OPEN
_FUTURE

THE DIGITAL INNOVATION WE NEED

Three lessons on EU Research and Innovation funding.

OPEN FUTURE
POLICY BRIEF **#7**

Author: dr Zuzanna Warso

12 NOVEMBER 2024

SHIFTING LANDSCAPE FOR EU TECH POLICY

Across the EU, people and businesses rely on a narrow range of digital services provided by a few global corporations—primarily based in the United States and, increasingly, China—that operate on extractive business models. European consumers and businesses have woven these digital tools deeply into their daily lives. This penetration of European societies and markets by tools and services over which Europeans have little control has been targeted by EU policymakers with several pieces of legislation, most notably the Digital Services Act and the Digital Markets Act. By the end of 2024, however, the EU finds itself in an increasingly polarized international landscape, exacerbating concerns about dependence on foreign technology, and even the best new laws will not be enough to address these issues.

In the EU, industrial policy has historically been primarily the responsibility of national governments and the EU's role focused on completing the single market and promoting research and innovation.[1] But a host of internal and external challenges have prompted a rethink of the place of EU institutions in shaping the market and provided fertile ground for a more ambitious industrial policy.[2]

Against this backdrop, concepts such as digital and technological sovereignty are gaining traction. This comes as a new Commission, including a new Commissioner for Tech Sovereignty, Security, and Democracy, prepares to take office, and negotiations begin on the EU's future multiannual budget, which will cover the period between 2028 and 2034. Four years may seem like a long time, but not when it comes to negotiating a seven-year budget for the entire European Union.

In terms of how the EU budget is structured, recent reports suggest that the Commission is going back to the drawing board and brainstorming various options, including "merging a dozen different pots of money for research, defense, and innovation into a single 'European Competitiveness Fund.'" This would be a significant shift from the current approach. According to the leaked document, which outlines an idea for how the budget could be restructured, the idea behind the Competitiveness Fund is to address the weaknesses of the current set-up, in particular, the lack of "strategic steering" and "complexity of funding for EU industry."

---

[1] Alessio Terzi, Monika Sherwood, and Aneil Singh, "European Industrial Policy for the Green and Digital Revolution," *Science and Public Policy* 50, no. 5 (October 16, 2023): 842–57, https://doi.org/10.1093/scipol/scad018.

[2] https://ainowinstitute.org/publication/to-innovate-or-to-regulate-the-false-dichotomy

EU'S BET ON DIGITAL TECHNOLOGIES

Since its introduction in the European Commission's 2010 industrial policy strategy, the Digital Agenda has steadily gained prominence, becoming a central theme in subsequent strategies.[3] In 2024, the EU is once again betting on digital technologies in the race to regain competitiveness. According to the former European Central Bank President Mario Draghi, Europe must accelerate innovation and identify new "growth engines." Digital technologies are expected to become these drivers of economic growth:

> "With the world now on the cusp of another digital revolution, triggered by the spread of artificial intelligence (AI), a window has opened for Europe to redress its failings in innovation and productivity and to restore its manufacturing potential." – The Future of European Competitiveness ("The Draghi report"), Part A, p. 6.

Putting "research and innovation, science and technology," at the heart of the European economy has been reiterated as a priority by Ekaterina Zaharieva, Commissioner-designate for Start-ups, Research and Innovation.

Government-led initiatives and funding have historically been essential in developing digital infrastructures and foundational technologies, including the Internet. As Mariana Mazzucato observes, everything smart about our smartphones has been government-funded.[4] Despite the neoliberal shift in the late 20th century, which emphasized reducing state intervention in the economy and increasing reliance on market mechanisms for goods and services, governments have continued to play a crucial role in funding research and innovation. The EU has also invested substantial resources into the development and roll-out of digital technologies, a trend expected not only to continue but also to intensify in the coming years. While several large-scale programs, including substantial parts of Horizon Europe (HE), the Digital Europe programme, and the Connecting Europe Facility – Digital are leading this effort, questions remain about their effectiveness in addressing Europe's digital lag. The Draghi report has been a prominent source of criticism, but a number of other reports have raised similar concerns, including a recent report from an independent group of experts tasked by the Commission with assessing the "effectiveness, efficiency, relevance, coherence and European added value" of European funding for research.

Inefficiencies in research and innovation programs are said to pose a barrier to advancing innovation across Europe. Critics argue that misalignment between R&I and industrial policies weakens the effectiveness of public investments and hampers the EU's ability to translate research breakthroughs into industrial competitiveness. According to Draghi, tackling these inefficiencies is critical for the EU to build a "competitive edge" and support its economic

---

[3] Michael A. Landesmann and Roman Stöllinger, "The European Union's Industrial Policy," in *The Oxford Handbook of Industrial Policy*, by Michael A. Landesmann and Roman Stöllinger, ed. Arkebe Oqubay et al. (Oxford University Press, 2020), 620–60, https://doi.org/10.1093/oxfordhb/9780198862420.013.23.

[4] Mariana Mazzucato, *The Entrepreneurial State: Debunking Public vs. Private Sector Myths*, Anthem Frontiers of Global Political Economy (London: Anthem Press, 2013).

ambitions. As the negotiations of the new EU budget are underway, the Commission is expected to take action and address these concerns.

In Europe, several programs fund digital technologies. The main ones in terms of scope and size include:

1. **Horizon Europe:** This is the EU's key programme for research and innovation. Horizon Europe includes a dedicated budget for '**Digital, industry, and space.**' This budget develops research and high-end innovation in technologies, such as "AI, robotics, next-generation Internet, high-performance computing, big data, and key digital technologies." Horizon Europe's budget amounts to €95.5 billion**.** The dedicated budget for the "Digital Industry and Space" cluster (Cluster 4) is worth **€15.349 billion.** Cluster 4 is located in Pillar II of HE dedicated to "global challenges & European Industrial Competitiveness".

2. **Digital Europe Programme**: This is the central programme that aims to accelerate economic recovery and drive the digital transformation of Europe. The Digital Europe Programme aims to strengthen investments in areas such as "supercomputing, data processing capacities, artificial intelligence (AI), cybersecurity, digital skills, and the digitalization of businesses and public administrations." The budget for this programme is worth **€7.6 billion.**

3. **Connecting Europe Facility – Digital:** This facility supports trans-European networks and infrastructures in the telecommunications sectors. It is investing in broadband networks as part of the EU's wider efforts to build infrastructure that can handle emerging and future processes and applications. The budget for this facility is worth **€2.07 billion.**

For more information on the policy and support landscape for digital infrastructure and the digital commons in the EU in the second half of 2024, please see the [landscape mapping](#) attached to this brief. This mapping looks at (1) existing instruments, (2) proposals for new instruments and (3) other relevant concepts. It was created as part of the NGI Commons project.

In the coming months, we can expect various proposals to be put on the table and whether the idea of a single large "Competitiveness Fund" will be taken up is yet to be seen. Regardless of how the next MFF is structured, before committing financial resources to newly designed funds for R&I and digital transformation, it is essential to continue the critical assessment of the current structures. Below are three lessons from our analysis of the current framework for financing digital transformation from public EU funds. These findings challenge the prevailing narrative that Europe must "catch up" by investing heavily in the next big innovation to overcome past shortcomings. Instead, they point to the importance of prioritizing strategic investments that address current problems to reduce digital dependencies.

THREE LESSONS ON THE EU'S FUNDING FOR THE DIGITAL R&I

Lesson one: There is a fixation on the promise of "disruptive technologies"

Draghi's report makes the point that in Europe, support for breakthrough disruptive innovation remains limited and that Europe lags in digital areas such as "artificial intelligence (AI), cybersecurity, the Internet of Things (IoT), blockchain, and quantum computing." The report suggests a fundamental reassessment of budget allocations, recommending that the percent of funding for disruptive innovation should be increased to address the shortcomings of the existing funding allocation, which currently targets incremental progress and is overly focused on addressing capital market imperfections. Similarly, the independent expert group referred to in the previous section emphasizes the need to stimulate "disruptive research and innovation" in Europe, particularly in light of the rise of technologies like ChatGPT that are reshaping the context of EU research and development policy. They note that other emerging technologies, such as quantum technologies, synthetic biology, and cellular technologies, are reaching a level of maturity where their transformative potential is becoming clearer.

This enthusiasm for disruptive innovation[5] as a solution to the challenge of economic stagnation should be approached with caution and a degree of skepticism. While categories like "artificial intelligence" and "quantum technology" are frequently cited as examples of disruptive innovation, they are so broad that they encompass an array of potential solutions. For example, quantum technology can refer to anything from quantum computing to quantum cryptography, making it difficult to determine which areas should be prioritized for funding and research. As a result, it is difficult to determine what the call to "invest in disruptive technologies" means beyond conveying a sense of urgency and the need for (disruptive) change necessary to "turn things around" for the European market.

Secondly, while disruptive technologies can yield benefits, an overreliance on them risks neglecting the established practices and institutions essential for societal well-being. Relevant in this context are insights by authors such as Lee Vinsel and Andrew L. Russell, who, in "The Innovation Delusion," argued that the obsession with innovation often overshadows the critical work of maintaining and improving existing systems. While disruptive technologies are seen as transformative, they almost always depend on a strong base of existing infrastructure to succeed.

---

5 Clayton Christensen defined "disruptive innovation" as the process by which a smaller company, often with limited resources, successfully competes against a well-established business (referred to as an "incumbent") by starting at the lower end of the market and gradually advancing into higher market segments. Christensen favored the term "disruptive innovation" over "disruptive technology" because he believed that most technologies themselves are not inherently disruptive or sustaining. Instead, he argued that it is the business model that harnesses key ideas to drive significant market success and act as the catalyst for disruption.

Moreover, the focus on tech solutions overshadows the fact that disruption is not necessarily a good thing, and whether its roll-out is considered a beneficial development depends on the context and perspective. On the one hand, disruption introduces new ideas and can improve efficiency and accessibility of some products. On the other, it can lead to job loss and market instability, as we're seeing with generative AI.

Finally, a closer examination of funding allocations under existing work programs reveals that some technologies considered "disruptive" actually receive a substantial share of resources. The issue, therefore, may not be a lack of funding for these technologies but rather the fragmented and uncoordinated nature of the funding itself.

> We carried out an analysis of projects in the Horizon Europe programme by looking at the EuroSciVoc fields of science and CORDIS keywords that have been assigned to these projects. We found that, according to these classifications, 21.4% of funding (€6.4 billion over 1704 projects and 8281 partners) had been allocated to projects related to *AI*. Other "disruptive" technologies did receive less funding, with 3.2% (€955 million over 226 projects and 1800 partners) of Horizon funds going to projects related to *IoT*, 2.8% (€833 million over 366 projects and 1049 partners) to *quantum* and 0.7% (€197 million over 39 projects and 484 partners) to *blockchain*. From these four "disruptive" technologies, the funding to projects related to quantum technologies is remarkably spread out, with an average of only €2.28 million.
>
> *The note on the methodology can be found [here.](#)*

Lesson two: The approach to innovation is focused on industry demands, with too little direct connection to real, on-the-ground needs and everyday experiences.

A second takeaway from analyzing current work programs and funding allocations for digital technologies is that the vision for digital transformation remains predominantly industry-centered and technology-driven.

For example, within Horizon Europe's Cluster 4 funding, which targets the "Digital, Industry and Space" sectors, only one of the 25 most funded projects focuses on developing solutions some of which could directly benefit the public.[6] The remaining 24 projects overwhelmingly support the development of solutions by and mostly for industry, such as new production capabilities or advanced space technologies. And while supporting industry aligns with the cluster's objectives, the imbalance is striking.

---

[6] This is the "Next Generation Internet 0 Commons Fund" which provides small to medium size grants for projects that "deliver, mature and scale internet commons" i.e. open source internet infrastructure: https://ngi.eu/ngi-projects/ngi-zero-commons-fund/

This industry-centric approach to funding highlights a disconnect between research and innovation funding and the everyday needs of people in Europe, making the digital solutions developed less relevant and accessible. As a result, this approach risks creating solutions in search of problems, rather than addressing the current challenges of the digital landscape, which are abundant.

For example, in the Digital Europe program, a call for projects to develop "VR/AR worlds" for local communities explicitly states that the specific use cases for the technology to be developed have yet to be defined. Rather than relying on the assessment of areas where technology would be beneficial, this approach begins with the presumption that VR/AR are inherently valuable and seeks to retrofit these technologies into community contexts. This technology-driven approach to innovation that overemphasizes high-tech solutions at the expense of practical utility and societal relevance makes the program vulnerable to the hype around new technologies and their hypothetical promises, a point we'll come back to. It leads to the development of complex solutions that may be impressive from a technological standpoint but overlook simpler, more immediate needs that could be addressed through less fancy means, such as secure, community-driven online platforms or cloud solutions that empower people and free them from dependence on big tech. Moreover, the idea that citizens will adopt and thrive in these "immersive" digital environments assumes a level of digital literacy that does not exist.

Lesson three: EU funding falls for hype and false narratives around new technologies

The third takeaway from analyzing work programs and current digital funding allocations is that the EU institutions are not immune to the hype surrounding digital technologies. Cluster 4 again offers a good illustration of this fallacy. Within this Cluster, funding opportunities are grouped under several thematic focus areas called Destinations. Each Destination is designed to address a particular challenge, such as the need for "a human-centered and ethical development of digital and industrial technologies."

While this structure aims to align funding with EU's policy priorities, once these broad goals are translated into concrete funding opportunities (known as "topics"), the descriptions frequently overlook critical questions about whether the proposed technologies can realistically fulfill their promises and bring the EU closer to the set objective. Instead, they echo popular, often overly optimistic narratives about technology's transformative potential.

For example, under the topic "AI for Human Empowerment," the expected impact includes fostering "interaction and collaboration between humans and AI systems, working together as partners to achieve common goals, sharing mutual understanding and learning of each other's abilities and respective roles." Even this short excerpt is an illustrates of how deep the phenomenon of AI anthropomorphism[7] is present in these programs. The text refers to humans and AI systems working together as "partners," even though a partner is typically someone who

---

[7] Arleen Salles, Kathinka Evers, and Michele Farisco, "Anthropomorphism in AI," *AJOB Neuroscience* 11, no. 2 (April 2, 2020): 88–95, https://doi.org/10.1080/21507740.2020.1740350.

shares responsibilities, goals, and benefits with another. By using this term, the text suggests that AI systems can take on roles and responsibilities similar to those of a human partner. The phrase "achieve common goals" implies that AI systems have a level of agency or intentionality to work toward goals, a characteristic typically associated with humans (or other animals with higher cognitive functions), while the phrase "share mutual understanding" suggests that AI systems are capable of understanding in the same way that humans are. The real risks of implementing AI solutions, such as taking away people's livelihoods while making work more "efficient,"[8] are lost in this vision. While mentions of trustworthy AI and human autonomy are included in the description, they feel like add-ons that check boxes rather than address real concerns.

By falling for a particular narrative about AI and failing to critically acknowledge the broader societal and economic implications of integrating AI into the workplace, these programs risk catering to a naive techno-solutionist and techno-determinist mindset.

---

[8] Brian Delk, "Nearly Half of US Firms Using AI Say Goal Is to Cut Staffing Costs," The Sydney Morning Herald, June 29, 2024, https://www.smh.com.au/world/north-america/nearly-half-of-us-firms-using-ai-say-goal-is-to-cut-staffing-costs-20240629-p5jpsl.html.

MOVING FORWARD

Based on these lessons, we propose three recommendations to redirect EU digital innovation funding towards more meaningful and publicly beneficial outcomes. Instead of pursuing broad, undefined technology trends that lack clear, evidence-based pathways to meet Europe's digital needs, the EU should prioritize targeted, strategic investments that address its digital dependencies.

Recommendation 1: Prioritize public digital infrastructure

Rather than fixating on "disruptive technologies" as the solution to its ills, the EU should focus on strengthening public digital infrastructure (PDI). Allocating adequate resources to PDI and supporting it throughout its entire lifecycle—from research to deployment, including through adoption and public procurement—will enhance the EU's resilience and reduce dependence on big tech companies and their services. To this end, public funding for digital technologies should incorporate the concept of mission-oriented R&I policy and devote sufficient resources for addressing needs and problems rather than following a purely technological ambition.

Recommendation 2: Balance industry support with public value objectives

Support for industry is an important pillar of European R&I funding programs, but the EU must seek a better balance between industrial and public needs in the allocation of R&I funds. The use of public funds should prioritize those industry players that provide open, public, and interoperable technical solutions. EU funding should ensure adequate support for infrastructure and projects based on clearly defined public needs and functions rather than speculative technology-driven solutions.

Recommendation 3: Adopt a more critical approach to tech in funding

EU support for digital transformation must be rooted in a critical examination of the assumptions and narratives surrounding new technologies, especially in emerging areas such as generative AI. While high-level objectives such as "AI for human empowerment" are compelling in theory, they often obscure the complexities and harms that can result from the actual use of these technologies. A more balanced narrative about technology's potential and limits would help avoid uncritical techno-solutionism and focus on solutions that address the need for a secure, sovereign, and non-extractive digital environment.

ABOUT OPEN FUTURE

Open Future is a European think tank that develops new approaches to an open internet that maximize societal benefits of shared data, knowledge and culture.

dr Zuzanna Warso is the Research Director at Open Future. She has over ten years of experience with human rights research and advocacy. In her work, she focuses on the intersection of science, technology, human rights, and ethics. She holds a Ph.D. in International Law from the University of Warsaw.

Meret Baumgartner contributed to the brief in her capacity as a data analyst, providing insights and data-driven perspectives to support the analysis.

This policy brief includes some of the findings of the work carried out during the Digital Methods Summer School organized by the Digital Media Initiative of the Department of Media Studies at the University of Amsterdam. More information about the project and the list of contributors can be found on this website.