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Elevating EU innovation through strategic investments and collaboration

Executive summary

Significant investments in research and innovation (R&I) are essential to improving European competitiveness and leadership, boosting strategic autonomy, developing technological scalability in strategic areas, and advancing the green and digital transformation.¹ Innovation is also a crucial part of building resilience in the face of crises as witnessed during the Covid-19 pandemic, when digital technologies proved to be essential to our society's continued productivity.²

DIGITALEUROPE has been actively advocating the integration of digital technologies and skills into Europe's Framework Programmes for Research and Innovation (currently FP9).³ Digital technologies can act as a catalyst, supporting critical EU policy objectives, including bolstering resilience, boosting industrial competitiveness, facilitating the green transition, and developing digital skills.

The EU's innovation performance has improved by 8.5 percentage points in the past seven years.⁴ Horizon Europe has played a key role in advancing Europe's global industrial competitiveness through its Pillar II. It has also enabled industry to team up with other stakeholders in the R&I ecosystem to deliver innovative results, for instance through public-private partnerships (PPPs).

¹ See *Horizon Europe strategic plan 2025-2027 analysis*, available at https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/horizon-europe-strategic-plan-2025-2027-analysis-now-public-2023-05-25_en.

² See 'How DIGITALEUROPE members are supporting efforts to tackle COVID-19,' available at <https://www.digitaleurope.org/resources/how-digitaleurope-members-are-supporting-efforts-to-tackle-covid-19/>.

³ See *Towards the Ninth Framework Programme (FP9): DIGITALEUROPE'S Contribution to the Public Consultation on EU funds in the area of investment, research & innovation, SMEs and single market*, available at <https://cdn.digitaleurope.org/uploads/2018/03/DIGITALEUROPE-Position-paper-FP9-Contribution-to-the-Public-consultation-on-EU-funds-in-RI.pdf>.

⁴ European Innovation Scoreboard 2023, available at https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en.

However, when seen from a global standpoint, the EU still lags behind its global counterparts. Only 2.23% of the EU's GDP is invested in R&I, falling behind the US, China and Japan.⁵ For a stronger and more competitive Europe, it is crucial to ramp up investment in innovative solutions, and to enable their deployment on a large scale in key sectors.

In line with DIGITALEUROPE's proposed targets to be reached by 2030,⁶ we call for an ambitious FP10 – with an increased budget and more attractive conditions for industry participation. Active involvement of the digital and technology industry in the programme, both as a co-design actor and as future contributor, is essential:

- ▶ Investment in green digital technologies should be boosted through an **increased Horizon Europe budget of €200 billion**, aiming at a 25% digital target across all EU funding programmes and moving closer to the 85% goal of EU companies utilising information and communications technologies (ICT) to mitigate their environmental impact. The proposed budget will also contribute to closing the skills shortages gap by 2030.
- ▶ Industry's expertise, talent pool and ability to bring advanced innovations to the market make it an essential stakeholder in R&I programmes. FP10 should seek to **incentivise industry participation**, including through technology-readiness-level (TRL) balance and **more attractive legal and contractual conditions**.
- ▶ All relevant stakeholders must be included by incentivising successful cooperation initiatives, streamlining application procedures that open up to smaller actors, and ensuring better coordination with other funding programmes.

⁵ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=R%26D_expenditure&oldid=627002#Gross_domestic_expenditure_on_R.26D.

⁶ See DIGITALEUROPE, *Europe 2030: A Digital Powerhouse*, available at <https://cdn.digitaleurope.org/uploads/2023/11/DIGITAL-EUROPE-MANIFESTO-2024-FULL.pdf>.



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An increased budget for an ambitious programme

Horizon Europe plays a central role in stimulating economic growth and innovation. This is underscored by a notable statistic: each euro invested by Horizon Europe generates a return of up to €11 in GDP over 25 years.⁷

This success story should encourage the EU to strive for an FP10 that not only follows the steps of its predecessors, but also considerably raises its ambition. Member States should devote 3% of their GDP to R&I by 2030, whilst EU public efforts to support R&D should reach 1.25% of EU GDP. This is why DIGITALEUROPE calls for a robust FP10 budget of €200 billion. This figure would provide the EU with concrete tools to achieve its ambitions and would give a decisive boost to investment into innovations.

Endowed with such a budget, the Programme should dedicate 25% of funding to digital targets and initiatives. The budget should focus on future-proof technologies and their application for a green and digital transition: artificial intelligence, microelectronics, optics and photonics, advanced materials, the internet of things (IoT), data spaces, cloud/edge, virtual worlds and digital twins, 6G and beyond, digital infrastructures and networks, and cybersecurity. This will also contribute to the 85% target of EU companies using ICT to reduce their environmental footprint by 2030.⁸

Amongst the most critical technologies, semiconductors and microelectronics are the building blocks for almost every modern technology. Growing demand for components with specific performance characteristics and product-specific power efficiency properties requires support for key enabling technologies, such as innovative materials, chip design, wafer fabrication, photolithography and chip packaging techniques.

Additionally, we believe that the upcoming framework programme should further address the increasing shortage of digital skills and achieve the 50% target of citizens above basic-level digital skills and 100% for under 30 year olds. These skills are needed at all levels, including technical ICT (including operational technology) specialist skills, user skills necessary for work and employability, and the skills required by citizens to fully participate in a digital economy and society.

⁷ *Horizon Europe strategic plan 2025-2027 analysis*, p.9. The Recovery and Resilience Facility (RRF) plans €47.4 billion in R&I. At this stage, out of the 608 R&I-related targets set, 98 have been completed and 36 have already been assessed as met. See COM/2023/277 final.

⁸ COM/2020/628 final.

Unfortunately, skills supply is unable to keep up with increasing demand, and digital skills gaps are emerging.⁹ To better address the need for digital skills, increased synergies with the Digital Europe Programme and Erasmus+ should be implemented.



Spurring industry participation

The business enterprise sector is the leader in R&I investment. In 2022, companies were responsible for 59% of R&I investments in the EU, a figure which has progressively increased in recent years¹⁰. This notwithstanding, the share of R&I investment from businesses in the EU is still considerably lower than in the US (63%), South Korea (77%) and Japan (79%). Industry leadership in the R&I investment environment is therefore a key element characterising all highly performing innovation ecosystems. These figures suggest that the EU should not only recognise businesses' crucial role in R&I, but also increase its efforts to engage them, boost their investments and promote their innovations.

Industrial involvement is key to generating innovation and boost EU economic growth and competitiveness in the global arena. Businesses leading R&I efforts are well positioned to attract talents and develop expertise crucial to successful research projects. In close cooperation with universities and research organisations, companies represent very valuable pools of skills and competencies, and are therefore key actors and partners in research efforts.

Businesses, and specifically large enterprises, play a key role in bringing advanced innovations to market and creating positive societal and economic spillovers. To ensure maximum impact of R&I demonstrators and successful market penetration, project consortia must be equipped to sustain their innovation journey beyond the R&I phase. It is crucial for them to progress seamlessly from the pre-competitive research phase to a pilot phase, ultimately leading to commercialisation and widespread adoption. This journey enables key innovation and technologies to reach both society and market, and have a lasting impact on them.

To ensure industry participation, attractive conditions should permeate the regulatory framework, affecting all stages of the technological development lifecycle from research to deployment. FP10 should be built around a dynamic, problem-solving, pre-competitive collaboration structure, laying the ground for innovations at later stages.

⁹ The Digital Decade policy programme 2030 sets the target of 80% of adults with basic digital skills from the current 54%, <https://digital-strategy.ec.europa.eu/en/library/policy-programme-path-digital-decade-factsheet>.

¹⁰ For further information see the Horizon Dashboard for granted R&I projects to Private for-profit entities (PRC) (<https://dashboard.tech.ec.europa.eu>) which shows that in the first 2 years of the Horizon Europe program the industry share in EC funding was 28%. The data does no justice to 59% of R&I investments by companies.

DIGITALEUROPE recommends ensuring continuity of opportunities for maturing breakthrough technologies, to allow proper portfolio management and better use of TRLs as a programming tool. A dynamic transition from low to high TRLs would both foster cooperation between industry and researchers and provide incentives for private sector investment and participation. Increasing the relative weight of what is now Pillar II, as well as the number of calls for ICT and digital transformation in various areas under it, can support these objectives.

Successful exploitation also requires sufficient flexibility around the conditions of collaboration between the different actors at project level, particularly regarding IP and confidential data. Unnecessary transfer restrictions regarding IP and confidential data (for example, on the use of jointly created results and the transfer to affiliates, where such restrictions are clearly deemed unnecessary) would unjustifiably discourage industry to engage in EU-funded R&D initiatives.

FP10 should also aim to harmonise the rules of participation across connected programmes, particularly Digital Europe, and to minimise administrative burden for beneficiaries. Europe's complex and fragmented public funding landscape for digital has produced inefficiency and duplication of efforts, including at Member State level. More favourable conditions, less red tape and 100% funded grants would solidify the funds' impact as well as help SMEs overcome ongoing participation challenges.

Industry plays a central role in building networks and connecting relevant stakeholders in the ecosystems to deliver high-level R&I innovation. The Research and Innovation Actions (RIA) and Innovation Actions (IA) in Pillar II are very good tools to achieve those innovations and complement the bottom-up Pillar 1, enabling a wide variety of actors to participate. This is made possible and fostered by cooperative funding frameworks such as the Marie Skłodowska-Curie Actions (MSCAs) and Horizon Europe's PPPs.

MSCAs are a good example of instruments triggering industry participation on upstream, academic and exploratory topics of interest, which reduce possible product-IP interference and smoothens the collaboration opportunities in a pre-competitive environment. In mixed academic-industrial consortia, MSCAs enable industrial PhDs, e.g. based at the industrial partner with industrial as well as academic supervision. The interest in such industry-hosted PhDs is large, since it bridges the gap between the scientific state-of-the-art and industrial needs and adoption.

PPPs are a key tool to promote strong innovation ecosystems, and should be further leveraged in the future FP10. They have offered industry partners a well-established structure for peer-to-peer cooperation between skilled researchers from all over Europe, allowing them to exchange new ideas for state-of-the-art research, apply them in addressing societal and industrial challenges, establish networks of talented people, and deliver breakthrough demonstrators. PPPs were provided with an estimated commitment of €23.8 billion, 37.7% of Horizon

Europe Pillar II budget.¹¹ They attracted €22.4 billion of industry commitment, exceeding the EU's contribution required.¹² The new framework programme should strive to set up structural initiatives covering the whole portfolio of digital technologies and ensure that partnerships receive enough budget and prioritise digital topics.

With this aim, the next Multiannual Financial Framework (MFF) should enhance parallel research and deployment programmes such as Horizon Europe and Digital Europe. With such a logical continuation of the tools developed under Horizon Europe, the whole innovation chain will be taken into account and supported. In this context, DIGITALEUROPE stands ready to contribute to the work of the newly created Commission Expert Group on the Interim Evaluation of Horizon Europe, and to ensure that industry's voice can actively shape FP10.



Upgrading programme definition and implementation

Digitalisation is the cornerstones of European economic growth, and digital must be given more prioritisation across emerging initiatives. For instance, instruments like the Net-Zero Industry Act (NZIA) should include digital technologies.¹³ Initiatives like the newly proposed Strategic Technologies for Europe Platform (STEP) are welcome, but should not lead to a reduction of support for digital initiatives driven by industry.

Flexibility and agility are necessary to allow for prompt response to global crises through new instruments. However, budget re-allocation across initiatives and programmes risks leading to uncertainty and low uptake.

The rising number of funding initiatives, combined with the lack of a centralised information system, prevents stakeholders from fully benefiting from FP9 and other supporting schemes. Although the Digital Europe Programme was introduced with the ambition to become the logical continuation of the tools developed under Horizon Europe, low figures on industry participation show a drop in the programme's attractiveness.

To remedy this, industry must be closely involved in the future high-level groups to be established for the design and definition of other funding programmes connected to FP10. FP10 should be informed by a clear landscape of available funds and timely feedback on project results. Special attention should be given

¹¹ COM/2023/277 final.

¹² See *Performance of European partnerships: biennial monitoring report (BMR) 2022 on partnerships in Horizon Europe*, available at <https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/a6cbe152-d19e-11ec-a95f-01aa75ed71a1>.

¹³ COM(2023) 161. See *DIGITALEUROPE's roadmap for Europe's energy ecosystem digital transformation: the time to transform is now*, available at <https://cdn.digitaleurope.org/uploads/2023/06/DIGITALEUROPEs-roadmap-for-Europes-energy-ecosystem-digital-transformation.pdf>.

to coordination with the Digital Europe Programme's successor, streamlining processes and participation rules based on best practices and success stories.

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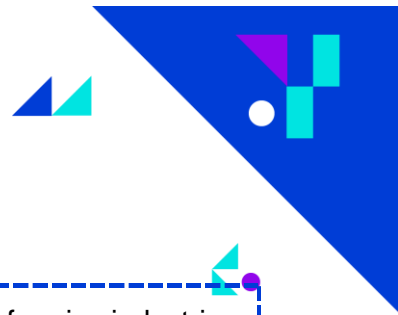
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About DIGITALEUROPE

DIGITALEUROPE is the leading trade association representing digitally transforming industries in Europe. We stand for a regulatory environment that enables European businesses and citizens to prosper from digital technologies. We wish Europe to grow, attract, and sustain the world's best digital talents and technology companies. Together with our members, we shape the industry policy positions on all relevant legislative matters and contribute to the development and implementation of relevant EU policies. Our membership represents over 45,000 businesses that operate and invest in Europe. It includes 108 corporations that are global leaders in their field of activity, as well as 41 national trade associations from across Europe..