with EU Member States across most programme parts. Typical aspects addressed in an association agreement include

[1] How can the candidate countries participate in FP5? | News | CORDIS | European Commission

[2] Evaluation of FP6 and Framework Programme 6

[3] List of countries associated to FP7

[4] List of countries associated to Horizon 2020

[5] List-3rd-country-participation_horizon-euratom_en.pdf

participation rights and conditions (terms for legal entities from the associated country); financial contributions and mechanisms to ensure fair balance and cost coverage; and joint governance, often with a joint committee.

Where possible, agreements also seek to ensure reciprocity, allowing EU organisations to participate in equivalent programmes in associated countries[6]. Association is monitored through joint committees or governance mechanisms, with regular reviews of participation rates, implementation, scope and contributions. The contributions follow a pay-as-you-go principle, whereby payments are linked to actual participation and funding received, combined with an automatic correction mechanism to address significant imbalances, as required by Articles 16 and 17 of the Horizon Europe Regulation. This model reduces financial risk for associated countries, making association politically and economically viable, especially for partners such as New Zealand, Canada and the UK.

Under previous programmes (FP7 and Horizon 2020), the financial contribution of associated countries was calculated as a ratio of their GDP to the aggregate GDP of EU Member States. Once this 'entry ticket' was paid for, the associated country's researchers could compete for grants on equal footing with EU peers. One drawback of this model was its lack of financial flexibility. If a country's researchers performed exceptionally well, the country effectively 'profited' from the EU budget. If a country's participation was low, it still had to pay the full fee, leading to a 'net loss' that was often politically difficult to justify at home.

An 8% correction mechanism was thus introduced in the EU association agreements following a symmetrical rule: if the associated country receives grants worth over 8% more than what it paid in, it must pay an additional contribution to the EU; conversely, if the country receives grants worth over 8% less than what it paid in, its contribution for the following year is reduced (it gets a credit/refund)[7].

Along with financial flexibility, countries have the option to solely associate with Pillar II of Horizon Europe. While full association (Pillars I, II, and III) is the standard approach for

[6] Transitional arrangements may apply between political agreement and formal entry into force, enabling entities from the partner country to participate in calls. Recent examples include Switzerland, associated in November 2025 (with retroactive application as of 1 January 2025) and Egypt, associated in October 2025 (with retroactive application as of 10 April 2025).

[7] For the case of the UK, the correction mechanism introduced is currently asymmetric. Under this bespoke scheme (introduced before the symmetrical ones for other countries), if UK researchers win 16% less in grants than what the UK paid in, the UK gets a 'clawback' (a discount on its next payment). If, however, UK researchers win 8% more than what the UK paid in, the UK must pay an additional 'performance fee' to the EU to cover the gap. See, inter alia, Fella et al. (2023).

European neighbours, partial association is designed for global partners like Canada, New Zealand and South Korea, and is limited to Pillar II[8].

1.1. ASSOCIATION TO HORIZON EUROPE – THE STATE OF PLAY

As of March 2026, there are 22 countries associated to Horizon Europe (see Table 2 below). This list reflects both continuity with long-standing European integration dynamics and a more recent expansion towards selected global partners.

At the core of the 'traditional' associated group are the EEA/EFTA countries. Iceland and Norway have been associated since 1994 under the EEA framework and among the strongest performers in EU research programmes. The Faroe Islands have been associated to EU R&I Framework Programmes since FP7.

Switzerland also has a long history of association (since FP6), but its status became politically contingent at the start of Horizon Europe in the wake of wider institutional disagreements with the EU. Swiss entities participated between 2021 and 2024 under transitional arrangements with national funding. Full association was restored in November 2025 through the EU Programmes Agreement, re-establishing Switzerland's association not only to Horizon Europe but also to Euratom and Digital Europe. For Swiss researchers and their European collaborators, this period of limbo was experienced as a significant disruption, illustrating how political delays can negatively affect established cooperation networks, leadership roles in collaborative projects, and long-term, strategic research engagement across Europe.

The United Kingdom, after a prolonged period of post-Brexit uncertainty, became associated as of 1 January 2024, restoring participation largely on equal terms but with exclusions, such as European Innovation Council (EIC) Accelerator funding. While widely welcomed by UK research stakeholders, participation levels in collaborative funding remain in recovery mode compared with pre-Brexit performance. Analyses highlight the importance of strengthening UK–EU scientific partnerships and clarifying association terms early to enable UK researchers to prepare for FP10, as underlined in a Russell Group statement of July 2025.

As in the case of Switzerland, concerns about the impact of delayed association of the UK was repeatedly raised by the research community. As early as 2022, the UK House of Lords

[8] Pillar I includes the MSCA and the ERC, which often require researchers to relocate to Europe or for European labs to host foreign talent. Pillar III Innovative Europe also has a strong EU focus that aims to turn scientific breakthroughs into viable businesses rooted in the EU. Yet the more flexible mechanism should have eased the worry that association with the EU Framework Programme would not be financially beneficial and motivated more countries to join the programme.

European Affairs Committee warned that delaying the UK's association to Horizon Europe, despite its clear mutual benefits, was already eroding researcher confidence and undermining funding opportunities. It added that politicising scientific cooperation risked damaging both UK and EU research ecosystems. Similar concerns were expressed in a joint statement by European university umbrella organisations. They noted that prolonged uncertainty over the status of associates of key partners such as the UK and Switzerland was weakening existing research partnerships, discouraging consortium participation, and, in some cases, leading to the exclusion of partners due to administrative and legal uncertainty.

Association is also a central feature of EU expansion and engagement with neighbourhood partners. The Western Balkans (Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia) have a long track record in EU Framework Programmes, with most partners associated since FP7 and Horizon 2020. Turkey has had continuous structured participation in EU Framework Programmes since FP6. The participation of Western Balkan partners has increased significantly under Horizon Europe, supported particularly through the Western Balkans Innovation Agenda. Moldova has been associated since FP7, while Georgia, Ukraine and Armenia joined later (from 2016 under Horizon 2020) and all remain associated under Horizon Europe.

In the southern neighbourhood, Israel has been associated since the mid-1990s, but the association is sensitive to geopolitical developments. Recently, the Commission proposed a partial suspension affecting parts of Horizon Europe (notably activities funded under the EIC Accelerator) in the context of the Gaza humanitarian crisis. Tunisia was the first associated African and Arab country (joining in 2016), and continues to participate in Horizon Europe despite challenges largely linked to absorptive capacity. Egypt became formally associated in 2025, with an agreement signed at the EU–Egypt summit, signalling a political upgrade of EU–Egypt cooperation in research and innovation. Finally, Morocco remains a special case: exploratory talks started in 2021 and transitional arrangements have applied, but negotiations appear to have paused, even as cooperation persists in regional frameworks like the Partnership for Research and Innovation in the Mediterranean Area.

Alongside these neighbourhood-based associations, Horizon Europe has gradually been expanded to a new category of partners through Pillar II-specific association (see Figure 1). This represents a novel step in opening up the EU's R&I framework beyond its immediate geographical neighbourhood. New Zealand, which joined in 2023, stands out as a first example of this more outward-looking model. Its early engagement with Horizon Europe was strong, with the number of signed grants almost tripling between 2022 and 2024.

After New Zealand, Canada became associated to Pillar II in July 2024 (retroactive from January 2024). This strengthened the EU–Canada strategic partnership as jointly stated by the President of the European Commission and the Canadian Prime Minister, supported by the establishment of an Association Joint Committee. Here too, the agreement resulted in participation in proposals increasing by around 300% compared with previous years, largely due to integration into European research consortia.

The Republic of Korea became the first Asian country to join, with association formalised in July 2025 and transitional participation from January 2025. This development complements broader EU–South Korea cooperation in strategic technologies. Under the EU–Republic of Korea Digital Partnership, for example, joint work covers areas such as semiconductors under Horizon Europe's Chips Joint Undertaking, quantum, and 6G calls under the Smart Networks and Services Joint Undertaking.

Table 2. Current and prospective associated members of Horizon Europe

Country	Geographical cluster	First association	Type (HE)	Policy context	Comments
Norway	EFTA/EEA	FP4 (1994)	Full	EEA Agreement	One of the earliest associated countries
Iceland	EFTA/EEA	FP4 (1994)	Full	EEA Agreement	One of the earliest associated countries
Israel	Strategic partner	FP4 (1996)	Full	Scientific and technological cooperation agreement	First non-European associated country ; significant cooperation already existed under FP4.
Switzerland	European partner	FP6 (2004) as associated[9]	Near-full	Bilateral agreements	Long but interrupted participation. Long-standing cooperation from FP4 onward; formally listed as an "Associated State" only in FP6.
Turkey	Enlargement/ strategic	FP6 (2003)	Full	Customs Union + candidate	Early pre-accession tool; later became an FP7-associated enlargement-candidate country.
Serbia	Enlargement (WB)	FP7 (2007)	Full	Stabilisation and Association	Gradual integration as an enlargement-candidate

[9] EU Framework Programmes 1984–2020

				Agreement + candidate country	
Montenegro	Enlargement (WB)	FP7 (2007)	Full	Stabilisation and Association Agreement + candidate country	Gradual integration as an enlargement-candidate
North Macedonia	Enlargement (WB)	FP7 (2007)	Full	Stabilisation and Association Agreement + candidate country	One of the earliest-integrated non-EU countries
Albania	Enlargement (WB)	FP7 (2007)	Full	Stabilisation and Association Agreement + candidate country	Gradual integration as an enlargement-candidat
Bosnia and Herzegovina	Enlargement (WB)	FP7 (2007)	Full	+ candidate country	Gradual integration as an enlargement-candidat
Kosovo	Enlargement (WB)	Horizon Europe (2021)	Full	Stabilisation & Association + potential candidate country	Potential candidate country
Ukraine	Neighbourhood (east)	Horizon 2020 (2016)	Full	Association Agreement + DCFTA + candidate country	Key geopolitical partner Eastern Partnership partner
Moldova	Neighbourhood (east)	FP7 (2012)	Full	Association Agreement + DCFTA + candidate country	Eastern Partnership partner, deeper FP integration since H2020.
Georgia	Neighbourhood (east)	Horizon 2020 (2016)	Full	Association Agreement + DCFTA + candidate country	Eastern Partnership partner
Armenia	Neighbourhood (east)	Horizon 2020 (2016)	Full	CEPA agreement	Eastern Partnership partner
Tunisia	Neighbourhood (south)	Horizon 2020 (2016)	Full	ENP	Second southern neighbourhood country
Egypt	Neighbourhood (south)	Horizon Europe (2025)	Full	ENP	Third southern neighbourhood country

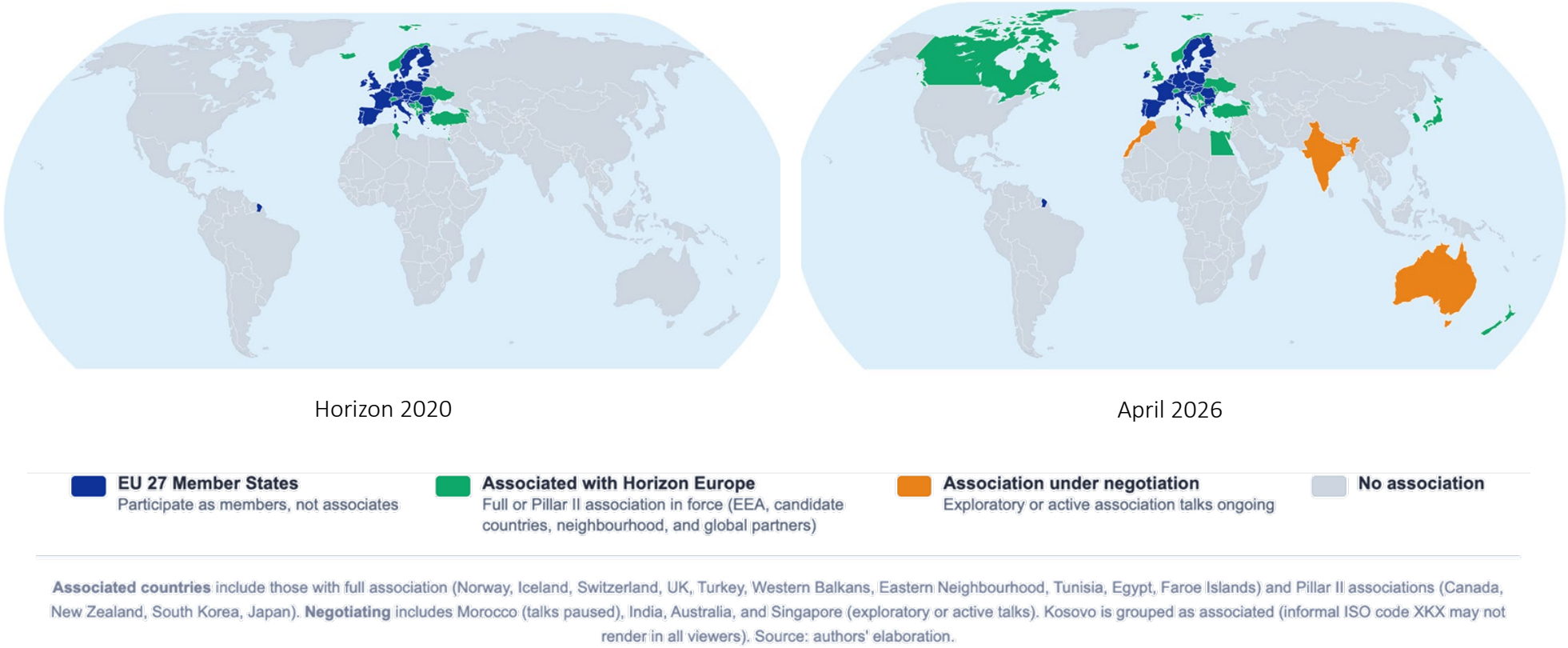
Morocco	Neighbourhood (south)	n/a	Full (TBC)	ENP	Strong Africa link; exploratory talks started in 2021, but negotiations paused
Faroe Islands	European microstate	FP7 (2010)	Full	Linked to Denmark	Sectoral cooperation
United Kingdom	Strategic European partner	FP1 (1984) (as a Member State) / HE 2024 as associated	Full	TCA	Special case: a former EU Member State Associated to the entire Programme, with the only exception of the EIC fund
Canada	Global partner	Horizon Europe (2023–24)	Pillar II	CETA FTA EU-Canada Digital partnership	First transatlantic partial association
New Zealand	Global partner	Horizon Europe (2023)	Pillar II	FTA	First Asia-Pacific partner
South Korea	Global partner	Horizon Europe (2025)	Pillar II	FTA + digital partnership	First Asian associated country
Japan	Global partner	Horizon Europe (2026)	Pillar II	EU-Japan Digital partnership	Agreement in principle in December 2025, with signature expected in 2026. Applicable to Pillar II 'Global Challenges and European Industrial Competitiveness', including for the institutionalised European partnerships
India	Global partner	Horizon Europe (TBC)	Pillar II (TBC)	EU–India TTC EU–India FTA EU–India Security and Defence Partnership	Exploratory talks launched at the EU–India Summit in 2026
Australia	Global partner	Horizon Europe (TBC)	Pillar II (TBC)	EU–Australia trade agreement (March 2026)	Non-binding exploratory talks since September 2025
Singapore	Global partner	Horizon Europe (TBC)	Pillar II (TBC)	EU-Singapore FTA EU-Singapore Digital partnership and	Negotiations ongoing since November 2024

				Digital Trade Agreement	

Source: Authors' compilation based on data published by the EU. See in particular: list-3rd-country-participation_horizon-euratom_en.pdf (12.02.2026))

Notes: CEPA = Comprehensive and Advanced Partnership Agreement; CETA = Comprehensive and Economic Trade Agreement; DCFTA = Deep and Comprehensive Free Trade Agreement; ENP = European Neighbourhood Policy; FTA = free trade agreement; HE = Horizon Europe; TBC = to be confirmed; TCA = Trade and Cooperation Agreement; TTC = Trade and Technology Council; WB = Western Balkans.

Figure 1. Horizon Europe: status of country participation in Horizon 2020 vs today (April 2026)



Note: During H2020, Switzerland was temporarily downgraded to 'partial' participation in 2014 following the referendum on free movement, then progressively restored.
Source: Authors' illustration based on data published by the EU.

1.2. A PARADIGM SHIFT IN ASSOCIATION: A NETWORK OF INTERNATIONAL PARTNERS

In addition to the countries that are currently associated, a few very advanced economies have reached agreement on, or are currently negotiating, association to Horizon Europe (see Table 3). They include R&D powerhouses such as Japan, India, Singapore and Australia.

Japan and the EU recently reached, in principle, an agreement on the terms of association in December 2025, with signature expected in 2026 and transitional arrangements already applying from January 2026. Association reaffirms the EU–Japan Digital Partnership, involving targeted R&I cooperation on semiconductors and quantum computing, with 2026 plans extending to AI-powered 6G.

Amid ongoing negotiations for India's association, relations significantly deepened at the recent 16th EU–India Summit in New Delhi. It saw the conclusion of a free trade agreement, the launch of an EU–India Security and Defence Partnership, and renewed commitments on emerging and critical technologies, innovation, and research. This led to an extension of the EU–India Agreement for Scientific and Technological Cooperation until 2030, and the start of exploratory talks on India's possible association to Horizon Europe.

Meanwhile, India is already engaging actively with Horizon Europe through self-funded participation: in 2023–24, India earmarked 11 Horizon Europe calls for co-funding across priority areas, including AI and robotics, health, the climate transition, renewable energy, the circular economy, and ocean research. In 2025, the EU–India Trade and Technology Council launched joint research initiatives under Horizon Europe on marine plastic litter and waste-to-renewable hydrogen, mobilising about EUR 41 million. A specific co-funding mechanism has been established for MSCA Staff Exchanges, enabling Indian research organisations (through the Council of Scientific and Industrial Research) to top-up successful MSCA proposals.

In April 2024, Singapore expressed interest in exploring association to Horizon Europe. The Council of the EU authorised the European Commission to open negotiations in November that year. While no agreement has yet been concluded, Singapore has taken steps that complement the association process, such as launching the Singapore–Horizon Europe Complementary Fund in December 2025 to support Singaporean researchers' participation in Horizon Europe. This new fund will provide financial support and boost the participation of researchers based in Singapore in Horizon Europe projects. Importantly, the EU–Singapore Digital Partnership has been active since 2023, making progress in areas such as AI, online safety and cybersecurity, with prospects for more collaborative research under Horizon Europe.

In September 2025, the EU and Australia launched non-binding exploratory talks on the latter's possible association to Pillar II of Horizon Europe, focusing on shared priorities – industry, digital technologies, energy, health, and space. While no formal mandate or timeline has been announced, both sides have expressed commitment to exploring the association. The Australian government has launched public consultations on association, reflecting growing domestic interest. These discussions build on a long-standing EU–Australia research partnership anchored in the 1994 Agreement on Science and Technology Cooperation. Support for association is strong among Australian stakeholders, who view Horizon Europe participation as strategically important for global research engagement and as critical to national impact. A recent statement by Australia's Group of Eight universities argues that the absence of association limits access to funding, data, research infrastructure, and commercialisation opportunities, and is particularly significant given the EU's role as Australia's largest foreign research funder.

Table 3. Current and potential associated countries, GDP and R&D intensity

Country	GDP 2023 (€ bn)	Proportion to EU GDP 2023 (%)	Government budget allocation for R&I 2023 (€ bn)	R&I Intensity 2023 (Total R&I expenditure to GDP in %)
EU European Union	17,256	100	136.08[10]	2.26
GB United Kingdom	3,164	18.3	19.88	2.68
CA Canada	2,010	11.6	8.82	1.81
KR South Korea	1,706	9.9	22.01	1.94
CH Switzerland	827	4.8	7.67	3.22
TR Turkey	1,055	6.1	3.88	1.42
NO Norway	447	2.6	3.69	1.85
IL Israel	474	2.7	2.49	1.59
NZ New Zealand	236	1.4	0.55[#]	1.55

[10] This is the sum of the government spending of the EU-27 (€123.68 billion compiled by Eurostat) and the European Commission (€12.4 billion under Horizon Europe).

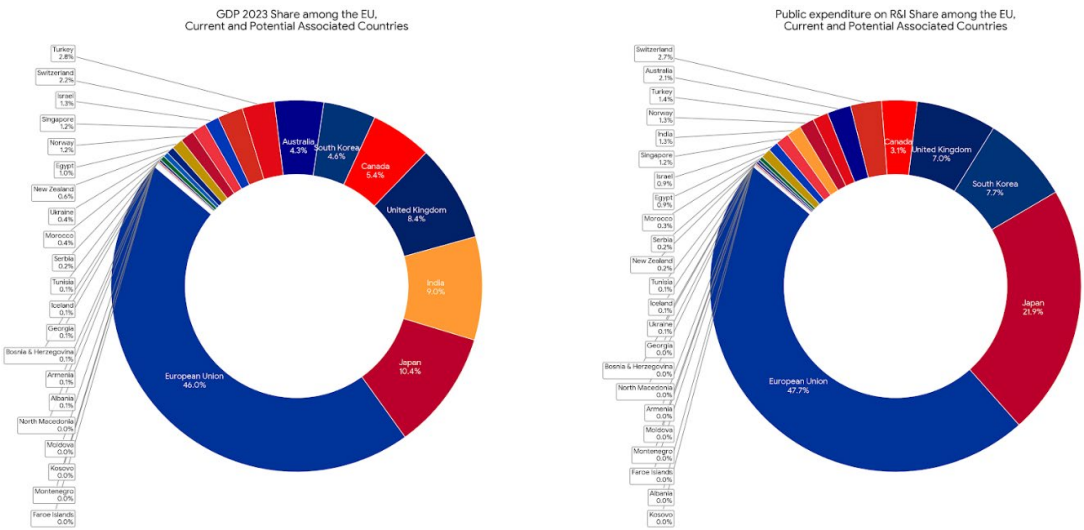
UA Ukraine	168	1.0	0.21#	0.32
EG Egypt	366	2.1	2.48#	1.03
TN Tunisia	45	0.3	0.35#	missing
RS Serbia	75	0.4	0.65#	0.88
GE Georgia	28	0.2	0.069#	0.25
MD Moldova	15	0.1	0.032#	0.22
AL Albania	22	0.1	0.015#	0.20^
BA Bosnia & Herzegovina	26	0.2	0.049#	0.19
ME Montenegro	7	0.04	0.023#	missing
MK North Macedonia	15	0.1	0.042#	0.37
AM Armenia	22	0.1	0.032#	0.29
XK Kosovo	10	0.06	0.0085#	missing
IS Iceland	29	0.2	0.22#	2.64
FO Faroe Islands	4	0.02	0.016#	missing
Potential associated countries				
MA Morocco	146	0.8	0.92#	missing
JP Japan	3,896	22.6	62.38	3.44
IN India	3,365	19.5	3.58#	0.65*
AU Australia	1,604	9.3	5.89	1.86*
SG Singapore	467	2.7	3.30	1.81^

Sources: GDP figures and R&I intensity are compiled by Word Bank, except the R&I Intensity for the EU is borrowed from Eurostat. Public expenditure on R&I is based on OECD data, together with authors' own estimates using various national sources, which should be interpreted as indicative rather than precise information or point estimates. Values are converted to EUR using approximate recent exchange rates (e.g. 1 USD: EUR 0.9248 for 2023 figures) and rounded (GDP to ~0.01–0.1 tn, funding to ranges) for comparability. *2021 figures ^2022 figures # authors' own estimates using national statistics.

The trend of association to the EU's R&I Framework Programmes has transformed what was once a primarily European cooperation instrument into the backbone of a much broader, quasi-global research system. While association initially served the dual purpose of supporting enlargement and stabilising the EU's neighbourhood, it now also functions as a mechanism to connect the European Research Area to other major centres of scientific and technological capacity. This transformation becomes particularly clear when examining the economic and research profiles of the countries currently associated, and when considering the potential impact of further expansion to additional advanced and emerging economies.

The EU27 remains the central node of this system, with a GDP of approximately EUR 17 trillion[11] and public R&I funding of around EUR 136 billion in 2023. However, the group of countries now associated to Horizon Europe collectively represents an economy of roughly EUR 11 trillion – equivalent to about 60% of the EU's own GDP (see Figure 2).

Figure 2. Combined GDP and public R&I funding of the EU27, associated and potential associated countries



Source: Authors' elaboration based on Table 3.

This group is highly heterogeneous. It includes a large number of enlargement and neighbourhood countries with relatively small economies and low R&D intensity, often below 1% of GDP. Their participation is primarily driven by political and structural objectives, such as integration, capacity building, and alignment with EU standards.

[11] Source: Eurostat.

By contrast, the associated group also includes several advanced economies – most notably the UK, Canada, South Korea, Switzerland, Norway, and Israel – which significantly alter the overall profile of the system. These advanced partners are characterised not only by substantial economic weight but also by high levels of investment in research and innovation. Japan and Switzerland, for example, exhibit R&D intensities exceeding 3% of GDP, higher than the EU average of roughly 2.2%. As a result, although the associated countries collectively represent around EUR 70–75 billion in annual public R&I funding – roughly half the EU's level – their contribution to the global research system is disproportionately large in terms of scientific output and technological capability. The association system therefore already connects the EU to a network that is not only economically significant but also highly research-intensive.

The potential association of Japan, India, Australia, and Singapore would further enhance and transform this system. These countries together account for approximately EUR 9.3 trillion in GDP, or roughly half of the EU27 economy.

- Japan alone represents nearly EUR 4 trillion, making it comparable in scale to the largest European economies and placing it among the world's leading R&D performers, with an intensity of around 3.3% of GDP.
- Australia, with a GDP of approximately EUR 1.6 trillion and R&D intensity close to 1.8%, offers a well-developed academic system and strong links to Indo-Pacific research networks.
- Singapore, though much smaller in economic terms at around EUR 0.46 trillion, combines relatively high R&D intensity (~1.8%) with a highly efficient, state-driven innovation system that is deeply embedded in global technology value chains.
- India presents a different profile: with a GDP of approximately EUR 3.4 trillion, it is one of the largest economies in the world, yet its R&D intensity remains relatively low at around 0.65%. Its significance lies less in current research intensity than in its scale, growth potential, and expanding technological capabilities.

If these four countries were to become associated, the aggregate effect would be substantial. The EU would effectively extend its R&I system to an external economic area of approximately EUR 20 trillion – exceeding the size of the EU economy itself. In terms of public R&I funding, these additional partners contribute on the order of EUR 75 billion annually, bringing the combined external public research effort to roughly EUR 149 billion per year. This is broadly comparable to, and slightly exceeds, the EU's own public R&I funding (including funding by Member States). The result would be a transnational

research system of unprecedented scale, combining multiple large and technologically advanced economies with complementary strengths.

From a structural perspective, this expansion would further accentuate the dual nature of the association policy. On the one hand, it would continue to support political integration and capacity building in neighbouring regions. On the other hand, it would deepen strategic cooperation with technologically advanced economies that are, in many cases, direct competitors in key sectors including AI, semiconductors, and clean technologies. The inclusion of countries with high R&D intensity, such as Japan and Singapore, would strengthen the overall innovation capacity of the system, while the inclusion of a large and rapidly developing economy like India would increase its scale and long-term growth potential.

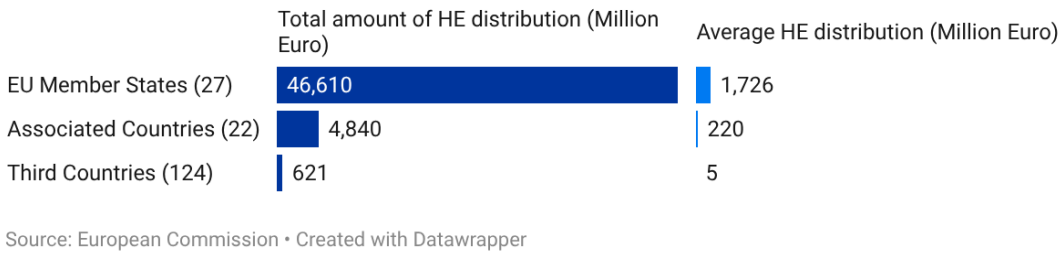
At the same time, the growing economic and technological weight of associated and potentially associated countries helps to explain the increasing emphasis on research security and differentiated access within Horizon Europe. As the system expands to include partners whose combined GDP and research investment rival those of the EU, the risks associated with uncontrolled knowledge flows become more significant. This has already led to the introduction of partial association models, where for instance access is limited to Pillar II of the programme, and to a broader shift towards risk-based international cooperation. In this context, openness is no longer an unconditional principle but is increasingly balanced against considerations of economic security, technological sovereignty, and geopolitical alignment.

In sum, the association framework has evolved into a central instrument through which the EU positions itself within a global research landscape. The current group of associated countries already represents a substantial extension of the EU's economic and scientific base. The potential inclusion of additional major economies would transform this extension into a fully-fledged global system, comparable in size and capability to the EU itself. This development underscores both the opportunities and the challenges of international research cooperation: it enables access to a larger pool of resources, talent, and knowledge, but also necessitates more sophisticated governance mechanisms to manage the strategic implications of such integration.

2. INTERNATIONAL COLLABORATION ON R&I UNDER HORIZON EUROPE

Data on Horizon Europe (as of end 2025) show that EU Member States are by far the biggest beneficiaries of the programme, each so far receiving an average of EUR 1.7 billion. Associated countries have on average received EUR 234 million from Horizon Europe, while larger recipients like Norway and the UK (which re-joined in 2024) have received EUR 1.6 and 1.3 billion respectively. Figure 3 shows the breakdown of funds distributed under Horizon Europe, as well as the average per country.

Figure 3. Distribution of Horizon Europe funds among types of countries



Note: The 22 associated countries include Albania, Armenia, Bosnia and Herzegovina, the Faroe Islands, Georgia, Iceland, Kosovo, Moldova, Montenegro, North Macedonia, Norway, Serbia, Switzerland, Ukraine, UK, Egypt, Israel, Tunisia, Turkey, Canada, New Zealand and South Korea. Horizon Europe runs for the 2021–2027 period; the figures shown reflect the distribution of funds as of 31 December 2025

In the coming years, based on data presented above, the balance in the distribution of funds under Horizon Europe may change significantly, with non-EU countries potentially contributing and receiving a larger share of the total budget than EU countries. What would be the consequences of such a scenario for the governance of Horizon Europe? How easily could such a scenario be reconciled with a more inward-looking, competitiveness-focused approach to R&I funding in Europe? In order to address these questions, we investigated the recent experience of associated countries, and asked potential associates what motivates them and what expectations have brought them to the negotiating table.

2.1. WHAT IS THE EXPERIENCE OF ASSOCIATED COUNTRIES?

Besides being considered 'beneficiaries' on equal terms with EU Member States, and thus eligible to receive a share of the EUR 95.5 billion budget of Horizon Europe, associated countries also benefit from risk-sharing. They have the opportunity to join large-scale research projects that would otherwise be financially infeasible for them to pursue alone. Association brings countries into the European Research Area and hence in contact with a strong network of leading scientists, industrial actors, and policymakers. This connection

allows them to join long-term European Partnerships and EU Missions tackling major challenges, like finding a cure for cancer or creating climate-neutral cities.

Furthermore, by joining the European Research Area, countries strengthen their similarity to other institutions ('institutional proximity') and become more central within the global research community ('network centrality'). This boost in institutional proximity and network centrality in turn leads to more collaboration, knowledge sharing, and innovation.

The interviews we conducted with representatives from several associated countries confirm that all of these benefits are strongly recognised in practice. Stakeholders from associated countries consistently emphasised that access to Horizon Europe is valued not primarily for financial returns, but for integration into high-quality research networks, visibility, and long-term collaboration opportunities.

Association boosts a country's attractiveness as an innovation partner by presenting it institutionally as a peer to valuable counterparts. Actors are more likely to work together when they share characteristics (including geographical, organisational, or institutional characteristics). This has shown significant results in empirical works involving both institutional proximity and targeted funding instruments by national and supranational funds like the FP. While geography may be hard to change, programmes like Horizon Europe can spark connections by providing institutional proximity. The experience of FP6 with the Global Navigation Satellite Systems also shows that these networks often last beyond the duration of the project itself, creating long-term benefits and even spillover into new projects. Association thereby gives countries a seat at the table, which is an advantage not available for standard participants.

In addition, working together internationally on R&I can include: (i) partnering with top groups, (ii) learning-by-collaborating, (iii) access to frontier infrastructure and communities, and (iv) stronger peer-review discipline. This leads to greater scientific impact, more frequent citations, and faster sharing of knowledge – all key factors for excellent innovation. This is especially important in R&I sectors with high costs and uncertainties, or those vulnerable to market failure, such as the markets for semiconductors, green hydrogen, AI, and biomedical innovation. In these fields, association helps share financial, technical, and regulatory risks, making it possible to pursue research that might otherwise be too risky for a country to tackle alone. It also leads to the definition of de facto industry standards, which can further level the playing field and establish the network of collaborations and partnerships that can help innovation deployment.

The experience of associated countries with participation in the EU's research Framework Programmes has been examined in a range of national reports, policy papers, and academic studies. While the evidence base remains fragmented and often qualitative rather than strictly financial, a remarkably consistent picture emerges across countries with very different economic structures and research capacities.

Association is rarely assessed purely in terms of financial return; instead, it is widely framed as a strategic investment in access to a high-performing international research system. A central feature of association is that it grants countries participation under the same conditions as EU Member States (Hezelburcht, 2018), meaning that researchers compete for funding on equal terms within multinational consortia. This institutional design underpins most national evaluations, which tend to focus on systemic benefits rather than net financial balances. European Commission and related analyses emphasise that participation contributes to scientific excellence and cooperative networks, with associated countries achieving success rates comparable to EU participants (European Commission, 2025e).

The Norwegian case provides one of the clearest examples of how countries evaluate the value of association. As a long-standing participant through the EEA, Norway has repeatedly concluded in national assessments that the benefits lie primarily in access to networks, knowledge, and infrastructure. Moreover, according to our interviewee the close relationship with the EU single market and knowledge cooperation has aligned the country's research priorities with the EU's. Currently, Norway is mainly involved in Pillar II (70%).

Although Norway has previously been a net financial contributor, its participation was justified by the systemic gains in research quality and internationalisation. This reflects a broader pattern in which countries are willing to accept a potentially negative financial balance in exchange for integration into what is widely considered one of the world's most competitive research ecosystems. An evaluation of Norway's participation in FP7 and Horizon 2020 shows gains in research quality, competitiveness, innovation capacity and policy development, leading to a recommendation to remain in Horizon Europe, but also a recommendation that Norwegian FP policy should include returns target for Norway to increase benefits. This has been included in the subsequent strategies for Norwegian participation in the FPs.

Iceland also considers Horizon Europe central to its R&I system. The programme has enabled strategic alignment with EU priorities, which is important given Iceland's very

small size, limited national funding instruments and strong dependence on international cooperation, with around 90% of public research co-published internationally[12].

For both countries, association supports capacity building, international networking and sustained competitiveness. In addition, it may become a launchpad for EU membership negotiations in the near future (especially for Iceland, soon to hold a referendum on the topic). Interviewees from EEA/EFTA countries highlighted that long-standing association has created stable and predictable participation conditions, which are essential for maintaining engagement. However, according to our interviewees, Horizon Europe's exclusion provisions (Article 22.5) are not fully in line with the EEA Agreement principles, and equal participation is limited in practice.

Switzerland offers a complementary perspective from a high-performing research system. Historical evidence shows that Swiss institutions have often secured more funding than the country contributed. During FP7, they received 'some 10 per cent more than the country's contribution' (Science|Business, 2017). This no longer happens, because under Horizon Europe the financial correction mechanism has limited net gains/losses in financial terms. Swiss policy debates have therefore focused less on whether participation is beneficial and more on ensuring continued access. The temporary restrictions on Swiss participation following political disagreements with the EU were widely criticised by the scientific community. It highlighted the loss of access to instruments such as the ERC and to coordination roles in collaborative projects. This episode illustrates that, for highly competitive research systems, association is viewed not merely as advantageous but as essential for maintaining global scientific standing.

Israel provides further evidence of the perceived value of association, particularly from the perspective of an innovation-intensive economy. National policy papers describe participation in EU FPs as being 'of strategic importance' for strengthening research, development, and innovation (Mitvim, 2020). The same source documents that Israel has historically been able to recover its contributions through grants, receiving EUR 875 million under FP7 compared with a contribution of EUR 535 million, and EUR 1.2 billion under Horizon 2020. However, Israeli evaluations also emphasise non-financial benefits, including enhanced cooperation, increased international visibility, and improved access to European markets and investment. The ability to participate in multinational consortia and to integrate industry and academia across borders is consistently highlighted as a key advantage.

[12] European Innovation Scoreboard 2025 dataset and data collected through interviews.

The UK, which became associated to Horizon Europe in 2024 following its departure from the EU, has articulated similar arguments in favour of participation. Government statements and policy discussions have emphasised the importance of rejoining European research networks, gaining access to large-scale collaborative projects, and maintaining influence over research agendas. Early evidence suggests that UK institutions have rapidly reintegrated into the programme, reinforcing the perception that even large and well-funded national systems derive significant added value from participation beyond what domestic funding alone can provide (see Section 2.2 for a more in-depth case study on the UK).

The UK case also highlights the importance of predictability and continuity. Interviewees pointed to the tangible costs of delayed association, including disrupted networks, reduced coordination roles, and loss of confidence among research institutions. Concerns remain regarding restrictions in sensitive areas. As underlined by our interviewee, the UK wants access to sensitive topics like space, AI, and quantum. 'Even as trusted partners with strong ties to EU countries, [the] UK still faces barriers, reflecting the EU's balancing of partnerships with strategic autonomy.'

Canada's recent association to Horizon Europe illustrates both the opportunities and practical challenges of international participation in the Framework Programme. As underlined during our interviews, association is a 'game-changer for Canadian researchers'. In the first year, the focus was on raising awareness about Horizon Europe, which was not well-known in academia. That effort is now paying off, with involvement in proposals rising by around 300% compared with previous years, largely due to the shift from self-financed participation to direct access to Horizon Europe funding and integration into European research consortia. Yet Canada's experience also highlights several structural lessons: associated countries often face limited influence in programme governance, and restricted or delayed access to sensitive technology calls (e.g. on AI, quantum or space). Despite Canada's historically strong ties with Europe, as mentioned by our interviewee, Canada must request access to sensitive calls, which creates delays, uncertainty, and a disadvantage in forming consortia.

For enlargement and neighbourhood countries, the evaluation of association takes on a different character. These countries typically have lower R&D intensity and more limited domestic research funding. Their participation in Horizon Europe is often framed as a tool for capacity building and integration into the European Research Area. Studies of EU cooperation with third countries note that association can 'help [countries] develop linkages with international networks of excellence' and increase their research volume (European Commission, 2015; UNESCO, 2015). In these cases, the primary benefits are

not financial returns but improvements in institutional capacity, access to knowledge, and alignment with European standards.

Across all country cases, a common theme is the importance of international collaboration as a driver of value. Association enables researchers to participate in large, multidisciplinary consortia that would be difficult or impossible to replicate at the national level. It also provides access to shared research infrastructure and to funding instruments that support frontier research. As one policy analysis notes, participation offers 'mutual access to a wider pool of excellence, innovation and research infrastructures' (European Commission, 2021, cited in Israel Innovation Authority, 2021). This emphasis on access and connectivity explains why countries continue to seek association even when financial returns are uncertain or modest.

At the same time, national debates occasionally highlight tensions and limitations. In Switzerland, concerns have been raised about administrative complexity and the coordination burden of large projects, with stakeholders noting that 'big projects … are monsters to coordinate' (Science|Business, 2021). In Israel, some academics have criticised the programme for political reasons, while still acknowledging the depth and importance of scientific cooperation. These critiques, however, tend to focus on specific aspects of programme design or political context rather than on the overall value of association.

Across all interviews, several common priorities emerge. There is a need for timely and predictable association processes; for straightforward and transparent rules on eligibility and restrictions (particularly for dual-use research and sensitive calls); for stable and proportionate financial conditions; and for simplified, user-friendly procedures. These factors are seen as critical to maintaining trust and ensuring effective participation of associated countries in future Framework Programmes. Several interviewees stressed that a seat at the table is essential for shaping informal agendas and building strategic partnerships, even in the absence of formal voting rights. But they also noted that limited influence over programme governance remains a structural constraint for associated countries.

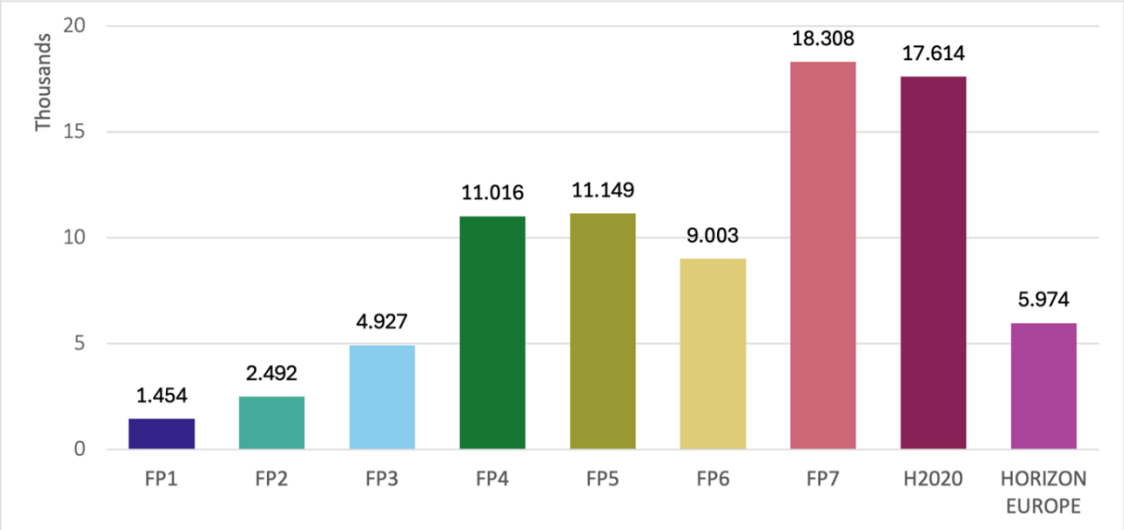
Available evidence supports a clear conclusion. Across a wide range of countries, association to Horizon Europe and its predecessor programmes is consistently perceived as beneficial. This perception is not primarily driven by financial considerations, although some countries did achieve favourable funding balances before Horizon Europe introduced a cap on net gains/losses. Rather, it reflects the role of the programme as a gateway to international collaboration, scientific excellence, and integration into a global research ecosystem. In this sense, the value of association lies less in net monetary

returns (which are not necessarily the most attractive), than in the broader structural advantages it confers on national R&I systems.

2.2. CASE STUDY: UK EXPERIENCE WITH HORIZON 2020 AND HORIZON EUROPE

As a former EU Member State, the UK possesses a deep-rooted history of participation in EU Framework Programmes (see Figure 4). While Brexit initially decoupled the UK from Horizon Europe, the move was met with significant domestic pushback; British academic and research institutions remained overwhelmingly in favour of re-association. This advocacy culminated in the UK officially rejoining Horizon Europe on 1 January 2024. The move was celebrated by the broader European research community, showing both the attractiveness of the Framework Programmes and the benefits of high-level cross-border scientific collaboration.

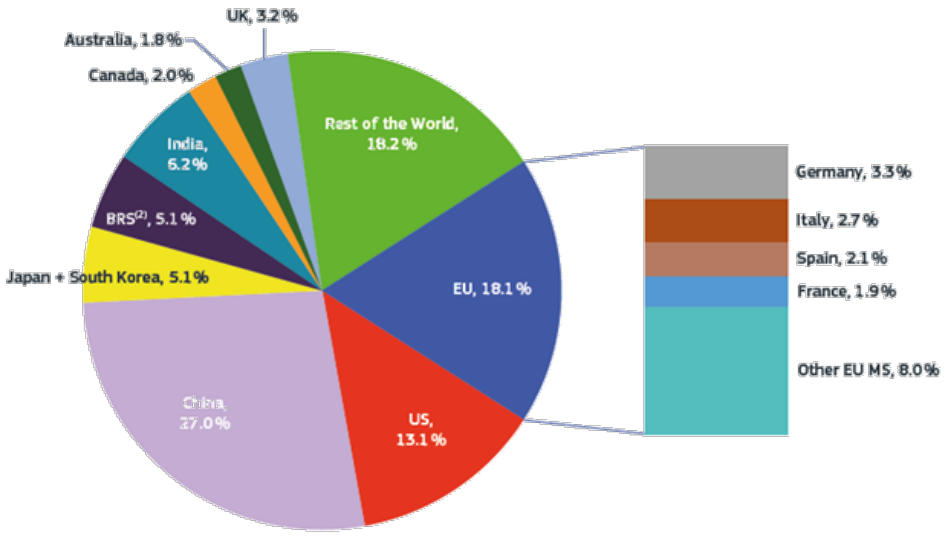
Figure 4. UK participation across EU Framework Programmes for R&I



Source: Horizon Europe dashboard – United Kingdom – Horizon Europe Country Profiles, European Commission.

As shown in Figure 5 for 2022, the UK accounted for 3.2% of total global scientific publications, making it the second-strongest European contributor, just behind Germany (3.3%). Also, according the European Innovation Scoreboard 2025, the UK is an 'Innovation Leader' with performance at 125.5% of the EU average in 2025, ranking 5th among 39 EU and neighbouring countries.

Figure 5. Global shares of scientific publications by country, 2022



Science, research and innovation performance of the EU 2024
Source: DG Research and Innovation, Common R&I Strategy and Foresight Service, Chief Economist Unit, based on Science-Metrix using data from Scopus (Elsevier).
Note: (1) Fractional counting was used to assign publications to countries/aggregates. (2) BRS: Brazil, Russia and South Africa.

Source: European Commission (2024b), Science, research and innovation performance of the EU, 2024 – A competitive Europe for a sustainable future, Publications Office of the European Union.

The UK's experience with participation in EU R&I Framework Programmes post-Brexit (Horizon 2020 and Horizon Europe) provides one of the most detailed and empirically grounded case studies available on the value of association. Drawing on the recent evaluation commissioned by the Department for Science, Innovation and Technology (DSIT), as well as supporting official analyses and appendices, it is possible to develop a comprehensive understanding of the economic, scientific, and strategic benefits derived from participation. The evidence consistently points to the conclusion that the value of association extends significantly beyond direct financial returns, encompassing a wide range of systemic and long-term impacts.

The scale of UK participation in Horizon 2020 was substantial. According to the DSIT-commissioned analysis, UK researchers secured approximately EUR 7.8 billion in funding across nearly 11 000 projects between 2014 and 2020 (DSIT, 2025). The UK currently ranks first among associated countries in terms of participation and second in terms of budget share. With a success rate of 17.31%, the UK performs above the EU average of 15.72%. As of September 2025, UK-based institutions were involved in 43% of all evaluated Horizon Europe proposals submitted that year, indicating strong engagement in collaborative research networks. In addition, UK researchers secured 56 ERC Advanced Grants in 2024, worth approximately EUR 140 million – the highest number awarded to any country in that round. These results demonstrate the continued global

competitiveness of UK research institutions. This level of engagement placed the UK among the most successful participating countries and reflects both the strength of its research base and its ability to compete effectively within a highly competitive international funding environment. However, the evaluation makes clear that financial returns alone do not capture the full value of participation. Instead, the study was explicitly designed 'to understand in what ways/to what extent the UK has benefited', emphasising a broader assessment of socio-economic impacts and systemic effects (DSIT, 2025).

A central finding of the evaluation is that participation in Horizon 2020 had a positive effect on the quality and impact of UK research outputs. The accompanying government analysis reports that Horizon 2020 funding was associated with improved citation performance, indicating that UK publications arising from programme participation were more influential than average (DSIT, 2025). This aligns with the broader analytical framework set out in the evaluation, which links programme participation to enhanced research excellence through mechanisms such as international collaboration, access to infrastructure, and exposure to competitive selection processes. The appendices further reinforce this conclusion by documenting the scale of research output generated, with nearly 200 000 publications linked to Horizon 2020 projects involving UK participants (DSIT, 2025). These figures underline the programme's role in sustaining a high volume of internationally collaborative research activity.

Collaboration emerges as a major feature of the programme's impact. Horizon 2020 required participation in multinational consortia, bringing together universities, research organisations, and industry partners from across Europe and beyond. The evaluation shows that UK involvement in such consortia not only increased the likelihood of project success (by approximately 2.4 percentage points) but also enhanced the quality and scope of research outcomes (DSIT, 2025). This reflects the programme's ability to mobilise complementary expertise and resources across borders, creating conditions for research that would be difficult to replicate through national funding alone. As a result, participation contributed to the UK's integration into a wider European and global research system.

Concrete examples of funded projects illustrate how these benefits materialise in practice. The INNODIA project, which involved UK universities including Cambridge, King's College London, Oxford, Cardiff and Exeter, focused on improving the management of Type 1 diabetes by streamlining clinical trials and identifying biomarkers linked to disease progression (DSIT, 2025). This project exemplifies the programme's capacity to support large-scale, multidisciplinary research addressing complex health challenges.

A second example, also emphasised in the evaluation material, is the EBOVAC programme, led by the London School of Hygiene and Tropical Medicine. This project concerned the development and testing of a novel Ebola vaccine, conducting phase 1, 2, and 3 clinical trials across Europe and Africa. The programme illustrates the global reach of Horizon 2020, as well as its ability to support research with direct public health implications. By enabling collaboration across continents and between multiple research institutions, the project contributed to advances in vaccine development and strengthened preparedness for future outbreaks. Such large-scale clinical initiatives demonstrate the programme's capacity to mobilise resources and expertise at a level that exceeds what is typically feasible through national funding alone.

Similarly, more recent initiatives under Horizon Europe, such as the ESCALATE project, have demonstrated the commercial and technological potential of collaborative research. ESCALATE brought together UK-based Electra Commercial Vehicles with partners in Spain and Germany to develop the next generation of electric heavy goods vehicles, illustrating how cross-border cooperation can accelerate innovation and open new markets (Innovation News Network, 2026). These examples highlight the programme's role in bridging fundamental research and industrial application.

Other large-scale projects give a deeper impression of the value of participation. The MicroQC project exemplifies how UK participation in Horizon 2020 supports industrial innovation in highly specialised manufacturing sectors. To advance metrology and quality control for micro- and nano-scale production, the project addressed a key constraint in modern industry: the ability to measure and standardise increasingly complex components with high precision. UK organisations participated alongside European partners including research institutes, metrology bodies, and firms, enabling access to shared expertise and infrastructure that would have been difficult to assemble nationally.

From a UK perspective, the project demonstrates how Horizon 2020 facilitates pre-competitive collaboration, benefiting SMEs that rely on collective R&D to overcome technical barriers. The resulting improvements in measurement standards and manufacturing processes contribute to productivity and competitiveness across sectors such as photonics and microelectronics. More broadly, MicroQC reflects the role of the programme as a risk-sharing mechanism, allowing UK firms to engage in advanced innovation while leveraging international partnerships and spreading development costs.

The European Open Science Cloud (EOSC), by contrast, highlights the value of UK participation at the level of research infrastructure and system-wide transformation. Through involvement in Horizon 2020 projects contributing to EOSC, UK institutions helped develop a federated environment for sharing and reusing research data across Europe. This included contributions to data platforms, interoperability standards, and

virtual research environments designed to make scientific data more accessible and reusable. For UK researchers, participation in EOSC provided access to a growing ecosystem of shared data resources and collaborative tools, enhancing the scale and scope of research activity. Rather than generating immediate commercial outputs, EOSC delivers long-term benefits by enabling new forms of collaboration, improving reproducibility, and reducing fragmentation in research systems. For the UK, it shows how Horizon 2020 participation extends beyond project funding to shaping the underlying infrastructure of European science, consolidating the country's integration into international research networks and its ability to operate at the frontier of data-driven research.

From an economic viewpoint, the evaluation identifies significant positive effects on participating firms. Horizon 2020 projects were associated with increases in turnover and employment, especially among innovative businesses engaged in collaborative research activities. The analytical framework used in the evaluation links these outcomes to the programme's support for knowledge transfer, commercialisation, and access to international markets (DSIT, 2025). This is consistent with broader evidence from the European Commission, which finds that participation in Horizon 2020 led to higher growth in employment and firm performance compared with non-participating firms (European Commission, 2024a). The UK case therefore illustrates how research funding can generate spillover effects that extend beyond the academic sector into the wider economy.

The evaluation also sheds light on the counterfactual scenario of non-participation. Evidence presented in the government analysis indicates that, in the absence of Horizon 2020 funding, many projects would have been 'abandoned or changed substantially in terms of scope, timeline, and/or location' (DSIT, 2025). This finding underscores the additionality of the programme, suggesting that it enables research activities that would not otherwise take place, or would occur on a smaller scale. The ability to leverage European funding alongside national resources is thus a key component of the programme's value.

Beyond measurable outputs and economic impacts, the evaluation highlights more intangible but equally noteworthy benefits. Participation in Horizon 2020 enhanced the UK's international visibility and reputation, strengthened its research networks, and enabled access to leading scientific infrastructure. These factors contribute to the long-term competitiveness of the national research system and are not easily captured through quantitative indicators. The emphasis on such systemic effects reflects a broader understanding of research policy, in which international collaboration is seen as essential for maintaining excellence and addressing global challenges.

The UK's subsequent re-association to Horizon Europe further supports these conclusions. Early evidence suggests that UK institutions have quickly re-established their position within the programme, securing a significant share of prestigious grants such as those awarded by the ERC (Innovation News Network, 2026). This rapid recovery highlights the resilience of established research networks and the continued attractiveness of the programme for UK participants. It also confirms that the benefits identified in the Horizon 2020 evaluation remain relevant under the current framework.

In conclusion, the UK's experience demonstrates that participation in EU research Framework Programmes delivers substantial and multifaceted benefits. While the financial returns are significant, they represent only one dimension of the programme's value. The evidence from national evaluation reports shows that association improves research quality, fosters international collaboration, and generates economic impacts through innovation and commercialisation. Case studies of funded projects further illustrate how these benefits translate into real-world outcomes, from advances in medical research to the development of low-carbon technologies. Taken together, these findings provide a strong empirical basis for understanding the strategic importance of association, for both the UK and other countries considering participation in Horizon Europe.

2.3. IMPROVEMENTS NEEDED TO ASSOCIATION: THE EUROPEAN PARLIAMENT'S VIEW

Despite its clear success, the association process is itself subject to improvement in the coming months, and ahead of the next version of Horizon Europe. For a start, the European Parliament has raised concerns about governance arrangements and oversight mechanisms in association agreements. In its 2024 resolution on association agreements for the participation of third countries in Union programmes (OJ C/2024/6341), the European Parliament highlighted a number of structural shortcomings in the current governance of association agreements. It pointed to growing tensions between the rising strategic importance of these agreements and the institutional framework through which they are negotiated and implemented.

A primary concern relates to the limited role of the European Parliament in the negotiation and approval of association agreements. Although these agreements have substantial budgetary and policy implications, they are often concluded through procedures that provide only indirect parliamentary oversight. Parliament emphasises that this creates a democratic deficit, as decisions affecting the allocation of significant public resources and the direction of EU external relations are taken without sufficient involvement of the EU's directly elected institution. It stresses the need to respect the principle of sincere cooperation between institutions and calls for greater transparency

and earlier engagement of the European Parliament in the negotiation process (European Parliament, 2024). This reflects broader concerns about accountability in EU external action, particularly in areas where policy objectives extend beyond purely technical cooperation.

Closely related to this is the issue of transparency. The resolution notes that the negotiation of association agreements often lacks sufficient openness, limiting the ability of stakeholders and policymakers to assess their implications. This opacity is particularly problematic given the increasing complexity of association arrangements, which may include differentiated access to programme components, financial correction mechanisms, and specific conditions related to research security. The lack of publicly available, comprehensive information on these aspects makes it difficult to evaluate whether agreements are balanced and aligned with EU interests. As association becomes more selective and strategically driven, the need for clear and transparent governance frameworks becomes more pressing.

Another governance issue is the consistency and coherence of the EU's approach to association. The resolution points to the absence of a fully harmonised framework governing the terms and conditions of association agreements, leading to variations in how different countries are integrated into EU programmes. While some degree of flexibility is necessary to account for differences in partners' capacities and political contexts, this variability can create uncertainty and raise questions about fairness and equal treatment. More specifically, the emergence of partial association models, for instance where access is limited to Pillar II of Horizon Europe, reflects an evolving but not yet fully stabilised governance model. The European Parliament signals the need for clearer principles to guide such differentiation, so that decisions are based on transparent criteria rather than ad hoc considerations.

Financial governance is also identified as an area requiring improvement. Association agreements involve significant financial contributions from third countries, typically linked to their GDP, alongside mechanisms designed to correct imbalances between contributions and funding received. The resolution highlights the complexity of these arrangements, however, and the lack of systematic reporting on financial flows. This makes it difficult to assess the overall balance of contributions and returns, at either the level of individual agreements or across the system as a whole. Improved monitoring and reporting would enhance accountability and support more informed decision-making, especially as the scale of association grows.

The resolution further underscores the need to better integrate considerations of research security and strategic autonomy into the governance of association agreements. As international R&I cooperation becomes more closely linked to geopolitical

competition, the EU faces the challenge of balancing openness with the protection of sensitive technologies and knowledge. The present governance framework is still developing in this regard, with new instruments and conditions being introduced to address risks related to intellectual property, data security, and foreign interference. Still, the resolution suggests that these measures are not yet fully embedded in a coherent governance strategy, raising concerns about both effectiveness and predictability for partners.

Finally, the European Parliament highlights the broader strategic implications of association governance. As Horizon Europe and future Framework Programmes increasingly serve as tools of external policy and international cooperation, the governance of association agreements must reflect this expanded role. This includes ensuring alignment with EU values, such as academic freedom and the rule of law, while also maintaining the programme's attractiveness to international partners. Striking this balance requires a more integrated and strategic approach to governance, one that can accommodate both the benefits of openness and the need for safeguards.

Much in the same vein, some of the associated countries have pointed to margins for improvement in the current governance of association agreements. Our interviews with selected country representatives shed some light on their recent experience.

2.4. BEYOND ASSOCIATION: GLOBAL R&I COLLABORATION AND THE ROLE OF LMICS

According to the European Commission, Horizon Europe is intended to be 'open to the world', enabling cooperation with partners across all regions (European Commission, 2021). Hence, the regulation for today's Horizon Europe, which is deeply oriented towards the Sustainable Development Goals, includes expansive language on international cooperation. It states that the programme should follow 'an approach of general openness to international participation and targeted international cooperation actions should be followed, including through appropriate eligibility for funding of entities established in low to middle-income countries' (Recital 50).

Somewhat differently, the proposed FP10 regulation (released in July 2025) states that the programme should 'promote cooperation with third countries', yet explicitly points out that this cooperation should aim to strengthen the EU's competitiveness (Recital 21). Article 21 of the proposed regulation maintains the eligibility of entities in 'low to middle income non-associated third countries' for funding. It also specifically mentions that legal entities must confirm compliance with the Global Code of Conduct for Equitable Research Partnerships, recently relabelled as the TRUST code. Compared with the past, this is a

novelty in the proposed regulation that signals a move towards more equal partnerships with LMICs.

In practice, international cooperation can take place across the three pillars of the current Horizon Europe. Under Pillar I, MSCA Fellowships enable researchers from LMICs to come to Europe to pursue their research careers. In principle, ERC grants are open to researchers of any nationality, including those from LMICs. But a key structural condition is that the principal investigator must be hosted by an institution located in an EU Member State or a country associated to Horizon Europe (European Research Council, n.d.). This requirement effectively anchors ERC funding within the European Research Area, regardless of the nationality of the researcher. As a result, while LMIC-based researchers can apply for and receive ERC grants, they must either relocate to Europe or already be affiliated with a European host institution. This model reflects the ERC's dual objective of funding excellence and attracting global talent to Europe, rather than supporting research capacity in third countries. Essentially, ERC is designed to 'support the best researchers to work in Europe on their best ideas' (European Research Council 2022).

This structure has important implications for LMIC participation. On the one hand, it provides opportunities for individual researchers from these countries to access world-class funding and research environments. On the other hand, it limits the direct benefits for LMIC institutions, which cannot host ERC grants and therefore do not receive funding directly. While ERC projects may involve collaboration with partners outside Europe, including in LMICs, such participation is typically secondary and does not confer the same level of institutional development as hosting a grant. Academic analyses have highlighted the potential for such arrangements to contribute to patterns of 'brain circulation' or, in some cases, brain drain, as talented researchers relocate to better-funded environments in Europe (Veugelers, 2017). The ERC model thus prioritises excellence and concentration of resources, even if this comes at the expense of broader geographical distribution.

In contrast, Pillar II of Horizon Europe, which focuses on global challenges and industrial competitiveness, adopts in principle a more inclusive and collaborative approach. Projects funded under this pillar are typically implemented by multinational consortia and are open to participation from a wide range of third countries, including LMICs. Crucially, institutions from these countries can join in directly and, in many cases, receive EU funding. This reflects a different policy rationale, one that emphasises international cooperation as a means of addressing global challenges such as climate change, health, and sustainable development.

For LMICs, this model offers significantly greater opportunities for direct engagement. Involvement in collaborative projects allows institutions to access funding, build research capacity, and integrate into international networks. Studies of EU cooperation with third

countries have shown that such participation can help strengthen national research systems by fostering linkages with centres of excellence and increasing exposure to international standards (European Commission, 2015; UNESCO, 2015). Unlike the ERC, which concentrates funding in leading institutions, Pillar II distributes resources across a wider range of actors, including those in less-developed research environments. This makes it a more effective instrument for supporting capacity building and inclusive innovation.

LMICs can also apply for funding from the European Innovation Council under Pillar III. However, applicant SMEs should be located in the EU or an associated country, which puts some limits on how feasible this funding is for LMIC-based actors.

Recent CEPS research (Yeung et al., 2025) has highlighted that while the share of funding going to LMICs has increased over time, under Horizon Europe it is still EUR 1 for every EUR 99 allocated to entities within EU Member States. Funding is also somewhat unevenly spread across LMICs: 36% of the listed eligible LMICs have not received any EU contribution under Horizon Europe so far. Regionally, the Horizon 2020 and Horizon Europe funds allocated to LMIC-based entities are heavily skewed towards Africa (see Box 1). All 10 of the largest recipients are African countries, with South Africa at the top.

The interim evaluation of Horizon Europe (2025) shows an uptick in engagement by associated third countries, whose share among total applications rose from 4% under Horizon 2020 to 5.6% in Horizon Europe. Pillar I of Horizon Europe has the strongest international dimension, with 10.7% of participants coming from non-associated third countries, followed by Pillar II (5.4%), Pillar III (2.9%) and WIDERA (2.8%). This is mostly due to MSCA fellowships, which attract researchers from all over the world. For example, the Commission reported that under Horizon 2020 it supported researchers from 160 countries and the participation of organisations from 139 countries worldwide, making up over half of third-country participants in the programme.

Box 1. International collaboration with Africa

Africa is a special case of LMIC involvement in EU R&I programmes. Starting in 2021, four consecutive Africa Initiatives have been launched under Pillar II of Horizon Europe, with the aims of scaling up R&I collaboration between Europe and Africa and accelerating the translation of scientific knowledge into action that addresses global challenges. Africa Initiative III, launched under Horizon Europe's Work Programme 2025, allocates EUR 500.5 million across 24 calls for proposals. Africa Initiative IV, recently published under Work Programme 2026–27, has a budget of approximately EUR 605.45 million, a slight increase from the past, albeit stretched over two years.

A recent analysis by the EU's Joint Research Centre (JRC) of publications produced under FP6, FP7 and Horizon 2020 shows that South Africa is the only African country to feature among the top 20 most productive countries across the three FPs. Similarly, the University of Cape Town was the only African institution that was in the top 20 institutions across all three FPs. Yet, the distribution of Horizon Europe funding in universities across South Africa is highly uneven, with some universities having close ties with their European counterparts while others do not.

Furthermore, the JRC analysis suggests that collaboration and co-authorship networks between the EU and Africa form around countries that share language, culture and histories. It argues that European collaboration sub-networks included more countries where English is commonly spoken. Large and competitive calls, like FPs but also other larger streams of research funding, could disadvantage researchers from countries with weaker innovation systems and less established track records or research infrastructure (Estreguil et al., 2022).

These insights could, in part, explain why South Africa is the sole African country consistently among the top 20 most active ones in the three FPs. While there may be an aspiration in Europe to increase research collaboration with LMICs, in practice, there is still room to scale up. South Africa is one of the most technologically advanced countries on the African continent, ranking 61st in the 2025 Global Innovation Index. It has been among the leading LMIC participants in Horizon 2020 and Horizon Europe, despite not being formally associated. This strong performance reflects not only domestic investment in R&I but also sustained EU support through development cooperation and institutional partnerships. However, the South African case also highlights the importance of addressing historical inequalities within national systems, as disparities between institutions can influence participation outcomes.

Kenya offers a contrasting example of a country seeking to strengthen its innovation system through political commitment and institutional reform. Since FP7, Kenya's participation in EU research programmes has steadily grown. The government has elevated science and innovation to a national priority, establishing a dedicated State Department for Science, Research and Innovation in 2025. National targets include increasing the number of PhDs per million population and positioning Kenya as a leading African partner in Horizon Europe. Yet, achieving these ambitions will require sustained financial investment. Although Kenya's R&D intensity reached approximately 0.81% of GDP in 2023 – one of the highest levels in East Africa – it remains below the 2% target, and implementation of planned funding increases remains uncertain (World Bank 2025). This example underscores the importance of aligning political ambition with financial resources in order to build effective research systems.

Cooperation under Horizon Europe can be highly valuable for LMICs, as it provides access to funding for high-end research that domestic systems are often unable to sustain. Evidence indicates that LMICs invest on average around 0.53% of GDP in R&D, compared with a global average of approximately 2.63%, making it unlikely that they will close this gap in the medium term without external support (UNCTAD 2024). In this context, the EU

and the wider international community can play a considerable role in supporting LMIC innovation systems and national research capacities, and in facilitating their integration into global science and technology networks. Such cooperation also generates reciprocal benefits for the EU, including access to global talent, opportunities to conduct research on global challenges in relevant contexts, and the strengthening of its competitiveness and soft power. Academic literature supports this view, noting that international research collaboration enhances both scientific performance and innovation diffusion (UNESCO, 2021; European Commission, 2021).

International collaboration under Horizon Europe also enables LMIC institutions to form partnerships that are critical for the development of their national innovation ecosystems. In contexts where domestic public investment in R&I is limited, participation in EU programmes offers researchers an opportunity to access funding, build networks, and engage in high-level research. Beyond academic outputs, such cooperation allows LMICs to contribute meaningfully to global challenges, including climate change and public health (see Box 2). Simultaneously, it contributes to the development of locally relevant solutions, such as personalised medicine adapted to specific genetic populations.

Large-scale research infrastructure provides particularly strong examples of these dynamics. For example, the Square Kilometre Array (SKA), co- hosted by South Africa and Australia, demonstrates how international collaboration can generate spillover effects across sectors. Although primarily an astronomy infrastructure, SKA has produced data and technological advances with applications in healthcare, agriculture, and data science. It involves a global partnership that includes such countries as the UK, Germany, China, and India, as well as several other African countries that support the initiative's regional expansion.

Despite these opportunities, significant structural barriers continue to limit LMIC participation in Horizon Europe. Many LMIC innovation systems remain underfunded and face persistent capacity constraints, including limited research infrastructure and institutional support, and insufficient human capital. These challenges are often compounded by weak linkages between academia, industry, and government, as well as gaps in regulatory frameworks and intellectual property protection. As a result, even when LMIC institutions take part in Horizon Europe projects, they frequently occupy secondary roles, with leadership positions typically held by partners from more advanced economies. This dynamic can limit the extent of knowledge and technology transfer, reducing the long-term developmental impact of participation. The OECD (2022) has similarly noted that weak institutional environments and limited absorptive capacity can constrain the benefits of international research collaboration for developing countries.

Addressing these structural weaknesses requires sustained investment in national innovation systems, both from LMIC governments and from international partners. The

EU's Global Gateway initiative and broader development cooperation instruments offer potential avenues for strengthening research infrastructure, regulatory frameworks, and institutional capacity in LMICs.

In addition to structural constraints, the design of Horizon Europe itself can create barriers to LMIC participation. Administrative complexity and bureaucratic requirements are frequently cited as deterrents, particularly for institutions with limited experience in managing large international projects. The need for upfront financing in some cases further complicates participation, as many LMIC institutions lack the liquidity required to initiate projects. Simplification of financial rules and administrative procedures could improve accessibility and enable more equitable participation. Moreover, there is evidence that the thematic priorities and the design of Horizon Europe calls do not always align with the needs and capacities of LMICs. Greater inclusiveness in the design of work programmes, including co-creation with partner countries, could help ensure that research agendas are more responsive to global challenges and local contexts.

One of the main bottlenecks mentioned by our interviewees from LMICs concerns challenges related to national R&I ecosystems and research infrastructure and capacity. While Horizon Europe could help bolster innovation systems in LMICs, under EU development cooperation budget support and dedicated projects could provide a crucial backbone, for instance through a major initiative like Global Gateway.

Education, research and innovation is one of the thematic priorities of Global Gateway, but interviewees have suggested that there could be more room to invest in research ecosystems in partner countries. By more effectively utilising the Global Gateway's education, research, and innovation theme, the EU could fund the physical infrastructure, regulatory and institutional capacities that LMIC universities currently lack. This strategic investment could help build the 'critical mass' of research activity required for these countries to move beyond a donor-recipient mindset and begin co-designing projects that address both local needs and global challenges. [13]

The Cooperation facilities, established in partner countries during the current programming period, could help target resources for improving the R&I ecosystem, working like the Policy Support Facility under Horizon Europe, which assists countries in cultivating their R&I expertise across the European Research Area. The Cooperation facilities do not make funding decisions, but support studies, public diplomacy efforts, events and training in the relevant areas in each country. These are not exclusively focused on R&I – they can extend to studies that foster the R&I ecosystem in the

[13] Interview with experts in an initiative promoting the LMIC engagement with the EU in R&I, conducted on 11 March 2026

country[14]. This, of course, would require enhanced and streamlined cooperation between DG RTD and DG INTPA, as well as with other national development agencies in EU and associated countries.

Box 2. R&I collaboration with LMICs in the health domain

The health sector provides a particularly important domain for EU–LMIC collaboration. Research partnerships in this area can address diseases that are prevalent in LMICs while also contributing to global health security. Many health challenges, including infectious diseases, antimicrobial resistance, and pandemics, are transboundary in nature and require coordinated international responses. Horizon Europe's health cluster, which accounts for approximately 8% of the programme's budget, supports research across a wide range of areas, from cancer to pandemic preparedness. However, funding remains relatively concentrated within the EU, with the majority of Horizon 2020 health funding allocated to EU-based entities. This highlights the need to further increase the participation of LMIC institutions in health research.

The European and Developing Countries Clinical Trials Partnership (EDCTP) stands out as a successful model of collaboration. The third phase of the programme, EDCTP3. launched in 2021 with a budget of EUR 1.8 billion, builds on the achievements of earlier iterations, EDCTP-supported research has contributed to major advances, including the development of a malaria vaccine and interventions that significantly reduce mortality among people living with HIV. A key strength of the partnership lies in its inclusive governance model. It distinguishes itself from standard Horizon association by granting African member states full voting rights in the central decision-making body of the initiative, the Governing Board, as well as in the General Assembly of the initiative. This allows LMIC partners to move beyond an advisory role to actively co-draft work programmes and strategic agendas, ensuring funding decisions align with local interests.

Furthermore, there has been a considerable effort to lower the barriers to membership and respond to partner countries' individual situations. To become a member, a country should submit a written expression of interest, appoint a delegate, attend General Assembly meetings and give a financial contribution of EUR 200 000 to cover the administrative costs of the programme. Notably, interviewees point out that in practice, this contribution can also take the form of in-kind contributions such as staff time, laboratory space, and the alignment of national research programmes (EDCTP 3, 2024). This allows countries without large cash reserves to engage as equitable partners while fostering regional scientific coherence.[15]

This approach promotes ownership and engagement among LMIC participants. Even so, recent changes under EDCTP3, which restrict project coordination to EU and associated

[14] See, for instance, the Multi-annual indicative programme for South Africa.

[15] Interview with an expert in EDCTP3, conducted on 26th March 2026

countries, have raised concerns about reduced leadership opportunities for African institutions, highlighting ongoing tensions between inclusiveness and programme governance. (European Commission, 2025d)

Other partnerships under Horizon Europe, such as the Innovative Health Initiative and the European Rare Diseases Research Alliance, also involve participation from third countries, including LMICs, although to a more limited extent. These initiatives demonstrate the potential for public–private partnerships and international collaboration to address global health challenges while strengthening research ecosystems.

Overall, the evidence suggests that cooperation with LMICs under Horizon Europe offers significant opportunities but also requires targeted efforts to address structural barriers, enhance inclusiveness, and ensure that benefits are shared more equitably across partners.

3. FP10: WHAT FUTURE FOR INTERNATIONAL R&I COLLABORATION?

The previous sections have shown that international collaboration has been a growing success in EU R&I Framework Programmes. Associating countries represent a mutually beneficial arrangement that generates advantages not only for participating countries but also for the EU. These benefits stem from both the structural features of international research collaboration and the evolving geopolitical context, which increasingly favours a selective yet open approach to cooperation. In this setting, despite what is often stated, openness in R&I funding and collaboration has the potential to contribute directly to the EU's strategic objectives, including competitiveness, technological leadership, and resilience.

One of the primary advantages of an open association policy lies in its contribution to scientific excellence. High-quality research, when translated into innovation and diffused across the economy, is a key driver of long-term productivity and sustainable growth. Contemporary innovation processes differ markedly from those of earlier industrial revolutions, as they rely less on the diffusion of isolated knowledge or technologies and more on complex, transnational networks of collaboration. Expanding the association framework under Horizon Europe enhances the scale, diversity, and quality of research activities by integrating a broader pool of expertise. This increases the likelihood of breakthrough discoveries and enhances the European Research Area, whose core objective is to promote the 'free circulation of researchers, knowledge and technology' (European Commission, 2021). A more open and interconnected European Research Area can facilitate knowledge diffusion both within Europe and globally, supporting greater scientific integration and expanding opportunities for collaboration across borders.

In addition to underpinning scientific excellence, association can play a crucial role in attracting and retaining global research talent. Framework Programmes enable the EU to join large, international R&I networks, thereby increasing the efficiency of research systems through the pooling of resources and capabilities. By connecting European researchers with partners in countries such as Canada and South Korea, the EU can maximise the use of its human capital and strengthen its globally competitive position with other major scientific powers, including the US and China. Against a backdrop in which some global actors are adopting more inward-looking research policies, maintaining an open and globally engaged programme could position the EU as an attractive destination for top talent and cutting-edge research.

Beyond scientific and economic considerations, association to EU Framework Programmes also contributes to the EU's soft power and its wider external relations. Participation in these programmes entails alignment with a set of shared values and standards, including those related to responsible research and innovation, data

protection, research ethics, and gender equality. This alignment can have spillover effects in other policy domains, such as trade, digital regulation, and competition policy. For example, convergence in data protection standards between the EU and partner countries has facilitated broader cooperation agreements, illustrating how R&I collaboration can increase regulatory alignment and mutual trust.

More generally, recent trade agreements concluded by the EU increasingly include provisions related to R&I cooperation, highlighting the mutually reinforcing relationship between scientific collaboration and economic integration (European Commission, 2022). In this sense, association serves as a tool of science diplomacy, deepening political relationships and promoting shared norms at the international level. Furthermore, by strengthening the networks between European and LMIC-based researchers, the EU can position itself as a preferred partner to LMICs in R&I. This can be valuable in a volatile geopolitical landscape. If the EU is not engaging with LMIC partners, this space will be filled by other players, such as China, shaping research partnerships, standards, and long-term alignments in ways that may diverge from EU interests and values.

Another key benefit of association concerns strategic autonomy and economic security. In an increasingly fragmented geopolitical environment, characterised by technological rivalry and supply chain vulnerabilities, maintaining openness in Framework Programmes could enhance the EU's resilience. By engaging with a diverse set of like-minded partners, the EU could anchor critical technologies within a larger network, reducing dependence on single sources of supply and mitigating strategic risks. This is particularly relevant in sectors such as digital technologies, clean energy, and AI, where the EU does not always possess all the necessary inputs or capabilities domestically. Rather than relying exclusively on 'made in Europe' solutions, a strategy that combines openness with diversification could enable more effective and timely innovation. Joint development of technologies with international partners can accelerate progress while maintaining a degree of strategic control, thereby striking a balance between sovereignty and competitiveness (Kyosovska and Renda 2025; Tanner et al. 2026).

These considerations are further amplified by the findings of the European Commission's interim evaluation of Horizon 2020, which identified several structural challenges facing the EU's R&I system. These include the need to improve the creation and diffusion of high-quality knowledge, to strengthen the impact of R&I in delivering EU policy priorities, to accelerate the uptake of innovative solutions, and to further support the European Research Area (European Commission, 2018). A more globally connected European Research Area, supported by an open and more attractive association policy, could contribute to addressing each of these challenges. By expanding the network of participating countries, the EU could likewise expand the diversity of knowledge inputs

and the relevance of research to global challenges, along with the diffusion and application of innovations across different markets and contexts.

Despite the positive impacts achieved by the EU with international R&I collaboration under its FPs, problems with the governance of Horizon Europe – and some features of the upcoming FP10 – could prevent the EU and third countries from making the most of the outstanding potential of a growing global network of researchers and innovators. When looking at the planned FP10, the interviews we carried out unearthed a number of recurring concerns about how Horizon Europe is governed and how association agreements and third-party participation are organised. Meanwhile, shifting priorities and governance in the future Horizon Europe may diminish the attractiveness of the EU for such collaboration, resulting in a gradual decline in enthusiasm by leading current and prospective associates to cooperate more with the EU. Below, we explore both areas of risk. Where possible we propose ways to mitigate the risks and seize opportunities for further boosting the effectiveness of international R&I collaboration.

3.1. CHALLENGES FOR ASSOCIATION: DESIGN, GOVERNANCE AND OVERALL MISSION

As the debate on the next Framework Programme becomes heated, a few additional challenges are arising, which may undermine the extraordinary potential of Horizon Europe to become an anchor of global R&I collaboration. Given the recent additions of Australia, India, Japan and South Korea to the list of countries willing to join the programme (as shown in Figure 2 above), EU institutions now have the opportunity, for the first time in the history of EU R&I policy, to build a vast network of international R&I collaborations. Many middle-powers are aligning with the EU on R&I priorities, values, approaches and desired outcomes. Such an opportunity echoes the passionate call for collaboration voiced by Canada's Prime Minister Mark Carney in his address to the 2026 World Economic Forum meeting in Davos. It should not go wasted.

And yet, it will go wasted if the next Horizon Europe is either too focused on a narrow approach to EU competitiveness, or gets the design and governance of Horizon Europe wrong. These risks, unfortunately, still loom over the institutional debate on Horizon Europe. Associated countries are expected to contribute to the EU budget for Horizon Europe, in a way that is roughly proportionate to their GDP. At the same time, as their combined share of EU GDP surpasses 100%, they expect to be increasingly involved in the selection of priorities, moonshots and topics for collaboration. This is especially so for Pillar II, to which many large economies are now associating. However, at the moment associated countries are hardly given a voice in the steering of Horizon Europe topics or in the management and governance of large-scale projects.

Interviews conducted for this study confirmed that associated countries are especially concerned by the link between Horizon Europe and the European Competitiveness Fund and by the unclear structure of participation under the new framework. As noted by one interviewee, 'there is a frame, but no picture yet'. The interlinked policy windows of the ECF remain insufficiently outlined, and the growing dual-use and security focus generates dilemmas.

In Iceland, for example, defence-related concepts are new to policymakers and researchers, and institutional readiness is limited. As underlined by our interviewees, the FP narrative is always changing and it is clear that the current focus is on competitiveness and security/defence. Norway is less worried about dual use, as its universities are prepared, but institutions observe a fading emphasis on the green transition and worry about reduced climate research funding. Although Norway is a full member of the European Defence Fund (together with Ukraine), it is unclear whether this ensures access to dual-use research under Horizon Europe, as also observed by our interviewees. A recent statement by the Turkish government echoed these concerns, with specific reference to rumours relating to a possible diversion of funds from non-EU country contributions to Horizon Europe (particularly Swiss funds aimed at MSCA) in order to contribute EUR 1 billon to the ScaleUp Fund.

Governance and equal treatment are key issues. Traditionally, EEA countries associated to the Framework Programme as a single package, but the concept of 'partial association' is not clearly defined. Exclusion provisions, such as Article 22(5) of the 2021 Horizon Europe Regulation and Article 10 (EU Preference) of the ECF proposal, raise concerns about committing financially while facing restrictions. Financial uncertainty adds pressure: GDP-linked contributions could significantly increase under the next, bigger Horizon Europe, and countries would need to commit without full visibility of the final framework. Historically, participation has been politically supported by expectations of positive returns (e.g. Iceland gets back EUR 1.5 for every EUR 1 paid in), but it is not certain whether this balance will continue under the new architecture. Overall, while association remains highly valued, the evolving FP10–ECF structure points to the need for clearer rules, transparent governance arrangements and predictable access conditions for associated countries.

Japan's association reflects a bottom-up push from industry seeking closer engagement with EU research consortia and regulatory ecosystems, while academia views association as an opportunity to strengthen the country's research reputation. As emerged from our interviews, Japan is monitoring FP10 policy issues carefully, particularly dual-use research (which is handled separately in Japan). It seeks enhanced governance and visibility, noting that financial contributions currently do not confer voting rights, unlike in other

international organisations such as the OECD. Japan is exploring potential participation in Digital Europe and the Competitiveness Fund, though timelines and rules remain unclear.

Canada, a recent associate (2024, Pillar II), reports meaningful initial benefits in building international partnerships and accessing direct funding. The main drawbacks include the limited visibility of governance, steep learning curves for new participants, and separate processes to access sensitive calls (e.g. on AI, quantum, and space). Canada stresses the need to bridge FP9–FP10 to avoid gaps disadvantaging researchers and advocates for more inclusive advisory structures to contribute to thematic priorities. Simplified, user-centric processes and enhanced support for National Contact Points are seen as critical to facilitating participation and maximising return on investment.

The UK emphasises the need for clarity, governance, and access. There is uncertainty and potential concern about dual-use rules, interaction with the ECF, and restrictions on sensitive research areas. While association to Horizon Europe has delivered marked benefits, particularly from Pillar I, complex coordination in Pillar II and exclusion from certain initiatives highlight the need for simplified, predictable processes. Lessons from the delayed association of the UK and Switzerland demonstrate tangible costs, including lost opportunities, disrupted research networks, and reduced confidence among domestic research institutions. Constructing new programmes without thinking through the implications for all partners is the biggest danger, as one of our interviewees pointed out (see also Box 3 below).

As noted above, a key uncertainty stems from the lack of clarity between FP10 and the ECF, and how these programmes will be governed. There has been limited dialogue on how associated countries will engage with the ECF, and no detailed information is available. An increased budget for FP10 will already raise the association costs, but understanding the expectations and financial commitments goes beyond fiscal terms – and remains a major gap. The coordination between FP10 and the ECF could present a potential cliff for the UK: questions remain about what happens to UK entities if they can participate in one instrument but not the other. While the Commission has worked to ensure inclusion in FP10, the implications for the ECF, including geographical considerations (e.g. Canada and New Zealand), are still unclear.

The UK has moved from being a full Member State to a Category D associated country, which covers a broad grouping of countries with varying research capacities. This grouping bundles the UK with many others, though the Science Europe Working Group has proposed a subcategory recognising countries like the UK and Switzerland as previously associated, reliable research partners. Canada and New Zealand may also benefit from this recognition in the future.

Across all experiences, several cross-cutting lessons emerge:

- timely, predictable association is essential;
- dual-use policies and partial association provisions must be clearly specified and communicated;
- financial transparency and stability are needed, particularly when linking Horizon Europe with other instruments like the ECF;
- simplified, user-friendly procedures are critical to ensuring equitable participation, especially for new members.

Trusted partners also bring complementary research strengths and unique capacities, enabling EU Member States and associated countries to tackle global challenges collaboratively rather than duplicating efforts. Many present and prospective global partners (e.g. Japan, South Korea, India, and Singapore) also engage in the EU's digital partnerships or Trade and Technology Council-type arrangements, illustrating the increasing integration of Horizon Europe association with broader EU strategic agendas. The changing geopolitical landscape, including technological rivalry and intensified competition for talent, underscores the need for timely and predictable association processes.

Box 3. The UK's view of the next Horizon Europe

The UK has moved from being a full Member State to a Category D associated country, which covers a broad grouping of countries with varying research capacities. Since the publication of the proposals for FP10 and the ECF, the UK has highlighted crucial considerations for associated countries. As gathered through our interviews, predictability and transparency remain essential, particularly regarding participation rules and eligibility. Late decisions on call restrictions or exclusions can undermine consortium formation and reduce confidence among universities and industry. The UK emphasises early dialogue with the European Commission and mechanisms to ensure continuity between FPs, noting that even short gaps in association reduce participation.

Important questions concern the balance between openness and EU strategic autonomy. Provisions such as Article 22(5) of Horizon Europe and EU preference rules in the ECF, as well as initiatives that can be restricted to EU Member States (e.g. current Joint Undertakings, where participation rules restrict access for associated countries in some areas, such as chips), can limit access for trusted partners like the UK. This is especially relevant in sensitive fields, such as semiconductors, high-performance computing and dual-use research, where criteria inconsistently restrict participation despite the UK's close cooperation with the EU in NATO,

the UN and other frameworks. UK stakeholders stress that dual-use R&I should be governed consistently and transparently.

Governance remains another issue for the UK, which can participate in programme structures but cannot fully shape priorities.

Uncertainty persists over the relationship between FP10 and the proposed ECF, with the UK raising concerns about unclear governance, potential diversion of Pillar II funding, and the exclusion of associated countries from ECF governance — including through "dual use" framings that can act as a proxy for exclusion. The UK would welcome structured dialogue mechanisms, such as advisory or ministerial-level exchanges within the Council on Competitiveness, to reflect the growing influence of associated countries. Coordination between the two instruments could present a 'cliff' for UK entities able to participate in one but not the other, and while the Commission has secured UK inclusion in FP10, the implications for the ECF — including geographical considerations such as Canada and New Zealand — remain unclear.

Research security is an important consideration, but measures must remain proportionate, risk-based, and transparent to avoid restricting collaboration with trusted partners. Clarity on dual-use definitions and legal certainty is critical. More broadly, the UK emphasises maintaining openness in global research collaboration: scientific excellence and innovation depend on international cooperation, and excessive restrictions risk reducing network diversity and quality.

Looking ahead, the UK is interested in FP10 association from the start, without unnecessary delays, provided that the programme remains open and fair to associated countries. Additional cooperation avenues currently under discussion between the UK and the European Commission include the EU–UK Digital Partnership, which highlights the potential for deepening strategic collaboration in key technologies.

3.1.1. The need for a broad approach to EU competitiveness

The current budget allocation to Pillar II seems to be primarily oriented towards competitiveness, to an extent that many stakeholders – especially universities – have voiced concerns that the distinction between Horizon Europe and the ECF may become more fictitious than real. If both Pillar I and Pillar II eventually serve a purely domestic view of competitiveness, akin to a sovereignty-oriented, ‘made in Europe’ agenda, then associated countries may find it difficult to justify their investment in a programme that mostly aims at boosting R&I in the EU. The prospective benefits of association listed above might wane, and tension might emerge, leading to associated countries gradually losing interest in broadly aligning under the EU’s umbrella.

As clarified below, a possible solution to this prospective impasse would be for the EU to take a more open approach to its own competitiveness, which values the external dimension of collaboration, soft power and the leveraging of relative competitive advantages of countries associated to Horizon Europe. This requires the use of economic complexity approaches similar to those used by the Draghi report (Draghi, 2024b), to locate optimal areas for joint R&I investment.

3.1.2. An innovation to investment journey without exclusions

The European Commission's proposal for FP10 has been accompanied by calls for directionality, including for excellence-driven funding channels such as those under the ERC and the EIC. The former, as advocated by many stakeholders and also by CEPS over the past year, is likely to remain guided purely by proposal quality – and (with the caveats expressed above) open to researchers from all over the world. For the EIC, however, the push towards competitiveness and the direct link to the Competitiveness Fund appear clearly in the proposal. In this respect, it is essential that the EU adopts a broad definition of competitiveness, which recognises collaboration with like-minded (associated) countries as the main driver (if not the only one) for restoring Europe's ability to compete in science and innovation in the coming years.

Accordingly, while FP10 and the ECF should be focused on triggering an 'innovation to investment journey', it is of utmost importance that projects, EIC-funded ventures, R&D moonshots and more complex initiatives like Joint Undertakings are designed to rely on scientific and technological collaborations, within the EU and with associated countries. This would enable the EU to leverage excellence wherever it is located. The EU could combine industrial policy measures with the diffuse creation of value in win-win collaborations, and consolidate its trade and investment relationship with key partners, sharing its approach to R&I with a very large network of countries around the world.

Such an approach would require a careful and granular analysis of where excellence in specific technologies lies (within or outside of the EU), and where the best 'match' is in terms of creating consortia to achieve science and innovation breakthroughs. The use of economic complexity tools would be essential to support the choice of projects and collaborations that are most likely to deliver value over time.

3.1.3. Rules for dual use and research security – getting them right

The past year has seen major developments in EU policy in terms of security and defence, triggered by the war in Ukraine and the realisation of Europe's dependency on other countries for necessary inputs to vital technologies and services. This state of uncertainty

and geopolitical turbulence have led the European Commission to alter its stance on research security, as well as on dual-use R&I funding.

The European Commission's Research Security Monitor 2025 reflects the change in the EU's outlook on international research cooperation. It marks a shift from a predominantly open, collaboration-driven model towards a more structured framework that explicitly integrates security considerations (European Commission, 2026). This change is closely linked to the overall European economic security strategy and responds to an increasingly complex geopolitical environment that recognises R&I as strategic assets. The document defines research security broadly, extending beyond the risk of technology leakage to include concerns related to malign foreign influence, ethical misuse of research, and threats to academic freedom and research integrity. This expanded definition signals a conceptual shift: research security is no longer treated as a niche issue linked to dual-use technologies, but as a systemic concern affecting the entire research ecosystem. Crucially, the EU's approach is framed around the principle of 'de-risking, not decoupling', aiming to preserve openness while managing risks through proportionate and targeted measures rather than restricting international collaboration outright.

A new feature in this evolving framework is the introduction of a risk-based and largely country-agnostic approach to international cooperation. Rather than imposing blanket restrictions on specific countries, the EU is promoting a structured risk appraisal based on a combination of factors. These include the sensitivity of the research domain, the characteristics of the partner institution, and the general political and regulatory context in which cooperation takes place. They reflect a deliberate effort to avoid discrimination and maintain scientific openness, while still addressing security concerns. At the same time, the document acknowledges that certain systemic risk indicators – such as limited academic freedom, civil-military fusion strategies, or exposure to sanctions – require heightened vigilance. The increasing involvement of intelligence and security agencies in informing research policy further illustrates the growing securitisation of the research domain, with several Member States establishing formal channels of cooperation between the research community and national security actors.

From a governance perspective, the EU is placing primary responsibility on research-performing organisations, while emphasising the need for coordinated action across multiple levels. The concept of 'enhanced self-governance' is central: universities and research institutions are expected to assess and manage risks in their international partnerships, supported by guidance, information, and tools provided by public authorities and research funders. This represents a significant cultural shift, as research security becomes embedded in institutional governance, project evaluation, and funding procedures. Research funders are increasingly expected to introduce safeguards such as

security screenings, eligibility restrictions, and transparency requirements, while Member States are developing national strategies, support structures, and coordination mechanisms. The emergence of a policy maturity model, ranging from ad hoc responses to fully integrated systems, shows the transitional nature of this policy area and the differing degrees of preparedness across the EU.

At the EU level, several concrete initiatives are being planned to operationalise this new approach. These include the creation of a European Centre of Expertise on Research Security along with due diligence tools and resilience-testing methodologies, and the integration of security considerations into Horizon Europe implementation. The Commission is also strengthening international engagement on research security, seeking alignment with partner countries while promoting common standards.

For countries associated to Horizon Europe, these developments carry important implications. Association is increasingly conditional not only on scientific capacity but also on the ability to align with EU approaches to risk management, transparency, and governance. Associated countries may be expected to set up comparable national frameworks, participate in information-sharing mechanisms, and ensure that their institutions apply similar safeguards in collaborative projects.

Another principal issue is that of dual-use R&I funding. There, two recent papers by independent experts for the European Commission have provided a framework for a decisive change of direction in EU R&I policy from a traditionally civilian, openness-oriented model towards one that is a more strategically managed, security-aware and aimed at dual use. A key change is the normalisation of dual use as a core feature of the R&I system rather than an exception. In a report, the ESIR expert group on the economic and social impact of R&I argues that many modern technologies, including AI, biotechnology, and quantum computing, are inherently dual use, making strict separation between civil and military applications increasingly artificial and inefficient (European Commission, 2025c). A companion expert report notes that most critical technologies relevant for defence originate in civilian research ecosystems, and that failing to exploit these synergies would risk undermining Europe's competitiveness and security (European Commission, 2025a).

As a result, the European Commission seems determined to move towards a 'dual-use by design' paradigm, integrating security, defence, and resilience considerations early in the research lifecycle. This implies closer alignment between civilian research programmes such as Horizon Europe and defence-oriented instruments, as well as the embedding of risk awareness in project design and implementation. For countries associated to Horizon Europe, these developments carry important implications. Participation is increasingly linked not only to scientific excellence but also to alignment with EU approaches to dual-

use governance, research security, and regulatory compliance. This may entail stronger obligations related to export controls, due diligence procedures, and the management of sensitive knowledge, as well as potential constraints on certain forms of international collaboration where security risks are identified. That being stated, alignment offers significant opportunities too, including deeper integration into European innovation ecosystems, access to dual-use funding streams, and participation in emerging networks on security-relevant research.

All in all, while the need for clear rules on research security and dual use is beyond question given the current geopolitical landscape, the EU should ensure that association to Horizon Europe aims at building a network of trusted partners. In doing so, it should avoid erring on the side of imposing too much bureaucracy or excluding associated countries from too many competitiveness- and security-oriented parts of the future Horizon Europe. Once again, just like competitiveness is best interpreted as having an external dimension, security too is best seen as a 'club good', which becomes stronger if Europe manages to establish a set of trusted collaborations, extending the remit of its R&I policy beyond its borders.

3.1.4. Agility and periodic reprioritisation should involve associated countries

Another feature of the upcoming Horizon Europe that, while potentially welcome may become problematic from the specific standpoint of associated countries, is the enhanced flexibility and agility of the decision-making process. Although the current Horizon Europe (FP9) already incorporates some adaptability through instruments such as missions and partnerships, it remains structured around relatively stable thematic clusters and multiannual work programmes.

By contrast, the proposed successor programme is embedded within a general redesign of the EU budget, notably through its integration with the ECF, which aims to streamline funding, accelerate delivery, and enable more dynamic prioritisation over time (European Commission, 2025b). A central feature of the proposed FP10 is the shift from rigid thematic clusters to broader 'policy windows' aligned with strategic priorities such as digital technologies, clean transition, and industrial competitiveness. This allows for greater reallocation of resources over the programme cycle, enabling the EU to respond more rapidly to new developments and emerging needs. At the same time, the proposal reflects an overarching move towards a more strategic and policy-driven approach to R&I. Funding priorities are more closely connected to the EU's competitiveness, industrial, and security objectives, and there is greater scope for political steering of resources in response to changing circumstances (European Parliament, 2025).

This combination of increased flexibility and stronger strategic direction introduces a new balance in EU R&I policy. As the programme becomes more intricately linked to instruments like the ECF, participation is likely to depend not only on scientific excellence but also on the extent to which associated countries align with EU policy priorities. This may require closer coordination of national R&I strategies with EU agendas, as well as stronger engagement in priority sectors such as digital technologies, clean energy, and critical raw materials. For associated countries with advanced research systems, this alignment offers opportunities to integrate more deeply into European industrial ecosystems and value chains.

The increased flexibility in priority-setting also introduces a degree of uncertainty for associated countries. While the ability to reallocate funding across policy windows enhances the EU's responsiveness, it may reduce the predictability of funding opportunities over time. Associated countries, which do not participate directly in EU budgetary decision-making to the same extent as Member States, may find it more difficult to anticipate future priorities and to shape them. This raises questions about governance and representation, particularly as strategic steering becomes more central to the programme's operation.

The evolving governance model of FP10 may have implications for the overall attractiveness and balance of association. While the new framework offers enhanced opportunities for integration and impact, it also introduces a more conditional and potentially more complex participation environment. Associated countries will need to navigate a system that is simultaneously more flexible and more strategically steered, balancing the benefits of access with the obligations of alignment. In this context, the value of association may increasingly depend on the ability of countries to position themselves within the EU's strategic priorities and to contribute to its broader policy objectives.

3.1.5. The risks of overly dispersed Pillar II funding

While expanding its reach beyond the EU27, Horizon Europe should avoid distributing funds without fully considering the present capabilities in different regions of Europe and in partner countries. A growing body of evidence suggests that the effectiveness of R&I investment depends not only on its scale, but also on its concentration in areas where strong scientific and technological capabilities are already present. This point is well captured in the relevant sections of the Draghi report (Draghi, 2024a), which emphasises that as technologies become more complex and capital-intensive, economies of agglomeration and density tend to intensify, leading to a concentration of excellence in a relatively small number of hubs. These dynamics are particularly pronounced in foundational technologies such as AI, biotechnology, and quantum computing, where

progress depends on access to highly specialised talent, advanced infrastructure, and dense networks of collaboration.

The economic literature provides strong support for this interpretation. Agglomeration effects (whereby the productivity of firms and researchers increases with proximity to other actors) have long been recognised as a key driver of innovation performance (Audretsch & Feldman, 2004; Moretti, 2012). In the context of frontier technologies, these effects are amplified by interdisciplinary collaboration, tacit knowledge exchange, and access to scarce resources such as compute capacity or specialised laboratories. As a result, innovation tends to cluster geographically, creating 'superstar regions' that account for a disproportionate share of scientific output and technological development (Balland et al., 2020). This pattern has been observed globally, with leading hubs such as Silicon Valley or Shenzhen dominating their respective ecosystems, and it is increasingly visible within Europe.

In the field of AI, empirical research confirms a high degree of spatial concentration. Studies by Balland and Renda (2023) and Renda et al. (2024) show that a large share of AI research and innovation activities in Europe is concentrated in a limited number of metropolitan areas, notably London, Paris, Munich, and Eindhoven, with secondary roles played by cities such as Frankfurt, Stockholm, and Kyiv. These hubs combine leading universities, research institutes, and industrial actors, as well as access to venture capital and digital infrastructure. Similar patterns can be observed in quantum technologies, where excellence is concentrated in clusters such as Oxford–Cambridge–London, Copenhagen, Zurich, Delft, and Paris–Saclay. In biotechnology, a small number of regions dominate research output and commercialisation activities.

These findings have important implications for the design of Horizon Europe and its successor programmes. While geographical inclusiveness and cohesion remain important objectives, an overly dispersed allocation of funds risks diluting impact and undermining Europe's ability to compete globally in strategic technologies. Concentrating resources in existing hubs of excellence can generate higher returns in terms of scientific breakthroughs, innovation outputs, and industrial competitiveness. This does not preclude broader participation; rather, it suggests the need for a differentiated approach, in which leading hubs are supported to achieve global leadership while complementary instruments are used to build capacity and foster integration in less-developed regions.

Empirical studies have shown that international collaboration with high-performing partners enhances citation impact, innovation outcomes, and knowledge diffusion – underscoring the importance of integrating such countries into EU research frameworks (OECD, 2023; UNESCO, 2021). Within this context, association to Horizon Europe plays a critical role in shaping the overall level of excellence of the system. Countries already

associated, such as the UK and Switzerland, are not peripheral participants but central pillars of European scientific capacity.

The association of additional advanced economies (including Japan, South Korea, Australia, Canada, India, and Singapore) could further transform the scale and structure of European excellence in AI and quantum technologies. Japan brings world-leading capabilities in robotics, semiconductor technologies, and emerging quantum hardware, alongside substantial industrial R&D investment. South Korea combines strong industrial ecosystems in electronics and AI applications with growing investments in quantum technologies. Canada is a recognised leader in machine learning research, with globally influential institutes in Toronto, Montreal, and Edmonton, as well as early-stage strengths in quantum computing. Australia contributes high-quality research in quantum sensing and photonics, while Singapore offers a highly concentrated and well-funded innovation system with strong performance in AI, data science, and applied research. India, although more heterogeneous, provides a large and rapidly expanding pool of AI talent and increasing investment in digital technologies, with emerging capabilities in quantum research. The integration of these countries into the Horizon Europe framework would not simply increase the volume of research activity but would qualitatively enhance the system through complementarities.

Finally, it bears recalling that other countries might consider association to Horizon Europe if the related conditions and opportunities were made clearer. One good example is Brazil, especially after the acceleration of negotiations on the EU–Mercosur agreement, which appears to be very close to finalisation. This and other additions may further consolidate the global network of like-minded countries that the EU may end up orchestrating, leveraging the catalytic potential of Horizon Europe.

3.2. HORIZON EUROPE AND LMICS

Besides associated countries, Horizon Europe could also involve LMICs more effectively. The rationale behind this proposition has been explored in a recent CEPS report (Yeung et al., 2025). It finds that while participation by LMICs has increased in nominal terms, their involvement remains limited in scope, unevenly distributed, and often insufficiently impactful in terms of long-term development outcomes. LMIC actors are typically relegated to secondary roles within research consortia, with leadership positions, intellectual ownership, and publication outputs largely dominated by European institutions. Case studies across sectors such as health, energy, and digital transformation reveal that LMIC participation rarely translates into consequential technology transfer, capacity building, or local innovation ecosystems.

Importantly, the authors also point to a lack of coordination between EU research policy (managed by DG RTD) and international partnership policy (managed by DG INTPA), which creates gaps between research, policy, and implementation. This disconnect limits the ability of R&I projects to scale up or translate into tangible development benefits.

The authors propose a series of recommendations aimed at strengthening the role of LMICs in future Framework Programmes. These include moving towards more inclusive and mutually beneficial partnerships, in which LMIC actors play a meaningful role in shaping research agendas and leading projects. They call for creating dedicated funding streams or governance structures focused on 'research for development' and for improving incentives for balanced participation through evaluation criteria that reward LMIC leadership, capacity building, and knowledge transfer.

3.2.1. LMIC involvement in Pillar II projects on global challenges

The strongest case for involving LMICs more deeply is in the global challenges parts of Horizon Europe, in Pillar II. That is because many of the problems Pillar II is meant to address are inherently transboundary, context-specific, and impossible to solve well from Europe alone. A more meaningful LMIC involvement would make EU research more relevant, improve science diplomacy, and increase the chances that projects deliver durable real-world impact rather than short-lived research outputs.

Some of the most obvious benefits would arise in global health. Research on infectious disease, antimicrobial resistance, outbreak preparedness, maternal and child health, or the growing burden of non-communicable disease often requires access to epidemiological settings, patient populations, health systems, and implementation environments that do not exist in Europe. Literature on global health partnerships consistently shows that equitable collaboration with LMIC institutions improves the relevance, legitimacy, and uptake of research findings, while also strengthening local capacity and long-term preparedness (Berner-Rodoreda et al., 2019; Ingenhoff et al., 2025; Sumathipala et al., 2025). This creates benefits for the EU as well, since diseases do not respect borders and early detection, local trial capacity, and context-sensitive implementation can directly strengthen European health security.

There are similarly strong reasons to involve LMICs more in climate, food, water, and biodiversity research. In LMIC contexts, climate adaptation, food security, land degradation, and water stress are often more acute, which makes these countries essential sites for testing solutions, generating data, and understanding systemic risks. In practical terms, Pillar II projects dealing with these topics along with health and inclusive societies would likely benefit most from greater LMIC participation because these are

precisely the domains where local knowledge, implementation conditions, and co-creation matter most.

Reviews of equitable global health and research partnerships show that when LMIC institutions are significantly involved, research collaboration can strengthen local systems, develop human capital, and build durable innovation ecosystems rather than just extract data or provide field access for Northern partners (Monette et al., 2021; NIHR, 2024). For the EU, this can support a broader form of competitiveness: access to talent, local testbeds, trusted partnerships, scientific visibility, and stronger international networks. It also supports science diplomacy by building trust and shared standards over time.

The literature also makes clear, however, that these benefits do not arise automatically. The main risks are tokenistic participation, Northern dominance of authorship and governance, weak technology transfer, and limited follow-up after projects end. Yeung et al. (2025) find that LMIC institutions often have lesser roles, with too little leadership, too little visibility in outputs, and too little sustained impact after project closure. More broadly, scholarship on equitable partnerships argues that benefits are much greater when LMIC partners help set the agenda, lead work packages, receive material shares of funding, and are assessed not only through academic outputs but also through capacity, uptake, and development outcomes (Faure et al., 2021; Ingenhoff et al., 2025).

As explained below, one of the ways to address the challenges encountered so far in involving LMICs in Horizon Europe would be to involve representatives of LMICs in a future Council on Global Challenges, as advocated by the Heitor Group report, by CEPS and by the Ehler report on FP10 (European Parliament, 2026).

3.2.2. Would associating more LMICs bring benefits?

Whether becoming an associated country is useful from an LMIC perspective varies across contexts. While association can deepen networks and partnerships, it offers limited added value for addressing foundational capacity gaps in LMICs. By contrast, instruments such as the Global Gateway are more directly oriented towards strengthening enabling conditions, infrastructure, and institutional capacity, suggesting that approaches focused on international cooperation and investment may be better suited to supporting LMIC innovation systems (see Rowlands et al., 2025).

At present, only two LMICs are associated to Horizon Europe: Egypt and Tunisia. The EU and Tunisia have long-standing cooperation on R&I topics going back three decades. Tunisia joined Horizon 2020 (from 2016) as the EU's first associated African and Arab country and has continued to be associated in Horizon Europe. Under Horizon 2020, Tunisia obtained specific assistance from the Policy Support Facility for reforms that

enhance the country's R&I ecosystem. Despite its association, it has not seen significant results in terms of academic participation due to a lack of infrastructure and institutional knowledge. Meanwhile, non-associated countries like South Africa and Kenya have been quite active in Horizon Europe, with South Africa being more so than Tunisia. Under Horizon Europe, Tunisia has been involved in 89 projects, which is limited compared with South Africa (255) and Kenya (164). Egypt has engaged in 49 projects.

Even with association, LMICs may still face certain barriers to participation. In its position paper on FP10, Tunisia points to some hindering factors. These include visa delays and mobility opportunities for countries outside the Schengen area and lack of integration for 'widening' countries in various places.

For some LMICs, association to Horizon Europe can be a complex and politically loaded question. As eligible third countries, LMICs can access Horizon funding without making a financial contribution, reducing the immediate incentive to assume the costs and obligations of association. In South Africa, for instance, it is likely that the association would chiefly benefit universities that are already strong in their research capacity. In a context of high levels of unemployment and inequality, the additional financial cost of becoming an associated country would not be politically acceptable in some LMICs.

It is also possible that association to Horizon Europe and R&I cooperation at large may in some instances become part of larger political deal-making, for instance on migration management. For Tunisia, for example, the Memorandum of Understanding (MOU) it signed with the EU in 2023 highlighted several areas for further investment, such as increasing cooperation on education, research and innovation (including under Horizon Europe). It also makes clear that one of the core objectives of the MOU is addressing migration-related concerns.

4. RECOMMENDATIONS FOR FP10

The analysis in this report points to a clear conclusion: FP10 should not treat international participation as a residual feature of the programme, but as a strategic asset. The growing network of associated countries already gives the EU access to a research and innovation ecosystem whose combined economic and scientific weight rivals that of the EU itself. At the same time, the current approach to LMICs remains too limited, too fragmented, and too weakly connected to long-term impact. FP10 should therefore adopt a differentiated but ambitious model of international cooperation, in which associated countries play a stronger role in promoting excellent research, co-designing instruments and engaging in mission-oriented innovation. LMICs would become partners in the pursuit of global public goods. Below, we offer ten recommendations that aim at realising this vision.

Recommendation 1. Establish a stable and predictable association model from the outset.

The experience of delayed association for the UK and Switzerland shows that uncertainty damages research networks, weakens confidence, and reduces participation, even when final association is eventually restored. FP10 should ensure continuity between programme cycles, early political clarity on scope and conditions, and transition arrangements that prevent gaps in participation. This is particularly important as the number and diversity of associated countries expand.

Recommendation 2. Involve associated countries in the governance of FP10 in a structured yet differentiated manner.

The future governance of Pillar II should include associated countries directly in the two proposed councils: the Council on Competitiveness and the Council on Global Challenges. In the former, associated countries with high technological capabilities and trusted security relations with the EU should participate in agenda-setting, foresight, and mission selection in strategic fields. In the latter, associated countries should contribute to shaping priorities in areas such as health, biodiversity, climate adaptation, and digital public goods. This would reflect their growing weight in the European research ecosystem and respond to repeated concerns that associated countries have too little influence over programme priorities despite being major scientific partners.

Recommendation 3. Adopt a shared and outward-looking definition of competitiveness and security.

A narrow interpretation centred on ‘made in the EU’ would undermine the EU’s own objective of building the world’s largest network for high-quality R&I collaboration.

Competitiveness in frontier technologies increasingly depends on network effects, access to talent, complementary capabilities, and participation in large transnational ecosystems. FP10 should therefore recognise that cooperation with associated countries is not a concession to outsiders, but a way of strengthening Europe's own scientific excellence, industrial depth, and resilience. This applies to many areas, ranging from AI, semiconductors, quantum and clean technologies to health innovation.

Recommendation 4. Enable the participation of associated countries in mission-oriented and portfolio-based projects under Pillar II, subject to proportionate rules on research security.

The future programme is likely to become more directional, more agile, and more closely linked to the 'investment journey' from research to deployment. If associated countries are excluded from that dynamic, their participation risks becoming symbolic and less attractive. FP10 should allow associated countries to join strategic, mission-oriented projects in areas where capabilities are complementary and where joint gains are clear. At the same time, access to particularly sensitive domains should be governed by transparent and risk-based criteria, not by ad hoc political discretion. This would make the system both more secure and more credible.

Recommendation 5. Create dedicated flagship initiatives in foundational technologies, in close cooperation with associated countries.

Large-scale initiatives in AI and quantum would be obvious candidates. Europe's strongest hubs in these technologies are distributed across the EU and associated countries, notably the UK and Switzerland, but also Norway, Japan, and South Korea. They further extend to prospective associated countries like Canada, Australia, Singapore, and India. Excluding such partners from future large-scale initiatives would weaken the scientific base, diminish complementarities, and reduce impact. The EU should instead design these initiatives as trusted capability coalitions, combining excellence, infrastructure, talent, and deployment pathways across the wider associated network.

Recommendation 6. Earmark significant resources for R&I to tackle global challenges, and place them under the governance of a multistakeholder council, with direct LMIC participation.

The current proposal for FP10 risks underplaying the global dimension of Horizon Europe by subordinating societal challenges to a narrower competitiveness narrative. Yet the evidence on LMIC participation shows that meaningful engagement requires dedicated governance, clear priorities, and a stronger link between research and development

outcomes. LMIC representatives should thus be involved in the Council on Global Challenges, not as symbolic consultees but as active participants in agenda-setting and evaluation for relevant calls. This would improve the relevance, legitimacy, and uptake of research results in domains where local context is essential.

Recommendation 7. 'Team world': leverage the Council on Global Challenges to develop co-funded global missions with associated countries, LMICs, and international partners.

In areas such as global health, biodiversity, climate resilience, food systems, and water, the EU should not rely solely on standard collaborative calls. It should instead launch mission-oriented platforms that combine EU funding with contributions from associated countries, partner governments, and multilateral organisations. This would create critical mass, improve continuity, and allow research to be connected to implementation on the ground.

In some domains, the EU should lead; in others, it should join or co-shape broader initiatives like those of the Grand Challenges family, platforms under the Coalition for Epidemic Preparedness Innovations, or foundation-led efforts. Renda (2025) notes that the Council on Global Challenges would be the natural forum for deciding whether Europe should create, scale, or join such initiatives. This is especially relevant where philanthropies bring agility, risk-tolerant funding, and global operational networks that the EU currently lacks.

For tangible impact globally and in LMICs, and to stimulate political drive for further R&I cooperation, specific attention should be paid to scaling up innovations and using the research results from Horizon Europe projects to benefit LMICs. To increase the lab-to-market flow, one interviewee suggested that a specific pipeline could be set up, where the EU supports the scale-up of new innovations in LMICs under the Global Gateway or earmarked 'scale-up' funding under the Global Europe budget. Establishing a dedicated governance structure, such as a Council on Global Challenges, could further ensure that the DG RTD and DG INTPA coordinate throughout the whole investment journey, so that innovations in areas like green technology or public health reach the communities most in need. Ensuring continuity after the Horizon Europe projects could also help create the necessary predictability for LMIC-based experts and foster investment in training staff.

Recommendation 8. Leverage foresight and economic complexity for priority-setting and partner selection.

Not all partners should be involved in the same way or in the same fields. The EU should identify where associated countries and LMICs bring distinctive capabilities and where

cooperation leads to the highest joint return. This would allow for differentiated configurations, for example, Japan and South Korea on semiconductors; Canada and the UK on advanced AI; Switzerland on quantum hardware; Australia on photonics and sensing; India on software, cloud and applied innovation; and selected LMIC partners on context-rich challenges in health, biodiversity, food systems, or adaptation. Such an approach would make participation more strategic, reduce fragmentation, and ensure that openness is matched by directionality.

Recommendation 9. Evaluate international projects not only on scientific excellence, but also on partnership quality, leadership balance, and long-term impact.

The evidence collected by CEPS on LMIC engagement under Horizon 2020 and Horizon Europe shows that LMIC actors often occupy secondary roles, with too little leadership, too little visibility in publications, and too little long-term technology transfer or capacity building. FP10 should reward project designs that include LMIC task leaders, co-authorship, institutional strengthening, and credible post-project sustainability. Similar principles should apply to associated countries where participation in strategic Pillar II actions should be meaningful and not merely formal. This would improve both fairness and effectiveness.

Recommendation 10. Appoint competent, independent programme managers to select and run complex projects, signalling quality and independence to international partners.

The complexity of R&I and the need to secure satisfactory programme management have led scholars (including the Heitor Group) and policymakers such as MEP Christian Ehler to formally propose the appointment of field experts as programme managers of Pillar II projects, particularly when they take the form of Joint Undertakings or EU Missions. The role of programme managers in US agencies like DARPA (for defence) or ARPA-H (for health), the UK's Advanced Research and Invention Agency, and Germany's Sprind, has been described in Renda (2025). For the purposes of this report, it is important to flag that a transparent appointment of competent programme managers would also represent a trust-enhancing 'quality seal', which would trigger more participation and risk-taking by associated countries, the private sector and philanthropies.

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